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Intellectual Capital and Public University Libraries: a Knowledge Sharing Perspective.

[A thesis submitted in partial fulfilment of the requirements for the award of the International Master in Digital Library Learning (DILL)].

[ABSTRACT]

Knowledge economy is resulting in competition which increases the demand for innovation. The wave has urged libraries which faced no competition before to think of ways to add and show more value to their users and donors. The coming of digital libraries and other information providers challenges traditional libraries to improve their practices before doomed obsolete. This research focuses on establishing the relationships between intellectual capital and knowledge sharing. Given the binary nature of the relationship between the former and the latter, this research emphasizes how intellectual capital can improve knowledge sharing in a value making process. Through triangulating research methods, the research addresses the issue of intangible assets as unseen value in public university libraries. Believing that a well laid infrastructure for knowledge sharing coupled with motivated staff will eventually enable libraries to know what they knows and gain more competitive advantage. Using an explanatory survey, the research administered a questionnaire to establish how knowledge is shared among staff of Tanzania public university libraries. From a postpositivistic point of view the research found out how knowledge is shared and what kind of incentives are in place and used the findings to suggest better infrastructure and staff motivation schemes. Due to time and distance constraints the research focused only on the aspect of human capital and structural capital to suggest how they can help libraries to uplift knowledge sharing. Other aspects of intellectual capital such as customer capital, renewal capital and process capital are left to be covered by other researchers.

Declaration

I certify that all material in this dissertation which is not my own work has been identified and that no material is included for which a degree has previously been conferred upon me.

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Dedication

To my dear parents who worked hard to see us becoming better citizens, who choose to be poor so that we will be rich. Is because of what you have done that today this is achieved. As you live to see this happening may you find a reason to be proud. Let this work stand firm to assure you that you did not labour in vain.

Acknowledgements.

I am highly indebted to all who helped this research succeed. There is no way I can stand and accept all the credits for the accomplishment of this work all alone. I owe a debt of gratitude to Erasmus Mundus and DILL Consortium for their full support, without them this work was impossible. I thank one million times my supervisor Dr. Gillian Oliver for her tireless support in improving the quality of this thesis. It is because of her I realise how lucky was I to be supervised by her. Without her, I was like a bright star during the day, who would see that. I extend my heartfelt gratitude to all my teachers, the first to the last in my master studies time. On their behalf I will include the name of Sirje Virkus, a wonderful teacher, a friend and a mother. One hundred million words will still be very little to pick right words to thank her enough for her kindness and support. Many thanks to all who spent their time to fill the long questionnaires but special thanks to those who distributed them; Aristarik Maro, Mr. Goodluck Mosha and my brother Joshua. I thank my colleagues who did their master thesis in Tallinn for their advices and support. Many thanks to my dear colleagues in Oslo and Parma who accepted with no hesitation to pilot my questionnaires and offered useful suggestions. It is indeed important for me to find little space in this page to express my sincere gratitude to my beloved fiancée Irene who even at the midst of loneliness and pessimism, her love and support paved a way to let an oasis of hope flow in me like an everlasting stream. I wish I could remember and acknowledge all those who offered their support by their names but even though their names are not mentioned here they should rest assured that their support is very much acknowledged, for they say “*there is no act of kindness no matter small it is, is ever wasted*”.

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List of abbreviation:

KM: Knowledge Management.

IC: Intellectual Capital.

KS: Knowledge Sharing.

COTUL: Consortium of Tanzania University Libraries.

MSTHE: Ministry of Science, Technology and Higher Education.

UDSM: University of Dar es Salaam.

UDOM: University of Dodoma.

MU: Mzumbe University.

MUCCoBS: Moshi University College of Cooperative and Business Studies.

UCLAS: University College of Land, Architecture and Survey.(Recently Ardhi University)

MUHAS: Muhimbili University College of Health and Science.

OUT: Open University of Tanzania.

SUA: Sokoine University of Agriculture.

Chapter One: Introduction to the research and background to the problem

1. Introduction to the research.

This research seeks to address the issue of how intellectual capital can be used to enhance knowledge sharing in Tanzania public university libraries. When the debate started as to whether we still need libraries even now when the web is believed to carry much the same content found in the libraries, I felt that something need to be done. I felt two issues, namely reinvention of the wheel and efficiency in terms of the use of knowledge libraries have in the heads of their staff, needed attention. The issue of adding value to library routines became critical at this juncture. Knowledge sharing was found to be the best strategy to codify tacit knowledge hidden in the heads of the library's staff and a way to value what is not valued and revealed in the balance sheets (knowledge). The choice for the research was now in knowledge management but specifically intellectual capital and knowledge sharing. To achieve this goal the research is presented five chapters.

Chapter one covers the background to the problem, where the origin of knowledge management and some background information about Tanzania public university library will be outlined. The statement of the problem, the aim and objectives of the research, the research questions, the scope and rationale of the research and the definition of terms are also treated in this chapter. In chapter two the literature review is presented. The review starts with the introduction of what is included in the chapter and proceeds with the general overview of intellectual capital. Later all three aspects of IC named Customer Capital, Human Capital and Structural Capital will be covered. The theoretical framework is presented at the start of chapter three followed by the theoretical perspective and methodology. A survey is the methodology chosen for this research; its choice and how it is used are justified in chapter three. The findings are presented in chapter four and conclusion and recommendation in chapter five.

1.2. Background to the problem.

This section is devoted to a general overview of knowledge management. It starts by tracing the origin of knowledge management and then defining the term. Further it suggests how knowledge management can be used in libraries. The last two paragraphs discuss the issues

of Intellectual Capital which is the focus of the study and provide a general overview about public university libraries in Tanzania. Unfortunately there is indeed too little information about Tanzania public university libraries found in secondary sources. The statement of the problem, the aim of the research and the objectives are included in this chapter along with research questions, the justification for the study and the definition of terms. Further discussion about Intellectual Capital and knowledge sharing and their relationships in this research are treated in chapter three. Knowledge management is treated in this research as the umbrella term for knowledge sharing and Intellectual Capital.

Since knowledge management came into being early 1990's, the controversies of its origin and sense are not yet resolved. Tom Wilson in his paper entitled 'the nonsense of knowledge management' suggested that what is called knowledge management is nothing but information management with a new label. He argued that;

“Various techniques are described as 'knowledge management tools', but in all cases it turns out that these involve not knowledge but, for example, information about the intellectual resources of a firm, or software 'agents' that function on the use of information. It all appears to be part of the attempt to re-sell expert systems under a new label” (Wilson, 2002).

Larry Prusak in his attempt to address the origin of knowledge management suggested that some sceptics may argue that consultants developed knowledge management to replace declining revenues from the waning re-engineering movement. Others may feel that knowledge management is just a “re-badging” of earlier information and data management methods (Prusak 2001, p.1002). *The definition of Knowledge Management chosen to underpin this research is stated below in section 1.8.*

Even though there is no consensus on the term many practitioners will agree that knowledge management refers to the process of transforming information and intellectual assets into enduring value. It connects people with the knowledge that they need to take action, when they need it. In the corporate sector, managing knowledge is considered key to achieving breakthrough competitive advantage (Hawkins, 2000).

Knowledge Management can be used in libraries to promote the exchange of knowledge between library staff, to excite the library staff's eagerness and abilities for learning and restructure the library into a learning organization. Best practices, later known as lessons

learnt and community of practice among others are some of the strategies knowledge management employ which can help libraries improve performance and gain competitive advantages. Tang Shanhong argues that Knowledge management in libraries focuses on effective research and development of knowledge, formation of knowledge bases and sharing of knowledge between library staff, staff training as well as accelerating explicit processing of the implicit knowledge and realizing of its sharing (Shanhong, 2000).

In this era where libraries face competition from various information providers, innovation is becoming increasingly important. The ability to create value in the knowledge economy however depends much on the innovation process, creativity of the taskforce and above all the intellectual resources. The value of intangible assets can no longer be under-estimated in today's libraries if they are to compete. Lew Platt, a former HP CEO postulated that "If only HP knew what it knows it would make three times more profit tomorrow" (Baker, 2006). Organisations including libraries can no longer deny that one of the most valuable assets they have is the knowledge in the heads of their employees.

This research addresses the issue of intellectual capital and its relationship to knowledge sharing. The focus is however on Public University Libraries of Tanzania. The issue of intellectual capital has been long in the realm of profit making organisations. Literature shows very little regarding the implementation of intellectual capital in Tanzania University libraries. No literature was found specifically addressing the issue of Intellectual capital in Tanzania university libraries. Some general literature addressing the same was found for example by Cribb who addresses the issue of libraries focusing more in the content of its stock and ignoring other aspects (Cribb, 2005; Dakers, 1998) on the issue of knowledge audit, (Livonen & Huotari, 2007) on the university library intellectual capital and (Jain, 2006) who address the issue of knowledge management in East Africa.

Tanzania is found in the South Eastern part of Africa with the total area of 945,100 sq km (364,900 sq mi). By January 2009, Tanzania had a total number of 21 Universities, 9 of which are public universities; 8 in Tanzania mainland and 1 in Zanzibar. According to the report by the Ministry of Science and Higher education 2004/2005, a total of 31771 students are enrolled at the undergraduate level of studies by these public Universities, 333 for postgraduate diploma, 1749 for Master studies and 169 for PHD annually, *note that the*

figures not necessarily reflect those who graduate rather only those enrolled at different levels. Recently academic libraries in Tanzania have set up a consortium (Consortium of Tanzania University Libraries (COTUL)) (Arkorful, 2007). This is a basis for partnerships and gives them bargaining power when purchasing software, journals and e-resources. They can build union catalogues to share resources and allow users to have access to larger collections. Limited information is found about COTUL; mostly it is just listed as existing in many articles. *More information about the current figures relating to the number of university and enrolment see the ministry of Science, Technology and High Education website (MSTHE).*

1.3. Statement of the problem.

According to Peter Drucker “The most valuable asset of a 20th century company was its production equipment. The most valuable asset of a 21st century institution will be its knowledge workers and their productivity” (Drucker, 1999). Libraries have been reluctant to create new measures in replacement for old measures such as number of books on the shelves, the number of loans and so on. Still there is a dilemma as to what will the future holds for libraries especially when most things are available online. There is a need for libraries to create and demonstrate more value to appeal to the stakeholders given the fact that more and more information providers exists. One way to achieve this is through promoting a well prepared and motivated task force through adequate training and development opportunities. Even with this era of very sophisticated technology the discoveries of machines which can think much the same way as a human being is still a dream. The human mind is the principal contraption that organizations need to generate new knowledge and innovation.

1.4. The aim of the study.

As stated above, this research focuses on intellectual capital. The aim of this research is to study how intellectual capital affects knowledge sharing, *see 3.0 for the relationship between the two.* Attention will be given to human capital and structural capital. It is the aim of this research to find out the state of intellectual capital in Tanzania public university libraries so as to propose ways forward through which libraries can use intellectual capital to promote knowledge sharing as a way to gain competitive advantage.

1.5. Objectives of the study.

This study seeks to achieve the following objectives:

- To find out whether knowledge sharing between staff of a library is facilitated.
- To establish how knowledge is shared between staff of different libraries
- To identify the gaps and propose solutions for knowledge sharing.

1.6. Research questions.

To achieve the above named objectives, the study is guided by the following questions.

- Are there any incentives for knowledge sharing in libraries?
- Are there any mechanisms by which knowledge is shared with other libraries?
- How and where can libraries do better in terms of knowledge sharing?

1.7. Justification of the study.

The issue of effective use of intangible assets such as knowledge that the organisation has in the head of its employees is increasingly important. Unfortunately many public sector libraries have not capitalised much on the use of intangible assets to gain more competitive advantage. Even with a high level of computing and distributed economy libraries have been hesitant to incorporate more innovative measures as the business world does. This study will provide some guidelines for a library to use in order to capitalise on intellectual capital as a way to gain competitive advantages. It will point out some areas where knowledge sharing for instance has helped business organisations succeed and propose how libraries can take up these ideas.

1.8. Scope of the study.

The phrase intellectual capital takes on different meanings depending on the discipline in which it is used. However there is a common agreement among many interested parties that intellectual capital includes three components named human capital, customer capital and structural capital. [See for example (Sveiby 1997; Saint Onge, 1996; and Bontis, 1998)]. Skandia, a Swedish based insurance company, has developed one of the well established models for measuring intellectual capital which includes renewal and development capital on top of the three mentioned earlier. Others add innovation capital and

process capital. [See (Evidsson and Malone model Edvinsson & Malone, 1997)]. To do justice to the topic it would be wise to discuss these aspects all together in this research but as one can predict each of them may be a research project in its own respect. Considering this fact, this research will limit itself to the study of knowledge sharing and its relationship to Human Capital and structural capital only.

1.9. Delimitation of the study.

The study will be conducted in Public Universities of Tanzania mainland. The focus will be in the libraries attached to these universities. Since universities are continuously engaged in the development of intellectual capabilities through teaching and research, the research considered university libraries which are erected to support this venture more useful for the study of intellectual capital and knowledge sharing than other types of libraries. *See more details about Tanzania Public Universities in last paragraph section 1.1.*

1.10. Definition of terms.

This section is aimed to provide the definition of key terms used in this research. The idea is to help readers who may not be familiar with those terms achieve a common level of understanding. It does not however claim to be exhaustive and completely comprehensive. The researcher is very much aware that the same terms could be defined otherwise in different contexts. This section intends to give general definitions to those terms provided; they are defined more precisely later.

Customer capital: Customer capital includes connections outside the organisation such as customer loyalty, goodwill and supplier relations. It is the perception of value obtained by a customer from doing business with a supplier of goods and / or services (Petrash, 1996).

Human capital: Human capital refers to the employees of the company and their creativity, competence, social skills etc., but also to company values, culture and philosophy (Edvinsson & Malone, 1997)

Intellectual capital: The sum of everything everybody in a company knows that gives it a competitive edge (Stewart, 1997).

Knowledge management: Knowledge management is the deliberate and systematic coordination of an organization's people, technology, processes, and organizational structure in order to add value through reuse and innovation. This coordination is achieved through creating, sharing, and applying knowledge as well as through feeding the valuable lessons learned and best practices into corporate memory in order to foster continued organizational learning. (Kimiz, 2005)

Management: the act or skill of dealing with people or situations in a successful way. (Wehmeier, S (Ed.), 2007).

Renewal and development capital: reflects capabilities and actual investments for future growth such as research and development, patents, trademarks, and start-up companies that may be considered as determinants of national competence in future markets (Edvinsson & Malone, 1997)

Structural capital: An organisation's captured knowledge such as best practices, processes, information systems, databases etc. Often described as the knowledge that remains in the organisation after the employees have gone home for the night. (National Electronic Library for Health, 2001).

1.11. Chapter summary.

This chapter laid the foundations for the thesis. It started by providing the background information to allow better understanding of the research problem and research questions. Then the rationale of this study was presented and the definition of key terms. This chapter went on to provide a brief explanation of the methodology to be used. The structure of the thesis was outlined, and the limitations were given. On these foundations, this research report now proceeds with the examination of the literature on intellectual capital in the following chapter.

Chapter Two: Literature review.

2. Introduction

This chapter aims to review various studies done which are relevant to this study. It will start with general discussion about intellectual capital then later will review matters pertaining to knowledge sharing. Customer capital and renewal capital are included in the review so as to provide general understanding of intellectual capital as a whole; however they are beyond the scope of the main discussion presented in chapter four. Such terms as intellectual capital, knowledge sharing, structural capital and human capital were used as key search terms. Knowledge transfer, human resources and intangible assets were also used as related terms.

2.1. Intellectual capital general overview.

“With the corporate intranet as a catalyst, intellectual capital has grown into knowledge management, the hottest new topic in the business community – up there on a par with Information technology (IT), as competitive advantage, Total Quality Management (TQM); and Business Process Reengineering, and it may well surpass them all” (Koenig, 1998, p.222).

Intellectual capital has been a subject of interest especially in the business world recently. The changing environment has stimulated stiff competition in almost every sector surrounding human activities. Developing intellectual capital management as the organizational modus operandi is the recipe for success. According to Nermien Al-Ali business resources were formerly comprised of 80 percent of tangible and capital resources, with intangible assets making up around 20 percent. He went on further to explain that, steadily this changed with intangible assets reaching 80 percent of the assets of the majority of organisations by 1999 (Al-Ali, 2003).

The topic gathered increased interest more recently in the 1990s, with the rapid development of Information and Communication Technologies (ICT). As business processes became increasingly ‘enabled’ by large-scale information systems, information systems designers attempted to capture employees’ implicit and explicit knowledge in “corporate memory” by means of intranets and other similar applications (Malhotra, 2000, p.1) *for more discussion about the origin of intellectual capital see also (Malhotra, 2000a, 2000b)*. Intellectual capital was perhaps more prevalent in 1995-2000. Even more important was that the Internet’s explosion during the 1990s occurred concurrently with the intellectual capital movement. The

business world realized that Internet technology and procedures could be used to link an organization together (Koenig, 1998, p.222).

Intellectual capital emerges out of the need to value knowledge based assets of an organisation and to shy away from traditional way of valuing only tangible assets. Yogesh Malhotra in his article entitled "*knowledge assets in global economy*" points out that knowledge assets may be distinguished from the traditional factors of production in the sense that unlike traditional factors of production which are governed by the law of diminishing returns, knowledge economy is vice versa. It is guided by the law of increasing returns whereby marginal increase in performance is achieved for every additional knowledge unit effectively used (Malhotra, 2000).

According to Sawarjuwono the shifting paradigm from labour based business to knowledge based business led to the addition of human resources into an income statement. Among intangible assets, human resources, which is called intellectual capital (IC), becomes the core asset in a company (Sawarjuwono, 2003, p.35). Those organisations that have recognised this have introduced awards for the best ideas 'borrowed' from elsewhere. Texas Instruments now has a 'Not Invented Here, But I Did it Anyway' award for the best idea stolen from within or outside the company (Davenport & Prusak 1998, p.53). Organisations are increasingly realising that poor management of people as an asset may result in the collapse of an organisation.

Annie Brooking suggested that if people are an asset then effective people's management is an asset too. She pointed to Barings Bank as an example of an old company which failed due to the lack of an appropriate management infrastructure (Brooking, 1996). According to Kok, intellectual capital management is not a management technique but rather a fundamental approach to the management of resources and assets in an organisation. It may be said that intellectual capital deals with articulate, reasonable, knowledgeable and substantial fruits of the mind. It claims intangible (tacit) and tangible (explicit) dimensions, which do not mutually exclude, but actually complement each other (Kok, 2007, p.186).

As pointed out earlier in section 1.7 of the previous chapter, many practitioners prefer to discuss intellectual capital in terms of customer capital, human capital and structural capital.

However the label may sometimes differ even though the meaning may be the same. Other authors will go further categorising the three with subcategories. Sometimes customer capital for instance is referred to as market capital see *knowledge asset in global economy* (Malhotra, 2000). The following section is dedicated to the discussion of the three elements of intellectual capital and further includes renewal capital.

2.1.1. Customer Capital

Technological advancement has brought about many opportunities and challenges. A few years ago probably libraries were the only strong information providers. This in turn suggests that the need for good customer relationship is also increasing in libraries as more providers exist nowadays. Preston in “*Customers, relationships and libraries*” stressed that;

“technological developments may serve to alter our users’ perceptions as to the role and function of library services in the new millennium . . . With database searching becoming increasingly user-friendly, static libraries may appear increasingly unnecessary, or, indeed, irrelevant. As a result of the explosion of information accessible via the Internet, coupled with the increasing sophistication of our users with regard to information-seeking behaviour, our future role must be in stressing value-added service in the delivery of information and one which . . . addresses customer need directly” (Broady-Preston & Preston, 1999, pp. 126).

According to Stewart, customer capital is without any doubt the intangible asset which is least well handled by businesses, despite the fact they all potentially possess it (Stewart, 1997, p.5).

James W. Cortada and John A. Woods define Customer Capital as the value of the organisation’s relationship with customers. It includes the intangible loyalty of the customers to a particular company or product, based on a reputation of good quality or service, customers’ purchasing patterns or customers’ financial stability, which assures prompt and adequate payment (Cortada & Woods, 1999, p.428). Stewart sees Customer Capital as what managers are referring to when they reverently intone that their companies are, indeed, Market Driven. He concluded that this is the basis of relationship marketing, data mining, single-sourcing, among others. According to him this means really connecting with those who buy from you, thereby avoiding the destructive downward spiral of pricing wars (Stewart, 1997).

Frances Horibe in “managing knowledge workers” found that unless you have loyal employee then you will have loyal customers. Horibe is of the view that there is a strong correlation between company profits and employees’ belief that they have the opportunity to do what they do best every day, that their opinion counted, that all workers were committed to quality, and that there was a direct connection between their work and the company’s mission. He insisted that from the view of previous research that employees’ attitudes about the job and company are two factors that predict their behaviours in front of the customer which in turn predicts the likelihood of customer retention and customers recommending the product to others, the two factors that predict financial performance (Horibe, 1999, p251).

The need for libraries to create and demonstrate more value to appeal to stakeholders persists and calls upon libraries to recover from their reluctance to deliberately address the issue. According to Broady-Preston, Felice, and Marshal;

“In order to maintain quality and to demonstrate worth, arguably, librarians need to embrace positively the challenges of creating and sustaining relationships based on an active partnership with their customers. In doing so, they are moving beyond merely ascertaining need and then providing for such need via relevant services, into a two-way collaborative relationship reliant on purposeful and relevant communications strategies” (Broady-Preston, Felice, & Marshal, 2006, p.442).

2.1.2. Human Capital.

The value creation process of an organisation depends very much on human input. How ready and how motivated the employees are, will determine the success of this value making process. The changing environment changes the nature of how human capital needs to be managed. In libraries for example until recently, the focus when hiring has been more on skills, for reference, cataloguing, IT and so on, rather than on attributes like strategic thinking, flexibility, adaptability and commitment to lifelong learning. According to Whitmell Associates here is a growing trend now “to hire for attributes and then train for the skills” (Whitmell Associates, 2004).

According to Gary Stanley Becker, the term capital will mean a bank account, one hundred share of IBM, the assembly line, or even plant in the Chicago area to most of us. As he flashes back to reflect on the term Human Capital, Becker points out that in the early days, many people were criticising this term and the underlying analysis because they believed it

treated people like slaves or machines (Becker, 1993, p.16). Malhotra defines Human Capital as the combined knowledge, skill, innovativeness, and ability of the nation's individuals to meet the tasks at hand, including values, culture and philosophy. This includes knowledge, wisdom, expertise, intuition, and the ability of individuals to realize national tasks and goals. Human capital is the property of individuals, it cannot be owned by the [organization or] nation (Malhotra, 2000, p3.).

Jac Fitz-enz holds that the term Human Capital originated with Theodore Schultz, an economist interested in the plights of the world's underdeveloped countries. He argued correctly that traditional economic concepts did not deal with this problem. His claim was that improving the welfare of poor people did not depend on land, equipment, or energy, but rather on knowledge. He called this qualitative aspect of economics "Human Capital" (Fitz-enz, 2000, p. xii).

The investment however on Human Capital is somewhat of a challenge. Intellectual capital as a whole and Human Capital as one aspect under it pose the challenge on how to evaluate its success. Jack J. Phillips in "*Investing in your company's human capital*" urges that despite the importance of Human Capital, the mystery surrounding the investment in it and the lack of progress in measuring it accurately have led the Human Resource function to receive a fair amount of criticism in recent years. He insists that those who feel HR is not important will argue that the issues are too soft and much is what is invested in Human Capital will have to be taken on faith; investments must be made based on intuition, logic and what others have invested (Phillips, 2005, p.2).

A well-prepared and motivated workforce is possibly the most important of the three intangible assets to support an organisation's value creating processes. According to Peter Drucker "The most valuable asset of a 20th century company was its production equipment. The most valuable asset of a 21st century institution will be its knowledge workers and their productivity" (Drucker, 1999, p135). According to Cribb the issues of workforce demographics, desirable characteristics of the workforce and the obstacles to achieving the workforce which is well prepared, motivated and strategically ready in today's libraries, are key elements to be considered when discussing human resource development (Cribb, 2005).

2.1.3. Structural Capital.

For any endeavour toward a better Human Capital and Customer Capital practices, there is a necessity for good policies and a culture which support both the former and the latter. Edvinsson and Malone refer to Structural Capital as what is left at the office when the employees go home. They divide it into organizational capital (innovation and process capital) and customer capital (Edvinsson & Malone, 1997). Nicolas Ind defines structural Capital as the hardware, software, databases, organisational structure, patents, trademarks and everything else of the organisational capability that supports those employees' productivity - in a word, everything left at the office when the employees go home. (Ind, 2007, p.44).

We live in turbulent times. This suggests that flexibility is of prime importance. We face different challenges as a result of change of time and environment which in a way determine changes of policies and structures. According to the Organisation for Economic Co-operation and Development (OECD) in the long run, coordination failure may be eliminated more radically through organisational architecture i.e. the transformation of Structural Capital defining the capabilities. This redefines the network and regimes to ensure the requisite coherence necessary for an effective learning economy (OECD, 2001, p191).

According to Handy as cited in (OECD, 2001, p.191), coherence and pluralism are crucial in the organisation structure of a learning concern. He states that this is what makes federal structures so attractive from a learning point of view; they provide coordination in a world where the centre is more a network than a place (Handy, 1995a). This is also a reason why federal type structures have emerged in different sectors in most continents. Potentially federalism represents a sort of fit or effective alignments between the different components of structural capital in the sense of (Saint- Onge, 1996) as quoted by (OECD, 2001, p.191) i.e. the systems (processes), structures (accountabilities and responsibilities), strategies, and culture (shared mindset, values and norms). Saint-Onge stresses that since there is significant probability of misalignments between these components, there is often a need to intervene directly to modify the organisational architecture in order to ensure effective learning.

Structural Capital is very much connected to Human Capital. Through Process Capital a link between the two is established. Felix B. Tan in "*Advanced topics in global information*

management” stresses that for growth to happen, there is a strong need to integrate Human Capital into Structural Capital. Sharing, exchange flow, and transformation of knowledge from Human Capital to Structural Capital among other things according to him are essential for the success of national growth. He sees that strong communication infrastructure will facilitate rapid exchange of information and its translation into knowledge inherent into innovative processes, products and services (Tan, 2002, p.338)

2.1.4. Renewal and development capital.

Renewal and development capital is a component of intellectual capital that reflects the nation’s capabilities and actual investments for future growth such as research and development, patents, trademarks, and start-up companies that may be considered as determinants of national competence in future markets (Malhotra, 2000, p.3). Abdul Samad Kazi suggests that, in a competitive market, companies, products, and services are fast duplicated more and more. According to Kazi, the ability of an organisation to innovate and develop new knowledge in its core competencies is a central feature of the organisation’s future growth, and therefore is an excellent measure for evaluating the company.

Renewal and development assets according to Kazi include investments in research and development, patents, trademarks, new products development, usage of advanced technological tools and the like (Kazi, 2004, p.57). The world is ever changing and what worked well in the industrial age may not work in the knowledge age. Gary Hamel, as cited in Kazi, A.S. (2004, p.57), claimed that companies inherited an important set of virtues from industrial era: diligence, replication and control. According to him, these virtues are becoming less important in an age where the new required virtues are creativity, imagination, diversity, speed, openness, and flexibility (Hamel, 1999).

Francisco Javier Carrillo in “*knowledge cities*” stressed that, it is not enough only to manage knowledge assets. According to Carrillo it is imperative to create new knowledge. Renewal and Development assets include investments in research and development, new initiatives, using innovative technologies, using and exploiting new products and devices. Carrillo further suggested that Renewal and Development Capital shows the readiness of the organisation to deal with the future and what it brings with it and concluded that it reflects the

organisation's ability and investments in the development of innovation for future growth (Carrillo, 2006, p.117).

What is important to note from the above discussion is the fact that the three aspects of intellectual capital are not meant to work in isolation, rather in harmony. The structure of the organisation may promote innovation depending on the task force of an organisation. The review shows that some authors will divide intellectual capital into human capital and structural capital. Using this approach they prefer to discuss customer capital as one of the subdivisions of structural capital *see for example* (Agndal & Nilsson, 2006), Edvinsson and Malone (1997). The following section is devoted to reviewing the relationships between intellectual capital and knowledge sharing, the rationale for sharing knowledge and factors affecting knowledge sharing, starting with the relation between IC and KS.

2.2. The relationships between intellectual capital and knowledge sharing.

This research addresses the issue of intellectual capital and its relationship with knowledge sharing. As stated *in section chapter three* at times the relationship between knowledge sharing and knowledge management may not be very clear to all people.

A firm generates value from what it knows through the organisational processes of knowledge creation, knowledge transfer and knowledge utilisation. Tacit knowledge plays a crucial role in knowledge creation; codified or explicit knowledge facilitates knowledge transfer; "common" knowledge or shared understanding about goals and purpose guides knowledge utilization. Over time, a firm accumulates a stock of knowledge and capabilities that is unique to its learning and experience. This stock is the firm's intellectual capital and it comprises human, structural and relational capital that resides in employees, organisational routines, intellectual property, and relationships with customers, suppliers, distributors and partners (Choo & Bontis, 2002, p.16).

Alan J. Rowe and Sue Anne Davis in "*Intelligent information system*" maintain that the learning organisation creates knowledge. Groupware which include shared databases, Electronic Data Interchange (EDI) and conferencing provides decision makers with the

ultimate source of information. Using this capability the learning organisation becomes a knowledge creating company. They suggest that where knowledge is widely disseminated throughout the company, the company is using its brainpower or intellectual capital. They gave an example of Japanese companies which have learned how to create new knowledge by using available knowledge and linking it to highly subjective information, insights, intuition and hunches (Rowe & Davis 1996, p.86).

Organisations create new ideas in the learning processes. These ideas are then shared through the support of an organisation's structure and network. According to Goldsmith, Morgan and Ogg, organisations that learn have more investor value because these organisations not only create new ideas but also share those ideas throughout their structure, building knowledge networks, where technology and communities of practice transfer knowledge from one setting to another (Goldsmith, Morgan & Ogg 2004, p.66).

2.3. The rationale for sharing knowledge.

If we perhaps try to find out how much is written in the subject of knowledge sharing, it will not come as a surprise that there is so much recently. Even though sharing has been there for years and years as a normal practice. We have seen teachers sharing slides after their presentations, researchers sharing the results of their findings. The question we may ask ourselves is why do we share knowledge? That is precisely what this section tries to explore in the literature to find the answers to.

Davenport and Prusak, two of the outstanding writers in knowledge management, suggest that global competitiveness among other factors has stimulated the need for sharing. Davenport and Prusak, as cited by (Kimiz, 2005, p.2), suggest that multiple factors have led to the current "knowledge boom" the perception and the reality of a new global competitiveness is one of the driving forces therefore, the only sustainable advance a firm has, comes from what it collectively knows, how efficiently it uses what it knows and how quickly it acquires and uses new knowledge. This has led to a strong need for a deliberate and systematic approach to cultivating and sharing an organization's knowledge base (Davenport, 2000).

Ernst Helmstädter suggests that the diffusion of known knowledge can stimulate innovation because the learning actors, who will share the knowledge already known somewhere in the

society, will apply it in their own specific context. According to Helmstädter, that will open up a greater variety of possibilities and finally lead to innovation. He went further to suggest that knowledge sharing itself can generate new knowledge. This is specifically true according to him if we think of two or more actors, who dispose of some overlapping implicit knowledge, denoting a type of practical knowledge that has not yet been formulated in an easy communicable language (Helmstädter, 2003, p.13).

George S. Day and colleague suggest that inter-organisational learning is critical to competitive success because firms often learn by collaborating with other firms. For example in some industries (e.g. scientific instruments) more than two-thirds of the innovations could be traced back to a customer's initial suggestions or ideas. According to them, transferring this knowledge from the customer to the firm is therefore crucial to success and that a production network with a superior knowledge transfer mechanism among users, suppliers, and manufacturers should be able to "out innovate" production networks with less effective knowledge sharing routines (Day & Gunther 2004, p.367).

Knowledge sharing allows the possibility for solving problems through expertise which may not be available in the firm itself. Dalkir Kimiz states that knowledge resides in communities in the form of social capital. According to Dalkir, the key is often connecting people to solve problems, to develop new capabilities (learn), to improve work practices and to share what is new in the field. The type of knowledge which is transferred is shared expertise (Kimiz, 2005, p.138).

Knowledge sharing is influenced by a myriad of factors depending on what organisations want to achieve and what infrastructure is in place to support knowledge sharing. Nancy M. Dixon is of the view that organisations are perhaps now addressing the issue of knowledge sharing due to the growing awareness of the importance of knowledge to organisation success or perhaps because technology has made the sharing of knowledge more feasible. According to Dixon, sharing has the avowed purpose of getting the knowledge that exists in one part of the organisation put to use in another part of the organisation (Dixon, 2000, p.2).

Some achievements have been realised by some companies re-evaluating their structures to be more open. This is characterised by employee-empowered operations within the core

values of an organisation where people are free to suggest and make changes to organisational superstructure. Buckman Laboratory is one example of the most successful companies in knowledge sharing which implemented this open structure. Bob Buckman, a retired CEO of the Buckman Laboratory in the interview with Peter A.C. Smith stated that *“Tacit knowledge is the most dynamic asset you have”* says Buckman. *“When you have located it, liberated it through effective knowledge sharing, you get huge benefit; improved innovation, better productivity”*. In Buckman’s case, during the early 1990’s this led to an increase in the organisation’s revenue of almost 1,000 percent and their track record since then has continued to show strong progress (Smith, 2005, p.529).

Knowledge sharing is one way to help the society have the equal share of what the environment has to offer. Julian Cribb and Tjempaka Sari Hartomo in *“sharing knowledge”* put forward the view that;

“at the end of the century which yielded more wealth, more discoveries and more technologies than the previous 70 centuries of civilizations, there were more poor, more disempowered, more wretched and more excluded, more hungry and diseased than ever. While it extended lifetimes and brought wealth and privilege for one in ten people, the greatest burgeoning of human knowledge had failed, on the whole, to deliver anything approximating a fair sharing of benefits”. According to them, *a possible explanation is that the system that engendered it was shaped, not for sharing, but for exclusion and domination* (Cribb & Hartomo, 2002, p.2).

2.4. Factors affecting knowledge sharing.

Knowledge sharing has never been and will never be easy. For it to succeed, there are a number of obstacles that need to be addressed. In their totality, we can best discuss them if we categorise them with respect to their origins. The following review tries to unveil some of the barriers hindering effective knowledge sharing. It will start by looking at some factors pertaining to individuals, then organisational factors and wind up the section with technological factors.

2.4.1. Individual or Human Factors.

This issue of trust is known to be of major concern in successful knowledge sharing. For knowledge sharing to succeed, individuals need to trust each other. People tend to share with those in whom they trust. According to Terra and Gordon, sociological and economic research and experiments repeatedly demonstrate that people tend to have less trust in

individuals who do not share the same values and are of another race, country, culture, or who have few friends in common. This is an important issue for knowledge-based multinational companies that require cooperation and the free flow of knowledge among people from offices across the globe (Terra & Gordon, 2002, p.68).

In some circumstances, distance between individuals and lack of awareness of the knowledge they possess may suggest failure in knowledge sharing. According to Fleisher and Blenkhorn in some organisations there is a lack of contacts or common perspectives among people who don't work side by side (Fleisher & Blenkhorn, 2003). O'Dell and Grayson point out that lack of strong personal ties or relationships may thwart a desire to help fellow workers and could stand in the way of information sharing in an organisation (O'Dell & Grayson, 1998).

The issue of credibility between the owner of knowledge and the expected receiver hinder knowledge sharing. Dalkir Kimiz suggests that one of the common reasons people give as to why they are hesitant to share knowledge is the fact that they are unsure that the receiver will understand and correctly use the knowledge. On the other hand, according to Kimiz the recipient may be unsure about the truth or the credibility of the knowledge in question (Kimiz, 2005, p.133).

Daryl Morey and colleagues suggests that while knowledge is one of the few resources that can increase in value as it is shared, the inter-competitive environment in many organisations fosters knowledge hoarding; in these firms unique possession of knowledge is seen as power and job security. They suggest that as with any major transition in employee behaviour, this change from a knowledge protective to a knowledge sharing environment needs to be consistently supported in multiple and interrelated ways and that to achieve success, knowledge sharing and knowledge management need to be viewed as human performance issues (Morey, Maybury & Thuraisingham, 2002, p.100).

2.4.2. Organisational Factors.

There are indeed a number of factors which are attached to the organisation which may hinder smooth knowledge sharing. They range from the organisational structure itself to its culture. Lack of knowledge sharing strategy among other factors can add to the problem of

knowledge sharing. The following section discusses these factors as suggested by other studies.

2.4.2.1. Organisational Culture.

With changing work practices, organisations are increasingly faced by the need to change their norms, values and motivation of employees. According to Peter Gottschalk, knowledge management projects revealed that organisational culture is widely held to be the major barrier to creating and leveraging of knowledge assets (Gottschalk, P. 2004, p.38). Long and Fahey identified four ways in which culture influences the behaviours central to knowledge creation, sharing and use. First, culture and particularly subcultures, shape assumptions about which knowledge are worth managing. Second, culture defines the relationships between individuals and organisational knowledge, determining who is expected to control specific knowledge, as well as who must share it and who can hoard it. Third, culture creates the context for social interaction that determines how knowledge will be used in particular situations. Fourth, culture shapes the processes by which new knowledge with its accompanying uncertainties is created, legitimated and distributed in organisations. These four perspectives according to them suggest specific actions managers can take to assess the different aspects of culture most likely to influence knowledge related behaviours (Long & Fahey, 2000).

The perception of an organisation of the importance of knowledge is similarly important for the achievement of knowledge sharing. Organisations will always value what they believe to be important to their success. Fleisher and Blenkhorn in “*Controversies in competitive intelligence*” suggest that some organisational cultures value personal technical expertise and knowledge creation over knowledge sharing. They see this problem as often persisting in engineering and knowledge based organisations such as research and consulting firms (Fleisher & Blenkhorn, 2003, p.99).

Robert H. Buckman urges that the culture that we create as leaders in our respective organisations has a major impact on our ability to share knowledge across time and space. Buckman stresses that people need to move from hoarding of knowledge to gain power to the sharing of knowledge to gain power (Buckman, 2004). However, many researches suggest that changing culture is indeed difficult though it happens. According to Holsapple in the current and the future environment, the major challenge relates to finding, creating, or

developing understanding and meaning of the complex event and situations arising from an uncertain, complicated and rapidly changing world. Holsapple suggests that when major paradigm shifts occur in an organisation's environment, or within its own strategy or vision, the organisation may face its ultimate challenge; finding a new self image, changing old doctrine, and replace strongly held beliefs with ones that more accurately represent the new reality. Holsapple suggests that under this juncture it is not easy to share knowledge and even harder to give up old practices and beliefs that have worked well in the past (Holsapple, 2003, p.443).

Even now the knowledge economy is advocating for changing the way organisations operate, success lies with successful cultural change. The evidence shows that knowledge sharing has influenced radical success in some organisations; Buckman Laboratory was one of the best examples. According to Baker (2002) there is also strong anecdotal support indicating that the primary cause of failure of most major change efforts (such as TQM and reengineering) has been the failure to successfully change the organizational culture (CSC Index 1994; Caldwell 1994; Goss et al. 1993; Kotter and Heskett 1992).

2.4.2.2. Organisational structure.

Ahmed and colleagues in their paper "learning through knowledge management" stress that; although most research appears to agree that knowledge is influenced by social processes, research in this area thus far has taken a back seat to research on individual differences and antecedents. They suggest that generally it can be said knowledge sharing is enhanced by organic structures rather than mechanistic structures. Knowledge sharing is increased by the use of highly participative structures and cultures (e.g. high performance-high commitment work systems). For example, a knowledge champion must be made to feel part of the program - involvement via ownership enhances attachment and commitment at the organisational level (Ahmed, Lim& Loh, 2002, p.58).

Wimmer suggests that organisational structure has often had the unintended consequences of inhibiting collaboration and sharing of knowledge across internal organisational boundaries (Wimmer, 2004). According to Creed and Miles a hierarchical structure limits active knowledge sharing activities and communication between employees or between employees and supervisors (Creed & Miles, 1996).

Craig S. Fleisher and David L. Blenkhorn suggest that the process of making changes to the way information is shared in an organisation is usually difficult. Some significant barriers may stand in the way. For example, some organisational structures promote “Silos” where individual locations, divisions or functions are so focused on maximizing their own accomplishments and rewards, that they consciously or unconsciously hoard information thereby sub-optimize the performance of the entire organisation (Fleisher & Blenkhorn, 2003, p.99).

Hierarchical organisational structure hinders the free flow of information. This is one common structure in libraries. Steve Clarke and Dianne Willis suggest that without doubt, organisational hierarchy poses a problem, impacting upon the social context, with different levels making it harder to create an environment that facilitates the building of knowledge, its diffusion, coordination and control, with the distortion of ideas and knowledge resulting as a consequence of multilayer transmission. In addition, hierarchy may hinder cross-functional and horizontal communication (Clarke & Willis, 2002).

2.4.2.3. KS strategy.

Many organisations lack knowledge sharing strategy. A reward system is not in place and as a matter of fact people are not encouraged to share their knowledge. According to Goldsmith, Morgan and Ogg people who live the values of the firm must be publicly acclaimed as heroes. Stories must be told about their value-driven behaviour so that others will want to emulate them. According to them, the compensation system must also identify those who share, and reward them differentially (Goldsmith, Morgan & Ogg, 2004).

Nonaka and Takeuchi indicate that a combination of formal organisation structure and a non-hierarchical, self-organising organisational structure would improve knowledge creation and sharing capabilities (Nonaka & Takeuchi, 1995). The research conducted by Powel reveals that, there is a persistent tension between those activities done informally and on an ad hoc basis and those efforts that are more structured and formalised. According to Powel, information can be conveyed routinely through informal means. While formal repositories and powerful task forces can be useful, they are too often not a forum in which outside input is allowed. Building routines for regular contact without formalisation allows for the

possibility that the participants not only contribute ideas, they will take lessons learned and spread them in unexpected and unobtrusive ways (Powel, 1998).

2.4.2.4. Leadership

Leaders need to be aware of their responsibilities. It turns out some leaders think that they are responsible only for providing resources and recommending it to others. According to Robert H. Buckman, to get the benefit of knowledge sharing, it is necessary to invest in it. He urges that as any other investment designed to change an organisation, money isn't enough. You have to give it active entrepreneurial support from the top. The people in charge have to settle down and live the change, not just provide the resources and recommend it to others. Asking the IT department to go forth and introduce a knowledge sharing strategy according to Buckman is a recipe for disaster because the efforts become their proprietary project rather than part of the journey of culture change by an organisation, and other groups then have a tendency to dig in their heels and hope the idea will go away. Buckman concludes that, if you want change in a department, then the head of that department has to lead it, likewise the heads of organisations have to lead changes in their organisations (Buckman, 2004).

The creation and shaping of a knowledge sharing culture depends so much on attention to detail and the visible support of devoted and committed leadership. In particular, an organisation's leaders can help change existing norms and values and foster a knowledge sharing and innovative culture by ensuring that the company's policies and norms for accepted and rewarded behaviour and work processes are carefully laid out to reflect desired knowledge sharing outcomes (Terra & Gordon, 2002).

Cliff Figallo and Nancy Rhine suggest that unless the top tiers of the leadership hierarchy recognise the importance of knowledge exchange in the culture, there is little hope that grass roots efforts will transform the whole organisation. They stress that, too often, leadership from the top levels of the organisation is hesitant to upset the delicate balance of the status quo by initiating new cultural practices or marshalling change within the organisation. In such cases according to Figallo and Rhine, individuals who understand their own needs and the capability of the technology available to them are likely to take some leadership into their own hands and tap into the minds of colleagues who can serve as their personal knowledge resources (Figallo & Rhine, 2002, p.127).

Goldsmith and colleagues in “*Global leadership*” condemn individualistic leadership and suggest that this kind of leadership is not viable for the success of knowledge sharing. According to them unlike individualistic leaders today, successful leaders in the future will strive for integration, not control. They suggest that the singular role will give rise to the internal network of influence which alters the very foundation of an organisation. They stress the importance for leaders to develop the social architecture that encourages bright, confident people to work together successfully and exercise their own creativity. They will need the capacity for personal leadership, stemming from a deep self awareness that develops from the inside out rather than outside in. They conclude that dealing with knowledge workers, people who know more about what they are doing than their managers knows, the old model of leadership will not work and that future leaders will operate in a mode of asking for input and sharing information (Goldsmith et al., 2003).

2.4.3. Technological Factors.

Information technology (IT) has blossomed simultaneously with knowledge being recognized as the most valuable asset of the firm. The rise of distributed technology like intranets and Lotus Notes has had major implications for knowledge managers - and not all of these implications are positive. On the one hand, IT has reduced costs and accelerated the process of transferring best practices and knowledge. On the other hand, in many cases IT has created a flood of knowledge that has seriously overloaded the capacity of employees to understand their environment (O’Dell & Grayson, 1999).

While many people would think that IT facilities are only what they need to facilitate knowledge sharing, they forget the danger of not balancing IT facilities to the amount of information needed. According to Elliot and O’ Dell, IT availability doesn’t guarantee the enthusiastic participation of employees in collecting and sharing knowledge. They suggest one of two obstacles may prevail. They see the problem of employees sharing little information or alternatively flooding the system with information. According to them, technology cannot drive the sharing of competitive intelligence information, nor can it sort relevant information and insist that the role of human factor is necessary to mediate (Elliot & O’Dell, 1999).

Technology can enhance the sharing of knowledge by reducing the restriction pertaining to distance and time. The application of electronic mail, internet, collaboration technologies, bulletin boards, and news groups can support the distribution of knowledge throughout an organisation. However the vast array of technologies available to support organisations in their quest to engage in effective knowledge sharing can be overwhelming. An over-reliance on technology for the purpose of knowledge sharing can also lead into the free-for-all mentality where everything is important and everything is shared (Greco, 1999). Such mentality can lead to decreased employee knowledge performance due to overload and inability to distinguish valuable knowledge from the perceived ease of use (real time, integrated, efficient) and acceptance (encouragement, use) of knowledge sharing technology (Handzic, 2004, p.134).

2.5. Mechanism to enhance knowledge sharing

The first and foremost important thing is to understand the dimensions and the limit of knowledge management practices. This is important so that people know what to expect. According to Holsapple, knowledge management initiatives do not have little chances of changing the overall culture of the organisation, nor should they be used for that purpose. They also do not stand much of a chance if they are positioned as a new activity or direction for the company. Holsapple reveals that best practices organisations have demonstrated that knowledge and sharing succeed most often when they link to a pre-existed core value. More over Holsapple went further suggesting that when collaboration and communication build on core values already embedded within the company, it means less of a change and, therefore, a more natural step for everyone involved (Holsapple, 2003, p.261).

Michael Armstrong in his book “the handbook of human resource management practice” suggests that the role definitions that emerge from organisation design activities should emphasis knowledge sharing as both accountability (a key resulting area) and a competence (an expected mode of behaviour). Thus it can become an accepted part of the fabric and therefore the culture of the organisation. According to Armstrong organisational development activities can focus on team building in communities with an emphasis on processes of interaction, communication and participation. The aim would be to develop a “sharing” culture (Armstrong, 2003, p.182).

Just as the issue of culture and technological infrastructure is important, physical space is similarly important to facilitate knowledge sharing. Buono, Poulfelt and København suggest that the physical environment has an enormous impact on how knowledge sharing is constituted, not just on how members of an organisation are situated, but also on how the physical environment is used to emphasise a firm's processes. They emphasise that the exploitation of physical space as the source of information ensures that employees receive professional knowledge about what other departments are working with, which is especially important in a culture that expects them to be seekers of knowledge and information. According to them this emphasis can be made through pictures or posters that illustrate what the firm does. It can also happen by creating meeting places in the "departmental divide" so that informal conversations can arise between departments and business units (Buono, Poulfelt & København, 2005, p.175).

2.5. Chapter summary.

This chapter reviewed the literature relevant to this study. It outlined the origin of intellectual capital and its components. It then gave a general overview about different components included in intellectual capital. Even though this research will only focus on human capital and structural capital, customer capital and relational capital were also included in this chapter to provide a holistic view of IC. There was no literature found specifically relating to IC in University libraries of Tanzania.

Chapter Three: Theoretical framework and methodology.

3. Theoretical Framework.

As a consequence of ongoing globalisation, organisations found themselves in confrontation with worldwide competition. This in turn has pushed organisations toward thinking of more effective use of the knowledge and expertise owned by their employees as a strategic resource and a way to build and sustain their competitive advantages. In the early 1990's, the business communities realised that knowledge is an important resource for the organisation and needs to be sustained and nurtured. This marked the beginning of the use and the proliferation of the term intellectual capital.

Intellectual capital refers to different things to different people depending on how it is used. This research however adopts the definition from Stewart. Stewart refers to intellectual capital as the sum of everything everybody in a company knows that gives it a competitive advantage (Stewart, 1999, xix).

It is an umbrella term to incorporate, but not limited to, such things as brands, goodwill and intellectual property, corporate culture, peoples' ability and talents and organisations' corporate memory. Depending on the settings to which it is applied, intellectual capital may be divided into Human Capital, Structural Capital and Customer Capital. *The definitions provided below are derived from (Kok, 2007).*

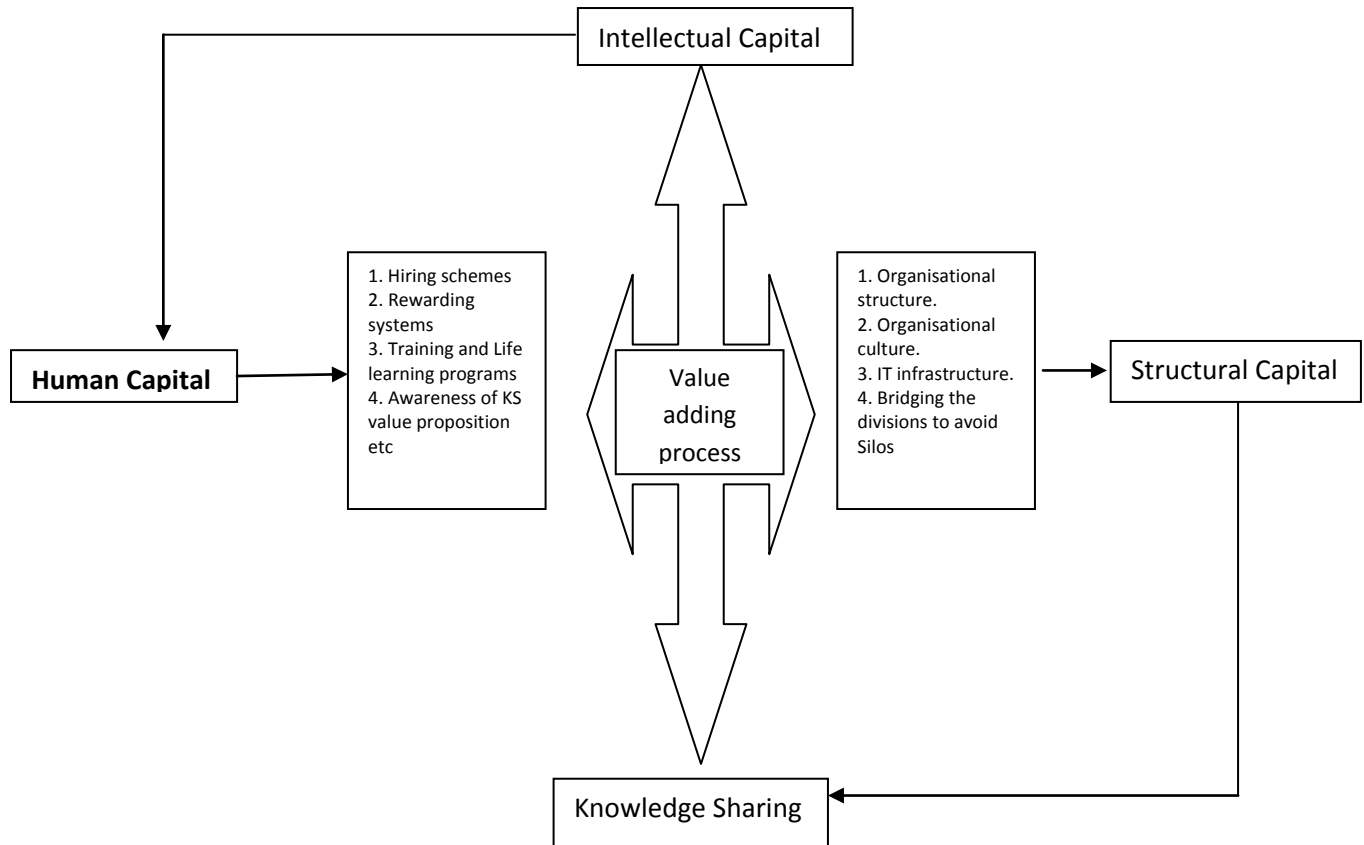
1. Human capital: includes experience, capabilities, skills, and expertise of the human force of an organisation.
2. Structural capital (or organisational capital): includes the systems, networks, policies culture and any other processes that allow individual knowledge to be used to add value to the organisation.
3. Relational (customer) capital: includes the connections that people outside the organisation have with it, their loyalty, the market share, the level of back orders, and similar issues.

Knowledge Management, intellectual capital and knowledge sharing are three key concepts of this research. At some point their relationship is somewhat of a conundrum. The perspective in this research project is that both intellectual capital and knowledge sharing are part of the broader term knowledge management. Intellectual capital focuses on such initiatives by an organisation to explore and use the tacit and explicit knowledge to add value whereby knowledge sharing can be one initiative under it. In the practical world, some practitioners regard knowledge management as misnomer and prefer to use knowledge sharing. However in this research I stress that not only knowledge management deals with knowledge sharing but it indeed concerns itself with the whole process of creating, distributing, applying and evaluating the results of the knowledge in question. I suggest that “management” is not necessarily meaning “control” it may as well mean the skilful handling or use of something such as resource *see section 1.9 for the definition*. This is precisely the best explanation for this research to base its arguments on.

Many ways exist for the discussion of the intellectual capital. This research focuses on how intellectual capital can bring about the positive results in terms of knowledge sharing. It oversees the aspects of Human Capital and Structural Capital to suggest better ways to which knowledge sharing will be improved by the former and the latter resulting in improved performance.

The relationship between intellectual capital and knowledge sharing is indeed binary. Intellectual capital may improve knowledge sharing and knowledge sharing may as well result in the formation of intellectual capital. If through sharing knowledge staff get to know what they did not know before, their intellectual level is improved and their performance may improve as well. However, the focus of this research is to see how human capital and structural capital may lead to better knowledge sharing. It looks at such things as motivation, incentives related to knowledge sharing, creativity, library values, competences and social skills as factors pertaining to Human Capital which may help improve knowledge sharing. It looks at such things as library structure, technological infrastructure and policies to mention but a few as part of structural capital which if they are managed better improvement in knowledge sharing may be achieved. In this research I hold that, human capital is the most valuable component and efforts for enhancing knowledge sharing through intellectual capital should start with human capital. The workforce’s ability to share is first enhanced then the

infrastructure to enable sharing is laid. *See the model below proposed for the theoretical framework to underpin this research.*



Source: Concepts and diagram designed by researcher

3.1. Theoretical perspective.

This research seeks to explain how knowledge sharing will add competitive value to Tanzania public university libraries. Through the use of adequate sample size, the purpose of this research will be to generalise the results of the findings. It is therefore with this effect that the research is developed from a postpositivist perspective. According to Lincoln and Guba, the purpose of positivistic research is to generalise the findings. Postpositivism is rooted under the premise that any perception of the reality cannot be an objective picture but is drawn from the empirical observation and existing theory (Pickard, 2007, 10). According to Lincoln and Guba a postpositivist believes in the social reality and accepts that knowing this reality will always be inhibited by imperfections in detecting its nature. The imperfections are the results of human fallibility (Lincoln and Guba, 1985).

3.2. Methodology.

This is survey research whereby a sample is studied to draw conclusions about the population. The choice of survey research is a consequence of inability to study the whole population due to time and limited resources. It seeks to establish the relationships between knowledge sharing and intellectual capital without experimental manipulation. The research is intended to be an explanatory survey. Burns states that the explanatory survey seeks to establish cause and effect relationships but without experimental manipulation; for example, the effects on teacher's motivation of merit scheme, the effect of social climate on adolescent values (Burns, 2000, p.566).

3.3. Research design.

This research is intended to employ both qualitative and quantitative methods. Largely the research will use qualitative methods to collect descriptive and detailed data. The qualitative method will be characterised by open ended questions to give respondents more space to air out their view. To make it possible to generalise the results of the findings, the research at some point will employ some quantitative techniques such as the use of statistics, comparison based on some kind of scales and percentages. To clarify some issues charts with statistics and interpretations will also be used if appropriate.

3.4. Area of study.

This research focuses on intellectual capital *see chapter one for the choice of the topic*. Specifically the research focuses attention to Public University libraries of Tanzania. The research studies public university libraries and is limited to aspects of intellectual capital pertaining to knowledge sharing.

3.5. The population.

The population of the study involves respondents coming from 6 Public University libraries found in Tanzania mainland. The state University of Zanzibar, Muhimbili University College of Health Science (MUHAS) and University College of Lands and Architecture Studies (UCLAS) were not covered due to time. The research studies the University of Dar es salaam where MUHAS and UCLAS are attached. The population however will be library staff from various departments attached to these libraries. From the list of library staff shown on these

universities websites, 105 staff was found in 5 libraries plus an estimated 11 from the sixth library which the number of staff could not be established makes the total population 116. The researcher calculated the average number of staff in the five libraries to predict the number for the sixth library.

3.6. Sampling.

The sample selected is 24 respondents from the library staff in these selected Universities. Because of time limitations, the researcher considers this sample adequate to establish the facts intended. According to (Pickard, 2007), there are no priori numerical restrictions on the sample size with snowball rather it demands a viable exit strategy. The sample calculation for random sampling presented by Pickard on pg 62, shows that in the 10 examples she used, the sample size of 10% was adequate to establish the required facts. This research used 27% of the population as the sample. However, analysing 21 out of 24 questionnaires sent to respondents, it was found out that the last 9 questionnaires were bringing the same responses and the researcher found no need to follow up the remaining 3 questionnaires.

Purposive sampling was used whereby a snowball sampling approach was employed. Three potential informants were contacted and asked to identify more 21 respondents who could fill the questionnaire. The three key informants were known to have links with at least two libraries each thus making it easy to cover the set of six libraries to be studied. Twenty four questionnaires were sent to two assistant librarians and one principal library assistant to be distributed in six public university libraries. According to Denzin, (as cited in Pickard, 2007) the first and original of this type of sampling is to make initial contact with key informants who, in turn, point to information rich cases (Denzin, 1978, p.89). It was then established that some librarians were busy and could not fill even their own questionnaires.

Also the researcher found two students who volunteered to distribute the questionnaires in three libraries, adding to the two Librarians identified previously. To reduce the level of bias posed by the initial selection of the key informants, the questionnaires were sent in two parts. Given the nature of library work, it was identified that staff operates in two shifts. Half of the questionnaires were sent the 1st day and half the following day to allow those who attended the evening shift in the previous day to fill in the questionnaires. In three Universities the two students who distributed the questionnaire asked for four volunteers to fill in the

questionnaires in each university. The two librarians sent questionnaires by email to one librarian in each of the remaining three Universities and asked them to seek volunteers to fill in the questionnaires.

3.7. Data collection methods.

3.7.1. Questionnaires.

The research administered a questionnaire to library staff. Open questions targeting detailed responses were used to harmonise the likert based questions. In consideration the number of respondents at this group questionnaire was considered to be the best way to collect data from this group. Twenty-one respondents were able to fill in the questionnaires hopefully with enough time for them to think and write their answer without being pressured.

To ensure reliability, the questionnaires were pre-tested before they were distributed to respondents. Purposive sampling was used to select five students from the second year students of the International Master in Digital Library Learning (DILL). The students chosen for this pilot study were only those who are working or have worked in libraries before they joined the program. The aim was to use the respondents who more closely reflect the intended audience. The results from the four questionnaires received back revealed that there was consistency in interpreting the questions and they were understood as the researcher wanted them to be understood

The questions were triangulated to maximize the validity of the findings. The use of alternate questions was emphasised whereby one question is asked in two different ways for instance with multiple choices and then rephrased later with text box for the respondent to write the answer. This was aimed to compensate for the absence of interviews, which were not feasible to undertake due to time and distance constraints.

3.7.2. Using secondary data.

Secondary data are useful to this research in many respects. The need to establish the state of use of intellectual capital in libraries depended much on the review of secondary data. Secondary data provided more feedback needed to support research questions and enable the objectives to be realised. The researcher used Public University Libraries websites to look for

useful information such as policies and reports. Journal articles and conference papers were used to study any latest development publicised from any of these sources.

3.8. Research Instruments.

Due to the limited time and resources, the research employed only a few instruments. As mentioned previously questionnaires were the main instrument for this research. However, chat facilities such as yahoo messenger and computer to mobile phone facilities such as 12voip were used to follow up questionnaires. A questionnaire was designed to enable respondents to use Microsoft Word to fill them so as to save time and printing costs. Due to the limits in number of questions the use of some specialised online survey tools such as Survey Monkey failed so Microsoft Word was used due to compatibility issues. The use of specialised advanced tools for designing forms in MS Word proved to be problematic as it uses macros which need to be modified every time you open the file in a different computer. The use of check boxes and combo boxes posed serious problems beyond the capacity the researcher could solve. As the result of that a simple design which run smoothly in office 1997 -2003 was used where-by checkboxes are replaced by angle brackets for instance.

3.9. Data analysis and presentation.

Data collected from the field was organised in a meaningful manner useful for the research. MS Excel was used for data analysis whereby tables were used to capture the scores for each question. A table with all the questions and answers collected from the field by questionnaires was placed in Excel. Data about how knowledge is shared and what kind of incentives are in place were captured in the table with their score against the code of the respective university. The total scores were then calculated and their percentage representation provided in separate column *see the tables in the appendices*. Excel formulas were used to calculate the percentages and the sum presented by different questions. Quantitative methods were used to process the data through tables and comparison. Qualitatively through descriptive narrative the researcher represented the findings. According to (Pickard, 2007), descriptive narrative is a flawlessly acceptable form of data presentation to inform the audience what you have found, your written theory and all the evidence that contributed to the emergence of that theory.

3.10. Research Limitations and Time frame.

Time needed to collect the data and present the findings was indeed a challenge and a limiting factor to this research. This affected the size of the sample selected, the methodology and the instrument used to collect data. Questionnaires were used as the only feasible data collection method with the time scale and distance limit. Formal interviews and other methods could have been useful but due to time limits, It was not possible to make use of them.

Again this research was limited in terms of the literature. Given the fact that the amount of literature on intellectual capital is indeed vast, the literature specifically relating to intellectual capital matters pertaining to libraries is limited. Much can be found in the business context.

The distance to the field area has limited this research a great deal. The choices of methodology and sampling have been constrained by the distance. The use of such methods as interview and observation proved to be difficult and at times impossible. With the divergence of the study population the only feasible sampling method was snowball sampling which is criticised for its inability to overcome biases. The myriad of sampling possibilities and methodologies could have been feasible if not for the distance; for instance random sampling and even interviews to mention but a few. *See Time frame in appendices.*

3.11. Chapter summary

Intellectual capital may be discussed from various perspectives. This chapter started by presenting a theoretical framework. Under this framework intellectual capital and its components are defined and given context in the sense of this research. Then this chapter outlined the perspective chosen by this research. In relation to the aims and objectives of this research, the postpositivistic view was preferred. The choice of methodology is explained in this chapter. Survey is the methodology used by this research due to the factors explained in section 3.2. To achieve its goal the research applied both qualitative and quantitative methods, among other reasons being the possibility to take the advantage of the strength of each method to ensure reliability and validity. The research covered public university libraries of Tanzania and used snowball sampling. Data was collected using questionnaires supplemented by secondary sources such as information found in websites. At the end of this

chapter data analysis was explained. Ms Excel was the software used to analyse data and descriptive narrative was the technique chosen to represent the findings.

Chapter four: Data analysis and presentation of the findings

4. Introduction.

This chapter presents and discusses what is found from the field. It starts by presenting the summary of the findings in two separate tables to make the discussion easy to follow. The first table sets out the summary of the responses showing how knowledge is shared followed by discussion. The second table shows the findings relating to what incentives are used to promote knowledge sharing and is followed by discussion. Subsequently, there is discussion of how intellectual capital may be used to facilitate knowledge sharing.

knowledge sharing in Public University Libraries in Tanzania

Activities	Score per University (out of 21). 21 Questionnaires out of 24(3 not returned)							OUT OF 21	scores in %
1a	How knowledge is shared (Between Library staff)								
	MUCCOBS	MU	OUT	UDOM	UDSM	SUA	TOTAL		
Through meetings.	4	3	3	4	3	2	17	81%	
Get together parties.									
Seminars.			3	1	2		6	29%	
Messengers and other online facilities.		1	1	1			3	14%	
Any other									
Through heads of departments	1						1	5%	
1b	How knowledge is shared with other libraries								
Through library forums.	3		2	1	1		7	33%	
Sharing best practices	3	1	4	4	3	1	15	71%	
Communities of practices			1	2	1		4	19%	
TLA seminars		1	1				2	10%	
Any other									
Library Bulletin		1					1	5%	
COTUL (In its infancy)		1					1	5%	

Table 1. Findings on knowledge sharing strategies

4.1. How is knowledge shared

Sharing knowledge is becoming one of the most important recipes for the success of organisations. We live in turbulent and dynamic times where technology is ever changing and competition is the reality organisations must face. Knowledge sharing is indeed critical to the success of organisations especially where resources are scarce. The coalition of interest is

increasing recognising knowledge sharing as a means to achieve a task which separation would never have achieved. Libraries as non profit organisations need knowledge sharing to share limited resources to maximize their output.

This study revealed that a pattern of knowledge sharing in public university libraries of Tanzania is somewhat common. The data collected suggests that knowledge sharing is done largely through formal ways with meetings scoring 81% of the responses. A good number of respondents suggested that sharing best practices, Library forums and seminars among other methods are those most commonly used.

4.1.1. The current state of knowledge sharing.

As suggested in the previous paragraph the current state of knowledge sharing is evidently low. The use of informal knowledge sharing infrastructures is exercised at a very minimal level, 12.5%, that is 3 out of 21 respondents. The use of only formal ways of knowledge sharing does not warrant the full advantage of knowledge sharing. Data collected on how the vision is shared for instance suggests that 43% (9 out of 21), in-house training scoring 43% (9 out of 21), Library's code of conduct 33% (7 out of 21) with the rest (strategic planning, libraries policies and meetings) scoring 5% that is one vote each. Findings suggest that even though knowledge is shared, there is no deliberate attempt to develop a strategy for sharing nor are any of the means used developed solely for the purpose of sharing. The Global Collaborative Environment (GCE) implemented by Boeing or Kinetics by Buckman Laboratory are examples of strategies which can facilitate informal knowledge sharing. Successful knowledge sharing is a continuous process rather than something happening once or twice a month. Data shows that only 9 of 21 (43%) respondents agree that meetings are often arranged.

The very nature of the meetings makes them less effective for knowledge sharing rather that they are the best vehicles for communications especially top down communication. Studies suggest that informal ways of knowledge sharing are more successful than formal channels of knowledge sharing *see for example* (Holsapple, 2003; Nonaka, Toyama, & Konno, 2000). Social interaction is known to contribute a lot in creating and sharing tacit knowledge. Data shows that out of all 21 respondents, none proposed informal strategies of knowledge sharing at their workplace. Learning organisation has been among the best strategies to promote both

informal and formal knowledge sharing Tanzania public university libraries are missing. To successfully reap the benefit of knowledge sharing, public university Libraries need to promote social events, network building through communities of practice, workshops and informal meetings.

4.1.2. The implication of formal knowledge sharing in the absence of informal knowledge sharing.

Formal structures are essential to create more opportunities for accumulating and transferring knowledge. Solutions for easy and anticipated problems can easily be integrated in the formal structure intended for knowledge sharing. With the advancement in technology some systems are designed to carry out automatic updates for some routine activities thus facilitate the provision of updated knowledge for decision making. However, even with the implementation of these structures, it should be very clear that this is one step forward and using them to input knowledge which will eventually add value to the organisation is more critical and complex. Care needs to be taken to offset some social factors and to enhance employee skills with the aims of implementing these structures and finding out how to optimise them to achieve better results. (Bhatt, 2002) suggests that even with the presence of formal structures, employees tend to form their own informal networks where they can get necessary knowledge.

Formal practices of knowledge sharing are promoted by rewards. Lack of motivation to share knowledge among staff may be the result in the absence of systems designed to reward knowledge sharing. Six out of 21 respondents (29%) suggested that knowledge sharing is recognised, eight respondents (38%) suggested promotion as a reward, while only two (10%) suggested financial benefit. Data suggest that even the rewards suggested may not be officially in place as there was no consistency in response from any university as to what kind of rewards were in place. If they were laid down in such things as policies or codes of conduct it is likely there would be some consistency. However, the design of reward systems is indeed a challenge. This is partly due to the fact that employee satisfaction may not only depend on financial benefits but rather also with many other factors such as being intellectually acknowledged and recognised. If there is no way to make employees perceive knowledge creation and sharing as part of their recognised job, then even a lot of efforts to encourage them to share may achieve negative results.

The importance of formal knowledge sharing cannot be underscored for so many reasons. As suggested in the literature on how effective informal knowledge sharing is to exploit tacit knowledge, the need for systematic (formal) efforts to codify knowledge and store it in an organisational base for universal use is of prime importance. Findings show that 57% (12 respondents) pointed out that staff are often willing to share their knowledge. The score could have been better if informal knowledge sharing strategies were in place. Different departments, communities of practices and other organisational units create knowledge and some order is needed. Once the knowledge created is stored in a formal way i.e. in an organisational knowledge base it becomes easy for different users of knowledge to easily trace the knowledge and speed up decision making.

It should however be noted that knowledge generated by formal practices may not be very useful in helping experienced teams produce better results but they are indeed useful in helping new teams. More results would perhaps be achieved by interpersonal knowledge sharing which is indeed time consuming and difficult to exercise in the work environment. The research found that none of the respondents mentioned maintenance of a knowledge base, suggesting that the use of knowledge bases is not common in Tanzania public university libraries. If this is the case then we may predict that more time is needed to retrieve information for day to day activities.

Easy access and distribution of knowledge are some of the key important factors to formalise knowledge sharing. Technology such as intranet and web tools may be used to support the maintenance of formal information infrastructure thus allowing indexing, storage, classification and sharing activities. Technology then may be used to launch an environment where the indexed and stored knowledge is made available to all staff that needs the particular information. Unfortunately only 3 (14%) of respondents suggested the uses of online facilities for knowledge sharing. In public libraries for instance the documentation of cataloguing and classification decisions (authority file) may be centrally stored electronically and made accessible to the different departments who need the information. This will facilitate the consistency of decision making and save time while assuring correct choices.

Best practices have helped business companies double their profit. The examples of an account for success achieved by Buckman Laboratories are presented by Harvard Business Review. One of the things they did was send out its PhDs to gather best business practices worldwide and then share with all associates in the company. This as it was for Buckman Laboratory may be expensive for many libraries but best practices include also learning to add value more economically. In libraries, exchange of staff may be affordable and will achieve much the same results. Buckman reported a profit of 100% after the introduction of a formal system to share and capture knowledge within and outside the company. They used technology to capture how problems were solved and reused the solutions to save more time, and greater efficiency was achieved. *See (Fulmer,1999).*

Best practices scored very high responses from respondents, that is 71% (15 of 21 respondents). However, most of those who mentioned sharing best practices also mentioned meetings organised by The Tanzania Libraries Association as an example where they share best practices. This is perhaps one of the initiatives the Tanzania Libraries Association needs to be complimented for. On the other hand, when we try to see examples from those companies which realised increased productivity through best practices there is so much to learn. When we see the efforts done for instance by Buckman Laboratory, BP, Singapore Government and other examples mentioned in different knowledge sharing literature, we can already predict that best practices are exercised at a very marginal scale in Public University Libraries of Tanzania *See examples in Buckman laboratory (A) found in Fulmer(1999), Knowledge sharing practices in Asian institutions (Chaudhry, 2005), see the implementation of kinetics in Buckman laboratories as presented in (Fulmer, 1999).*

Best practices imply learning from those who are more successful. It is more of a company's efforts which are in the very best position to access which kind of lessons are likely to be more useful to their situation from those who are more successful. The nature of these kinds of meeting by TLA is far from addressing any specific problem pertaining to a particular library, rather to providing information and at times to find a solution to a particular problem. In these meetings one person or two will be representing the library and then waiting for another meeting may be in six months time. If then the TLA's meetings are the core platform for the best practices, it means very little is done regarding best practices due to the fact that the meetings are not very frequent.

Sending different library staff to those libraries with outstanding records in particular kind of activities could have improved the best practices in Tanzania University Libraries. From the

findings, we learn that other libraries invest much in consultancies while others have not mentioned doing consultancies in any area. When I learnt this from the data, I went further to find out from Libraries' websites the possible reasons for the differences. From the staff list found in these sites, it was discovered that, three libraries which insist on research have staff with a higher level of education than the rest *see the consultancies figures in the appendices*. This suggests differences in training and staff development policies. As pointed out in the literature review section 2.1.2, investment in Human Capital is perhaps the most important of three aspects of intellectual capital. Knowledge sharing depends much on the ability and experiences of libraries staff. When the gap in education level and policies is big they may be hesitant to cooperate.

At this juncture where there is a threat of traditional libraries being replaced by digital libraries, innovation is very important. Tanzania University Libraries should form networks which allow them to reuse their knowledge and create new knowledge. This is possible if the best practices are taken to a next level where there should be a culture for these libraries to have staff exchange programs which will improve codification of tacit knowledge. An example given by (Nonaka & Takeuchi, 1995) comparing two bread making factories using the same materials but with a huge difference in success give us a clue as to how powerful a simple act of adding a little knowledge to the normal practices would result in change. More success for University Libraries in Tanzania lies not in their routines but on innovation and adding new knowledge to improve their routines.

4.1.3. The significance of informal knowledge sharing.

Findings suggest that meetings, seminars, sharing best practices and library forums are the most common strategies Public University Libraries use in Tanzania. There is an increased need for corporate learning as a measure to compliment the formal ways of knowledge sharing in Libraries. Corporate learning should emphasize the sharing of knowledge by capturing experiences, reusing them, creating new knowledge and solving problems arising in the course of conducting day to day activities in cooperation. Through the use of communities of practice corporate learning is promoted.

Virtual learning environments are among the effective ways University Libraries can share knowledge. Findings suggest that the use of technology to facilitate knowledge sharing need

to be emphasised in Tanzania public university libraries. E-mail mailing lists, wikis, electronic bulletin boards, intranets, blogs, and other forms of groupware, such as web-conferencing systems are not well used by libraries. It may sound expensive to implement these facilities, but in actual fact, these are some of the things library staff use in their daily life. The emphasis on formal ways of knowledge sharing has rendered most technological infrastructure underutilised. However, ICT facilities could have been used to facilitate informal knowledge sharing and minimise costs. Library forums among other strategies for knowledge sharing can be well facilitated by technology and reduce the cost of hosting traditional library forums.

Etienne Wenger, one of the originators of the term communities of practice, suggests that communities are not limited by formal structures. They create connections among people across organizational and geographic boundaries. From this perspective, the knowledge of an organization lives in a constellation of communities of practice, each taking care of a specific aspect of the competence that the organization needs. He however suggests that the very characteristics that make communities of practice a good fit for stewarding knowledge (autonomy, practitioner-orientation, informality, crossing boundaries) are also characteristics that make them a challenge for traditional hierarchical organizations (Wenger, 1998). When cooperation among Tanzania University Libraries is promoted, communities of practice may be easy to nurture.

When a forum is created for experts in different areas to meet, learning is likely to happen even more than in seminars and meetings. The likely outcome is for these experts to start communicating and learn from each other, thus gaining more knowledge. This is only more possible when informal meetings are arranged. It is one way to enable staff to change the environment through the opportunity for them to meet and exchange knowledge which in turn will add value to the organisation. According to the findings none of the respondents acknowledged the presence of informal meetings which are very crucial for knowledge sharing as suggested in section 4.1.

Kai Hakkarainen in “*communities of networked experts*” presents an example of a successful venture emerging out of informal knowledge sharing. An example of the power of informal discussions according to Hakkarainen led to the development of one of the most successful

products of Nokia, the Communicator. Hakkarainen points out that this emerged accidentally in an informal and unscheduled meeting between two or three engineers (Hakkarainen, 2004). The promotion of informal knowledge sharing could have also helped Tanzania public university libraries solve some of their problems or lead them to an innovation which will move the libraries a step ahead.

The body of literature advocating the importance of informal networks and sharing is growing. Failing to take account of the powerful internal forces within organisations, according to (Cook, 1999) is a fundamental weakness in many knowledge management implementation processes. Insights can be gained into what (Levinson, 1999) describes as “mutual utility” and by Capron and (Kuiper, 1998) as a “shared spirit of community”. Informal networks are important devices for promoting communication within and between organisations which are perceived by (Conway, 2002) as structures that supplement, complement and add value to the formal organisation. In sometimes bypassing the formal organisation’s system of communication (Rachman & Mescon, 1985) suggest that such structures strongly influence the distribution of power and while the formal organisation spells out who should have power, it is the informal organisation that sometimes reveals who actually has it.

Informal knowledge sharing facilitates the leveraging of knowledge even outside the organisation. Individuals within these informal structures will maintain contacts even if they switch from one to another. Informal structures are more powerful as Wenger suggested, due to the fact that the organisation itself may have little impact on how informal knowledge sharing networks are formed and operate. With changing demographics, at times libraries may find themselves facing the challenge of losing important skills due to retirement. Communities of practice are among informal strategies Tanzania Public libraries may use to take advantage of by connecting with these people with skills and enjoying their service.

4.1.4. Disadvantages of Informal knowledge sharing.

Having put forward reasons as to why Tanzania public university libraries need to promote informal strategies of knowledge sharing, it is important to expose its shortcomings too. When trying to promote informal knowledge sharing, there will be a need to assess both its merits and shortcomings to enable formal decisions.

While informal techniques of knowledge sharing facilitate participation, it should be noted that unlike formal knowledge sharing, the presentation of informal knowledge sharing is not based in any kind of a schema. This kind of presentation poses a serious challenge in managing the resulting knowledge in a logical way which may enable future reuse. This does suggest that any semantic search for informal knowledge is not possible and urges the need to combine both informal and formal approaches to allow capturing and the future reuse of the captured knowledge. The valuable informal knowledge may be captured in a formal structure to allow its wider use. This will only be possible if knowledge holders are willing to facilitate its codification in a kind of structure. In a library for instance, a member may have captured some kind of knowledge from wikis and document it for others to use. Many computer application problems are well solved in forums, and if libraries motivate people to import these kinds of knowledge to their knowledge base, then more value will be added to library routines.

Another drawback of informal processes is the fact that they are not owned by the organisation, informal knowledge processes are owned by the knowledge workers who create and use them. This suggests that if there is no mechanism to encourage owners to share and to allow capture of the resulting knowledge then chances are high that they may soon be forgotten, even by their creators. As a consequence more time is spent in a continuous reinvention of the same knowledge which would not be the case if it was captured in some way. This is a challenge for organisations to embark on understanding how knowledge workers can be encouraged to share knowledge. It will need a lot of research and resources but the outcome may result in increased productivity. Tanzania public university libraries alternatively may encourage more effective use of technological infrastructure and encourage the uses of online forums and wikis. The outcome of the findings suggested that online facilities are barely used for sharing. It may be due to the fact that many library staff are not aware of existence of such facilities or that their use is discouraged by the authorities because of the perception that library staff spends more time in these facilities for their personal benefits than attending to their duties.

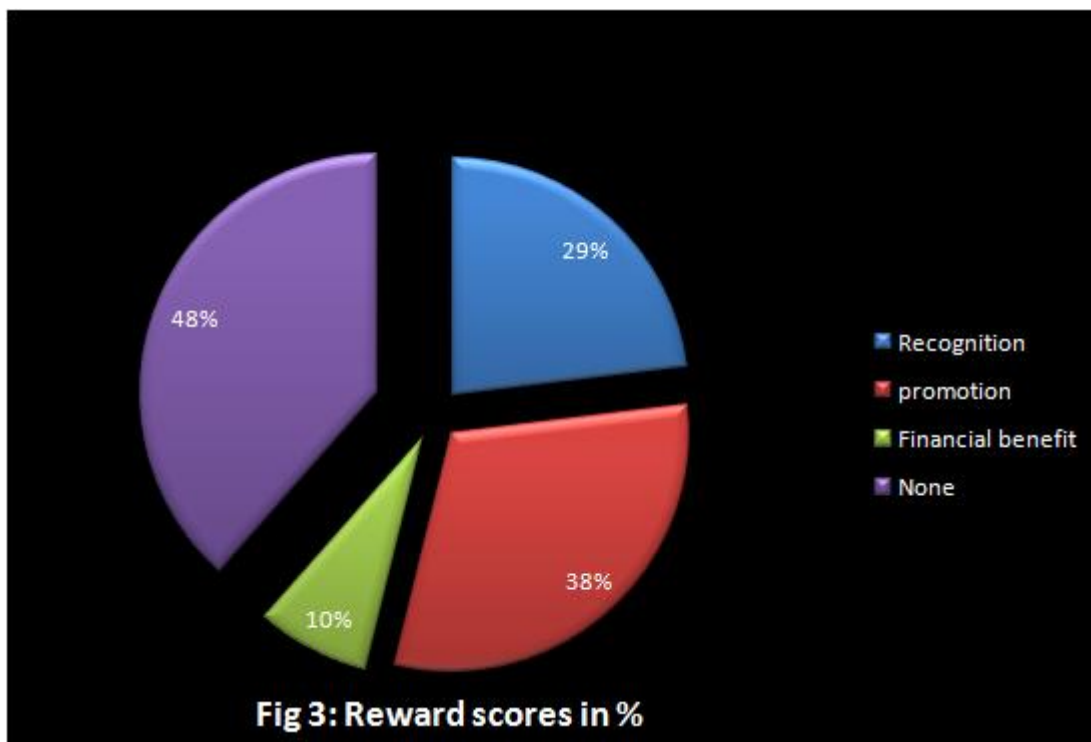
4.2. The incentives used by Tanzania public university libraries.

Having discussed how knowledge is shared and the advantages and disadvantages pertaining to the way knowledge is shared, this section seeks to explore what incentives Tanzania public university libraries have in place to facilitate knowledge sharing. It will start by presenting a table showing the summary of the incentives suggested by the respondents from these libraries. *See table below.*

Incentives for knowledge sharing										
		Score per University (out of 21). 21 Questionnaires out of 24								
	Type of incentive	MUCCOBS	MU	OUT	UDOM	UDSM	SUA	TOTAL	OUT OF 21	SCORES IN %
1.	Recognition		1	1	2	2		6	21	29%
2.	promotion		1	2	2	3		8	21	38%
3.	Financial benefit				1	1		2	21	10%
4.	None	4	2	1	1		2	10	21	48%
5.	Any other	-	-	-	-	-	-	-	21	0%

Fig 2. Table showing incentives for knowledge sharing

Knowledge sharing is well promoted by recognition of individual contributions toward knowledge sharing. Organisational structures should strive to incorporate reward systems as a way to encourage staff to share their knowledge. However reconciling different reward and recognition approaches across the organisation can pose serious challenges. As the above table suggests, different opinions exist as to how knowledge sharing is rewarded in Tanzania public university libraries. What is evident is that the scores for the non existence of compensation system is high compared to any reward suggested. Recognition also scored more highly than promotion and financial benefits. However the maximum percentage scores suggested by rewarding and non rewarding system is only 48% for no existence of rewarding system, *see figure below for the percentage distributions of incentives.*



4.2.1. The effectiveness of the incentives used.

Rewards systems are complex and difficult to design. Findings suggest that despite the presence of the incentives mentioned above, knowledge sharing is still exercised at a minimal level in Tanzania public university libraries with only 14% (3 out of 21) suggesting informal sharing. Seventeen out of 21 (81%) suggested meetings while six (29%) for seminars and one (5%) through head of departments, *see 4.1.2 for the discussion about pros and cons posed by the absence of informal knowledge sharing*. Studies by Kimiz suggests that in practice, informal incentives in form of recognition by management, and visibility within the organisation can often be more powerful incentives than the formal incentive systems. *See more about informal incentives in (Kimiz, 2005)*

As the findings suggest, the availability of rewards has not influenced much the success of knowledge sharing in Tanzania public university libraries as statistics suggest sharing exercised below average for all strategies except for meeting scoring 57%. Even though some gaps were identified as discussed in previous sections which could suggest the ineffectiveness of knowledge sharing, it is indeed vital to rethink how we design our rewarding systems. No consistency was found in any type of rewarding system that allows us to conclude that a particular university is using a particular kind of incentive. The only consistency from a

single university was for all respondents to suggest that there are no any incentives for knowledge sharing. Other responses were distributed, for instance, two respondents from same university mentioned a similar incentive, one mentioned another incentive and another one suggested there is no incentive at all. The next section makes a few suggestions on how the reward system can be improved. The terms “reward” and “compensation” are used interchangeably within the following discussion to mean any benefit a person receives, attributed to his or her knowledge contribution.

4.2.2. Measures to improve the rewarding system.

As suggested in section 4.1.2 knowledge sharing needs to be recognised by staff as part of their job and incorporated in their job description. Nermien Al-Ali suggests that if employees do not perceive knowledge sharing to be part of their job for which they are compensated, they will not do it. Time for sharing and collaboration should be well accepted as part of the job, and the job description should specify how it should be exercised. It should be very clear as to what time is devoted to sharing activities and how the contribution will be noted and rewarded, *See Al-Ali (2003)*. Tanzania public university libraries need to specify the time and tools meant to facilitate knowledge sharing and make them known to staff.

Such rewards like financial compensation and recognition do not last long because they are not documented anywhere; as a matter of fact they are easily forgotten. Tanzania public university libraries need to find a way to present the acknowledgment of knowledge shared in such a way that, the next generation can read about these kind of success and feel the inspiration to follow past examples or even to do something bigger. One way to achieve this is through reflecting past achievements in employees’ performance reviews and appraisal systems. Once there is evidence for future reference reflecting the names of the knowledge sharers, what they shared and how it helped the success of the organisation, other people are likely to be motivated to share. Best practices success stories can indeed be a motivation once they are celebrated.

The design of the reward systems should start by identifying the previous existing ones. Assessment should be made to identify their achievement and how they can best fit the current situation. In Tanzania public university libraries for instance, it may start by assessing the impact that promotion and recognition have on knowledge sharing as both seem to score

more according to the responses. Resistance to change is a well known phenomenon addressed in many human resource management courses and those responsible for designing the reward systems should first consider the possibility of upgrading the existing systems. When it is known that the existing systems are not suitable that is when they should think of establishing new systems.

Compensation systems are indeed designed for motivation. How they are presented and how they are perceived will dictate how successful the outcome is likely to be. If we present it in such a way that we reward in order to acknowledge the value of the knowledge shared, it is most likely to be more successful than if we present it as a way to encourage the person rewarded and those who are there to see the reward. A contribution in terms of knowledge is difficult to measure so as to know how much you should reward. If then the reward is perceived to be little compared to the outcome of the value of knowledge shared, then the ultimate value of rewarding loses its meaning. This is precisely the justification to why it should not be presented as a motivation rather it should be presented as an acknowledgement.

Proper placements and well defined tasks may as well be considered in designing compensation schemes. The issue of intrinsic and extrinsic motivation is critical and worth consideration if a compensation system needs to achieve positive results. The study on rewards and recognition conducted by the American Productivity and Quality Center (APQC) with representatives from 20 member companies of APQC's International Benchmarking Clearinghouse, including: ChevronTexaco, Halliburton, Hewlett-Packard, Intel Corporation, John Deere, Lockheed Martin, Microsoft, NASA, Nortel Networks, Shell Chemicals, and Sprint suggests that intrinsic motivation originates internally and emerges when the task itself seems rewarding and meets a person's goals. The study suggests that if for example you give people \$20 every time they come to a community of practice event and then stop giving them that, they are going to be upset. The study stresses the need to be cautious about attaching extrinsic rewards to behaviour you want to persist over time." As extrinsic motivation or the perception by the person that they are acting because of extrinsic motivation increases, intrinsic motivation can decline. If intrinsic motivation declines, it may take more extrinsic rewards to maintain the behaviour (APQC, 2002).

The reward system should not leave staff in suspense. It should state clearly the level of contribution meriting a reward. This notion is supported by the McKinsey Non-profit Practice report, "*Building Knowledge Management Capabilities*". They indicate the need to establish minimum standards for expected contribution, offer rewards or recognition for outstanding efforts, and provide quick, easy access to submitted knowledge as a tangible result of efforts. *See more about this report in* (Liebowitz & Watt, 2006). The need to set minimum standards is important to rule out the possibility of discontent among staff who may feel that the selection of who is to be awarded is unfair. The placement of the standard should consider different capabilities of the participating staff. Ideally the standard should start by setting low minimum requirements to accommodate whoever has knowledge and wishes to contribute and then increase with time as staff get more acquainted with the reward system. The standard is not supposed to be a barrier but a guideline to what is expected from staff. When it is too high it may obstruct some from participating.

Extra care is needed when matching the contribution to the reward. Self interest and motivation toward creating and sharing knowledge should not be interfered with by the financial benefit posed by the rewarding system. The introduction of a reward system may bring together with it some financial benefits. This is the time when, if the knowledge is directed toward a centralised knowledge base, then the organisation should think of buying extra storage devices. They will be a mass contribution nonetheless the quality of what is contributed may be more of a problem than a value to the company. There should be a moderator in whatsoever system is to be implemented. In Tanzania Public Universities Libraries this can be done for instance by asking staff to think on how to customise the available software to accommodate addition information pertaining to specific libraries.

4.2. The need for Tanzania public university libraries to share knowledge

Having discussed how knowledge is shared and what the incentives for knowledge sharing are, this section discusses why it is important for Tanzania public university libraries to share knowledge. When asked to give their opinion about what they think about knowledge sharing seven out of thirteen respondents suggested the need for more education on the importance of knowledge sharing. The remaining respondents acknowledged the significance of knowledge

sharing and suggested the improvement of the knowledge sharing infrastructures mentioning technology and lack of motivation as the obstacles. This section combines findings from this research and other studies as presented in chapter two to propose why Tanzania public university libraries need to share knowledge.

Knowledge sharing is one of the best strategies for libraries to effectively use the knowledge residing in the heads of their employees. Davenport and Prusak pointed out that the only sustainable advance a firm has, comes from what it collectively knows, how efficiently it uses what it knows and how quickly it acquires and uses new knowledge, *see more in section 2.3*. The investigation of library staff competences through library websites, revealed the diversity of skills in public university libraries. The most common competences found in libraries includes IT personnel, librarians and a good number of library staff with an educational background. Once libraries lay an infrastructure through which sharing is encouraged across these disciplines, more and more value is likely to be added to library practices. It is well known that libraries are non profit organisations and face funding problems. To make it worse technology is changing so fast and the ability to acquire more sophisticated systems is indeed limited. Librarians do study ideally systems for the libraries and IT personnel can work together with librarians to customise the current infrastructure to accommodate specific needs of a particular library. On the other side staff with a teaching background may assist in designing more user oriented services due to the fact they have strong background in psychology which facilitates undertaking user studies.

Innovation is fostered by knowledge sharing through the free flow of ideas. With Tanzania public university libraries, innovation is of prime importance. Data collected reveals that 100% of responses strongly agree that sharing knowledge downwards towards is encouraged and 81% strongly agreed that sharing towards downwards is encouraged. This allows us to conclude that if better infrastructure for sharing is implemented innovation through sharing is the likely outcome. Chances are high that through innovation many problems are likely to be solved. Among others, designing a reward system can best be done with staff who understand the system best. Most of the models designed favour a well established technological infrastructure which may not be appropriate for library environments in Tanzania. If a forum is established to discuss how knowledge sharing should be rewarded and all libraries participate in discussion, most likely the reward system problem

may be solved. Through innovation for instance, library staff may use free online facilities to establish a forum through which they share knowledge on common problems surrounding their day to day work problems. Skype is one good example which may promote this kind of online forum.

Knowledge sharing will help Tanzania public university libraries to understand their customers better. In this era the value of libraries will no longer be in the size of the collection but will be related to good relationships with users, *see more discussion on this in (Cribb, 2005) and (Broady-Preston, 2006)*. Libraries need to rethink their relationship with users. George S. Day and colleague stress the importance of inter-organisational learning and the value of customer contribution and attributed two thirds of innovation in some industries with the customer's initial suggestions and ideas, *see more in section 2.3*. Once best practices resulted from user studies among public University libraries in Tanzania are shared, improvement on how they handle library users is likely to result. The need to understand library users better is increasingly important especially when users feel that they can solve all their information needs through the internet and don't need libraries. This is supported by findings from Broady Preston and Preston suggesting that users information seeking behaviour and their increased sophistication demand the future role of libraries stress value added services, *see customer capital 2.1.1*.

Knowledge sharing will result in efficiency and improved quality. It will help libraries to carry out work faster and more cheaply due to the re-use of knowledge. Sharing will help consistency in libraries and improve the quality of outputs due to consistency. It is not a surprise to find the same book placed in different locations as the result of decisions by two classifiers. This not only increases the chances of difficult retrieval and time cost but also suggests a poor quality of decisions which knowledge sharing can easily overcome. Duplication of efforts cost the organisation more resources and time and this is a result of the creation of silos in libraries and lack of knowledge sharing strategies.

Knowledge sharing will allow Tanzania public university libraries use the expertise which is not found in one library but found in other libraries. Sharing will stimulate the collaboration of Tanzania University Libraries to cross the boundaries of their geographical location. Data collected shows that the sharing between libraries is mostly done through best practices (15

of 21(71%)) and library forums (7 of 21 respondents (33%)). The forums mentioned in the findings refers to meetings by TLA while best practices involve learning from exhibitions and learning from other libraries. Sharing will help university libraries leverage knowledge from those who are more successful and use the knowledge to improve the performance of their libraries. Once there is a strong collaboration between them, it is easy to extend the collaboration outside of the country where they will find many things to learn.

It is an opportunity for Tanzania public university libraries to take advantage of technology to enhance the sharing of knowledge. The use of networked computers will help libraries reduce the constraints pertaining to distance and time. The vast number of electronic tools to facilitate knowledge sharing such as electronic mail, internet, collaboration technology tools such as wikis and audio visual tools, bulletin boards, news groups and many others are available at their disposal to facilitate the distribution of knowledge between Library staff and among libraries. However they should be cautious to balance the use of technology and the balance of the quality of output. Technology makes it easy to share knowledge and reuse the available knowledge but once the system is flooded with information it becomes a serious problem. It slows down the retrieval processes and makes the selection of appropriate information challenging.

4.3. The use of intellectual capital to improve knowledge sharing.

4.3.1. Human capital perspective

The dynamics in the social, economic and technological environments require libraries to rethink how they approach their day to day work. Even though different libraries face unique challenges depending on the social, economic and technological environments surrounding them, the value of human capital is greater now than ever if a positive result is to be achieved. The need to compromise with the changing environment comes with a high demand to improve the quality of employees in our libraries. To effect this, library policies guiding the hiring and upgrading the employee skills need to reflect awareness of the changing environment. Performance incentives and training programs are essential to empower and motivate employees. Modern human capital policies will provide libraries with a means to improve their performance and lead to efficiency as a way to effectively serve their users. The notion that considers training as a cost needs to be changed so that it is viewed as an

investment. Staff are the key asset in libraries whose value can be enriched through investments.

The following discussion aims at suggesting how intellectual capital can be used to improve knowledge sharing. It discusses the issue of human capital and structure capital to suggest how the former and the latter can help libraries excel in knowledge sharing. Such aspects as leadership, hiring schemes and training are explored under human capital. Subsequently the discussion on how structural capital can be used to improve knowledge sharing concludes this chapter.

4.3.1.1. Leadership.

As Bob Buckman suggests in *section 2.4.2.1* the culture is indeed important for knowledge sharing to succeed. Buckman insists that leaders play a key role in shaping the culture which will have an impact on the organisation's ability to share knowledge across time and space. As noted with the responses from the field, seventeen out of twenty one respondents agreed that their libraries have a vision. Even though it was beyond the scope of this research to investigate any strategies for updating library visions, the mere fact that majority of responses 13 of 21 (62%) agreed that the vision is often shared, allows us to postulate that, if sharing is emphasised in their visions the situation could have been better. Libraries need leaders who will work as a team to convey a clear and consistent understanding of the vision not only through their words but as exemplars through their deeds. The visions can become an obstacle to achieving a sound knowledge sharing strategy. This research was conducted in six public university libraries with long history, some of which were in existence as early as the 1970's (i.e. University of Dar es salaam). This suggests that if leaders come and go and still use the same vision, then chances are high that none of the visions are anywhere close to promoting knowledge sharing.

The data collected suggest that knowledge sharing has not been very successful. Sharing between library staff scored 81% (17 out of 21) through meetings and with other libraries 71% (15 of 21) through best practices. Interpersonal communication as pointed out in *4.1.2* will be more effective for knowledge sharing between staff, whereby the staff asks their colleagues what they believe their colleagues know better. Online forums and wikis could have been better ways to learn from other libraries. The keys leading to the success of

knowledge sharing depends much on what initiatives are taken by leaders. Once the importance of knowledge sharing is known to Tanzania public university libraries, the first step will be for them to audit the skills libraries hold. Then the second initiative will be to develop a vision on what is to be achieved then to identify the competencies needed to achieve the vision. As stated earlier in *section 2.1.2* things pertaining to intellectual capital are somewhat difficult to evaluate. To assess progress, there will be a need to point out key indicators for success, *see more in (Malhotra, 2000)* on how this model was used in Israel.

Trust has been among the issues mentioned to be critical for knowledge sharing. If knowledge sharing is to happen, then the trust environment should be available. Six of 21 respondents (29%) believed that knowledge sharing is hindered by trust. They suggested that the hesitation to share is caused by the notion of hoarding for power (people want to know what you know so they can be better than you). No one stands a better chance to create the environment for trust to build in than a leader. No matter how well rewarding and compensation systems are integrated within the knowledge sharing strategy, if there is no trust, the efforts to promote sharing are wasted. Whatever is the case, studies suggest that leadership can influence how knowledge is shared both positively and negatively *see for example* (Cruz, Henningsen & Smith, 1999; Henningsen, Henningsen, Jakobsen, & Borton, 2004; Larson, Christensen, Franz, & Abbott, 1998; Worford, Colabro, & Sims, 1975). Leaders and how they manage and what they value, their attitudes with regard to knowledge sharing will always have an implication on shaping the culture which determines how individuals will share their knowledge.

“Information is power” is perhaps one of the very common slogans linked with the proliferation of networked computers. A knowledge sharing culture will start with leaders who seek information. Once leaders are connected from the world outside their own organisations, they get access to best practices in leadership and on top of that they share and receive new knowledge from different perspectives. Connection power is thus important to enable leaders to create new knowledge and share the knowledge with others. Once they know what others are doing and assess how relevant it is to their situation, they are likely to take what is useful, leave what is not useful and modify it to fit their own settings; as a result new knowledge is formed. This is an example of how leaders can be examples of knowledge creation and sharing.

4.3.1.2. Hiring schemes.

The issue of hiring and recruitment has been challenging enough for libraries. Tanzania public university libraries are not isolated from such challenges. The changing environment calls for Tanzania public university libraries to forecast the need for the future and incorporate this in hiring schemes. Some challenges suggested by Cribb include such questions as; do we hire for today's needs or tomorrow's? How can we hire for the future needs of the library? How do we go about providing human resource development for the needs of the organisation as a whole, not just for the specific jobs people perform? These issues are not confined to libraries. Many other organisations are also trying to deal with these challenges, *see* (Cribb, 2005, p.7)

As Peter Drucker put forward that the most valuable asset of a 21st century institution will be its knowledge workers and their productivity, libraries need to switch from hiring for skills mode. Increased competition demands strategic thinkers. Attributes are outweighing skills in the knowledge economy. It is possible to train in skills, but no school can provide training for attributes. You can train someone to be a classifier or a cataloguer or computer specialist, but how do you train for learning agility? Studies done in Australia libraries and presented in the report "*Preparing for demographic change*" emphasise the importance of library staff being "strategic thinkers" in other words being able to see and understand the 'big picture' and the environment within which libraries operate. Other attributes considered essential for the library workforce include: being multi-skilled, from diverse backgrounds, have good interpersonal skills and being committed to lifelong learning, *more suggestions can be found in* (Cribb, 2005).

Even though knowledge sharing allows sharing of experts and reuse of valuable information, Tanzania public university libraries need to have a recruiting and hiring strategy that is targeted to fill short and long term human capital needs and, specifically, to fill gaps identified through its workforce planning efforts. One way to achieve this is to ensure that recruiting and hiring programs are overseen and proved to be fair and unbiased based on the demographic profiling maintained by libraries over time. Successful recruiting and hiring programs will ensure that training and hiring is based on what those who are selected know and not who they know.

4.3.2. Structural capital perspective.

No matter how willing staff are to share, if there is no infrastructure to facilitate the sharing, it will be difficult for sharing to happen. This section discuss the issue of structural capital and proposes how such things as organisational culture, structure, technological infrastructure and knowledge sharing strategy can help facilitate knowledge sharing. While the previous section discussed the opportunities, incentives, training, and other aspects pertaining to enhancing employees ability to participate in knowledge sharing, this section discusses how we support those who are enhanced and ready to share their knowledge to add value to an organisation.

4.3.2.1. Organisation culture

Culture has been one of the most well known obstacles to knowledge sharing. The minimal scale of knowledge sharing revealed by the data collected suggests one of the two things. It either suggests the absence of a sharing culture or the failure of existing sharing culture. Whether the answer is A or B, the message is very clear that Tanzania University public Libraries need to overhaul their organisation culture to support knowledge sharing practices. Trying to promote knowledge sharing within the same organisation culture may lead to devastating consequences including waste of time and resources and likely the same efforts in the future even with a right strategy may receive a negative reception.

Most major change efforts in the past have failed due to ignorance of the importance of cultural change, *see more in 2.4.2.1*. This is *not exceptional with libraries not either* with knowledge sharing, the demand to rethink our culture to accommodate knowledge sharing initiatives is important. The burgeoning of knowledge sharing in Tanzania University libraries relies on cultural changes. The new culture should advocate creating and maintaining an environment whereby employees are willing and able to collaborate easily. A cooperative culture should be fostered to allow problems to be solved collaboratively. That way staff get the opportunity to learn from each other and contribute, and raise the trust level.

Even though responses suggested that 17 of 21 respondents (81%) agreed that staff are encouraged to share, only 57% (12 of 21) of respondents believed that staff are willing to share. This suggests that even though sharing is encouraged, the motivation to share needs more emphasis to achieve better results. The organisation of libraries also needs to be looked

at. Only 19% (4 of 21) strongly agreed that staff are motivated, while 48% (10 of 21) strongly agreed that the organisation of their libraries facilitates sharing. Unless there is a certain level of discontent among leaders with the current situation, it is likely that the state of knowledge sharing will not improve.

As non profit organisations facing a serious challenge of justifying their relevance, Tanzania public university libraries need to add more value to their practices. There will be a need for libraries to create a culture that understands what knowledge is important to support the changing environment and put that knowledge into action. Little knowledge added to the routines will have a significant impact. As pointed out in *section 2.1*. Knowledge assets are governed by the law of increasing returns which makes it different from the traditional view of diminishing returns. A culture should not be content with accomplishing daily routines, but should consider what should be done to add value to the routines. Tanzania public university libraries should aim at adding value to their users through the acquisition, creation, sharing, and reuse of any aspect of knowledge relevant to their environment, internally and externally. They need to think outside the boundaries of current practices and services in order to keep up with the more rapid pace of change.

When Drucker speaks about knowledge residing in the heads of employee as the most valuable asset of a 21st century organisation, he refers to tacit knowledge. It is not procedural knowledge that is contained in manuals and protocols that libraries need to share to add value. Libraries need a culture that promotes informal knowledge sharing to facilitate capturing of tacit knowledge. Because tacit knowledge is communicated indirectly through human interaction, Nonaka and Takeuchi emphasize the importance of organizational culture in determining whether or not the exchange and communication of tacit knowledge will occur, *see* (Nonaka & Takeuchi,1995). Findings suggest that informal strategies for knowledge sharing are not used at all in Tanzania public university libraries. Of the 21 respondents who filled in the questionnaire not a single respondent suggested any of the informal strategies listed in the choices. When they were asked to suggest other strategies apart from the list of choices given, the answer was still the same, none suggested any informal strategy.

4.3.2.2. Organisation structure

The success of knowledge sharing in Tanzania public university libraries will be very much influenced by the structures which support sharing. The investigation carried out of the websites of all the libraries but one which are covered under this research reveals that they are configured in hierachirchal structures. Even though the researcher could not find any data about the last library in the website, it took four visits to this library to have the questionnaires answered as library staff waited for the consent from the director. This allows us to predict that, this library configuration is also hierachirchal. Communication is the most important factor to facilitate knowledge sharing. Studies show that hierachirchal structures hinder the smooth floor of information between staff and between staff and their supervisors see for example (O'Dell & Grayson, 1998; Creed and Miles 1996).

Knowledge sharing is well promoted by more flexible structures than hierarchical structure. In general, organic structures stand a better chance to enhance knowledge sharing than hierachirchal ones. In those cultures which maintain hierarchies, knowledge holders may be discouraged by the long communication channel they have to go through to deliver the information they wish to. Tanzania public university libraries need more participative structures if they are to enhance knowledge sharing. This is supported by the research done by Ahmed, Lim and Loh *see more in organisational structure section 2.4.2.2.*

Suggesting changing of the whole structure is likely to cause more problems than it can solve. Alternatively, libraries should opt to modify existing structures to allow more flexibility and participation. (Nonaka & Takeuchi, 1995) indicate that a combination of a formal organizational structure and a non-hierarchical, self-organizing organizational structure would improve knowledge creation and sharing capabilities. The combination of the two structures will promote innovation through cultivating a more cooperative climate. More social interaction which is indeed essential for exploring tacit knowledge is likely to happen when the organisation structures are less formalised and decentralised.

Cooperation should go beyond the limit imposed by departmental divisions. When the researcher visited different websites for the libraries in question to see how the divisions are made, it was found that three departments were most common in almost all libraries. These were identified as reader's services, technical services and information services even though there were slight differences in the labels. This suggest that, if there is no way to bridge these

departments to allow knowledge flow irrespective of employees attachment and job functions, then silos may be created and competition is the likely consequence than cooperation. At this juncture departments may concentrate on their own departmental accomplishments rather than collective problem solving.

Tanzania public university libraries need to turn into learning organisations. This suggests the need to adjust their structures to put more emphasis in learning through knowledge creation and sharing rather than reinventing wheels. Restructuring involves distribution of power where library leaders need to be more facilitators than directors. This goes along-side with culture change where the core values and visions of the organisations are restructured to reflect the importance of creating and sharing knowledge. Among other things job descriptions should help libraries to relate skills and support communities of practices. Working in groups needs to be encouraged to facilitate interaction and *collaboration in attending work related to the groups*.

Learning organisations are promoted by technological infrastructure. Knowledge workers need to be connected with other knowledge workers and most important to be connected with the information. Knowledge transfer and dissemination is supported by well laid IT infrastructure. It may not be feasible to suggest the acquisition of new IT infrastructures such as high speed computers and collaborative work tools such as videoconference tools and projectors in not for profit organisations like libraries. It is even worse for university libraries which depend on the university budgetwise. However, there is a strong need for the infrastructure available to be put to use effectively. Findings suggest that only three respondents admitted passing information to others in workplaces via the internet.

The knowledge economy requires the library to realise the increased need to create a structure which will allow more use of the valuable knowledge in the heads of their employee. Networks of teams should replace traditional hierarchies and knowledge should become the main organizational resource. This way libraries are likely to use their employees' talent as part of a competitive strategy to create, share and utilize information created to gain more competitive advantage.

4.3.2.3. KS strategy

To secure a strategic advantage, libraries need to generate more value in the services they offer. This is achieved once there is a strategy which allows staff and processes in libraries to generate and use more knowledge. This section discuss some strategies which Tanzania public university libraries may use to facilitate knowledge sharing and thus create new knowledge and better reuse the available knowledge to add more value.

As pointed out earlier in the background to the problem, knowledge management practices are expected to help libraries engage in effective research and development of knowledge, creation of knowledge bases, exchange and sharing of knowledge between library staff. One strategy which is likely to enhance knowledge sharing between library staff and between libraries is the creation of knowledge bases. This involves the creation of best practice databases, directories of expertise, procedures and discussion forums. Not only will this facilitate knowledge sharing but it will also enhance organisation memory and improve decision making processes.

In the previous section, the essence of better structures to facilitate knowledge sharing is outlined. Knowledge sharing is enhanced by the ability to create a strategy which allows information to be easily accessible and circulated through computers and communication networks. Communication networks need to extend to knowledge holders within and outside the libraries and should allow the retrieval of information in an efficient way and quickly. As suggested in the previous paragraph, maintenance of expertise directories can be one way to determine where connections must be made. Effective communication is essential to promote learning and innovation which will improve the quality of knowledge sharing. Flexible structures will allow easy information flow and compensation systems will encourage knowledge sharing.

Knowledge is power only when is used. Tanzania public university libraries need to find a way to show staff how knowledge will benefit them. Leaders should take the initiative now to address the issue of the new value proposition for knowledge so that the essence of distributing knowledge will be justified. It is important to lay stress on the rapid change that is taking place and make staff aware that what works today may not work tomorrow and that new knowledge is important for the value adding process. At this point it is crucial for leaders

to use best practices example to show how access to others' knowledge can improve their performance and how sharing what they know makes their knowledge more valuable.

It was put forward in the background to the problem that libraries have not concentrated very much on intellectual capital. The British Library is given as an example whereby they conducted a staff skills audit with the aim of starting a consultancy service. Tanzania public university libraries may start a program to undertake a competency audit. This starts by mapping competencies found in library staff and then compares them with the requirements of their positions. This being a starting point, then the development program is started to help employees acquire the skills necessary for the libraries to achieve their objectives. Once everyone knows what the library expects, and once everyone is trained to achieve these objectives then sharing becomes easy as employees will be working together to achieve one goal. It will be one way to overcome the silos created by functional subdivisions attached to employees due to their attachments to specific departments.

4.3.2.4. Technological Infrastructure.

Section 4.1.2 stresses the importance of IT in facilitating organisational learning and points out the failure of IT use in Tanzania public university libraries. One strategy to put into effective use the IT facilities in Tanzania University libraries is the introduction of online message boards or online forums. Through the use of a moderator a discussion of particular topics on an ongoing basis will facilitate knowledge sharing among participants and allow a cooperative problem solving culture. It will bring awareness of knowledge in particular subjects, and so make it easy for staff to know who to ask for help and save their time while promoting informal knowledge sharing.

Online message boards can then be facilitated by email listservs. Listservs refers to electronic mailing list software applications which are normally organised around a shared interest. Once there is cooperation among libraries then it is easy to identify different skills that way whenever someone finds content somewhere he or she can predict to whom it may be useful and send it. Not only are listserv are accessible to large number of people but discussion forums capabilities are integrated in listservs and their design fosters interactivity and archiving of messages. However in such a situation, it should not be taken for granted that all users are likely to use the listservs accordingly, there should be an administrator who is

empowered by policies on how to handle those who abuse the facility. The benefit of discussion boards and listservs suggest that it worth training or hiring a good facilitator to be able to reap full advantage from them.

Training in order to ensure employees are familiar with new IT systems and processes will improve their abilities to create and share knowledge. Some applications may seem so familiar and basic and it is taken for granted that people know how to use them. Knowledge sharing goes further, beyond the basic application of IT systems. It needs proper training especially on how technology can facilitate the retrieval of information and its distribution. Staff need to be aware of the recent technologies, what new capabilities have been added and what IT can achieve and what it cannot achieve. Training should cover demonstration of all advantages of any new system over existing ones. With the absence of more sophisticated technologies, staff perceptions may go further beyond what IT can deliver and make staff reluctant to explore the existing systems due to underestimation of them.

Technology has come now to help libraries improve their practices. What was not possible before the introduction of computers is now possible with computers. Technology can facilitate Tanzania public university libraries to use multimedia for adding video clips or voice to databases or problem and solution databases whereby librarians can interact online with users helping them solving their problem or finding their way to the mass of information in libraries. Traditional library practices can be very much enhanced through computers whereby a limited card catalogue for instance may be enriched with more information through annotations and qualifiers. Technology provides easy access to experts just by a click one may be able to send an email and receive feedback from an expert. The transfer of tacit knowledge is made easy through technology. When people see how something is done then it is easy for them to understand. Programs come with help manuals and make their use a little bit more easy and effective. Computer networking has facilitated interaction not just between people but between people and machines.

4.4. Chapter summary

This section summarized what is found in the field. It started by showing how knowledge is shared where it was found that only formal strategies are used. To make the further discussion easy to follow, the implications of formal KS in the absence of informal KS was

presented. Then the significance of informal knowledge sharing and its disadvantages followed. The issue of what incentives are used to facilitate knowledge sharing and their effectiveness were covered in this chapter. Later, measures to improve reward systems and the need for Tanzania public university libraries to share knowledge were also discussed. The chapter was concluded with discussion on how intellectual capital can be used to improve knowledge sharing, what KS strategies can be used by libraries to facilitate sharing and areas where technological infrastructure can bring positive results if used well.

Chapter Five: Conclusion and recommendations.

5. Conclusion.

This research addressed the issue of intellectual capital. It concentrated on how such elements of intellectual capital named human capital and structural capital may help Tanzania public university libraries improve knowledge sharing practices. It started by providing background information about the problem and about Tanzania public universities. Unfortunately very little information is found about Tanzania university libraries. COTUL, the body established to coordinate activities of Tanzania university libraries seems to be in its infancy and very little is published about it. The review was conducted in chapter two to identify what other researchers have done and identify gaps. It was found that there was no literature specifically about intellectual capital in Tanzania university libraries.

This study used survey research and it proved to be useful. Given the distance and the difficulties of getting respondents, a survey enabled the study of a sample and established the facts needed to answer the research questions. However, the use of snowball sampling posed a challenge to completely eliminate the possibility of biased selection of respondents. Findings suggests that knowledge sharing in Tanzania public university libraries is done but on a marginal scale. Such things as organizational structure, culture and IT infrastructure were found to be among the causal factors of the situation. Hierarchical structures and lack of compensation schemes were identified to have profound effects in knowledge sharing while the issue of awareness of the current value proposition for knowledge sharing and lack of cooperative problem solving culture affecting the knowledge sharing culture in the libraries. It was identified from the responses that the use of IT to facilitate knowledge sharing needs more emphasis. Further studies are needed in developing models for measuring intellectual capital (intangible assets) in libraries. There is a strong need for libraries to learn what works better and unlearn what didn't work. Alvin Toffler, an American writer and futurist postulated that "*the illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.*"

5.1. Recommendations.

As the result of the findings of this research and the facts established through the review of the literature the following are recommended.

1. Tanzania public university libraries need to promote informal knowledge sharing strategies as a measure to promote the codification of tacit knowledge which plays a crucial role in innovation and value adding process. Events such as get-together parties and informal meetings may facilitate trust and promote knowledge sharing.
2. There is a strong need for libraries to develop models which will allow the measuring of intangible assets. Among other models used in business world to measure intangible assets are the Skandia model (the navigator), balanced score card and competency model. The need to turn libraries into learning organizations may well be facilitated by the learning and growth perspective in the balanced score card.
3. Tanzania public university need to optimize the use of IT infrastructure to promote knowledge sharing. Findings suggest that only 14% of the responses acknowledged the use of IT for knowledge sharing.
4. It is recommended that, university libraries spare more time to advocate on the issue of the new value proposition for knowledge sharing. This should be coupled with the overhauling of the reward systems already discussed in the main body of this research.
5. To achieve better results for knowledge sharing, it is recommended that Tanzania public university libraries re-think their organization structure. The use of the hierarchical structure hinders the free flow of information and slows down the value adding process due to distraction of knowledge posed by long communication processes.
6. It is recommended that libraries increase the frequency of meetings since meetings are the major ways through which knowledge is shared in Tanzania public university libraries.
7. Training and lifelong learning should be emphasized. At this juncture when libraries are urged to review their hiring schemes from hiring for skills to hiring for attributes and training for skills, training is indeed crucial.

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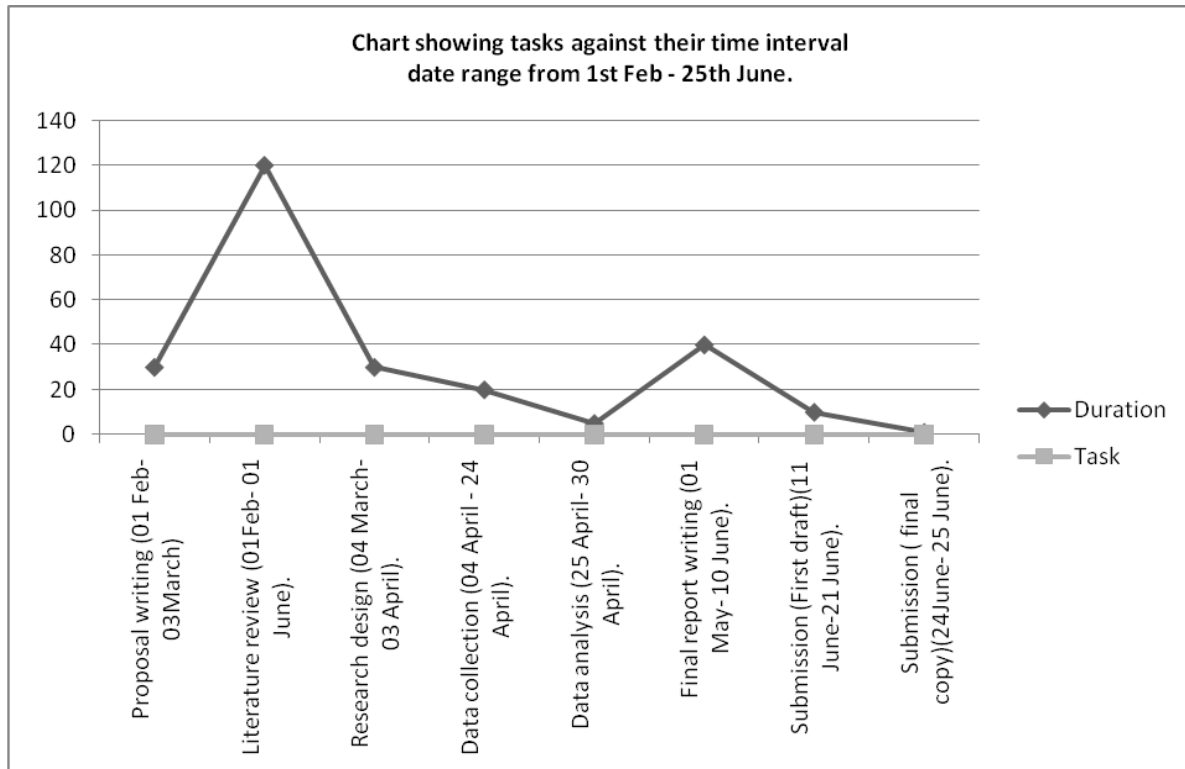
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Appendices:

Appendix 1: Time Budget



Appendix 2: Questionnaire.

Even in this era of very sophisticated technology the discovery of machines which can think much the same way as human being is still a dream. This research seeks to establish how knowledge sharing will add value to the organisation. The data collected is solely for the purpose of this research and will not be used for any other purpose. Respondents should rest assured that their names and the information they provide will be kept strictly confidential and under no circumstances will their names nor the information they provide be used outside the project.

Name of the University:

Further contacts (optional):

Place an X inside the box with the answer corresponding to your choice. If applicable you can choose more than one answer. Remember to save before you close.

1. Does your library have a vision statement?
 Yes
 No
2. If yes, what is your opinion of the extent to which your Library shares its vision with its staff?
 Often
 Sometimes
 Seldom
 Never
3. If yes, through which means is the vision shared?
 Notice boards
 In-house training
 Through library's code of conducts

If others, please specify:

--

4. Are staff encouraged to share their knowledge with colleagues?
 Often
 Sometimes
 Seldom

Never

5. Are staff encouraged to share their knowledge with library management?

Yes

No

6. Are there any incentives awarded to staff who share their knowledge with colleagues?

Recognition.

Promotion.

Financial benefits

None

If others, please specify:

--

7. Do you think library staff are willing to share their knowledge with each other?

Often

Sometimes

Seldom

Never

8. How does the library staff normally share something with each other?

Through meetings.

Get together parties.

Seminars.

By messengers and other online facilities.

If others, please specify:

--

9. How often does the library arrange sessions where the library staff can meet and discuss library matters?

Often

Sometimes

Seldom

Never

10. What form do sessions take?

Seminars

Parties/social

Staff meetings

11. Is there a mechanism by which your library shares knowledge with other libraries? (E.g. latest development in library practices, call for papers etc.)

Yes

No

12. If yes, How?

Through library forums. (Public meeting or assembly for open discussion)

Sharing best practices (i.e. sending library staff to learn from other libraries).

Communities of practice (i.e. a group of librarians working on a similar problem)

If others, please specify:

--

13. Does your library make any effort to place a financial value on the knowledge the staff holds?

Yes

No

14. If yes, is this by:

Consultancies.

- Releasing a library journal acquired through subscription.
- Patents or trademarks

If others, please specify:

Please indicate the degree to which you agree or disagree with the following statements:

15. The organisation of the library makes it easy for library staff to share their opinions

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

16. There is a lot of motivation to share knowledge between library staff.

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

17. The library encourages new ideas in solving problems.

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

18. Knowledge sharing is difficult because the majority believe that when others know what they know their own importance will diminish.

- Strongly Agree
- Agree
- Undecided

Disagree

Strongly Disagree

19. The benefits and values of knowledge sharing practices have not yet been realised in the Library.

Strongly Agree

Agree

Undecided

Disagree

Strongly Disagree

20. Do you have any further comments regarding knowledge sharing in your library?

*Your participation is highly appreciated.
Thank you!*

Appendix 3. Summary tables for the data analysis.

	MUCCOBS	MU	OUT	UDOM	UDSM	SUA	TOTAL	OUT OF	
Do your Library has a vision?									
Yes	4		4	4	3	2	17	21	81%
No		4					4	21	19%
The extent to which the vision is shared									
a) Often	3		4	3	2	1	13	21	62%
b) Sometimes	1			1	1		3	21	14%
c) Seldom						1	1	21	5%
d) Never							0	21	0%
Through which means the vision is shared									
a) Notice boards			3	2	3	1	9	21	43%
b) Inhouse Training	1		2	2	3	1	9	21	43%
c) Code of conduct	2			2	2	1	7	21	33%
d) Others				1			1	21	5%
Library policies	1						1	21	5%
meetings			1				1	21	5%
Rolling Strategic Plans			1				1	21	5%
Are staff encouraged to share their knowledge with colleagues									
a) Often	4	2	4	3	2	2	17	21	81%
b) Sometimes		1		1	1		3	21	14%
c) Seldom							0	21	0%
d) Never		1					1	21	5%
Are staff encouraged to share their knowledge with management									
Yes	4	4	4	4	3	2	21	21	100%

No							0	21	0%
Do you think library staff are willing to share their knowledge									
a) Often	3		4	3	1	1	12	21	57%
b) Sometimes	1	3	1	1	2	1	9	21	43%
c) Seldom		1					1	21	5%
d) Never							0	21	0%
How often are sessions arranged for librarians to meet									
a) Often	2	1	1	3	2		9	21	43%
b) Sometimes	2		2	1	1	1	7	21	33%
c) Seldom		2	1			1	4	21	19%
d) Never		1					1	21	5%
What form do sessions take									
a) Seminars			3	2	3		8	21	38%
b) Parties	1				1		2	21	10%
c) Staff meetings	3	3	4	4	3	2	19	21	90%
others							0	21	0%
Does your library make any effort to place a financial value on the knowledge the staff holds?									
Yes		1	3	3	3	1	11	21	52%
No	4	3	1	1		1	10	21	48%
How?									
Consultancies			3	3	3		9	21	43%
library journal					1	1	2	21	10%
Patents							0	21	0%
Trademarks							0	21	0%
Others							0	21	0%
The organisation make it easy to share knowledge									
Strongly agree			4	3	3		10	21	48%
Agree	4	2		1		2	9	21	43%

Undecided		1					1	21	5%
Disagree							0	21	0%
Strong disagree		1					1	21	5%
There is a lot of motivation to share knowledge between library staff									
Strongly agree	1			3			4	21	19%
Agree	3	1	4	1	3	2	14	21	67%
Undecided							0	21	0%
Disagree		1					1	21	5%
Strong disagree		1					1	21	5%
The library encourages new ideas in solving problems.									
Strongly agree	1			3	1	1	6	21	29%
Agree	3	4	4	1	2		14	21	67%
Undecided						1	1	21	5%
Disagree							0	21	0%
Strong disagree							0	21	0%
Knowledge sharing is difficult because the majority believe that when others know what they know their own importance will diminish.									
Strongly agree		1		3	1	1	6	21	29%
Agree	1		3		1		5	21	24%
Undecided			1	1		1	3	21	14%
Disagree	3	1			1		5	21	24%
Strong disagree		2					2	21	10%
The benefits and values of knowledge sharing practices have not yet been realised in the Library.									
Strongly	2	2					4	21	19%

agree									
Agree			1	3	1		5	21	24%
Undecided						1	1	21	5%
Disagree	2	1	3	1	2		9	21	43%
Strong disagree		1				1	2	21	10%