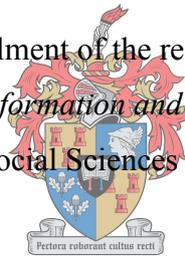


# Knowledge Management Practices in Zambian Higher Education: An Exploratory Study of Three Public Universities

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Thesis presented in fulfilment of the requirements for the degree  
*Master of Philosophy in Information and Knowledge Management in*  
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March 2018

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## SUMMARY

The knowledge economy forced organisations to rethink the nature of their resources and capability. Increasingly organisations are considering knowledge as a key resource for navigating uncertainty and competing. The field of knowledge management (KM) emerged to help organisations to leverage their organizational knowledge. The first step in this endeavor is to conduct a knowledge management assessment.

Higher Education Institutions have not been spared the external pressure to adapt in this new context. One would think that, since higher education deals with knowledge transmission as a core function, these organisations would be at the forefront of knowledge management. The opposite is however true and knowledge management practices are still resisted by academic traditions in universities.

The thesis explores the state of knowledge management in higher education institutions in Zambia using a validated knowledge management assessment instrument, called the knowledge vigilance survey, adapted for university contexts. The goal is to uncover the perceptions of managers in these institutions with regard to knowledge management practices, existing knowledge gaps, and the existing knowledge culture.

This is achieved by a quantitative research design aimed at the three largest universities in Zambia. A questionnaire was used to survey selected participants and the results were interpreted according to a knowledge management capability assessment tool to determine the state of knowledge management at the three universities under study. A purposive sample size of 82 leaders, of which 55 responses were generated, at executive and managerial level of the University of Zambia, The Copperbelt University and Mulungushi University were selected out of a proposed target population of 103.

The findings reveal minor differences between the three universities, but on the whole low scores were recorded for most knowledge management practices at all three universities. Knowledge management at all three universities is in a basic or rudimentary state, which may hinder these institutions from effectively leveraging their knowledge. To improve their situation these institutions should consider introducing explicit knowledge management policies and strategies and cultural change interventions like incentives, communication, and training and mentoring.

## OPSOMMING

Die kennisekonomie het organisasies gedwing om die aard van hul hulpbronne en vermoëns te heroorweeg. Organisasies oorweeg kennis toenemend as 'n sleutelhulpbron om onsekerheid te navigeer en mee te ding. Die veld van kennisbestuur (KM) het ontstaan om organisasies te help om hul organisatoriese kennis beter te benut. Die eerste stap in hierdie strewende is gewoonlik om 'n kennisbestuursassessering te doen.

Hoëronderwysinstellings is nie die eksterne druk gespaar om in hierdie nuwe konteks aan te pas nie. Mens sou dink dat, aangesien hoër onderwys kennisoordrag as 'n kernfunksie het, organisasies soos universiteite aan die voorpunt van kennisbestuur sou wees. Die teenoorgestelde is egter waar en kennisbestuurspraktyke word steeds deur akademiese tradisies in universiteite aan bande gelê.

Die tesis ondersoek die stand van kennisbestuur in hoër onderwysinstellings in Zambië deur gebruik te maak van 'n gevalideerde kennisbestuursassesseringsinstrument, bekend as die "knowledge vigilance survey", aangepas vir universiteitskonteks. Die doel is om die persepsies van bestuurders in hierdie instellings ten opsigte van kennisbestuurspraktyke, bestaande kennisgapings en die bestaande kenniskultuur te ontbloot.

Dit word bereik deur 'n kwantitatiewe navorsingsontwerp wat gemik is op die drie grootste universiteite in Zambië. 'n Vraelys is gebruik om geselekteerde deelnemers te ondervrae en die resultate is geïnterpreteer volgens 'n kennisbestuursvaardigheid assessering instrument om die stand van kennisbestuur by die drie universiteite te bepaal. 'n Doelgerigte steekproefgrootte van 82 leiers op uitvoerende en bestuursvlak by die Universiteit van Zambië, Die Koperbelt Universiteit en Mulungushi Universiteit is gekies uit 'n voorgestelde teikenbevolking van 103.

Die bevindings openbaar klein verskille tussen die drie universiteite, maar oor die algemeen is lae tellings vir die meeste kennisbestuurspraktyke by al drie universiteite gemeet. Kennisbestuur by al drie universiteite is in 'n basiese of rudimentêre staat, wat hierdie instellings kan verhinder om hul kennis effektief te benut. Om hul situasie te verbeter, moet hierdie instansies oorweeg om eksplisiete kennisbestuursbeleid en strategieë en intervensies vir kulturele veranderinge soos aansporings, kommunikasie en opleiding en mentorskap in te stel.

## TABLE OF CONTENTS

<b>1.0 CHAPTER 1: BACKGROUND OF THE PROBLEM .....</b>	<b>1</b>
1.1 Statement of the Problem .....	3
1.2 Purpose of the Study .....	5
1.3 Research Question.....	5
1.4 Research Expectations.....	5
1.5 Importance of the Study .....	6
1.6 Scope of the Study.....	7
1.7 Definition of Terms.....	7
1.8 Chapter Outline .....	9
<b>2.0 CHAPTER 2: REVIEW OF LITERATURE .....</b>	<b>10</b>
2.1 The Zambian Higher Education Context.....	10
2.2 Challenges of Higher Education Institutions in Developing Countries .....	14
2.3 Background to the Phenomenon of Knowledge Management .....	15
2.3 Higher Education Institutions and the Knowledge Economy.....	18
2.4 The Mandate of Knowledge Management in Higher Education Institutions .....	21
2.5 Knowledge Management Assessment.....	24
2.6 Review of Previous Studies in Developing Countries .....	29
2.7 Theoretical Framework .....	37
2.7.1 Systems Thinking.....	40
<b>3.0 CHAPTER 3: RESEARCH METHODS.....</b>	<b>44</b>
3.1 Research Design.....	44
3.2 Participants.....	45
3.3 Instrumentation.....	48
3.4 Knowledge Vigilance Survey Approach .....	50
3.5 Validity and Reliability .....	53

3.6 Research Procedures and Pilot Testing Data Analysis .....	54
3.6.1 Data Collection.....	55
3.6.2 Pilot study.....	55
3.6.3 Data Analysis .....	56
3.7 Assumptions of the Study.....	57
3.8 Limitations of the Study .....	58
3.9 Summary .....	59
<b>4.0 CHAPTER 4: RESEARCH FINDINGS.....</b>	<b>60</b>
4.1 Chapter Overview .....	60
4.2 Presentation of results .....	61
4.2.1 Demographic Characteristics of Participants.....	61
4.2.2 Presentation of Results for Each University.....	64
4.2.3 Aggregated Results for the Three Universities.....	69
4.2.4 Spearman’s Correlation.....	75
4.2.5 Discussion of results.....	84
4.2.6 The State of Knowledge Management Practices in HEIs in Zambia.....	91
4.2.7 Provide valuable insights about the existing knowledge challenges in HEIs in Zambia .....	92
4.2.8 Highlight the existing knowledge management culture in HEIs in Zambia .....	93
4.2.9 Generate relevant hypothesis for clearly defined studies .....	94
4.3 Implications and Contribution of the Study to the Body of Knowledge .....	96
<b>5.0 CHAPTER 5: CONCLUSION .....</b>	<b>97</b>
5.1 Summary .....	97
5.2 Conclusions .....	99
5.3 Suggestions for Future research .....	100
<b>6.0 REFERENCES.....</b>	<b>103</b>

## LIST OF FIGURES

Figure 1.0: Role of Respondent .....	63
Figure 2.0: Gender .....	623
Figure 3.0: Number of Years Served .....	<b>Error! Bookmark not defined.</b> 4
Figure 4.0: Education Qualification.....	63
Figure 5.0: Knowledge Management Experience.....	64
Figure 6.0: Radar Chart for the University of Zambia.....	67
Figure 7.0: Radar Chart for the Copperbelt University .....	68
Figure 8.0: Radar Chart for Mulungushi University.....	69
Figure 9.0: Histogram: KM policies and Strategies.....	690
Figure 10: Histogram: Leadership .....	701
Figure 11: Histogram: Incentive .....	72
Figure 12: Knowledge Capture.....	72
Figure 13: Histogram: Training and Mentoring.....	73
Figure 14: Histogram: Communication .....	74
Figure 15: Radar Chart for the Combined Universities.....	74
Figure 16: Scatter Plot: KM policies and Strategies and Knowledge Capture .....	77
Figure 17: Scatter Plot: KM policies and Strategies and Training and Mentoring.....	78
Figure 18: Scatter Plot: KM Policies and Strategies and Communication .....	78
Figure 19: Scatter plot: Leadership and Training and Mentoring.....	79
Figure 20: Scatter plot: Leadership and Knowledge Capture .....	80
Figure 21: Scatter plot: Leadership and Communication .....	80
Figure 22: Scatter plot: Training and Mentoring and Communication.....	81
Figure 23: Scatter plot: Training and Mentoring and Knowledge Capture .....	82
Figure 24: Scatter plot: Knowledge Capture and Communication.....	82

## LIST OF TABLES

Table 1: SIEMENS AG KMMM.....	<b>Error! Bookmark not defined.</b>
Table 2: Details of the Respondents Demographic Characteristics.....	47
Table 3: Target population, sample size and responses obtained .....	48
Table 4: Knowledge Management Capability Assessment (KMCA) Instrument .....	53
Table 5: Cronbach’s Alpha Test for Summated Scales .....	55
Table 6: Mean scores and Standard Deviation for Each University.....	66
Table 7: Cronbach’s Alpha Test for each University .....	69
Table 8: Median Scores for Assessed Items .....	75
Table 9: Correlation Matrix between Leadership and Dependent Variables.....	77
Table 10: Spearman’s Correlation Matrix between Leadership and Dependent Variables.....	79
Table 11: Spearman’s Correlation Matrix between Dependent Variables .....	81
Table 12: Spearman’s Correlation Matrix between incentives and Dependent Variables .....	83
Table 13: Spearman’s Correlation Matrix between Demographic variables and Dependant Variables .....	84

## LIST OF ABBREVIATIONS

APQC	American Productivity and Quality Centre
CMM	Capability Maturity Model
EQFM	European Quality Foundation Model
HEIs	Higher Education Institutions
KM	Knowledge Management
KMAT	Knowledge Management Assessment Tool
KMCA	Knowledge Management Capability Assessment
KMMM	Knowledge Management Maturity Model
M	Mean
MD	Median
SD	Standard Deviation

## **1.0 CHAPTER 1: BACKGROUND OF THE PROBLEM**

Rapid changes in the economy and business environment at the end of the 20<sup>th</sup> century forced organisations of all types to rethink the nature of their resources and capabilities that can create an advantage (OECD, 2003). In such an environment the pace of evolution is swift, and those who cannot learn, adapt, and change from moment to moment, simply will not survive (Laal, 2010). This is because of the complexity, volatility, and highly competitive nature of this environment which is also referred to as the knowledge economy.

Higher Education Institutions (HEIs) like many other organisations have not been spared by the pressure exerted by the advent of the knowledge economy. Birgeneau (2005 cited in Cranfield (2008) contends that HEIs like many other organisations face a world that is more interconnected, one in which knowledge, creativity, and innovation are the essential elements of thriving societies. Hence they have been forced to rethink about the way in which they teach, conduct research and manage their institutions and the various stakeholders.

Drucker (1993) contends that the only real source of sustainable competitive advantage in the knowledge economy is knowledge. He further claims that knowledge is the most important production factor ahead of capital, land and labor.

However, Stankosky (2005) argues that despite the importance of knowledge, few organisations are able to effectively leverage their organizational knowledge. The reason for this failure, he further claims, is due to knowledge being an intangible asset that does not lend itself to easy valuation or assessment. Stewart (2001) agrees with this claim by noting that knowledge assets decide success or failure for companies, but one will search in vain for a reflection of it in the financial books of the company.

In this context, the knowledge economy, the rise in the importance of leveraging relevant knowledge in order to extract value from it, coupled with the complexities in knowledge valuation, has given rise to the field of Knowledge Management (KM). De La Mothe and Foray (2001) in OECD (2003), adds to the above claim by observing that although KM practices are difficult to observe and manipulate and sometimes unknown to those who

possess them, evidence indicates that their effect on innovation and other aspects of organizational performance is significant.

Subsequently, OECD (2003) contends that the adoption and application of KM practices may be seen as a critical point in an organisation's move towards corporate integration into the knowledge-based economy.

The above scenario has prompted the surge in interest in KM which can be traced back to the mid 1990s in developed countries (OECD, 2003). However, the growing recognition of the role of knowledge in effective organisations dates back to the last 50 years or more.

Although organisations have managed knowledge in about more than a century, Davenport and Prusak (1998) argues that KM as a systematic strategy was not yet recognized. This is despite the fact that an organization can gain advantage from using the capabilities that arise from knowledge assets in ways which are problematic for others to imitate or replicate (Armstead and Magda, 2002).

Stankosky (2005) claims that it is surprising many executives and managers are untroubled that KM is the solution to many issues surrounding organizational efficiency, effectiveness, innovation and overall performance. He also observes that managers lack understanding of how to pursue KM, both as a long term commitment, and in ways that are both practical and can be fitted into schedules, efforts and priorities of crucial short term importance (Wiig, 2004).

In the HEIs context, Metcalfe (2006) further laments on the lack of KM principles. He claims that this is a striking oversight given that universities are obvious sites for the production of knowledge. The above scenario has been worsened by few KM studies within the HEIs context compared to the commercial sector (Metcalfe, 2006). This shows that KM in HEIs is an under researched area whereby little is known about this organizational phenomenon.

Thus, suggestions by researchers and KM practitioners, such as, Rowley (2000) and Metcalfe (2006) that KM principles should be applied to HEIs are not surprising. These suggestions are justified by the general agreement of KM researchers and scholars such as Nonaka (1994); Wiig, (2004); Newell et al (2009) and others that knowledge is important for organizational development and success.

However, before embarking on any KM initiative, Wiig (2004) and Biloslavo and Trnavcevic (2007) advise that a KM assessment of an organization should be the starting point. Paramasivan (2003) cited in Wamundila (2011) strengthens this observation by stating that a knowledge assessment is an initial stage in any knowledge management program. They caution that any attempt to start the right organizational context for encouraging KM processes is futile if the organisation does not execute a valid assessment of the existing situation. This means that the foundation for assessing the existing situation is in determining the state of KM within institutions.

Thus, a knowledge assessment was the basis of this study. The main argument for conducting this study was to provide insights into the present situation with regards to KM in HEIs in Zambia through an exploratory survey of three public universities. There is no any other such study done within the Zambian context. The closest study to this one was a case based study of the University of Zambia by Wamundila (2011) but was inclined towards knowledge retention.

Therefore, this study was unique because very few studies are exploratory and multiple case in nature. Most of the studies are case based and are outside the Zambian HEIs context.

## **1.1 Statement of the Problem**

The fundamental problem under investigation is the lack of capability to assess KM practices by HEIs. Armstead and Meakins (2002) strengthen this observation by asserting that the ability of organisations to measure the value of intangible assets including knowledge still remains problematic. This could be due to the lack of understanding among leaders and stake holders of organisations or firms about the importance of KM as a tool for organizational performance (Stankosky, 2005).

The implication for this is that organisations and in our case, HEIs in Zambia could be on the wrong development path. This is because HEIs do not view knowledge as an asset, if they did, Rowley (2000) claims that their assets and perhaps their turnover would be better and in turn the businesses would perform more substantially than they currently do.

Therefore, HEIs should evaluate the state of their KM practices in order to cultivate positive knowledge attitudes among stakeholders. Specific KM focus should be on the institution's culture and mentality of key people. This is because 90% of KM is based on cultural change (Buckman, 1998).

KM assessment in HEIs should also create awareness of the importance of knowledge, particularly with respect to organizational performance and ultimately organizational survival. The reason for this, according to Teece (1998), is because 70% of organizational assets in today's knowledge economy are knowledge assets.

These assets are intangible capabilities which Drucker (1993) claims are a major source of competitive advantage for all kinds of organisations. As a result, assessing knowledge should be the first step towards positioning HEIs on the right KM development path (Wiig, 2004). The study was for that reason conducted in order to assess KM capabilities of HEIs and thereby help to provide them with insights and understanding about the value of managing knowledge.

Knowledge assessment approaches are the solution to the above problem. This study used the Statistics Canada (2009) KM practices instrument and Wiig's (2004) Knowledge Management Vigilance States to determine the state of KM in HEIs in Zambia. This approach was viewed within the systems thinking perspective. This is because it offers a holistic approach in determining and solving problems.

## 1.2 Purpose of the Study

The purpose of this quantitative exploratory study was to determine the state of KM practices in HEIs in Zambia in order to gain insights and understanding of the state of knowledge capabilities of these institutions. A KM assessment approach called knowledge vigilance survey was used. The results obtained from this survey highlighted major knowledge-related problems and capabilities within the Zambian HEIs context. These insights, it is hoped, can potentially position these institutions on the right KM development path.

## 1.3 Research Question

*What are the perceptions of the leaders in Higher Education Institutions in Zambia about Knowledge Management Practices?*

## 1.4 Research Expectations

This research was exploratory in nature; therefore, it did not have any hypothesis. However, it was expected that this research would:

- Determine the state of knowledge management practices in HEIs in Zambia.
- Provide valuable insights about the existing knowledge challenges in HEIs in Zambia.
- Highlight the existing knowledge management culture in HEIs in Zambia.
- Generate relevant hypothesis to be tested in clearly defined future studies.

## 1.5 Importance of the Study

The rationale for conducting this research was to highlight the significance of HEIs in assessing their KM practices by determining the prevailing state. This was in order to potentially help raise the understanding of the importance of knowledge in HEIs, by highlighting valuable insights necessary for creating a vigilant environment for leveraging organizational knowledge.

The study is beneficial to leaders in HEIs and other organizations, as it promotes interest in the importance of KM and more specifically its assessment. It does this by providing direction on how to pursue KM. There is consensus among KM scholars and researchers Metcalfe (2006), Rowley (2000) and others, that KM principles are lacking within HEIs and that KM is a powerful management tool for enhancing organizational performance. In view of this, the study highlighted valuable insights that can be used to address the issue of the lack of capability of HEIs to assess their KM practices.

The study was also potentially beneficial to KM researchers and scholars because it used a multi-dimension approach for assessing KM, thereby enhancing our understanding of the problem. This approach is rare in several KM assessment literatures and is also consistent with the systems thinking perspective. The approach combined Wiig's (2004: 282) illustration of knowledge management vigilance states, which was extended to include definitions of these states for enterprises in terms of goals as advised by Kulkani and Freeze, (2006). The Statistics Canada (2009) survey questionnaire was also used as the KM assessment instrument.

Most of the KM assessment tools and frameworks leave out the general and specific goals of each KM stage (Kulkani and Freeze, 2006). The instruments used in many studies have also not been validated for consistency and reliability unlike our instrument, which has undergone several validation processes in other studies. In addition, the study also used a non-probability sampling procedure called purposive sampling.

The research could potentially impact the way in which positive attitudes among leaders of HEIs are cultivated with regards to the importance of KM. The study may also positively impact the body of knowledge, by providing direction towards finding a generally accepted criterion for evaluating KM practices as demanded by researchers and practitioners such as Stankosky (2005) and Green, Stankosky and Vandergriff (2010).

## **1.6 Scope of the Study**

This study focused on the Zambian HEI's context with particular emphasis on the KM practices of three public universities, namely; The University of Zambia, The Copperbelt University and Mulungushi University. This study specifically focused on the attitudes, perceptions and understanding of academic heads of departments, deans, directors and principal officers with regards to KM practices within these institutions.

The results of this study, therefore, have to be interpreted within the Zambian HEIs context. However, the study results may have relevance in assessing KM practices of HEIs in other developing as well as developed countries.

## **1.7 Definition of Terms**

*Knowledge*: is defined as a meaningful, action-oriented commitment, which extends the traditional 'justified true belief' (Nonaka and Takeuchi, 1995). In addition, Davenport and Prusak (1998: 5) see knowledge as a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information.

*Knowledge Assets*: Knowledge assets are 'firm-specific resources such as people's expertise and skills, knowledge documents, lessons learned and data, that are indispensable for creating value for the firm' Nonaka et al. (2000: 20). Knowledge assets therefore, develop as the evolving inputs and outputs of knowledge activities and when used by someone other than their original creator Baird and Henderson (2001) cited in (Baskerville and Dulipovic, 2006).

*Knowledge Economy*: refers to how society and economies are transforming their dependence on labour and manufacturing of products or goods to an economy that is more dependent on the production of information and knowledge. Hence, society and the economy are being transformed from a “physical-based” labour force to a “knowledge-based” one (Pullen, 2009).

*Knowledge Management*: The systematic and explicit creation and use of knowledge to maximize knowledge-related effectiveness of an organization (Wiig, 1997). It involves the capture of an organization’s collective expertise wherever it resides – in people’s heads, or in databases, on paper – and distribution of the expertise wherever it can produce the biggest returns (Hibbard, 1997).

*Non-probability Sampling*: is a sampling technique in which some units of the population have zero chance of selection or where the probability of selection cannot be accurately determined. In addition, information from a sample cannot be generalized back to the population (Bhattacharjee, 2012).

*Purposive Sampling*: also referred to as judgmental sampling or expert sampling, is a non-probability sampling technique whose main objective is to produce a sample that can be considered to be representative of the population (Battaglia, 2011). The researcher uses his or her own judgment about which respondents to choose such as those with key demographic characteristics, and picks those who best meet the purposes of the study.

*System Thinking*: is a field of study that is concerned with breaking down an entity into constituent parts in order to understand the whole, while also understanding the pattern of relationships between the parts (Jackson, 2003). It also looks at the environment in which the parts interact, as well as the feedback which is the source of the systems dynamic behavior Abou-Zeid (2008). System thinking is derived from systems theory and is the basis for the learning organization (Senge, 1990).

## 1.8 Chapter Outline

The chapter argues that the phenomenon of KM came as a result of pressure exerted on organizations by the advent of the knowledge economy. The fundamental argument in this chapter is that KM principles are crucial for organizational survival. The chapter further reveals that the major problem HEIs face in the knowledge economy is the absence of these KM principles and particularly the lack of capability to assess them.

The solution to this problem, as argued in this chapter, was to conduct a knowledge assessment of the existing situation. A knowledge assessment would highlight the importance of knowledge is and then raise awareness about KM to managers of HEIs and other stakeholders. It was argued in this chapter that the knowledge vigilance survey approach forms the basis of this study.

The chapter also explains that the purpose of the study was to determine the state of KM in HEIs in Zambia. The rationale for doing this was to provide some valuable insights that could be used for the cultivation of a vigilant KM culture that can potentially contribute towards putting HEIs on the right KM development path. The chapter then concludes by outlining the landscape of the study which is within the Zambian HEIs context. Definitions of key concepts have also been provided at the end of the chapter to help our readers understand what is being discussed.

## **2.0 CHAPTER 2: REVIEW OF LITERATURE**

This Chapter presents a comprehensive literature of studies that provided a framework for diagnosis of the problem under study. The chapter begins by exploring the Zambian higher education context in section 2.1. In section 2.2, the challenges which HEIs in developing countries generally face are explored. Section 2.3 explores the position in which HEIs find themselves in the knowledge economy. A brief account of KM and its mandate in HEIs is given in section 2.4. The chapter suggests the methodology of assessing KM in section 2.5. In section 2.6 the Chapter discusses substantive findings of other studies on KM in HEIs in some selected developing countries by reviewing methodological contributions of these studies to our study. Lastly, the chapter in section 2.7 presents the theoretical foundation on which this thesis is anchored.

### **2.1 The Zambian Higher Education Context**

At independence, in 1964, Zambia had just over 100 university graduates and no public university (World Bank, 2015). This compelled the government to instigate a program for establishing a university, with the view to produce manpower to direct the development course of the country. The main worry over the establishment and expansion of higher education was mainly a reaction to the unequal colonial education policies which preferred and enhanced European education, while higher education for Africans was consciously impeded (FNDP, 1966).

Thus, the higher education policy which was made at independence was meant to expand the horizon of the education system particularly at tertiary level. This was to ensure that indigenous or local communities have access to higher education. The policy entailed that government was to sponsor students admitted to tertiary institutions, especially universities, arguing that the country urgently needed to develop the human capital for its accelerated development (Masait and Hong, 2013).

The University of Zambia, the first public university in the country was subsequently established by The University of Zambia act of 1965 and then opened in 1966 (The University of Zambia Strategic Plan, 2012). As demand for higher education increased, The Copperbelt University was established, also through an act of parliament No. 19 of 1987 (Mulamfu, 1998).

Tertiary education in the country has been growing since then, whereby in 2014, there were three public universities and 32 private universities (World Bank, 2015: 23). Tertiary education in the country consists of universities, colleges, and teacher training colleges, Technical Education, Vocational and Entrepreneurship Training. The three major public universities include: University of Zambia (UNZA), Copperbelt University (CBU), and Mulungushi University, which was recently established in 2008 (World Bank, 2015: 23).

Tertiary education was well financed from 1966 to 1974 while the economy was performing well due to massive revenues from the mining industry (Masait and Hong, 2013). Although the policy of financing higher education continued from 1974 to 1996 this period witnessed economic hardships for the country as copper prices, the main stay of the economy, fell sharply while oil prices increased. This meant that government funding to these institutions dwindled while demand for higher education was ever increasing.

This prompted the government to craft a new education policy regarding financing of higher education based on the cost sharing model called the dual cost tuition model (MOE, 1996). This meant that financing of public universities was on a shared basis between the government, the institutions themselves and students. Up to 80% of students in these universities except Mulungushi University are still sponsored by government and only 20% are self-sponsored (Masait and Hong, 2013).

Zambia's newest public university, Mulungushi University, follows a unit cost tuition model where all students admitted pay economic fees. Masait and Hong (2013), claim that the university is operating in a relatively viable and sustainable way compared to the other two traditional universities.

Despite economic hardships between 1974 and 2006, The World Bank (2015), argues that higher education in the country has always received a substantial amount of public resources and enjoyed a strong commitment from government. The bank further observes that:

*“Between 2006 and 2013, public education expenditure grew steadily in both nominal and real terms. Government expenditure on education grew from ZMW1.5 billion in 2006 to ZMW5.2 billion in 2013 in nominal terms. The education expenditure ranged between 15.3 percent and 20.5 percent of the total government expenditure during this period.”* (World Bank, 2015: 6)

A comparison at international level shows that higher education students in Zambia enjoy relatively large public funding in comparison with countries among the same level of GDP per capita (World Bank, 2015: 6). However, the Technical Education, Vocational and Entrepreneurship Training subsector has remained relatively underdeveloped, despite its potential in employment creation (World Bank, 2015).

Due to a relatively sustained expenditure by the government and population increase, higher education in Zambia has seen rapid growth which is evident in the substantially increased enrollment of 48 percent between 2009 and 2013. By 2013, UNZA and CBU had a total enrollment of almost 30,000 students from 6,000 in 1994 (SARUA, 2012).

However, suffice to mention that government funding to higher education particularly to the University of Zambia and the Copperbelt University has encouraged dependency on government. The World Bank (2015) argues that these institutions depend on government for more than 50% of their revenue. However, even though they are supported by the government, HEIs in the country have neither effectively nor efficiently utilized these resources.

Furthermore, higher education is still facing many challenges despite receiving the largest share of the education budget from government (World Bank, 2015). These challenges include; unsustainable debt, poor infrastructure, high demand for access to higher education, competition from mushrooming private education institutions, economic decline due to their

failure to adapt in the knowledge based economy among other challenges (The University of Zambia Strategic Plan, 2012). Hence, there is an increased demand for accountability for these resources, particularly because there are also other competing social needs such as health and social protection of the most vulnerable in society.

In this context, Alexander (2000) claims that a new economic motivation, that is economic decline, is driving states to redefine the way they relate with HEIs by pressing them to become more accountable, more efficient and more productive in the use of publicly generated resources. In addition, there seems to be a growing perception that universities are not accountable to their stakeholders, hence, the growing demand for accountability in finance and management to students, employers, and the general public (Johnstone, 1998).

The World Bank (2015) and the University of Zambia Strategic Plan (2012) sensibly suggest that these institutions should operate autonomously and independently away from government and any other social or political interference. This is because as claimed by the World Bank (2015), universities would be more self-sustaining if they charge self-determined economic fees.

However, Alexander (2000) argues that this self-regulatory framework has dominated university development for centuries. Yet the total impact of this framework in terms of performance is not clear, suggesting that the framework needs to be revisited to adjust to the expectations from various stakeholders.

Alexander (2000) further submits that HEIs are obliged not only to examine themselves but also to be examined by others. It is not surprising that there is always a public outcry every time HEIs have tried to increase fees. Moreover, the minister of education has considerable powers with regards the operations of higher education institutions whereby he can intervene in financial or any important issues facing higher education.

Other stakeholders such as civil society or non-governmental organisations also have influence in the running of higher education. They take up the role of being a critical voice of the poor whenever financial decisions such as increasing fees are being considered or made. Students themselves are the most critical to any upward adjustment to fees. Protests and

sometimes violent riots ensue and engulf operations of higher education institutions. It is therefore expected that the University of Zambia Strategic Plan (2012) describes the biggest university in the country as a political battlefield due to the conflict of interests that seem to define its environment.

The above scenario demands for sustainable solutions to the challenges facing higher education in Zambia. Solutions that should take into account the myriad interests of various stakeholders. While charging economic fees is part of the solution that can see efficiency and effectiveness in higher education operations, it is not enough. In addition, it disadvantages other stakeholders, particularly students, who come from poor homes yet with so much academic potential.

Furthermore, while government funding for higher education is welcome, this is also not enough given the meager resources available owing to poor economic performance and other competing social demands such as health and infrastructure development. Moreover, although solutions such as giving HEIs autonomy and independence may seem sustainable they are also not enough given the complexity of the challenges that they face.

Consequently, the need for more sustainable solutions to the challenges faced by HEIs in the country seems to be reinforced. Thus, suggestions by Rowley (2000), Metcalfe (2006), Nawaz et al. (2016) and others that HEIs need to change their overall management style are not surprising.

## **2.2 Challenges of Higher Education Institutions in Developing Countries**

The challenges facing *Zambian* HEIs are not unique as other developing countries are facing similar challenges. Suffice to mention that HEIs do not start from the same position and that their history, location and financial positions could be very different, in that, their situations differently affect their ability to respond to change and effectively address their challenges (Cranfield, 2008). However, the general challenges that HEIs in developing countries seem to face include among others: inadequate financial resources; unprecedented demand for access

to higher education; and economic and social crises that seem to ravage many developing countries (Teferra and Altbach, 2004).

In addition, HEIs suffer from poor, inefficient and highly bureaucratic systems, while out of date infrastructure and poorly remunerated staff are the norm throughout many universities (Teferra and Altbach, 2004). These challenges should awaken HEIs to rethink their management style, whereby the old command and control management styles should be challenged or better still redesigned into more flexible management styles. In particular, business management techniques should be promoted as the best vehicle for change (Ewell, 1999 cited in Metcalfe, 2006).

Suggestions by Rowley (2000), Metcalfe (2006) Drucker (1994), Naser (2016) and others regarding the importance of HEIs to consider KM as a new management model that can improve their performance and help solve their challenges should not be surprising. This is despite the fact that few universities have understood the importance of KM or seen it as a purposeful management technique with multiple dimensions and impact. In such a situation, claims by Metcalfe (2006), Biloslavo and Trnavcevic (2007) that KM is the right if not the only solution to the management problems faced by HEIs seem sensible.

However, Sveiby (1998) observes that it is appalling that the education sector is the last one to apply KM principles. Whereas, the business sector has taken the lead in exploiting and managing their knowledge assets, HEIs seem to be uncertain. This can only mean that HEIs should begin exploring possibilities for introducing KM principles in their operations.

### **2.3 Background to the Phenomenon of Knowledge Management**

Knowledge has always been thought of as a valuable asset by academicians and philosophers since time in memorial. In fact, the importance of managing knowledge to improve the production processes is not new. According to Newell et al. (2009), as long ago as 1890, Alfred Marshall suggested that knowledge was the most powerful engine of production. However, it is the information era or the knowledge era that has seen major advances in this idea that managing knowledge is important in organisations.

Armisted and Meakins (2002) claim that, the importance of knowledge in effective organizations has been increasing in recognition for the last 50 years. However, this recognition has been at a sub-conscious level. It is only recently and particularly in the 21<sup>st</sup> century that knowledge has consciously taken center stage as a strategic resource in all business fields, including higher education (Nawaz, et al 2014). This is because the world has become consciously aware that knowledge is the source of competitive advantage across all sectors (Drucker, 1994).

Stankosky (2005) claims that knowledge, is now the prime currency in the national and global economy. However, Stankosky (2005) seems to acknowledge that managing knowledge is difficult because knowledge is not tangible. It cannot be seen or touched like a good (Sveiby, 1998). Nonetheless, its impact as acknowledged by many scholars, on organizational performance seems to be obvious. This realization of the impact of knowledge in the success of any organization has reinforced the need to manage it in organizations.

Scholars such as Davenport and Prusak (1998) also seem to emphasize the importance of managing knowledge by claiming that it is a critical success factor for organizations. This realization is what has led to the development of the field of KM, which seeks to leverage an organization's knowledge assets for the purpose of enhancing performance. However, as a conscious discipline, KM is relatively new and has a short history (Uriate, 2008).

The works of KM pioneers such as Peter Drucker in the 1970s, Karl-Erick Sveiby in the 1980s, Nonaka and Takeuchi in the 1990s and Davenport, Prusak and Wiig in the 2000s give a comprehensive picture of the early [and latest] works in the development of KM (Uriate, 2008). At present there is an avalanche of KM literature and the trend seem not to be subsiding.

Prusak (2001) observes that the phenomenon of knowledge management is a consequence of social and economic trends. These trends are, according to Drucker (1994), the most extreme societal changes of the 21<sup>st</sup> century. The significant trend that has been observed by many scholars including; Cepeda-Carrion (2006), Armistead and Meakins, (2002), Drucker, (1994), Sveiby (1998) and others is the radical transition from an industrial or manufacturing economy to a more service driven one.

The obvious economic trend that is responsible for the emergence of KM is globalization. According to Prusak (2001), globalization is the unprecedented increase in the complexity and volume of global trade. This is mainly due to information technology, whereby new products and services are swiftly brought to the wider global market. Globalization is a major culprit because it compelled many organizations to rethink and ask questions in relation to what they do or do not know, who knows it, and what they should know.

Globalization for HEIs can be seen in the high demand for world class education wherever it might be at a low cost but with high quality. Thus, HEIs that attract foreign students seem to perform better in that they bring in revenue for these institutions in form of foreign exchange.

Secondly, Prusak (2001) further claims that computing is another trend that can be attributed to the advent of KM in that it led to the expansion in access to information, whereby people increasingly had access to almost all the information they might have needed at any time, in any place and at a low cost. Powell and Kaise (2004) strengthen this claim by proposing that the technologies which emerged in the 1950s expanded with the proliferation of computers and then surged spectacularly with widespread use of email and the internet.

Computing in this scenario is responsible for the information society which has seen the world wide explosion of information. However, this led to information overload and made it difficult to get value from information. Thus, organizations needed to get value from cognitive skills such as judgment, design, leadership, better decisions, persuasiveness, wit, innovation, aesthetics, and humor that cannot be obtained from a computer (Prusak, 2001). These knowledge components became even more valuable than ever with the start of computing.

Thirdly, Prusak (2001) sees the knowledge-centric view of the firm as a social and economic trend that can also be linked to the KM phenomenon. He claims that an organization was seen as a coordinated collection of capabilities whose effectiveness is limited by its current social and cognitive skills, whereby the main building block of these skills is knowledge.

Powell and Kaise (2004) view an organization as having a role of learning and continuous innovation can also be connected to this knowledge-centric view. Regarded in this manner, such ideas of an organization have impacted the way executives execute their decisions in the

organization. These ideas have highlighted the positive impact of knowledge, whereby they have taken center stage and hence the advent of the KM phenomenon.

In the context of higher education, the social and economic trend that is evident is the movement patterns of students and the development of cross-national education programs such as distance learning initiatives. People are able to access education in different and remote locations away from the campus buildings through the power of internet.

In view of the above, the KM phenomenon is a result of globalization, computing and the knowledge centric view of the firm. All these social and economic events culminate in what is called the post-industrial society, which is also known as the knowledge economy. Such an economy has greater reliance on intellectual capabilities than on physical inputs such as land, labour and capital (Drucker, 1994). In addition, Mokyr (2002) argues that this kind of an economy is concerned with the growth of knowledge as the central theme for economic change.

### **2.3 Higher Education Institutions and the Knowledge Economy**

HEIs are cognitive intense institutions whereby their primary function is based on knowledge, knowledge production, documentation and publishing (Naser, et al., 2016). They are organisations that provide education and knowledge to students through teaching and research. Okelie (2003) claims that they are the largest repositories of certified knowledge in other words, they have the highest concentration of certified experts with specialized skills and knowledge. They thus provide society with qualified people for jobs which are critical for the advancement of any society.

It is therefore expected that HEIs have come to occupy an important and revered position in modern societies and particularly in the knowledge economy, as they produce the leaders of most modern societies. Their role in the knowledge economy is not only to produce experts with specialized skills, but also to produce dominant ideas that can help them and society at large to survive in this volatile and competitive knowledge environment. Okelie (2003) further claims that dominant ideas generated by HEIs can produce and refine some of society's most sophisticated tools and ways of doing things.

However, to be able to discharge this revered role, HEIs need to be competitive in the knowledge economy. To be competitive Nawaz et al (2014) advise that HEIs must ensure that the quality of their services is reflected in a good academic experience achieved by their students. Creating academic knowledge, expanding infrastructure and innovation should be the starting point. This is possible through investments in these institutions.

According to Nawaz et al (2014), participation in the knowledge economy by HEIs should be seen in the ability to extend knowledge and specialist skills, engaging effectively in knowledge production in close contact with industry and to produce quality graduates. Additionally, HEIs should channel their knowledge into new sources of technological innovation. Technology transfer and research center facilities with industrial participation should be part of this innovation.

Suffice to say that Newell (2004), views innovation as the expansion and application of new ideas, by people who eventually engage in transactions with others in the institution. He claims that innovation is a lot more than just coming up with clever ideas, such as, invention or creativity, it is also about putting them into practice and about spreading them widely. This is critical for maintaining a competitive advantage.

However, knowledge is the only currency that can bring about innovation within organisations. Given that HEIs operate in an ever more dynamic, competitive and globalized environment, they need to respond rapidly to such environments using knowledge to develop new innovative products, services and organisational processes to suit their changing circumstances.

Provosts, deans and department heads in HEIs therefore need to carefully examine human resources, organisational cultures and political climate to modify and move their institutions forward (Lee and Roth, 2009). Failure to do so could mean that the prestigious position which these institutions occupy in society will be threatened.

It is thus surprising that HEIs seem to embrace the status quo rather than adapt to the social and economic trends alluded to above. This is despite a stern warning by Lee and Roth (2009) that in order to survive in an increasingly changing economy, HEIs must be able to

identify the major part of internal and external forces, exploit the value of their resources and change their structures.

The reason for the slow pass to adapt in the knowledge economy by HEIs is according to Nawaz et al (2014) rooted in the nature of these institutions. The case in point is the structure and the culture of these institutions. They are known for maintaining highly bureaucratic systems and a culture of hoarding knowledge (Du Toit, 2000).

The structure of HEIs seems to differ significantly from other organisations particularly in the private sector. Their structures seem to mostly take the form of a hierarchical organizational model. Naser et al (2016) argues that this model may be a major obstacle for the exchange of knowledge. The hierarchical model tends to impede knowledge sharing and organizational operations. This is because it is frequently associated to factors such as overemphasis of position statuses.

Those in positions of power are viewed as the only authorities to find solutions to organisational problems. Those that are close to work processes are viewed as the hands and not the head (Newell, 2004). This is a command and control model which has characterized organisational life, including that of HEIs, throughout the 19<sup>th</sup> and 20<sup>th</sup> century (Jackson, 2003). This model also seems to persist in HEIs even now in the 21st century.

In addition to hierarchical structure, culture is also a hindrance to knowledge sharing in HEIs. Cranfield and Taylor (2008) observe two kinds of culture in HEIs. The first being academic culture while the second being administrative culture. The former is not averse to the idea of sharing knowledge while the latter is averse. The main reason for this as argued by, Wiig (1993), is that faculty members regard the knowledge they have as their personal property that is not to be shared freely because it is the source of differentiation.

Davenport, DeLong and Beers (1998) claim that if the cultural environment is not favorable for a knowledge initiative, no amount of technology, knowledge content or good project management practices will make the effort successful. Therefore, the challenges HEIs are facing with regards to leveraging knowledge are mostly due to structural and cultural barriers. This means that HEIs will have to rethink the way in which they teach, conduct research and manage their operations and various stakeholders. This change should begin

with cultural and structural transformation. This is because HEIs today and in the future will continue to experience different and increased external pressure influenced by the knowledge economy (Cranfield and Taylor 2008).

In view of the aforementioned barriers, Naser et al. (2016) ardently advocates for structures that are decentralized, flexible, agile and flat. He claims that such structures encourage participation and cross-border cooperation and ultimately decision making, efficiency and effectiveness within the organization. A proposal by Metcalfe (2006) that organisations need KM in order to adapt in the knowledge economy should therefore not be taken lightly.

In the context of HEIs, if they have to survive in the knowledge economy, they must be seen as knowledge businesses. Rowley (2000) strengthens this claim by contending that HEIs are in the knowledge business, as they are involved in knowledge creation, dissemination and learning. Like any other business, they are not immune to the marketplace pressures. Therefore, the argument by Rowley (2000), that knowledge management might have something to offer HEIs in the knowledge economy seems understandable.

## **2.4 The Mandate of Knowledge Management in Higher Education Institutions**

There is a growing belief among some KM researchers in HEIs such as Naser et al (2016), Demchig (2014), Metcalfe (2006), Cranfield and Taylor (2008) and others that KM can help build the future of a dynamic learning environment by developing and improving the efficiency of activities of knowledge sharing and enhance the overall performance of HEIs. According to Naser et al. (2016), this is despite the challenges that HEIs are facing in the knowledge economy.

Suffice to mention that state support for HEIs seems to be dwindling and hence the need for high performance measures and ways to maximize public and private investments (Metcalfe, 2006). In view of this, HEIs need to be self-reliant by demonstrating high performance if they are to survive in the knowledge economy. Naser et al (2016) claim that the areas of high performance in HEIs generally include: reducing costs; increasing revenues; improving quality of teaching; scientific research; and community service. KM is seen as the major

influencing factor of these key performance areas because of the importance of knowledge itself as a competitive added value for humans, organisations and even nations (Amudallal et al., 2016).

The role of KM in HEIs is to produce and manage knowledge through activities and technical practices in order to link individuals from various academic and administrative levels and sections of these institutions (Naser et al., 2016). This is done through collaboration and sharing of knowledge by established communities of practice and virtual teams. Technologies such as E-mail, decision support systems, web 2.0 technologies and data warehousing technologies facilitate this process (Baldanza and Stankosky, 1999). A culture of sharing is also enhanced by top management's commitment by allocating resources and cultivating positive attitudes towards KM (Anantantmula 2010 in Green, Stankosky & Vandergriff, 2010).

Consequently, the mandate of KM in HEIs is to bring essential knowledge to light in order to make organisations more competitive. Important data such as graduate rates, expenditure per student, faculty student ratios, grants and revenues, patents granted and other factoids which can be collected, contextualized and distributed through data mining techniques that can be performed using data warehousing technology can be brought to the fore (Mecalfe, 2006).

KM can also help important data to be collected primarily to enhance research and teaching, develop suitable curricular programs, utilize knowledge for management decision support and apply this data for qualitative change in the education process Mohayidin (2007 ) et al. cited in (Almudallal, 2016). In essence, KM is useful for building knowledge for problem solving and decision making.

Biloslavo and Trnavcevic (2007) submit that effective KM is vital for training the best professors and researchers, for improving cost efficiency and for exceeding the limits of time and space, allowing for fulfillment of student expectations. Nawaz and Gomes (2014) also add that the role of KM in HEIs is to increase student retention and better graduation rates, analyze the cost effectiveness of technology to meet more enrolments, transform existing transactions based systems and help them compete in an environment where institutions cross national borders to meet student needs.

Nawaz et al (2014) broadly classify the role of KM in HEIs into five major categories namely:

- Research Processes
- Curriculum Development Processes
- Student and Alumni Services
- Administrative Services
- Strategic Planning

Nawaz (2014) further claims that the adoption of KM principles in curriculum development is for example, to ensure that curriculum design and delivery meets the objective of relevance and quality of human resource development. In this context, KM is seen as a technique that can ensure a conducive and creative environment for teaching and learning in HEIs.

Du Toit (2000) points out that key learning outcomes for one to acquire a degree should include dissemination of advanced knowledge, critical and analytical thinking and reasoning skills and implementation of advanced knowledge in a community. The role of KM in achieving these key learning outcomes is to provide an enabling environment for people to share and create knowledge.

Section 2.1 in Chapter 2 highlighted the need to be accountable to the public and private stakeholders, as accountability in HEIs is being repeatedly demanded by stakeholders. This is primarily due to the dwindling public and private investments to education (Teferra and Altbach, 2004). HEI stakeholders want to see a return to their investments in education. In this context, accountability is the added value that accrues to organisations that adopt KM. It offers HEIs with a platform for creating the ability for reflective thinking in all areas of their activities, by providing the means for substantiating their positions in terms of performance.

The role of KM in HEIs with regard to accountability is to measure performance. It does this by enhancing a more comprehensive, integrative and reflective understanding of the impact of knowledge (Chumjit, 2013). The real impact of knowledge in this case as claimed by Rowley (2000) is in developing processes that would help organisations to prevent reinventing the wheel. This is possible through the identification and utilization of knowledge

assets, which offer a competitive advantage to HEIs as they cannot be replicated easily by other organisations (Anantantmula, 2010 in Green, Stankosky and Vandergriff, 2010).

Therefore, KM in HEIs seeks to bring essential knowledge to light in order to make organisations more competitive. It promises to lead to better decision making capabilities, improve academic services and reduce costs in the day to day operations of these institutions (Naser et al., 2016). It does this by providing ways to transfer efficient methods, models and ideas by creating a network of interaction that can provide an environment for easy circulation of knowledge thereby underpin innovation and development. Ultimately, it is about leveraging knowledge assets, processes and enabling factors for organizational performance (Stankosky, 2005).

## **2.5 Knowledge Management Assessment**

Many scholars including Wiig (2004), Kulkarni and Freeze (2006), Biloslavo and Trnavcevic (2016) and others agree that the first step in any KM initiative is to conduct a knowledge assessment. This is because knowledge assessments create awareness of many knowledge related problems, capabilities and competencies within the organisation. Biloslova and Trnavcevic (2011) further warn that any attempt to establish the right context for promoting KM processes is futile if the organisation does not execute a valid assessment of the existing situation.

However, the ability of organisations to measure the value of knowledge still remains problematic (Armistead and Magda 2002). This has led to the development of a lot of KM assessment tools in an attempt to assess knowledge. The famous model is the capability maturity model of the Software Engineering Institute of the Carnegie Mellon University in collaboration with the software community Kulkarni and Freeze (2006) in Schwartz (2006). Notable software companies are the Siemens and InfoSys Technologies.

Most of these tools use KMMMs or KMCAs as the lens through which to determine the state of KM in their organisations. KMMMs or KMCAs are a structured method to assess an

organisation's overall position in knowledge management (Langen, 2000). According to Langen (2000) the basic concepts that seem to drive KMCA include:

- A holistic and systematic assessment of KM position
- Quantitative and qualitative results oriented towards KM interventions
- Basic input to build a KM roadmap
- Using different methods and perspectives
- Using well-known and approved models (CMM, EFQM)

In addition, Pee and Kankanhalli (2009) suggest that the implementation of KM assessment approaches follow an ideal evolutionary path which is guided by the following principles:

- the entity's development can be simplified and described with a limited number of maturity levels (usually four to six)
- the levels can be ordered sequentially and characterized by certain requirements which have to be completely fulfilled in order to reach a certain level and
- the entity progresses from one level to the next without skipping any level

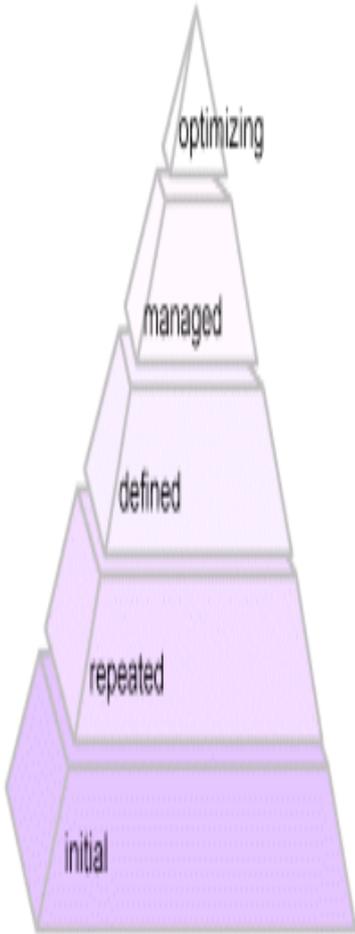
The bulk of KMMMs differentiate between five maturity levels starting from an initial level 1, where the organisation requires awareness of the importance for a systematic KM and ending at an optimised level 5, where KM activities are profoundly incorporated into the organisation and repeatedly enhanced.

The 5iKM3 KMMM, by Tata Consultancy Services, is another notable example where each maturity level is defined based on how people, process and technology relate with each other within the organization and are influenced by the corporate culture (Mohanty and Chand, 2004). The five maturity levels include: initial, intent, initiative, intelligence and innovation.

The InfoSys KMMM has 5 maturity levels and each level is characterized by the efficiency of the knowledge life cycle, which consists of Knowledge Acquisition, Knowledge Dissemination, and Knowledge Reuse (Kochikar, 2002). The levels include default, reactive, aware, convinced and sharing.

Table 1 below is a brief illustration of a maturity model developed by Siemens AG's Competence Center for Knowledge Management. It illustrates the growth stages in terms of maturity. Similar to many KMMM it has 5 levels. The key areas of knowledge assessment include corporate environment, culture, strategy and so forth. It describes a firm's current position and the future directions it should take.

**Table 1: SIEMENS AG KMMM**

	<p><b><u>Level 5 Optimized:</u></b></p> <ul style="list-style-type: none"> <li>- KM is perfected and mastered</li> <li>- Flexible to external and internal change</li> </ul> <p><b><u>Level 4 Managed:</u></b></p> <ul style="list-style-type: none"> <li>- Basically, this stage includes everything in the "defined" stage, except that it is more standardized</li> <li>- Organization-wide KM practices are defined</li> <li>- The effectiveness of KM is measured regularly</li> </ul> <p><b><u>Level 3 Defined:</u></b></p> <ul style="list-style-type: none"> <li>- KM is supported by day-to-day activities</li> <li>- KM roles are created, defined and filled</li> </ul> <p><b><u>Level 2 Repeatable:</u></b></p> <ul style="list-style-type: none"> <li>- The significance of KM is recognized</li> <li>- KM processes are implemented and tested</li> </ul> <p><b><u>Level 1 Initial:</u></b></p> <ul style="list-style-type: none"> <li>- Knowledge management is a one-time process</li> <li>- There are no formal KM practices within the organization</li> </ul>
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Suffice to mention, however, that Pee and Kankanhalli (2009) and Vanini and Bochert (2014) provide a thorough review and comparison of KMMMs by combining the different concepts but their analysis is outside the scope of this study. However, the notable aspect of the above models is that they are business sector oriented. The business sector has taken the lead in exploiting and managing their intellectual assets. The education sector, however, has no model or experience in evaluating their knowledge assets (Rowley, 2000). In addition, Du Toit (2000) and Wiig (1993), contend that the education sector seems to be the last one to apply KM.

However, the above models and concepts seem to have been adopted into the education sector in order to construct meaning of knowledge management within this context as discussed in section 2.6, Kuriakose et al. (2010) observes that many practitioners and researchers have developed Knowledge Management Maturity Models, which have different forms, structure and characteristics. However, despite the availability of many models, a comprehensive framework that can provide a holistic picture of Knowledge Management assessment seems to be lacking.

Due to lack of a generally accepted criterion for assessing knowledge management practices, many researchers have developed different dimensions for valuating KM. Kuriakose et al. (2010) identifies six different dimensions for measuring KM these include:

- i. Context: this entails the environment in which KM assessment tools are being used. This can be in a general, organizational or industrial environment.
- ii. Applicability: that is, the entity to which the tool can be applied. It can be applied generally in an organisation or in an industrial sector.
- iii. Stages: the stages can be progressive or continuous. The majority of stages reviewed show a progression from a lower level of perfection to a higher level of perfection mostly with five levels.
- iv. Assessment: the assessment criterion can either be subjective or objective. It could be subjective in the sense that the evaluation can be based on the opinion of various

stakeholders. On the other hand, it could be objective based on the collection of evidence to support the opinions of various stakeholders.

- v. Validation: this is the methodology used to validate the tool used in the KM assessment criteria. It could be a case based method or an empirical method that looks at two or more organisations.
- vi. Key areas: these are the important capabilities or competences that have been used to depict the maturity stages. These could be the enablers such as people, processes, technology, and leadership and so on and could be knowledge assets such as knowledge documents, lessons learned, expertise, and data. They could also be knowledge processes such as knowledge creation, sharing, identification, storage, application and so on.

Literature shows consistency with Kuriakose et al. (2010) by claiming that the majority of the assessment tools neither indicate their methodology or assessment nor the validation criteria used. Furthermore, the key areas show that many studies use knowledge enablers as the measure for an organization's competencies. A few instances as in the case of Kulkarni and Freeze (2004) criterion show the use of knowledge assets. There are also studies that show the use of processes as an assessment criterion as in the case of Naser et al, (2016).

The basic concepts of the KMMM have been adopted by organizations for assessing KM practices (Kuriakose et al, 2010). However, there is no model specific to HEIs. This means that most studies in HEIs as shall be seen in section 2.6 utilize what seems to be the general application criterion. Many assessment tools do not utilize all the alleged six dimensions identified by Kuriakose et al. (2010). In addition, many tools do not take into account the goals of the organisation in the measurement criterion.

Kulkarni and Freeze (2006 in Schwartz 2006), advise that the general and specific goals of each level in the growth stage of a KMMM and the activities needed to attain the various levels of maturity should be available. Moreover, attempts should be made to test for content and construct validity of either the measurement instrument or the process adopted.

Hence, Malhotra (2001) argues for the adoption of multiple dimension measures. He contends that multiple-dimension measures enhance confidence that the constructs of interest are being accurately assessed. In addition, Vanini and Bochert (2014: 223) strengthen this contention by stating that KM is a multi-perspective approach. This implies that KM assessments should be measured using multi-dimensions that should also take into account the organizational goals.

## **2.6 Review of Previous Studies in Developing Countries**

The majority of studies on KM practices as noted earlier have focused on the commercial sector with only a handful on the HEIs context. The few studies in educational institutions show a lack of fully fledged KM practices in place (Cranfield and Taylor, 2008). However, due to the realization of the benefits of KM, there is growing interest on research in both the commercial and public sector. The following is an empirical review of literature of some of the studies aimed at assessing the state of KM in HEIs of some selected developing countries.

To start with, a study by Krubu and Krub (2011) on academic and non-academic staff aimed at assessing KM initiatives in Nigerian Universities using a questionnaire and interviews as well as an unknown assessment instrument found from the review of literature that the university was at the basic and rudimentary level of KM. The lack of a KM policy and strategy, lack of adequate ICT tools for KM implementation and lack of a knowledge audit accounted for this low KM position of the Nigerian University.

This is consistent with a study by Demchig (2014) on academic staff and directors in a Mongolian University using Kulkarni and Freeze's (2004) organizational knowledge capability areas and KMCA model and a questionnaire aimed at determining knowledge capability also concluded that the university current KM capability maturity position was level 1.

In particular, Demchig's (2014) study reveals the following unfavorable attitudes towards leveraging knowledge assets (data, knowledge documents, expertise and lessons learned): developing a knowledge sharing culture, leadership commitment to setting strategic goals and practices for knowledge sharing within groups and departments and a lack of awareness of

KM by most employees. The university KM practices were particularly weak in areas of innovation and knowledge creation, such as generating new ideas and new research findings Demchig (2014). New technologies to support KM were also not well integrated in the Mongolian university.

In contrast, the two studies used different dimensions to measure the state of KM. The Mongolian study used knowledge assets and KMCA model for the assessment of key areas. It also incorporated knowledge enablers and processes such as leadership and knowledge sharing in the assessment criterion. The Nigerian study, on the other hand, did not assess the knowledge assets of the university. However, similar to the Mongolian study it used both KM enablers such as KM tools, the knowledge audit as well as the knowledge process criteria, specifically, the knowledge acquisition and sharing evaluation criteria of key areas. Similarly, both studies are case based.

The Nigerian study unlike the Mongolian study did not use the growth stage dimension in terms of the KM level or position on which the university is placed as the assessment criteria. Furthermore, in both cases, the universities have not elaborated on the methodology dimension of the assessment criterion in terms of whether it was subjective or objective, see section 2.5 for more elaboration on the six dimensions of KM assessment.

Similar to the above studies, was a study by Anduvare (2015) on academic and non-academic staff using a questionnaire, interviews and an unknown assessment instrument. This study focused on developing a knowledge management strategy for the Marist International University College in Kenya indicated a variety of informal knowledge management practices and the challenges of managing knowledge at the university. The study concluded that there was no uniformity and consistency in the management of knowledge.

In addition, KM initiatives were ad hoc and therefore not sufficient. What accounted for this low level of KM, similar to the other two studies, was a poor knowledge sharing culture, lack of leadership to support KM initiatives, poor communication among groups and departments and lack of an open and learning culture (Anduvare, 2015). Most of the technology in the Kenyan study was mainly IT based and only addressed information management related issues as opposed to KM technology that may enhance collaboration and knowledge sharing. Similar to the Nigerian study, the Kenyan study did not specify the instrument that was used

to assess its KM practices as in the case of the Mongolian study where a well-known assessment instrument was used.

Furthermore, similar to the Nigerian study the Kenyan study did not utilize the growth stage in the assessment criteria, whereby it is not clear on which level the Kenyan university is positioned. However, the poor percentage scores in the key KM areas suggest a level 1 position in the KM growth stage consistent with both the Nigerian and Mongolian studies. In all the three studies, the assessment instruments used followed a general criterion for KM assessment particularly with regards to the context and applicability. None of these instruments were specific to higher education institution context. In addition, the Nigerian, Mongolian and Kenyan studies all used a case study methodology.

The low level of KM principles and implementation in developing countries education sector is also evident in South Africa where the overall KM maturity score was 42.45% of the education institutions studied by Kruger and Johnson (2010). The growth of maturity at 42.02% was also the lowest of all industries studied in South Africa over the past 5 years. This is despite the same study indicating that KM is well institutionalized in 86 organisations within nine different sectors within South Africa.

There is a marked difference in scores in the South African education sector as compared to the commercial sector which scored better particularly the building sector which scored 61.15%, and the financial sector which scored 57.85% level of KM implementation (Kruger and Johnson, 2010). The reason advanced for this low level of KM maturity was that most education institutions had poor skills with regards to Information Management which had a strong bearing on KM. In addition, the hoarding culture associated with academics which results in the guarding of knowledge as a strategic differentiator was also cited as the contributing factor to the low ranking in KM principles in the South African education sector (Kruger and Johnson, 2010).

The above findings are consistent with another study by Sharif, Yaqub and Khan (2014), which used a questionnaire to determine the state of KM in Pakistani Universities which also focused on maturity and growth. The study revealed that the university had not reached a maturity level of KM. The university still needed to focus more on KM strategies and their implementation. Similar findings are also evident from an Iranian study conducted by Vali

(2016) on faculty members, using a questionnaire as well as Nonaka and Takeuchi's (2004) SECI model focusing on KM status at Kerman University of medical sciences. This study by Vali et al. (2016) also revealed that the university ranked lower than average in KM initiatives. What accounted for this low ranking was a lack of inter organisational network, improper communication among faculty members and lack of learning from experiences (Vali et al., 2016). The social aspects of KM were found to be incoherent in addition to poor cooperation with independent research teams.

The difference between the Iranian and Pakistani studies is that the Iranian study, similar to the other studies utilized the case study method, while the Pakistani study utilized a multiple cases methodology. The instrumentation in the Iranian study was a conceptual SECI model, while the Pakistani study did not clearly state the instrument used, it did however mention that it was utilized by Kruger (2008) and many other researchers.

Furthermore, a study by Biloslavo and Trnavcevic (2007) in a Slovenian university on faculty members using a questionnaire, but without a KMAT, had mixed findings where it was inferred that there is sufficient organizational focus on knowledge storage, transfer of explicit knowledge and knowledge application to the educational programs and projects in the Slovenian university. However, there was weak KM regarding new knowledge generation in co-operation with external partners. Contrary to the other studies, the Slovenian University study demonstrates awareness of the importance of knowledge by the top leadership although with challenges in implementation.

What accounted for this mixed performance could be that the institution had a well-functioning information management system as seen from well-structured documentation system, access to information bases and a well-stocked library Biloslavo and Trnavcevic (2007). However, like in the other studies, the information system for knowledge storage, and application was not supported with social and face to face relationships or cooperative interaction among individuals for the purpose of knowledge generation and knowledge transfer. There was a lack of intra-organizational relationships, which led to the failure of communication processes. This prevented the development of social networks that are needed to support tacit knowledge sharing Biloslavo (2007).

As a result of the above limitation, the institution did not adequately reach the institutionalization stage of KM. The Slovenian study is similar to the Jimma University study conducted in Ethiopia by Ebuy and Bekele (2013) on academic and non-academic staff using a questionnaire, interviews and Stankosky's (2005) four pillar (Leadership, Organisation, Technology and Learning) assessment model. The study concluded similar to the Slovenian case that technology was least problematic, while leadership was the most problematic among the four pillars in respect to the current KM practices in the University.

Furthermore, similar to the Slovenian study, the Jimma University study perceives social networking, which is the essence of the learning pillar, as another problematic dimension to KM. Particularly, collaboration and communication, which were not adequately leveraged. However, the Jimma University study is different from the Slovenian University study with regards to documentation of past best practices and research/project findings. Unlike the Slovenian study, they were not adequately organized and documented so that they are easily located and accessed by the staff (Ebuy and Bekele, 2013).

The overall perception of KM in the Jimma University, similar to the Slovenian study was also average as perceived from the lack of a strategic approach to knowledge resources or assets, lack of an appropriate organizational culture, reliance on technology and lack of trust and insufficient management support among other major factors mentioned by participants (Ebuy and Bekele 2013). These negative factors generated unfavourable perceptions about the success of KM practices in the Ethiopian university.

However, analysis of the interviews in the Jimma University study showed that the majority of the participants were aware about the need for sharing knowledge in order to accomplish and succeed in their work and to extend and sustain organizational development as well as competency (Ebuy and Bekele, 2013). However, the problems of implementation as described above indicate that the university could not make KM a practical priority.

The average score of 55% maturity of KM indicates that the state of KM in the Slovenian university like the average score at the Jimma University was at level 2 when viewed from the KM capability maturity level perspective. This is slightly above its struggling counterparts at level 1 as in the Mongolian, Nigerian and Kenyan, Iranian and Pakistani cases. This means that if management wants to further improve its position regarding KM then it needs

to launch some KM improvement initiatives, particularly culture change, rewards and incentive initiatives.

Nonetheless, the two studies show differences in the KM assessment criteria. The Slovenian study uses the knowledge process evaluation criteria, while the Ethiopian study uses key knowledge areas particularly KM factors or pillars. The Ethiopia study, on the other hand, used two, that is, a questionnaire and an interview particularly the KMAT by Martha (1998) and the know all 10 (Ebuy and Bekele, 2013). However, the Slovenian study utilized a questionnaire instrument devised from the review of literature.

The study findings above are not consistent with the study conducted by Naser et al. (2016) at a Palestinian University called Al-Azer University on employees using a questionnaire and the Asian Productivity Organization KMAT. The study concluded that the university was at level 3 of KM capability maturity. This means there was expansion in KM whereby the university began to integrate knowledge sharing and collaboration in its operations. At level 3 the concept of KM was already known by many employees.

Naser's (2014) study found that the Palestinian university KM is supported by top leadership in day-to-day activities, whereby KM roles are created and defined and resources are set aside. At the same time, most employees at this institution were using technology and standardized tools to capture, transfer, share and reuse knowledge in the organisation. This study has similar findings with the Malaysian study by Mohayidin et al. (2007) on academic staff using a questionnaire using socio-technical factors conceptual framework by Pan and Scarborough (1999) as a KMAT. The study discovered that the processes that is, (knowledge generation, acquisition, dissemination and storage) give an indication that KM is practiced by the academic staff as work routine.

In addition, the findings also indicate that the social-technical components, that is, the info-culture, info-structure and infrastructure supported by the university's top management facilitated the implementation, instillation and application of KM throughout the universities (Mohayidin et al., 2007).

The Palestinian and Malaysian studies are also similar to the Brazilian HEIs study by Youssef et al. (2008) on university rectors using a questionnaire. The study showed that the dimension of communication was the most used KM practice, particularly meetings and discussion groups. The second most used dimension was training and mentoring, especially off-site or virtual training. IT and internet to share and obtain external knowledge was also one of the most used elements of the knowledge capture and acquisition dimension. The use of partnerships or strategic alliances to acquire knowledge was equally used by the university indicating the presence of a KM policy and strategy.

In addition, the Brazilian study indicates that half of the Universities (34) studied had a budget dedicated to KM. The Palestinian and Brazilian studies are characteristic of a level 3 organisation in KM implementation. Similarly, the Malaysian study shows a high level of knowledge capability and maturity. However, at this level the universities must expand to reach the highest level where KM measuring is a continuous process.

The findings of the Palestinian, Brazilian and the Malaysian studies are not consistent with the Slovenian or Ethiopian studies which had an average KM institutionalization. They are also not consistent with the Nigerian, Mongolia, Kenyan, Iranian and Pakistani studies which clearly reveal weaknesses particularly in leveraging the social dimensions of KM.

Methodological differences also exist in the three relatively successful studies. They also show a high level of reliability and validity particularly with regards to the research instruments used. In the Palestinian case, for instance, a questionnaire based on the Asian Productivity Organisation KM assessment tool was used. The validity and reliability of the instrument adopted the Cronbach's Alpha to measure the internal consistency reliability.

The results disclosed that the alpha values for all dimensions were  $> 0.5$  which indicates that the design of the questionnaire had an acceptable internal consistency. The Malaysian study, similar to the Palestine study used a questionnaire whose consistency and reliability was tested using the Cronbach Alpha and found to be reliable as well, well above 0.7.

The Brazilian study used an adapted but well validated questionnaire instrument developed by Statistics Canada (2009). The instrument was used in Canada, France, Italy, The Netherlands, Sweden, Australia, Denmark, Germany and Ireland and has proven to be applicable in different organizational contexts OECD and Statistics Canada (2003). However, the Brazilian studies shows sampling difference. Only one individual, that is, the rector of the university was the only sample in each of the 68 universities studied.

However, there was need to have more samples within each university in order to obtain a diverse perspective of the different departments of the Brazilian universities, with regards to KM practices. Some of the studies had response rates which were quite low at less than 30% as in the Slovenian and Malaysian cases.

It is evident in almost all the studies that KM researchers and scholars used different dimensions and tools to assess KM practices. As noted earlier, there are three basic areas to assess KM, that is, a knowledge asset or resources evaluation, knowledge processes evaluation and the critical success factors or enablers evaluation. In the reviewed studies, some scholars have used one dimension, while others have used two dimensions. However, none have used all the dimensions as the criteria for KM practices valuation. This shows a lack of consensus in terms of standard dimensions as well as tools in the KM assessment criteria.

This is consistent with the submissions of scholars such as Green (2010) and Stankosky (2005) that there is no generally accepted KM measurement criterion. Thus, suggestions by Green, Stankosky and Vandergrif (2010) and Stankosky (2005) to move towards a global criterion for assessing KM are not surprising.

Nonetheless, the use of the survey questionnaire as the research instrument seemed to be popular among the researchers. The use of the Cronbach alpha as the validation criterion for the questionnaire's reliability also seemed to gain prominence in the literature. In addition, the portrayal of organisations as having some kind of growth stages, particularly a growth from level 1 to level 5 in determining their state of KM practices or implementation also seemed to be a common feature in the assessment criterion. In most of the studies reviewed, there was use of a likert-scale in the research instrument, particularly the five-point likert scale which also suggests a trend in the KM assessment criterion.

However, the failure to address the organizational structural aspects of KM in all the studies reviewed suggests a serious gap in the KM evaluation criterion; especially that a number of scholars have indicated that the structure of the organisation has a critical bearing on the success of KM particularly within the HEIs. This omission could be due to the fact that most of the instruments for KM evaluation originate from the commercial sector where organizational structures are leaner and devoid of bureaucratic tendencies. This suggests the need to develop KM assessment tools that are accountable to the HEIs context and particularly their organizational structures.

The reviewed literature above, further seems to suggest that organisations that have scored poorly in their state or level of KM practices and implementation point towards the failure to leverage both technical and social aspects of KM. Those that have average scores suggest that they have been able to address the technological aspects of KM, but only in the information management dimension. They show weaknesses in the social aspects of KM, particularly in the cultural change and incentive regimes. This is consistent with Green, Stankosky and Vandergrif (2010) as well as Buckman's (1998) submission that cultural change is the most problematic aspect of KM. Those that seem to have scored success demonstrate a balance in both the social and the technological dimensions of KM implementation.

Success cases as seen from the Brazilian, Palestine and Malaysian studies indicate institutionalization of the social-technical components. Thus, suggestions to consider a holistic approach to the KM assessment criteria as well as theoretical and conceptual frameworks are not at all surprising. Stankosky (2005) and Green et al. (2010) have presented more insights towards this holistic socio-technical approach to KM using the systems thinking perspective.

## **2.7 Theoretical Framework**

There are many theories that have been created to conceptualize KM as a field of study. Baskerville and Dupolic (2006), claim that most of these theories use ideas from other theories to construct bridges among KM theories. This suggests that KM as a discipline does not have a theory of its own but uses connections to cover a variety of theories. It is also a

field that is still developing an independent body of theory as there is no generally accepted theory (Baskerville and Dupolic 2006).

However, there are two schools of thought that have dominated the KM literature, namely the scientific view and the social view (Karemente, 2009). The scientific view of knowledge takes knowledge as “truth” and that knowledge is essentially an undisputed body of facts and rational laws (Swann & Scarborough, 2001). The scientific view is in essence the functionalist perspective.

The functionalist perspective is according to Jackson (2003) a discipline that attempts to understand how a system works by using scientific methods and techniques to determine the nature of the parts of the system, the interrelationship between them and the relationship between the system and its environment. As the name suggests, Jackson (2003) claims that the functionalist perspective’s main focus is to guarantee that all the parts in the system are functioning well so as to promote efficiency, adaptation and survival.

The system in this context is according to von Bertalanffy (1976: 268) “*an entity which maintains its existence through the mutual interaction of its parts.*” However, we follow Ackoff’s (1971) translation of this original definition of a system, which focused on biological systems and applies to the organizational context. Ackoff (1971) defines a system as a set of interrelated elements.

The scientific view of knowledge has been criticized by Pan and Scarborough (1999) for being overly concerned with the technical aspects of knowledge and particularly information technology at the expense of social factors, such as, culture and politics existing in an organisation.

This social limitation of the scientific view has led to the social view of knowledge which is also referred to as the constructionist or interpretive perspective (Karemente, 2009). This perspective according to Jackson (2003) holds that social systems such as organizations result from the purposes people have and that these, in turn, come from the interpretations they make of the situations in which they find themselves. This perspective sees knowledge as being socially constructed and embedded in social networks and communities of practice (Pan and Scarborough, 1999).

Both of the views display the divide that exists among academics, researchers, consultants and practitioners in the KM dialogue whereby knowledge management research has been undertaken using either the scientific view or the social view (Karemente, 2009).

Thus, scholars and academics including: Pan and Scarbrough (1999) and Karemente (2009) claim that there is more to gain from adopting both approaches to get the best out of KM. These view KM from a socio-technical perspective. This is an approach which highlights the intertwining of social and technical factors in the way people work. It underscores the complex subjective perceptions of employees and the objective characteristics of work processes (Pan & Scarbrough 1999). Pan and Scarbrough (1999) further claim that a growing number of studies are starting to provide powerful arguments for a more holistic view which recognizes the interplay between social and technical factors.

However, the socio-technical view has also been criticized for becoming overly prescriptive and failing to address important trends such as the behavior patterns of employees over time. It is claimed to be prescriptive because it relies on analyzing a single KM process or event in the organisation at the expense of many processes, events and influencing factors of KM Pan and Scarbrough (1999). This approach, according Chun's et al. (2008), isolates the individual activities and may therefore limit the ability to understand the connections and relationships of the phenomenon in a larger whole.

In addition, the beginning of IT and new possibilities of networked organisations and virtual patterns of interactions seem to have posed problems for the conventional socio-technical focus on the point of production (Pan and Scarborough, 1999). The social technical perspective also seems to be less aggressive in dealing with the environment which influences the system even though it is not part of the system. Thus, these limitations of the scientific, social and socio-technical perspectives have raised attention to the Systems thinking perspective.

### 2.7.1 Systems Thinking

Systems thinking or systems theory provides a framework by which groups of elements and their properties may be studied jointly in order to understand outcomes. Ackoff (1971), claims that the focus is on the relationships between parts and the properties of a whole, that is, the complete organization in relation to the environment, rather than reducing a whole to its parts and studying their individual properties. Systems thinking suggest that studying single events is reactionary. Instead, studying long term patterns of behavior is an approach better suited to understanding how systems can be improved over time (Chun et al., 2008).

In relation to organisations systems thinking is a conceptual framework for problem solving which involves pattern finding to enhance understanding of and responsiveness to the problem (Chun et al., 2008). This seems to suggest that problem solving in an organization is based on arriving at a decision based on combined individual efforts and what binds the systems together rather than functional individual performance.

In view of the above context, Chun et al. (2008), claims that at any given time an organisation which is a system or one of its elements displays a state, defined as its important properties, values or characteristics. However, the state of a system can change, according to Chun et al. (2008) called an event or occurrence. When viewed in this way, systems thinking in relation to KM, is a perspective that views the overall events, behaviors, processes and states associated with knowledge in an organisation.

Additionally, in relation to knowledge an important concept in systems thinking, as submitted by Senge (1990), is organizational learning. This process involves leveraging, integrating and customizing existing knowledge to suit the needs of a new application or a new user (Senge, 1990). Learning enables innovative approaches to new problems rather than mere reactionary and often ill-suited re-application of old ideas to new problems.

However, there are a few researchers that have examined the holistic perspective of systems thinking in the context of KM (Chun et al., 2008). They suggest that it is too general and has been used in so many diverse disciplines that some claim that it lacks real value to the KM field.

However, Chun et al. (2008) contends that there are concepts in the systems thinking approach that can offer guidance in analyzing the field of KM. One such concept is the analysis of behavior over time and particularly systems archetypes. He submits that one of the strengths of a systems thinking approach is its facility to incorporate change over time into a problem analysis. These changes are in relation to trends in behavior over time. Key behaviours within the organisation can lead to effectively establishing a learning environment. Examples of key behaviours may include a culture of sharing knowledge and a reward mechanism for sharing knowledge.

System archetypes according to Jackson (2003) describe patterns of events that are common and usually reoccurring to many systems. He further claims that they should be identified in order to demonstrate habitual patterns of behavior due to particular structural characteristics, such as, bureaucracy that continually give rise to management problems.

Senge (1990) argues that system archetypes are similar to simple stories that are told time and again. For Senge (1990), systems archetypes can reveal a simplicity that underlies many more complex management issues. One example is the limits to growth archetype, which describes a reinforcing process in a goal-seeking system like a higher education institution.

The limits of growth archetype is according to Jackson (2003) a situation in a system such as an organisation, where the strengthening growth loops unintentionally trigger a balancing negative loop that slows down success or even sends it into reverse. For example, within the Zambian HEIs context, financial support to universities saw growth and expansion in universities in relation to enrollments and infrastructure but this led to the problem of poor quality of service.

Chun et al. (2008) gives another example of the limits to growth archetype in relation to KM, that is, when individuals increasingly capture knowledge whereby it initially generates positive performance, but then later slow down in capturing knowledge no matter how much energy is applied. This may be due to resource constraints as the cost of capturing more knowledge rise.

Shifting the burden archetype is another example of a systems archetype that Jackson (2003) identifies. It relates to the failure to develop a fundamental solution to a problem whereby a solution that addresses the symptoms of the problem is employed, but only the problem to return again. If we consider a university trying to improve its quality of research and teaching, we may need to make changes to its management style. In the interim it seeks financial support from government in order to hire expert lecturers in various specialized fields to ensure reasonable quality of teaching and research. The danger is that the university becomes addicted to financial support before it sees any benefits coming through. When addicted it loses capacity for self-reliance, the quality of research and teaching is weakened rather than strengthened and the university becomes completely dependent upon financial support.

Observed in this way systems thinking in relation to KM is a perspective that views the overall events, behaviors, processes, and states associated with knowledge in an organization (Chun et al, 2008). The first step is to learn about current KM practices so that existing desirable and undesirable states related to critical knowledge management factors are identified. Once the behaviors associated with desirable and undesirable states are identified they can either be retained or discarded or discouraged respectively (Chun et al., 2008). This type of integrative understanding can drive a successful KM initiative.

Therefore, Taborga (2011) claims systems archetypes can be applied as a diagnostic tool to better understand the dynamics of the exact set of behaviors that have exhibited an undesirable state. They may also help managers to apply its principles and arrive at a rich diagnosis of a situation and plan a recovery. Such a diagnosis can reveal knowledge related problems via for instance, a KM assessment.

Taborga (2011) further claims that systems archetypes are an important part of planning particularly in identifying potential pitfalls and addressing them in the planning stages when they are easier to tackle. Moreover, once the particulars of systems archetypes are understood by members of an organization, their knowledge can be leveraged to create dynamic systems resistant to their side effects (Taborga, 2011).

The main argument that Jackson (2003) brings to the fore is that managers should learn to recognize systems archetypes. If they recognize them, he claims that they save themselves a lot of wasted and misdirected effort and target their interventions to points of maximum leverage. There are many other well known systems archetypes as identified by (Jackson, 2003). These include balancing with delay, archetype adversaries, eroding goals, escalation, success to the successful, tragedy to the commons, fixes that fail and growth under-investment among others. However, these are outside the scope of our study.

In the context of knowledge, leveraging KM initiatives to achieve organizational goals requires a deep understanding of how knowledge processes relate to each other, what factors influence knowledge processes and knowledge workers and how all of these factors relate to the environment (Massey, Montoya-Weiss and O'Driscoll, 2002).

Thus, in this study, we have argued that a KM systems thinking approach is appropriate for understanding the complex and dynamic nature of KM. This is because it is a discipline that observes entire events, behaviours, processes and states connected with knowledge in organisations. Most importantly, Chun et al. (2008) claim that systems' thinking is an appropriate framework regarding the lack of an overseeing framework in organisations that can provide a general sense of direction for KM initiatives.

## **3.0 CHAPTER 3: RESEARCH METHODS**

This chapter presents a comprehensive description and rationale for the research methodology adopted for this study. The rationale for applying specific procedures or techniques to identify, select, process and analyze information is provided in order to address the problem and allow our readers to critically evaluate the study's overall validity and reliability. In particular, the methodology that was employed in this study shows how the data was collected and how it was analyzed.

### **3.1 Research Design**

This study employed an exploratory study design for three public Universities in Zambia. It followed a quantitative research design that used a survey questionnaire. An exploratory study is a study that intends to explore the research question in which there is no desire to provide final definitive and conclusive solutions to existing problems (Saunders and Thornhill, 2012). It does not have conclusive evidence but provides valuable insights that can assist to better understand the problem.

The reason for using such a research design was to help in determining the methodological and instrumentation difficulties that seem to characterize most knowledge management research designs as observed in the literature review. It is hoped that this study design generated insights that could be used in developing new methods and instruments needed for pursuing knowledge management both in theoretical research and as a practical approach to organisational problem solving.

The exploratory study design employed in this study has a number of strengths, Saunders and Thornhil (2012) identifies three strengths and these include:

- Flexibility and adaptability to change
- Providing the groundwork that leads to future studies

- Saving time and other resources by establishing the kind of research that is worth pursuing at the earlier stages.

However, despite these advantages, this kind of research design also has some inherent weaknesses which include:

- Bias due to the subjectivity in the unclear methods. They have the potential of generating unreliable information that could be subject to misconception.
- They often use modest samples that may not adequately represent the target population.

### **3.2 Participants**

The participants in this survey research were university staff members at managerial and executive level as shown in table 2. The role of each participant that was selected to take part in the research included the Heads of Department (HOD), the Deans, the Directors or managers, Librarians, Bursars, Registrars, Deputy vice chancellor and vice-chancellors of the three public universities that were under investigation.

Responses from most of the executive level staff were not obtained. The reason for this could be due to the busy schedule that the executive level staff seems to follow. Responses were nonetheless obtained from other managerial and few executive staff. Questionnaires were distributed to the sampled participants. Several participants completed and returned questionnaires which were useable for data analysis. Table 2 below shows the socio-demographic characteristics of the respondents.

**Table 2: Details of the Respondents Demographic Characteristics**

<b>Category Specification</b>	<b>Frequency (%)</b>
<b>Role</b>	
HOD	33 (60.0)
Dean	6 (10.9)
Director/Manager	10 (18.2)
Librarian	3 (5.5)
Bursar	1 (1.8)
Registrar	2 (3.6)
<b>Gender</b>	
Male	40 (72.7)
Female	15 (27.3)
<b>Experience in the Position</b>	
1-5	38 (67.3)
6-10	17 (32.7)
<b>Educational Qualification</b>	
Degree	4 (7.3)
Second Degree (MA/Msc)	33 (60)
Third Degree (PhD)	18 (32.7)
<b>Knowledge Management Experience</b>	
Yes	32 (58.2)
No	23 (41.8)

The sampling procedure that was used for selecting participants was non-probability sampling, specifically purposive or judgmental sampling. The rationale for using this technique was to select key informants that would form a representative sample with the same set of characteristics which included managerial role, experience, knowledge, skills and potential exposure to the operations of their respective universities and possibly to the KM phenomenon. The participants were selected based on characteristics deemed suitable for providing required information (Johnson and Christensen 2004).

The choice of the participants was a non-random technique which was deliberate and purely based on the qualities they possessed. This selection technique did not need any underlying theories or a set number of informants. The researcher simply decided on what was needed to be known and set out to find participants who could be willing to provide the information by virtue of their role, knowledge and experience.

The sample was drawn from three public universities in Zambia that can be considered to be representative of the universities in the country. A sample which consisted of two sets of university leaders, namely academic and administrative leaders, was selected. The sampling frame of the surveyed participants was informally selected using the author's judgment with emphasis on finding participants or instances that are representative of their respective institutions. The reason for this was that the exploratory research design lacks rigorous standards applied to sampling methods, because one of the areas for exploration was to determine what method or methodologies could best fit the research problem.

The proposed target population was 103 and the sample size was 82 executive or managerial level staff of which 37 constituted the University of Zambia sample, 24 The Copperbelt University and 21 constituted the Mulungushi University sample. Out of these samples 55 (67%) of the responses were obtained. The rest were neither returned nor useable for statistical analysis.

Table 3 below shows the universities under investigation, targeted population and obtained responses.

**Table 3: Target population, sample size and responses obtained**

<b>University</b>	<b>Target Population</b>	<b>Sample Size</b>	<b>Responses (%)</b>
The University of Zambia	55	37	30 (81%)
The Copperbelt University	25	24	16 (67%)
Mulungushi University	23	21	9 (43%)
<b>TOTAL</b>	<b>103</b>	<b>82</b>	<b>55 (67%)</b>

### 3.3 Instrumentation

The instrument that was used to collect survey data for this study was a semi-independent forced choice and self-checking survey questionnaire. The instrument was adopted from Statistics Canada (2009) with minor changes. The initial questionnaire by Statistics Canada (2009) used a predictable scale that asked whether the participant had implemented the Knowledge Management practices within the past 24 months or whether they considered implementation within the next 24 months.

The questionnaire was however marginally changed from a predictable scale as earlier mentioned to a Four-Point Likert Scale. This scale was used instead of the usual Five-Point Likert-Scale following the advice of OECD and Statistics Canada (2003) that by utilizing an even number of responses, with no middle, neutral or undecided choice, was considered essential in compelling the respondent to decide whether he or she leaned more toward the “agree” or “disagree” end of the scale for each item (Rhoads and Ribiere, 2010 in Green, Stankosky and Vandergriff, 2010).

The instrument has been used and validated in KM studies by OECD and Statistics Canada (2003) in Germany, France, Italy and Denmark. It was also used by Rhoads and Ribiere’s (2010 in Green, Stankosky and Vandergriff 2010) study about evaluating KM practices in the US federal agencies. In this study, the instrument particularly determined the state of knowledge management practices in HEIs in Zambia, in terms of the perceived existence or lack thereof, of these practices across the departments and units. In its streamlined format the questionnaire can be completed within 10 to 15 minutes (Rhoads and Ribiere, 2010 in Green, Stankosky and Vandergriff, 2010).

A Likert Scale is according to McIver and Carmines (1981) a rating scale that has a set of items that consist of roughly an equal number of favorable and unfavorable statements concerning the attitudes of a given group of subjects. They respond to each statement in relation to their degree of agreement or disagreement. Typically, subjects are instructed to select one of the five responses strongly agree, agree, undecided, disagree, or strongly disagree (McIver and Carmines, 1981).

However, there can be less (at least four) or more responses than the typical five. Likert-Scales are widely used in the social sciences, marketing, business and medicine, oftentimes to gather information in relation to people's attitudes, emotions, opinions, personalities, and descriptions of their environment (Gleim and Gleim, 2003). They seem to be an effective tool for both research and practical application hence they have gained much popularity (Gleim and Gleim, 2003).

Likert scale data are analyzed at the interval measurement scale. They are created by creating the composite score (sum or mean) from four or more likert type items. Therefore, the composite score for Likert scales should be analysed at the interval measurement scale. Descriptive statistics proposed for interval scale items are the mean for central tendency and standard deviation for variability (Boone and Boone, 2012).

The median on the other hand was used to analyze the Likert-type items, following suggestions from Boone and Boone (2012) that these items are within the ordinal measurement scale. Descriptive statistics proposed for ordinal measurement scale items are mode or median for central tendency.

In order to ensure confidentiality of our participants, no information that was collected was attributed to or connected to the individual respondent's survey answers. This guaranteed protection of anonymity of the respondent. The survey was also intended to prevent respondents from avoiding any questions in order to ensure that it was completed.

The questionnaire was divided into 7 parts. Part I solicited for demographic information from the respondents, part II solicited for statements that dealt with Policies and strategies in the University, part III addressed Leadership in the university, whereas part IV addressed Incentives in the university specifically recognition or reward regimes in knowledge-sharing. In addition, part V dealt with Knowledge capture, while part VI dealt with Training and mentoring in the University. The final section, that is, part VII, dealt with Communications in the University particularly knowledge and information sharing among workers in the university. In all the parts there were sub-questions.

### 3.4 Knowledge Vigilance Survey Approach

In view of the lack of a generally accepted KM assessment criterion and following the multi-perspective advice by Malhotra (2001) above, this study adopted and utilized Wiig's (2004) Knowledge Vigilance Survey Approach. There are many other kinds of knowledge management assessment techniques that Wiig (2004) identified which include among others knowledge audits, knowledge mapping, competitive knowledge analysis, knowledge flow charting and analysis, knowledge diagnostics, critical knowledge function analysis and knowledge benefit assessment. However, these are outside the scope of this study.

The reason the knowledge vigilance survey approach was selected, is because it is the very first step before starting any KM initiative in an organization. This approach attempts to detect awareness levels and attitudes toward KM within an organization (Wiig, 2004).

It also identifies major problems and helps start the process of educating stakeholders about these knowledge-related problems by initiating a KM discussion among the people within the organization. Wiig (2004) argues that this approach is a quick way of obtaining information regarding the knowledge culture and mentality of key people within an organisation.

The KM capability assessment tool that was used is called Wiig's (2004) example of Knowledge Vigilance States, see table 2 for more details on the assessment instrument. This tool was used to determine the state of knowledge management in HEIs in Zambia in terms of maturity and capability using the growth stage principle.

The assessment instrument has been extended to include goals for each KM state or level as advised by (Kulkani and Freeze 2006 in Schwartz 2006). They advise that the capability assessment instrument should have operational classification of knowledge assets and definitions of levels or states in terms of goals (Kulkani and Freeze, 2006 in Schwartz, 2006). Most instruments reviewed in the literature do not have goals but only have levels and their characteristics.

The use of goals in the assessment instrument is distinct from the majority of instruments that leave out the goals. The goals were added following recommendations from many scholars such as Stankosky (2005), Kaulkani and Freeze (2004), Davenport and Prusak (1998),

Newell et al. (2009) and others about the importance of aligning knowledge management goals with organizational goals. This ensures that knowledge management initiatives are not implemented as isolated events and activities.

The instrument was adopted from Wiig (2004) and expanded to include KM goals as earlier mentioned. The goals are presented as KM activities. However, the original instrument as illustrated by Wiig (2004) was maintained. It includes KM states starting from an unconcerned state which is equivalent to a basic level 1 in most KMATs to a vigilant state which is equivalent to an advanced level 5. KM characteristics are described in terms of the culture prevailing in an organisation (HEIs). Table 4 below illustrates the instrument which expands on Wiig's (2004) instrument.

**Table 4: Knowledge Management Capability Assessment (KMCA) Instrument adopted from Wiig, (2004)**

<b>KM States of HEIs</b>	<b>KM Characteristics</b>	<b>KM Goals</b>
<b>Vigilant</b> Attitude Is: Realistic Automatic, and Tacit Knowledge Is Fully Internalized	-Everyone in the enterprise understands how to create, capture, build and apply the best knowledge  -Systems, culture and incentives are fully supportive of KM and are “Knowledge-Focused	Senior management periodically reviews the effectiveness of KM investments to the whole organization.
		Recent improvements in document access have been implemented.
		Expert and expertise identification has expanded and been refined.
		New tools for data manipulation are tested and implemented.
		The impact of lessons learned on operations is communicated.
<b>Proactive</b> Attitude Is: Proactive and Pragmatic Based on Deep Insights	-Most employees and all top managers have accurate understanding of how to create, use, and manage knowledge assets in support of enterprise goals and for personal gains  -Culture and incentives are gradually being changed	Senior management sets policy, guidelines, and goals with respect to KM.
		Tools to locate experts are easy to use.
		Capturing, storing, and using lessons learned are part of normal work process.
		Knowledge-document retrieval is fast and easy.
		Historical data utilized for decision making is easy to access and manipulate.
<b>Literate</b> Attitude Is: Systematic but Dependent	-Many employees understand how knowledge is created and transferred.  -They know KM is needed but cannot act without outside assistance.  -Culture and incentives are not yet supportive of KM.	Organizational leadership understands how KM is applied to business.
		Lessons learned are captured.
		Taxonomies and centralized repositories for knowledge documents exist.
		Experts are able to register their expertise.
		Historical data is available for decision making.
<b>Aware</b> Attitude Is: Idealistic and Innocent	-Some employees are generally aware of the importance of knowledge  -They don't know how to implement KM corporate-wide and can't make it a practical priority  -Culture and incentives are not considered	Supervisors encourage regular meetings to share knowledge/solutions.
		Experts and their expertise are identifiable.
		The importance of prior lessons learned is recognized.
<b>Unconcerned</b> Attitude Is: Not Caring	-The value of knowledge is not explicitly recognized only in isolated cases  -Management and employees manage knowledge sporadically, intuitively, and individually  -Culture is not cognizant of knowledge values	Previous lessons learned can be found with perseverance.
		Some experts are willing to share expertise when consulted.

The Statistics Canada (2009) and Wiig's instrument were selected because they were designed to evaluate KM practices in all types of organizations including the non-profit sector such as HEIs. This is consistent with systems thinking which attempts to holistically deal with KM in terms of common patterns of behavior and their relationships in any domain.

Although the instruments do not address all the critical elements as advised by many scholars such as Stankosky (2005), Green (2010) and others, they still identify few but key areas that have the potential to positively influence KM initiatives.

### **3.5 Validity and Reliability**

Reliability and validity of measures is a key indicator of the quality of the measuring instrument and is focused on reducing error in the measurement process (Kimberlin and Winterstein, 2008). In this context, reliability of the survey questionnaire was evaluated using the stability of measures at different times using the same standards (test-retest reliability) and the equivalence of sets of items from the same test (internal consistency).

To mitigate survey bias, the instrument was designed in such a way that simple words and sentences were used. Common definitions and concepts to build a basic understanding of KM practices were also used. This helped to reduce trait errors. These are errors caused by perceived differences between objects being measured and differences in participant based responses to likert items (Salkind, 1991). The instrument was also designed to be user-friendly whereby the survey questions could be completed quickly, thereby avoiding abandonment of the survey (Rhoads and Ribiere, 2010 in Green, Stankosky and Vandergriff, 2010).

As noted earlier, this survey instrument was previously validated in studies by Statistics Canada in Denmark, France, Germany, Italy, the Netherlands and recently the US federal agencies (Rhoads and Ribiere, 2010) in (Green, Stankosky and Vandergriff, 2010). It was designed to be used in both the public and private sector. The construct validity of the instrument was therefore reliable owing to stable and reliable responses that were obtained after a repeated administration of the test in the full study.

The Cronbach's alpha test was also used to test the internal reliability of the scales in the instrument applicable within the Zambian HEIs context. The Cronbach's alpha is according to Kimberlin and Winterstein (2008) a function of the average inter-correlations of items and the number of items in the scale. The test showed an alpha value of 0.768 which is an acceptable level of internal consistency and reliability of the instrument. The US agency study also revealed a high value for the Cronbach's alpha of 0.941 for this instrument, which indicated an excellent level of reliability for this study (Rhoads and Ribiere, 2010 in Green, Stankosky and Vandergrif, 2010). Table 5 below shows the Cronbach's alpha test result for the six summated scales in our study.

**Table 5: Cronbach's Alpha Test for Summated Scales**

Cronbach's Alpha	N of Items
.768	6

Summated scales are an assembly of interrelated items that have been combined to measure underlying constructs' reliability (Kimberlin and Winterstein, 2008). This study used summated scales as a more reliable measure of the coefficient of internal consistency than individual items in the scale because single-item questions pertaining to a construct are not reliable and should not be used in drawing conclusions (Gleim and Gleim, 2003).

Cronbach's alpha reliability coefficient ranges between 0 and 1. The closer Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale. George and Mallery (2003) in Gleim and Gleim (2003) provide the following rules of thumb for interpreting the Cronbach's alpha “\_ > .9 Excellent; \_ > .8 Good; \_ > .7 Acceptable; \_ > .6 Questionable; \_ > .5 Poor; and \_ < .5 Unacceptable”.

### **3.6 Research Procedures and Pilot Testing Data Analysis**

This section of the study looks at methods that were used to collect data. It highlights the pre-test study that was done to help devise a reliable instrument for collecting data. It also describes the tool that was used to analyze the data that was collected. Towards the end of this section the assumptions that governed this study are given and at the same time the short

coming of this research are highlighted to help determine the challenges and make better generalizations of the findings.

### **3.6.1 Data Collection**

There were two sources of data for this research, namely primary data and secondary data sources. The primary data source came from a self-administered semi-structured survey questionnaire, which solicited responses from selected subjects who only consisted of leaders at three universities particularly individuals at managerial and executive level with better than average education and organizational experience.

The questionnaire was used because it takes less time to develop and complete and is cost effective. This is particularly appropriate as some of the respondents are busy people who may not have the time to fill-out an in depth open-ended questionnaire or answer an interview schedule.

The secondary data sources included books, journals, periodicals, Magazines, Newspapers and published electronic sources such as E-books, E-journals and websites. Secondary data sources were obtained from various Libraries including the University of Zambia Libraries, Stellenbosch University library and the National Archives of Zambia Library, and electronically on various websites. A document review was also another secondary data source which helped us to analyze published and unpublished documents, company reports, articles and memos of relevance to the issue being investigated.

### **3.6.2 Pilot study**

A pilot test was undertaken a week prior to the full commencement of the study. Eight questionnaires were used for this test following Connelly's (2008) advice that a pilot study should have a sample equivalent to 10% of the actual sample size. Other scholars such as Hill (1998) suggest 10 to 30 participants for pilots in survey research. Three universities were under investigation and questionnaires were distributed to each of the 6 type of respondents.

The pilot study revealed that the questionnaire similar to other studies that used the same instruments as mentioned in section 3.0 can be answered within 10 to 15 minutes. The questionnaire was then rolled-out to the entire sample starting in March 2017 at the University of Zambia, in April 2017 at Copperbelt University and in June 2017 at Mulungushi University. Approval to conduct this study was sought and granted by the respective university registrars. Appointments with these respondents were made within the above specified dates.

The questionnaires were then physically administered at their workplace offices in the case of The University of Zambia and Mulungushi University and some were posted to their addresses in the case of the Copperbelt University. The posted questionnaires had enclosed self-addressed envelopes that had to be posted back after being completed. Respondents were informed in advance before the questionnaire was sent to them.

### **3.6.3 Data Analysis**

Data analysis refers to the process of creating value from the raw data (Johnson and Christensen, 2004:500). Since this research used an exploratory survey, data was analyzed using quantitative data analysis technique which involves analyzing quantifiable data. Given that quantitative data is usually large, use of computer software that helps the analysis process was used.

The software that was used to analyze data was the Statistical Package for Social Scientists (SPSS) IBM version 20.00. This software is able to analyze common patterns of variables and their relationships and generate descriptive statistics.

The data collected from the questionnaire was coded and categorized and checked for completeness. The questionnaire was pre-coded while data was being collected. The responses were coded after the data collection was complete. The coding helped in the identification of similar patterns from the responses that were given in the questionnaire.

Furthermore, the collected questionnaires were verified for errors in responses and unanswered questions before entering into the SPSS software. Individual items or questions in the questionnaire were combined or summated to form composite scores that defined the

scale or dimension being measured. There were 6 themes that governed the dimensions for our analysis.

Nunnally and Bernstein (1994), McIver and Carnnines (1981) and Spector (1992) emphasize the use of summated questions as opposed to single questions or items when analyzing Likert-type of data. They claim that individual questions or items have considerable random error, that is, are unreliable. However, summed items tend to average out thereby decreasing measuring errors Gleim and Gleim (2003). Single item measures are further discredited by, McIver and Carmines (1981), based on their assumption that they are unlikely to fully represent a complex theoretical concept or any specific attribute.

However, despite the above claims, this study presented the continuous variables or items as median (range) merely as a way to provide sufficient data that can highlight the knowledge gaps that were present in the universities. Summated scales or variables on the other hand formed the basis of our statistical analysis of the categorical variables or dimensions which were created. They were presented as mean scores. The non parametric test based on the spearman's correlation coefficient test was used to determine whether a relationship existed between the summated scales or variables. The dimensions that had a significant relationship in the bivariate analysis ( $P$  value  $< 0.05$ ) were used to determine the association and direction of the data using a scatter plot.

### **3.7 Assumptions of the Study**

The following were the assumptions for this study:

- Participants answered the survey questions honestly and factually as they were informed that their responses would be confidential and kept secure.
- The instrument to be used elicited reliable responses because it has been validated and tested several times.
- Participants were drawn from managerial level staff with better than average work experience and education, therefore, they were able to read, understand and answer the questions presented to them in English.
- Participants understood the KM practices under investigation because they were adequately defined and explained in the survey instrument and consent form before they attempted to answer the questions.

### 3.8 Limitations of the Study

The purposive sampling procedure that was used has inherent bias, because it leaves out a huge part of the population. The sampling procedure is also biased because the sample is subjectively selected. This means that generalization of our findings particularly at a statistical level was decreased. The findings of the study can thus only be generalized within the Zambian HEIs context particularly the selected universities.

The sample size of the study was small owing to the nature of the study which was an exploratory survey. The nature of such a study is merely to gain understanding or insights of the phenomenon under investigation.

Lack of valid and reliable previously documented KM assessment research regarding the state of KM in HEIs was a constraint with this research. Several small-scale studies have been conducted and some reported. However, most of them reveal methodological differences and have used different instruments to assess different KM dimensions that can set the direction for our study or act as an example to which we can base our study. Thus, this limitation was a significant factor in classifying this research as exploratory in nature.

Some key informants did not complete or return our questionnaire. This may have been due to lack of time to fit our questionnaire in their schedule. Others were simply not willing to fill it out. This had a significant impact on the outcome of this research because there was lack of data in our study particularly from some administrative leader's point of view. Such data could have been used to base our analysis on for example the divide that may exist in perceptions of administrative leaders in relation to academic leaders.

The study did not explore the state of KM from a bottom-up approach and this was its limitation. Although the study has stressed the importance of leaders in setting the tone for KM in an organisation, there are situations where KM grew and flourished from a bottom-up approach or in pockets in certain units.

### **3.9 Summary**

This chapter revealed that the methodology used in this research followed a quantitative and exploratory survey research design of three public universities in Zambia. The chapter also shows that the study used a purposive or judgmental sampling procedure to draw a sample of 82 managerial and executive level staff at the universities who were both academic and administrative leaders. The chapter also demonstrated that the research instrument that was used was a survey questionnaire and a knowledge management capability assessment instrument. The questionnaire was originally developed by Statistics Canada (2009). They were adopted with minor changes.

The study collected both primary and secondary data. At the same time a pilot study was conducted in order to test the instrument for errors and possible revision and streamlining. In addition, data was analyzed using SPSS 20.0 software. The chapter concludes by stating a number of assumptions and limitations, in order to further focus our study and enhance understanding of the context within which our study could be generalized.

## **4.0 CHAPTER 4: RESEARCH FINDINGS**

### **4.1 Chapter Overview**

This chapter presents the results of analysis and statistical testing performed on data gathered by the study's survey instrument. The methodology used as outlined in chapter 3.0 sought to present acceptable and justifiable findings in relation to the research question and expectations as already alluded to in chapter 1.0 section 1.3 and 1.4. However, the results are not conclusive evidence, but are merely an attempt to provide valuable insights of the existing KM situation in HEIs in Zambia. This chapter firstly presented results of the demographic characteristics of respondents in the combined universities. They are presented as percentages and frequencies using pie charts. Secondly, results for each respective university under our investigation were presented as Means (M) and Standard Deviations (SD) in table 5 for The University of Zambia, The Copperbelt University and Mulungushi University.

Thirdly, the results for all the combined universities in relation to the summated scales that formed categories or dimensions were later on presented also as means and standard deviation using histograms. Radar charts were presented for results of each university and as aggregated results of the three universities in order to summarize the findings and reveal the KM dimensions covered based on the ranking of the data points.

Finally, this chapter presented the discussion in section 4.2.5. The discussion attempted to give meaning to the results presented earlier in the chapter. Interpretations of the results were presented in line with the research questions and expectations. The discussion made some knowledge claims based on our findings and highlighted the study's contribution and implications of the findings.

## 4.2 Presentation of results

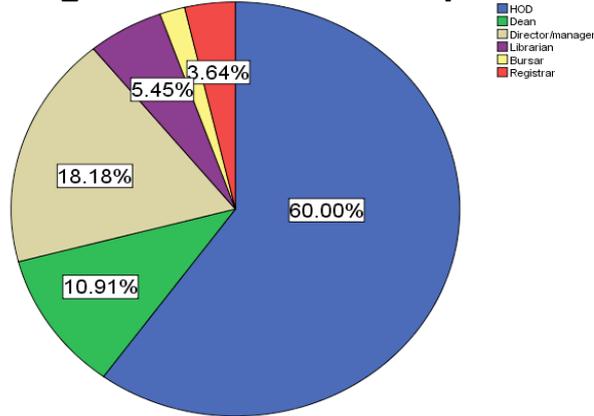
The results are presented using tables, pie charts and bar charts. Means for summated scales and medians for Likert items are presented to show the ranking scores of the measured variables. Scores of less than 2.5 which was the cut-off point indicate low ranking and scores at 2.5 and above indicate high ranking. This section also presents results for Non-parametric tests, particularly the Spearman's Correlation Coefficient, which was run to determine the relationship between the variables under investigation. The variables that were presented include; demographic characteristics of the participants and six summated scales or dimensions namely: Knowledge Management Policies and Strategies, Leadership, Incentives, Knowledge Capture, Training and Mentoring as well as Communication. Results for individual items within the survey instrument are presented as illustrated in table 7 as medians whereby a score of 2 indicates low ranking and a score of 3 indicates high ranking.

### 4.2.1 Demographic Characteristics of Participants

There were a total of 82 participants selected for this study of which 55 (67%) completed our questionnaire. They were drawn from the various departments of the three universities under our investigation. Their demographic characteristics include gender, role or position in the institution, number of years served in that role, level of education and whether they had any knowledge management experience. Table 2 in section 3.2 above has shown a comprehensive analysis of the demographic characteristics of the participants that includes their frequencies and percentages.

The majority of participants 32 (58.2%) were Heads of Department (HODs). They were followed by Directors/Managers 10 (18.2%) and Deans 6 (10.9%). Very few participants 1 (1.8%) came from the role of Bursar, Librarian 3 (5.5%) and Registrar 2 (3.6%) respectively. The total number of participants who made up academic leaders was 38 (68.9%) representing a large share of the sample. Administrative leaders had a relative small share 17(31%) of the sample. The difference in the number of academic leaders compared to administrative leaders was 21 (37.8%). Figure 1.0 below shows the pie chart representing the percentage share of each participant in the study.

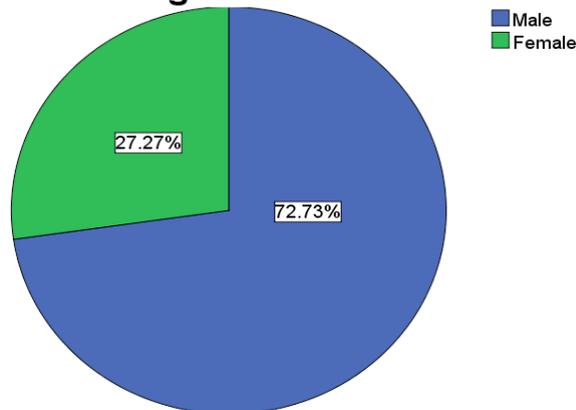
**Figure 1.0: Role of Respondent**



**Figure 1: Role of Respondent**

There number of males 40 (72.7%) was more than the number of females 15 (27.3%). The difference in terms of numbers and percentage between the males and females was 35 (45.4%). Figure 2.0 shows the percentage share of males compared to women in form of a pie chart.

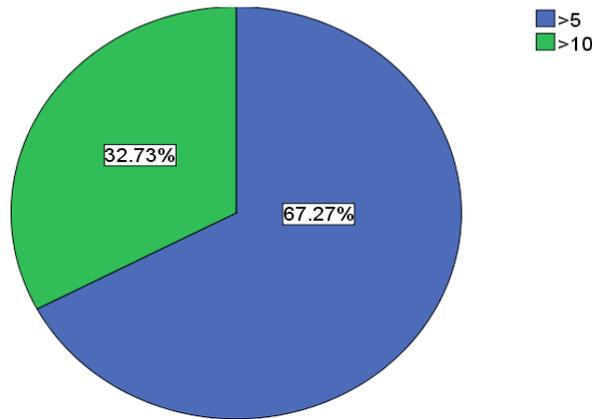
**Figure 2.0: Gender**



**Figure 2: Gender**

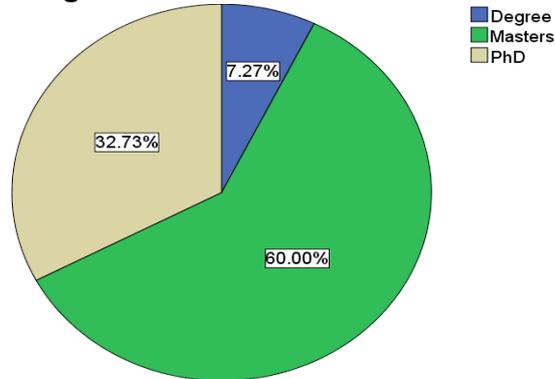
The majority of the participants 38 (67.3%) had served 5 years or less in their roles. At the same time relatively few respondents 17 (32.7%) served more than 5 years. However, none of the respondents served more than 10 years in their respective roles. Figure 3.0 below shows the pie chart demonstrating the number of years served.

**Figure 3.0: Number of Years served**



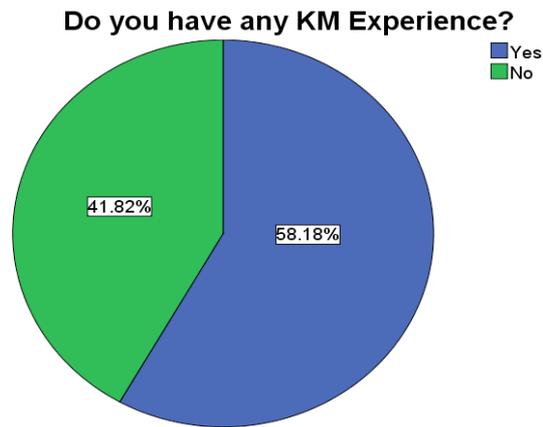
Furthermore, there were few respondents 4 (7.3%) who had a degree as their educational qualification. The majority of the respondents 33 (60%) had a second degree, that is, either a Masters Arts or Master of Science educational qualification. On the other hand, those that had third degrees (PhD) educational level qualifications 18 (32.7%) were less than those that had second degrees, but more than those that had first degrees. Figure 4.0 shows the percentage share of education qualification for each respondent.

**Figure 4.0: Education Qualification**



**Figure 3: Education Qualification**

In relation to KM experience, the majority of respondents 32 (58.2%) indicated that they had some kind of KM experience either formal or informal experience. On the other hand, there were fewer respondents 23 (41.8%) who did not had experience than those that had experience. However, the difference was 9 (16.4%) of the respondents. Figure 5.0 shows the percentage share between those that had knowledge management experience in comparison to those that did not have.



**Figure 4.0: Knowledge Management Experience**

### **4.2.2 Presentation of Results for Each University**

Results for each University are presented as Mean (M) scores and Standard Deviations (SD) for each summated scale or dimension as shown in table 5 below. Radar charts for each university are also presented to show the summarized mean scores of each dimension. A reliability test was run for each university in order to determine the internal consistency of our instrument.

Six dimensions were grouped as KM practices namely Knowledge Management Policies, Leadership, Incentives, Knowledge Capture, Training and Mentoring, and Communication. The scores of responses from the respondents were calculated based on the summated scales from the 27 items. The summated scales or dimensions were measured in a 4-point Likert scale ranging from 1 to 4. The following represents what the numbers mean: 1=Strongly Disagree, 2=Disagree, 3=Agree and 4=Strongly Agree.

**Table 6: Mean scores and Standard Deviation for Each University**

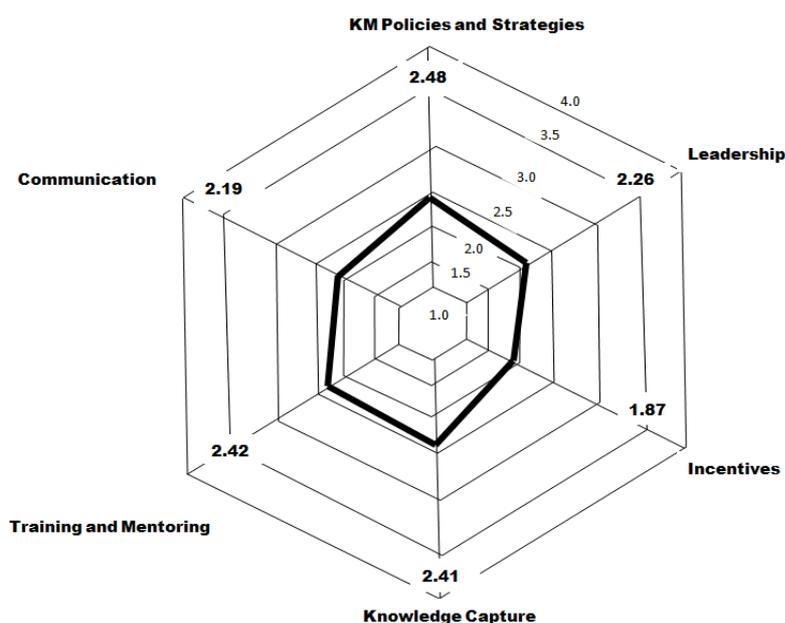
<b>UNIVERSITY</b>	<b>DIMENSION</b>	<b>Mean Score</b>	<b>Standard Deviation</b>
<b>The University of Zambia</b>	Knowledge Management Policies Strategies	2.4833	.64971
	Leadership	2.2583	.60701
	Incentives	1.8667	.75354
	Knowledge Capture	2.4067	.55704
	Training and Mentoring	2.4238	.67891
	Communication	2.1867	.51977
<b>The Copper-belt University</b>	Knowledge Management Policies Strategies	2.3594	.50801
	Leadership	2.4062	.41708
	Incentives	1.4375	.47871
	Knowledge Capture	2.5500	.43512
	Training and Mentoring	2.2589	.25671
	Communication	2.2500	.50332
<b>Mulungushi University</b>	Knowledge Management Policies Strategies	2.6667	.46771
	Leadership	2.6667	.27951
	Incentives	2.1667	.50000
	Knowledge Capture	2.6222	.68880
	Training and Mentoring	2.8413	.45984
	Communication	2.7111	.52068

(Ranking: 1-2.44=Low Rank, 2.5-4.0=High rank, whereas cut-off point was at 2.5)

### **(i) The University of Zambia**

Results from The University of Zambia show that the incentives dimension had the lowest mean score (M=1.9; SD=0.65). This was followed by Communication as the lowly ranked dimension (M=2.2; SD=0.52) and then the Leadership dimension followed (M=2.3; SD=0.61). The fourth lowly ranked dimension was Knowledge Capture (M=2.41; SD=0.56). This was followed by Training and Mentoring (M=2.42; SD=0.68). Knowledge Management Policies and Strategies was the only dimension highly ranked (M=2.5; SD=0.65). The radar chart below summarizes the mean scores for The University of Zambia.

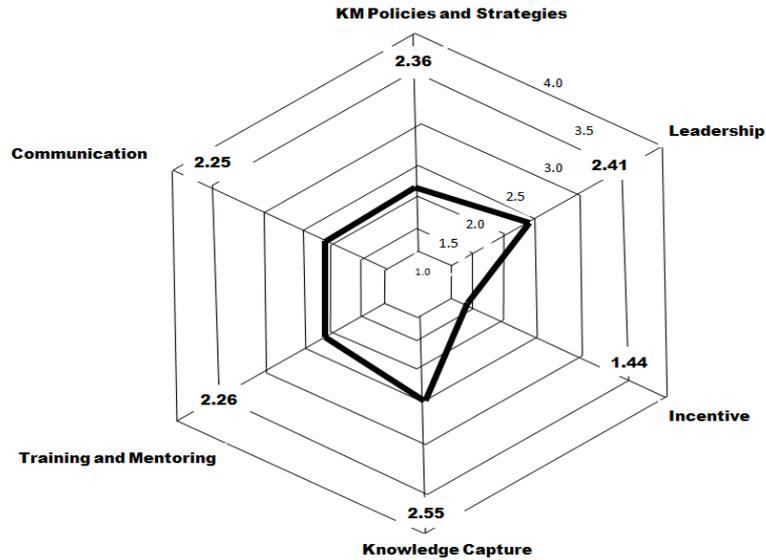
Figure 5.0: Radar Chart for the University of Zambia



### (ii) The Copperbelt University

Results from The Copperbelt University show a similar pattern with the incentives dimension also being the lowest ranked ( $M=1.44$ ;  $SD=0.48$ ). This was also followed by the Communication dimension ( $M=2.25$ ;  $SD=0.50$ ). Training and Mentoring followed as the third lowly ranked dimension ( $M=2.26$ ;  $SD=0.26$ ). Knowledge management policies and Strategies followed as the fourth lowly ranked dimension ( $M=2.4$ ;  $SD=0.50$ ). The Leadership dimension had the same mean score with the Knowledge Management Polices and Strategies ( $M=2.4$ ;  $SD=0.42$ ). The Knowledge Capture dimension was the only one highly ranked at the Copperbelt University ( $M=2.60$ ;  $SD=0.44$ ). The radar chart below summarizes the mean scores for The Copperbelt University.

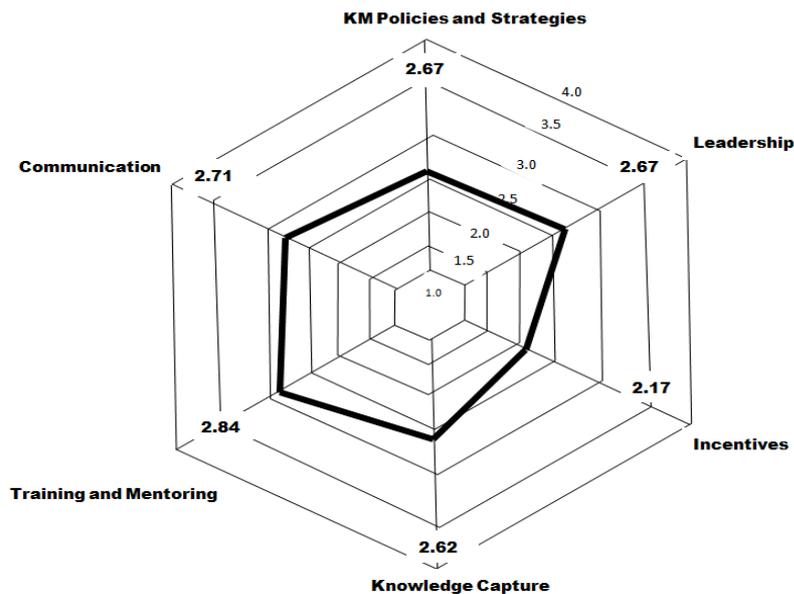
Figure 6.0: Radar Chart for the Copperbelt University



### (iii) Mulungushi University

Furthermore, results from Mulungushi University show a different representation from The University of Zambia and The Copperbelt University. The incentive dimension was the only lowly ranked dimension at Mulungushi University ( $M=2.2$ ;  $SD=0.50$ ). The highest ranked dimension at this university was Training and Mentoring ( $M=2.8$ ;  $SD=0.46$ ). This was followed by the Communication dimension ( $M=2.7$ ;  $SD=0.52$ ). The Knowledge Management Policies and Strategies dimension and the Leadership dimension also had the same average score ( $M=2.7$ ;  $SD=0.47$ ;  $M=2.7$ ;  $SD=0.28$ ) respectively. Lastly, the Knowledge Capture dimension at Mulungushi University also had a high score ( $M=2.6$ ;  $SD=0.69$ ). The radar chart below summarizes the mean scores for Mulungushi University.

**Figure 7.0: Radar Chart for Mulungushi University**



The radar Charts shown above indicate that The Coppertbelt University had the lowest average scores (1.4, 2.3, 2.3, 2.4, and 2.6), followed by The University of Zambia with average scores of (1.9, 2.2, 2.3, 2.4, 2.4, and 2.5). Mulungushi University on the other hand shows that it had the highest scores than the other two universities under investigation with scores of (2.2, 2.6 2.7, 2.7, 2.7 and 2.8).

A Cronbach’s alpha test for each university was run to measure the internal consistency of the scales of our instrument in order to validate the reliability of the summated scales. Table 7 below shows the results of this test.

**Table 7: Cronbach’s Alpha Test for each University**

University	Cronbach’s Alpha	Number of Items
The University of Zambia	0.718	6
The Copperbelt University	0.781	6
Mulungushi University	0.851	6

It can be seen from the table 6 above that the Cronbach's alpha at The University of Zambia and The Copperbelt University had an acceptable internal consistency of the scales while Mulungushi University indicates a good internal consistency of the scales.

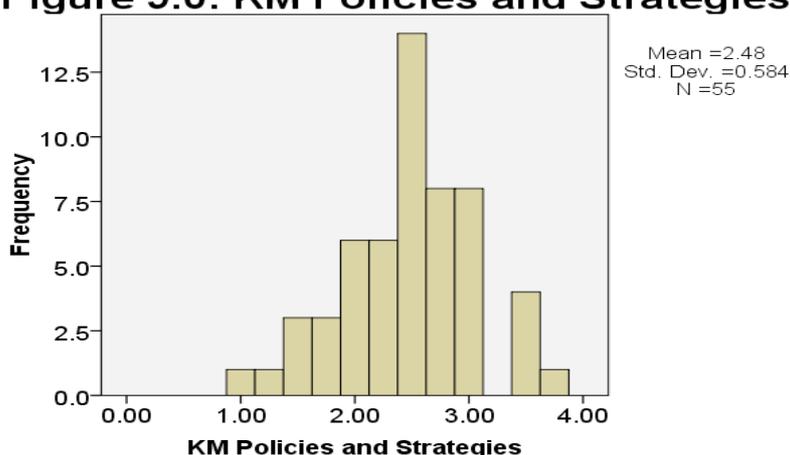
### 4.2.3 Aggregated Results for the Three Universities

The aggregated average scores were also presented as Means (M) and Standard Deviations (SD) for each dimension in the three Universities. Histograms were used to give a pictorial presentation of our results.

#### (i) Knowledge Management Policies and Strategies Dimension

Knowledge Management Policies and Strategies for the combined universities was the highest of all the dimensions (M=2.48 and SD=0.584). This dimension of KM practices established whether the universities were devoted to a written policy for knowledge management of which this item had Median (MD) =2.0), whether they already had a culture ready to promote knowledge management (MD=3), whether they developed programs ready to improve the retention of an experienced workforce (MD=3) and whether they purposely established partnerships or strategic alliances in order to attain knowledge (MD=3). Figure 9.0 below shows the mean scores and standard deviation using a histogram.

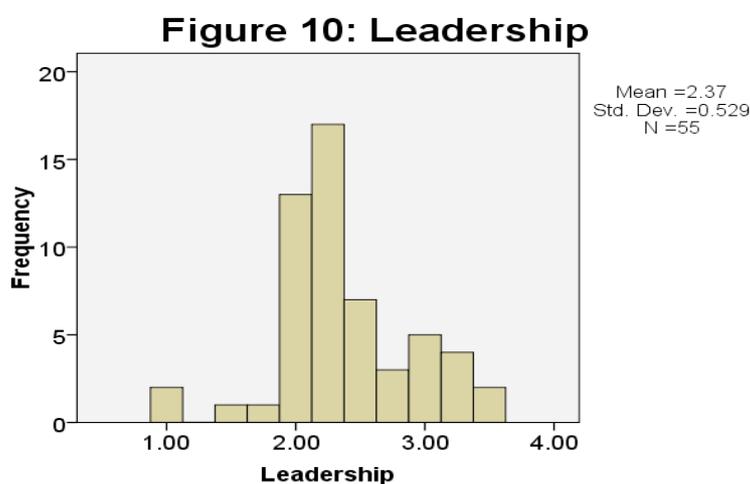
**Figure 9.0: KM Policies and Strategies**



**Figure 8: Histogram: KM policies and Strategies**

## (ii) Leadership

The leadership dimension on the other hand had the third lowest average score ( $M= 2.37$  and  $SD=0.529$ ) as shown in figure 10 below. The aggregated scores for this dimension set explicit knowledge-sharing in the employee performance review ( $MD=2$ ), KM practices are the combined responsibility of managers and executives ( $MD=3$ ), or non-management employees ( $MD=2$ ), or a Chief Knowledge Officer ( $MD=2$ ), or KM business unit ( $MD=3$ ) as items for the assessment criterion.



**Figure 9: Histogram: Leadership**

## (iii) Incentives

The incentive dimension for the combined universities had the lowest score ( $M=1.79$  and  $SD=0.655$ ) as shown in figure 11 below. This dimension came in two kinds namely the monetary ( $MD=2$ ) and Non-Monetary ( $MD=2$ ).

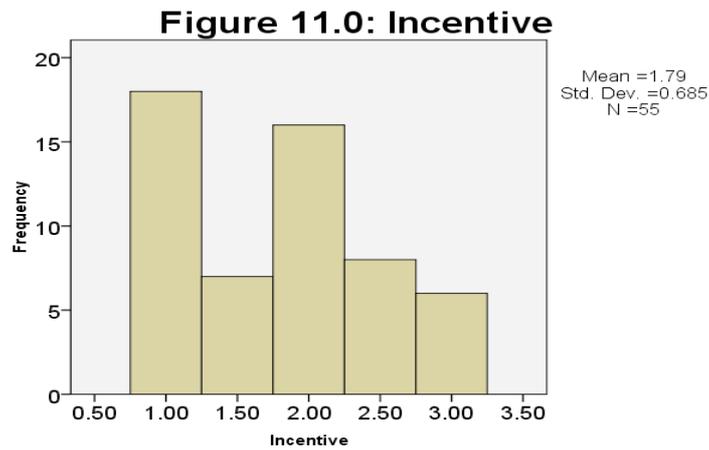


Figure 10: Histogram: Incentive

**(iv) Knowledge Capture**

The Knowledge capture dimension shared the same highest mean score with the Knowledge Management policies and strategies dimension (M=2.48 and SD=0.545) as shown in figure 12 below. This dimension assessed KM practices for capturing undocumented knowledge from employees prior to retirement (MD=3), capturing best practices and “lessons learned” from enterprise knowledge repositories or portals for recycling (MD=3), capturing external knowledge from universities, research institutions, and various industry sources (MD=3) and finally includes employee participation in either cross-department (MD=3) or cross-agency teams or CoPs (MD=3).

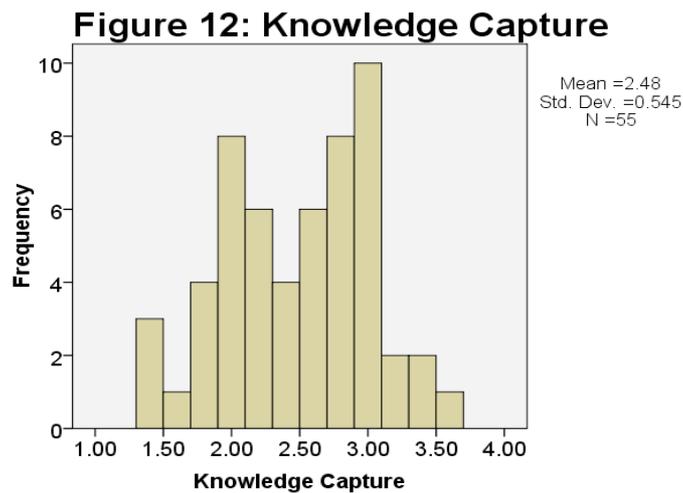


Figure 11: Knowledge Capture

### (v) Training and Mentoring

The Training and mentoring dimension had a score which was close to the cut-off point ( $M=2.44$  and  $SD=0.578$ ) as shown in the figure 13 below. This dimension aggregates the scores of both formal and informal training provided to agency employees ( $MD=2$ ,  $MD=2$  respectively), for both formal and informal mentoring activities ( $MD=2$ ;  $MD=2$  respectively), for encouraging workers to continue their education ( $MD=3$ ), for the transfer of knowledge from experienced workers to new or less experienced workers in the universities that were studied ( $Median=3$ ) and for providing formal knowledge management funding ( $MD=2$ ).

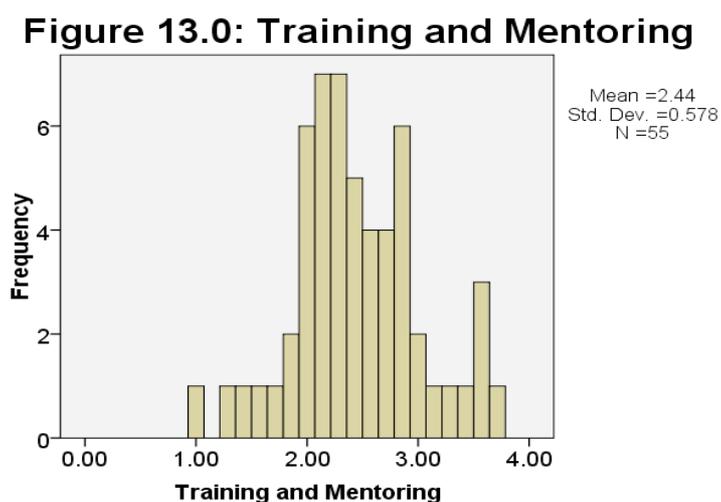


Figure 12

Figure 13: Histogram: Training and Mentoring

### (vi) Communication

The Communication dimension had the second lowest aggregated score ( $M= 2.29$  and  $SD=0.54$ ) as shown in figure 14 below. This dimension aggregated the following items as the assessment criteria for the KM practices providing locators for subject-matter experts within the universities ( $MD=3$ ), use of a portal with a taxonomy or content management capability to access shared documents ( $MD=3$ ), regularly submitting best practices and “lessons learned” for access from a knowledge repository or portal ( $MD=2$ ), facilitating virtual knowledge-sharing via CoPs or teams not physically located in the same place ( $MD=2$ ) and using storytelling as a mechanism to convey organizational meaning ( $MD=2$ ).

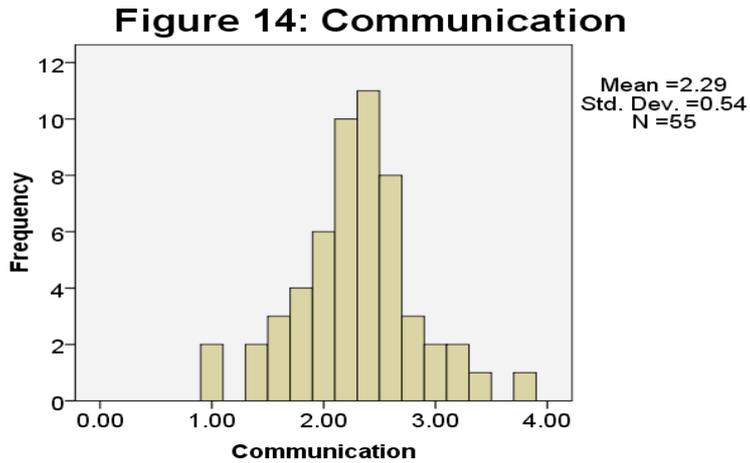
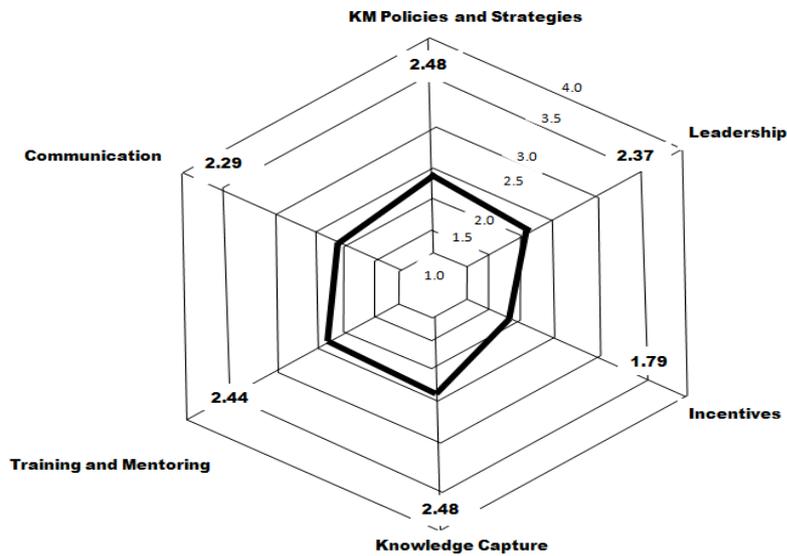


Figure 14: Histogram: Communication

Figure 15.0 below shows a radar chart that summarizes the aggregated scores of all the six dimensions for the three universities. The dimensions each arranges the results of the questions grouped within the topic and presents them as an overview finding of the summated scores.

Figure 155: Radar Chart for the Combined Universities



The Cronbach’s alpha test for reliability of the scales was run and results obtained indicate an acceptable level of internal consistency of 0.768 for the dimensions relating to the three combined universities as already shown in table 5 in section 3.5.



Table 8 above shows summarized results for the median (MD) scores of each of the 27 items which were assessed. The table shows that fewer items (12 out of 27) in green had higher scores than many items (15 out of 27) in red had low scores. The cut-off point for the median scores was also 2.5. This means that the items in green indicate areas where all the universities were performing better in terms of KM. However, the items in red indicate the areas where the universities did not perform better.

#### **4.2.4 Spearman's Correlation**

The Spearman's correlation is the non-parametric test which was run to assess the relationship between the six variables (dimensions) using a sample of 55 participants from the results of the three combined universities. It measures the strength and direction of association between two variables measured on an ordinal or continuous scale. It was used because the assumptions of the Pearson's Correlation which were initially supposed to be run were violated. The datasets showed two violations, namely:

- There was no linear relationship between the variables which were assessed. This was determined using a scatterplot.
- There were outliers present in the variables that were assessed. The Pearson's Correlation is sensitive to the presence of outliers and this was the reason it was not used.

The Pearson's Correlation could not be used owing to the above mentioned violations. The Spearman's Correlation was instead used because it does not have many assumptions about the data except that:

- Variables being tested should be measured on an ordinal, interval or ratio scale.
- There needs to be a monotonic relationship between the two variables being assessed. A monotonic relationship exists when either variables increases in value together or as one variable value increase the variable value of another decreases.

The Spearman's Correlation to assess the relationship between the independent variable Knowledge Management Policies/strategies and dependent variables (Knowledge capture, Training/Mentoring and Communication) was run using a bivariate analysis and basing on the two assumptions above. Table 9.0 below summarizes the results.

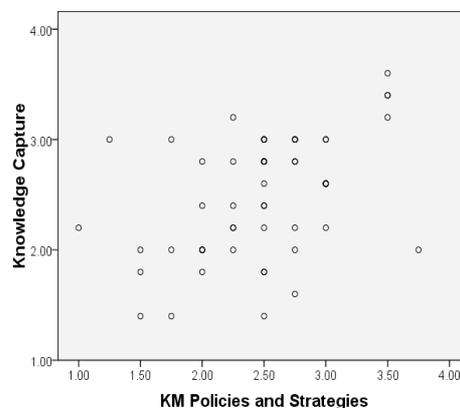
**Table 9: Correlation Matrix between Leadership and Dependent Variables**

Independent Variable	Spearman's rho	Knowledge Capture	Training and Mentoring	Communication
Knowledge Management Policies/Strategies	Correlation Coefficient	.427**	.510**	.607**
	Significance (2-tailed)	.001	.000	.000
	N	55	55	55

$p < 0.01^{**}$ ;  $p < 0.05^{*}$

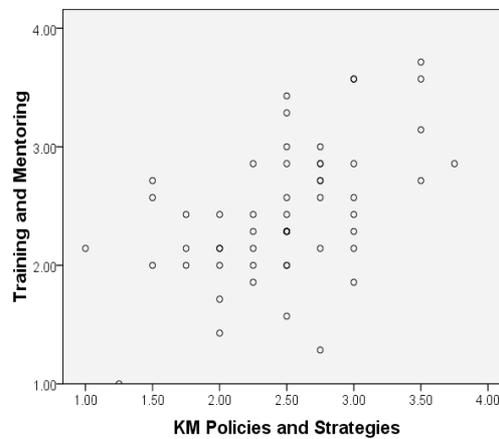
Figures 17, 18 and 19 below shows scatterplots indicating the strength and direction of the relationships between the independent variable Knowledge Management Policies and Strategies and the dependent variables knowledge capture, Training and mentoring and communication.

**Figure 16: Scatter Plot: KM policies and Strategies and Knowledge Capture**



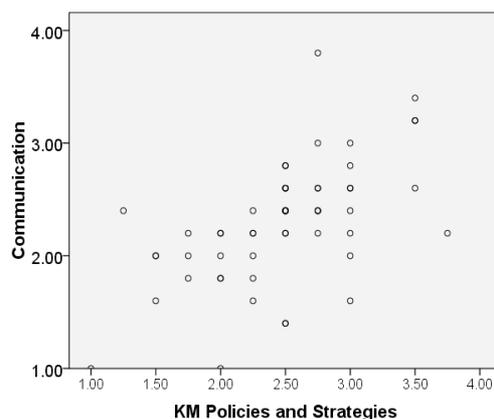
Based on the results of the Spearman's Correlation as seen from the scatter plot above there was a moderate, positive correlation between Knowledge management policies/strategies and Knowledge Capture which was statistically significant ( $\rho=0.43$ ,  $n=55$   $p<0.01$ ).

**Figure 17: Scatter Plot: KM policies and Strategies and Training and Mentoring**



Based on the results of the Spearman's Correlation as seen from the scatter plot above, there was also a moderate, positive relationship between knowledge management policies/strategies and Training and Mentoring which was also statistically significant ( $\rho=0.51$ ,  $n=55$ ,  $p<0.01$ ).

**Figure 18: Scatter Plot: KM Policies and Strategies and Communication**



Based on the results of the Spearman's Correlation as seen from the scatter plot above; there was a strong, positive correlation between Knowledge Management Policies/Strategies and Communication which was also statistically significant ( $\rho=0.60$ ,  $n=55$ ,  $p<0.01$ ).

Another Spearman's Correlation was run to assess the relationship between the independent variable Leadership and the dependent variables (Knowledge Capture, Training/Mentoring, and Communication) also using a bivariate analysis. Table 9 below summarizes the results of this test.

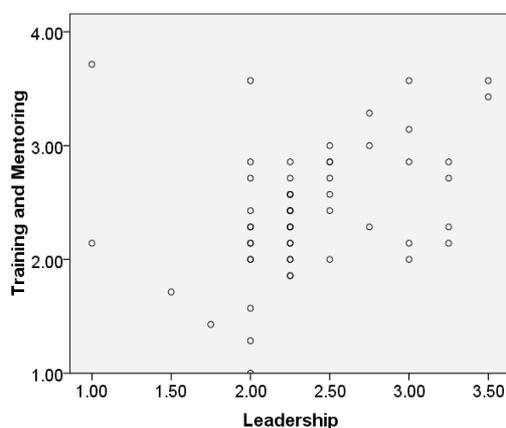
**Table 10: Spearman's Correlation Matrix between Leadership and Dependent Variables**

Independent Variable	Spearman's rho	Incentives	Knowledge Capture	Training and Mentoring	Communication
Leadership	Correlation Coefficient	.479	.285	.417	.452
	Significance (2-tailed)	.000	.035	.002	.001
	N	55	55	55	55

$p < 0.01^{**}$ ;  $p < 0.05^{*}$

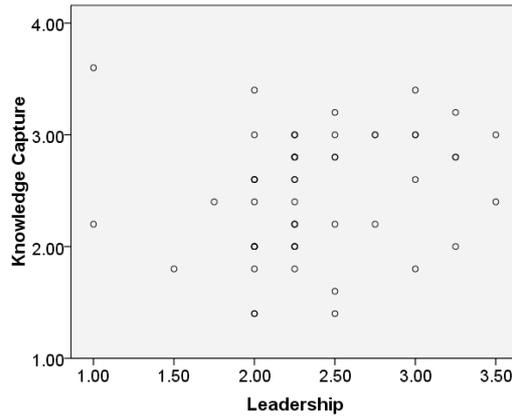
Figures 20, 21 and 22 below, show scatterplots also indicating the strength and direction of relationships between the independent variable Leadership and dependent variables, Training and Mentoring, Knowledge Capture and Communication.

**Figure 19: Scatter plot: Leadership and Training and Mentoring**



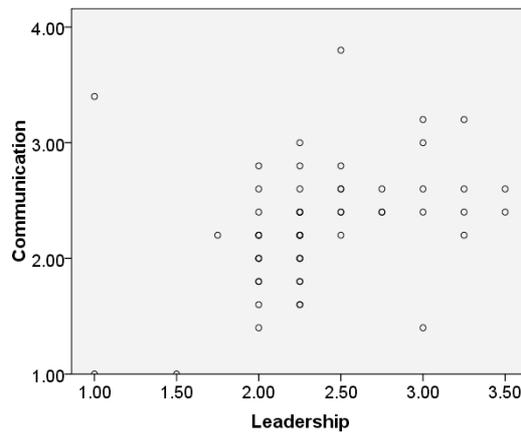
Based on the results of the Spearman's Correlation as seen from the scatter plot above, there was a weak, positive correlation between Leadership and Knowledge Capture which was statistically significant ( $\rho = 0.29$ ,  $n = 55$ ,  $p < 0.01$ ).

**Figure 20: Scatter plot: Leadership and Knowledge Capture**



Based on the results of the Spearman’s Correlation, there was a moderate, positive correlation between Leadership and Training/Mentoring which was statistically significant ( $\rho=0.42$ ,  $n=55$ ,  $p<0.01$ );

**Figure 21: Scatter plot: Leadership and Communication**



Based on the results of the Spearman’s Correlation, there was also a moderate, positive correlation between Leadership and Communication which was statistically significant ( $\rho=0.45$ ,  $n=55$ ,  $p<0.01$ ).

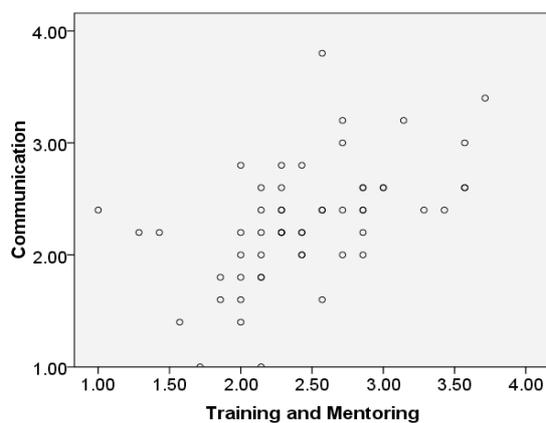
Another Spearman’s Correlation was run to assess the relationship between the dependent variables Training and Mentoring; Knowledge Capture, and Communication also using a bivariate analysis. Table 10 below summarizes the results in the correlation matrix below.

**Table 10: Spearman's Correlation Matrix between Dependent Variables**

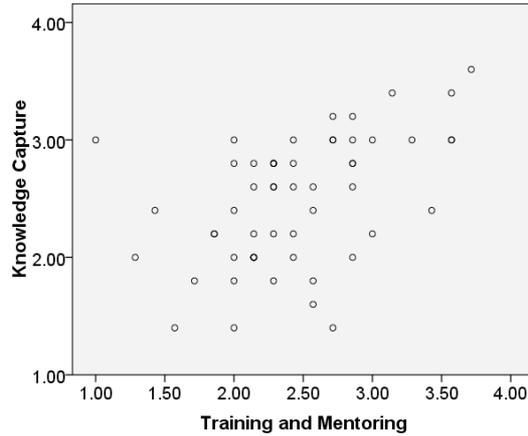
Dependent Variable	Spearman's rho	Knowledge Capture	Communication
<b>Training and Mentoring</b>	Correlation Coefficient	.501**	.584**
	Sig. (2-tailed)	.000	.000
<b>Knowledge Capture</b>	Correlation Coefficient	1.000	.641**
	Sig. (2-tailed)		.000
	N	55	55

$p < 0.01^{**}$ ;  $p < 0.05^{*}$

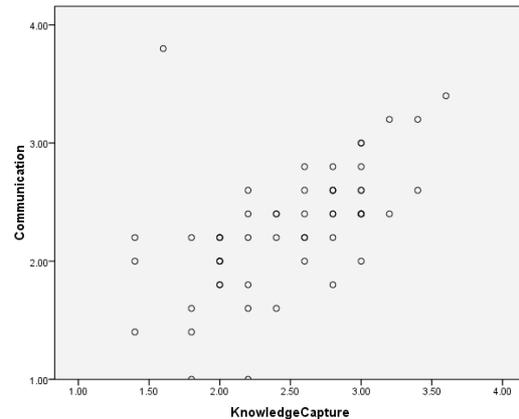
Figures 23, 24 and 25 below, show scatter plots indicating the relationship between the dependent variables Training and mentoring and other dependent variables knowledge capture and communication.

**Figure 22: Scatter plot: Training and Mentoring and Communication**

Based on the results of the Spearman's Correlation as seen from the scatter plot above, there was a moderate, positive correlation between Training/Mentoring and Communication which was statistically significant ( $\rho = 0.58$ ,  $n = 55$ ,  $p < 0.01$ ).

**Figure 23: Scatter plot: Training and Mentoring and Knowledge Capture**

Based on the results of the Spearman's Correlation, there was a moderate, positive correlation between Knowledge Capture and Training/Mentoring which was statistically significant ( $\rho=0.50$ ,  $n=55$ ,  $p<0.01$ );

**Figure 24: Scatter plot: Knowledge Capture and Communication**

Based on the results of the Spearman's Correlation as seen from the scatter plot above, there was also a statistically significant strong, positive correlation between Knowledge Capture and Communication.

Furthermore a bivariate analysis as shown in table 11 was again run using Spearman's correlation to assess the relationship between the dependent variable incentives with other dependent variables (Knowledge Capture; Training/Mentoring; and Communication) the findings are as follows; there was a very weak, positive correlation between incentives and Knowledge Capture which was statistically insignificant ( $\rho=0.18$ ,  $n=55$ ,  $p>0.05$ ), there was a weak, positive correlation between incentives and Training/Mentoring which was

statistically insignificant ( $\rho=0.24$ ,  $n=55$ ,  $p>0.05$ ) and there was a weak, positive correlation between incentives and Communication which was statistically insignificant ( $\rho=0.25$ ,  $n=55$ ,  $p>0.05$ ).

**Table 11: Spearman's Correlation Matrix between incentives and Dependent Variables**

<b>Independent Variable</b>	<b>Spearman's rho</b>	<b>Knowledge Capture</b>	<b>Training and Mentoring</b>	<b>Communication</b>
<b>Incentives</b>	Correlation Coefficient	.181	.243	.246
	Sig. (2-tailed)	.186	.074	.070
	N	55	55	55

Spearman's Correlation was also run again to determine whether there was a correlation between the demographic characteristics of the participants and their perception of the six variables. Table 12 summarizes the results of this non-parametric test.

**Table 12: Spearman's Correlation Matrix between Demographic variables and Dependent Variables**

<b>Demographic Variables</b>	<b>Spearman's rho</b>	<b>KMP/S</b>	<b>Leadership</b>	<b>Incentives</b>	<b>Knowledge Capture</b>	<b>Training and Mentoring</b>	<b>Communication</b>
<b>Gender</b>	C/C	-.020	.041	-.009	.052	.036	-.031
	Sig. (2-tailed)	.887	.767	.946	.707	.793	.821
<b>Role</b>	C/C	.133	.048	-.060	.144	.195	.154
	Sig. (2-tailed)	.334	.727	.663	.296	.154	.261
<b>Years Served</b>	C/C	-.073	.160	.138	.193	.069	.185
	Sig. (2-tailed)	.597	.243	.316	.158	.619	.177
<b>Educational Level</b>	C/C	-.106	-.192	.056	-.099	-.129	-.090
	Sig. (2-tailed)	.440	.160	.686	.472	.347	.515
<b>KM Experience</b>	C/C	-.262	-.039	.098	-.138	-.267	-.302
	Sig. (2-tailed)	.053	.776	.474	.315	.049	.025
	N	55	55	55	55	55	55

$p < 0.01^{**}$ ;  $p < 0.05^{*}$

Based on the results of the Spearman's Correlation, there was no statistically significant correlation between the demographic variables (Gender; Role of participant, Number of years served, Level of Education and KM Experience) and the other six variables (Knowledge Management Policies, Leadership, Incentives, Knowledge Capture, Training and Mentoring and Communication) as  $p > 0.05$  for most of the tested variables. Except, there was a weak, negative monotonic correlation between Knowledge Management Experience and Training and Mentoring which was statistically significant ( $\rho = -0.267$ ;  $n = 55$ ;  $p < 0.05$ ). There was also a statistically significant but weak negative correlation between Knowledge management experience and Communication ( $\rho = -0.032$ ;  $n = 55$ ;  $p < 0.05$ ).

## 4.2.5 Discussion of results

This section of the chapter presents the interpretation and discussion of the results presented in section 4.2. The discussion provides the meaning of the findings in relation to the research question posed earlier in chapter 1 section 1.4 and attempts to explain the expectations posed in Chapter 1, section 1.5. Results for each university and results for the combined universities were discussed concurrently.

It is important to note that the target population did not have enough subject matter experts and knowledge workers in the field of knowledge management to help with the study. However, it has been stressed in the literature reviewed that leaders support the culture of creating, sharing, using, promoting and acquiring knowledge in organizations as they ensure that policies, strategies and processes in an organization are implemented. This was the reason they were selected in the study given that even if they are not subject matter experts their work is to manage and utilize knowledge and information as it is being generated by employees. Therefore, the views of leaders, in this study, were valuable. In view of the aforementioned, the discussion is in line with the research question: *What are the perceptions of leader's in Higher Education Institutions in Zambia about Knowledge Management practices?*

To answer this question, the study discussed the perceptions of leaders in the three universities in relation to the six dimensions that made up the Knowledge Management practices that were assessed. These include Knowledge Management Policies and Strategies, Leadership, Incentives, Knowledge Capture, Training and Mentoring and Communication.

### **(i) Knowledge Management Policies and Strategies**

The study assessed whether knowledge management policies and strategies were perceived to be present at the three universities. It was found that the respondents' responses had high scores at both the University of Zambia and Mulungushi University for the KM policies and strategies dimension. This was contrary to the responses at The Copperbelt University where the scores were comparatively low for this dimension.

Overall, the perceptions of this dimension by respondents from the three universities indicate high scores for this assessed dimension. These findings are not consistent with a study by Krubu and Krub (2011), Anduvare (2015) and Sharif et al. (2014) in the Nigerian, Kenyan and Pakistani study respectively, where it was found that KM policies and strategies were lowly ranked.

These findings were also not expected given that most respondents' responses had low scores on whether there were written or explicit knowledge management policies and strategies in their institutions. However, what accounted for the high score in this dimension were high scores in the existence of a culture that promotes knowledge sharing, programs to improve the retention of an experienced workforce, and established partnerships or strategic alliances in order to attain knowledge.

The belief that a culture of promoting knowledge sharing exists seems inaccurate given that cultural change is the most difficult part of KM success (King, 2007), whereby if there are low scores about a written KM policy and strategy, then a culture of knowledge sharing cannot be expected to be a practical reality. The South African study by Kruger and Johnson (2010), as reviewed in the literature, shows that education institutions are infamous for a culture of hoarding. Such cultural barriers cannot make any organisation to formally pursue knowledge as a strategic asset. This implies that the knowledge management policies and strategies dimension can only have been perceived to exist at a sub-conscious and informal level at the three universities, more so at The University of Zambia and The Copperbelt University.

It could also mean that there are ambiguities of what constitute knowledge management policies and strategies among the leaders, because the reviewed literature shows that there is confusion between information management and knowledge management. Policies and strategies in relation to information management are also likely to be confused with KM policies and strategies as shown from the low scores about a written KM policy and strategy.

The overall high scores for this dimension can only mean the existence of informal KM policies and strategies in the three universities and subsequently imply that there is no uniformity and consistency in the management of knowledge. This is not supposed to be the

case because a well devised KM strategy or policy distinguishes a successful KM program from ad hoc and haphazard KM activities.

### **(ii) Leadership**

The leadership dimension received low scores from the respondents as an existing knowledge management practice at The University of Zambia and The Copperbelt University. On the other hand, there were comparatively higher scores at Mulungushi University than at the other two universities.

However and generally, perceptions of respondents at the three universities indicate low scores for the leadership dimension as a Knowledge Management practice. This is consistent with studies by, Ebuy and Bekele, Demchig (2014) and Anduvare (2015), which found that leadership for KM, was problematic, lacked commitment and did not support KM initiatives.

This result was expected given that there were low scores about defining knowledge management roles of knowledge officers or business units in the three universities. The employees in these institutions are believed to have nothing to do with knowledge management as it is thought to be a preserve of the leaders. The perceived low scores of well defined roles and responsibilities for KM are particularly evident at the University of Zambia and the Copperbelt University.

Literature shows that the provision of support, sponsorship, commitments, flexibility and empowerment through incentives is needed from the leaders in order to set the tone and direction for KM (Stankosky, 2005). This claim seems reasonable given that HEIs that had KM maturity seem to have had top leadership commitment and support as in the Palestinian case by Naser (2016) and the Malaysian multiple cases by Mohayidin et al. (2008).

### **(iii) Incentives**

Incentives had the lowest scores as a knowledge management practice in the three universities. This implies that incentives are not well institutionalized in the three universities. These low scores for the incentives dimension and particularly monetary incentives in HEIs was expected, because many universities in Zambia and developing

countries in general are still grappling with the lack of resources to finance their day to day operations which are of crucial short term importance as revealed by Teferra and Altbach, (2004) in the literature.

However, sometimes existing incentives can be counter-productive and demoralizing in terms of organizational culture and knowledge sharing in particular. This is evident in John Hardwick's experience with a US sales force company where incentives triggered competition for rewards and recognition among employees and brought in a culture of hoarding (Riddell and Goodman, 2014). In this situation, to make incentives contribute to the KM agenda, they need to be tailored in such a way that knowledge sharing is within teams, if not across teams.

Nonetheless, it was unexpected that even non-monetary incentives had low scores. This is despite the fact that non-monetary incentives are not a cost for an organisation. Rhoads and Ribiere (2010 in Green, Stankosky and Vanderdriff 2010) strengthens this claim by submitting that non monetary incentives are an inexpensive token to give to those employees eager and willing to dedicate more time to their work to create a case for KM. They may take the form of mugs, key chains, buttons, stickers, and wall signs in recognition of their enthusiasm. These items produce discussions from others and stimulate attachment between members of the group Rhoads and Ribiere (2010) in Green, Stankosky and Vanderdriff (2010).

However, what is even more surprising is the omission of the incentives dimension in the KM practices assessment of many studies in developing countries including among others Ebuy and Bekele (2013), Vali (2016), Biloslvo and Trnavcevic (2007) and Krubu and Krubs (2011), and many other studies. This omission is a striking oversight given the importance of incentives in promoting a culture of knowledge sharing in organizations.

#### **(iv) Knowledge Capture**

The Copperbelt University and Mulungushi University respondents recorded high scores for the knowledge capture dimension as a knowledge management practice. But the perceptions of respondents at the University of Zambia show low scores for this dimension. Nonetheless, the combined scores for this dimension at the three universities were found to be high. This

implies that the dimension of knowledge capture is believed to be a widely recognized knowledge management practice at the three universities.

This was expected given that individual components of this dimension had likewise high scores at the three universities. These items include knowledge captured from employees prior to retirement, best practices and lessons learned captured in repositories and portals, external knowledge captured from other institutions and that employees participate in Communities of practice. In addition, many universities in Zambia have adopted Information Technologies (IT) as tools for managing their information and knowledge resources and the three universities are no exception.

It is no wonder that our findings for this dimension are consistent with the findings of Sharif et al. (2014) in the Pakistani Universities study, Vali et al. (2016) in the Iranian Kerman University Study, Biloslova and Trbnavevic (2007), Naser et al. (2016) in the Palestinian Al-Azer University study and the Malaysian Universities Study by Mohayidin et al. (2014). Consistent with our study, these universities had a well functioning information management system which helped in the capture of best practices and lessons learned, helped employees participate in teams and in capturing external knowledge. It is only in the Nigerian and Ethiopian studies by Krubu and Krub (2011) and Ebuy and Bekele (2013), respectively, where IT components were not adequate.

However, while a well-functioning information management system is desirable for enhancing knowledge management, it is itself not knowledge management. There are a growing number of literatures that seems to suggest the movement away from the technology dimension as the panacea to knowledge management problems Wiig (2004) and Davenport and Prusak (1998). The Slovenian Universities study by Biloslvos and Trnavcevic (2007) and the Nigerian study by Krubu and Krub (2011), for instance, showed that an enhanced information management system did not translate into improvements in the intra-organisational relationships necessary to improve communication which is important for better knowledge management.

### **(v) Training and Mentoring**

The respondents at the university of Zambia and Copperbelt University recorded low scores for this dimension as a knowledge management practice in their institutions. On the other hand, respondents at Mulungushi University recorded high scores. When combined, the respondents' responses at the three universities widely recorded low scores for this dimension. This could imply that the Training and Mentoring dimension was not well institutionalized in HEIs in Zambia.

The reason for these low scores could be attributed to the low scores recorded by respondents in terms of formal and informal mentoring, training and funding of courses in KM practices. Although the transfer of knowledge from experienced workers to new or less-experienced workers and encouraging workers to continue their education by providing funding to continue with their education had comparatively high scores from the respondents in the three universities, these perceptions did not change the overall low score for the Training and Mentoring dimension.

This is similar to studies by Ebuy and Bekele (2013) in the Ethiopian case and Vali et al. (2016) in the Iranian case, where there were either problems with or lack of a learning culture in which the training and mentoring dimension is intertwined. On the other hand, these findings about the Training and Mentoring dimension are inconsistent with the Brazilian Universities study, by Youssef and Dolci (2008), in which the Training and mentoring dimension was well institutionalized within the universities.

These perceptions were unexpected given that academic staffs are known to continue with their education as this is part of the staff development program of many universities in Zambia. It is clear though from these low scores that, if there is any training and mentoring in these institutions, then it is not related to KM. This can have negative implications on organisational learning of the universities particularly in relation to innovation.

In relation to our Systems thinking perspective, the absence of the training and mentoring dimension could imply failure in organisational learning which enables innovative approaches to new problems rather than mere reactionary and often ill-suited reapplication of

old ideas to new problems (Senge, 1990). It is clear from the reviewed literature that innovation expands new ideas and puts them into practice in order to maintain a competitive advantage and thereby enhance organisational survival (Newell, 2009).

#### **(vi) Communication**

The communication dimension also had low scores from respondents at the University of Zambia and at the Copperbelt University. On the other hand, this dimension had comparatively high scores at Mulungushi University. However, the dimension recorded low scores in the combined results of the three universities. This implies that like the other four dimensions, communication was also not well institutionalized in HEIs in Zambia.

What accounted for the low ranking of the communication dimension were the low scores for submitting best practices and lessons learned to repositories, facilitating virtual knowledge sharing and use of storytelling as a mechanism to create organisational meaning.

Although accessing directories or expertise locators to find subject matter experts and accessing shared documents on a portal with the aid of a taxonomy or content management capability were highly ranked as KM practices, this did not translate into the wider approval of the communication dimension as an existing KM practice in the three universities. Thus, the study seems to imply that communication is also not well institutionalized in HEIs in Zambia.

These findings are not consistent with the findings of the Brazilian study by Youssef and Dolci (2012) and the Malaysian study by Mohayidin et al. (2007), which established that communication, was well institutionalized in these universities. But they are consistent with studies by Anduvare (2015) in the Kenyan case and Vali (2016) in the Iranian case, which both show failure in communication processes.

The implications for the low ranking in the communication dimension could be in failure to access information and knowledge resources. This implies that these resources could remain dispersed across the institutions and could only exist in specialized pockets or silos where they can only be accessed with so much difficult. This also means that the flow of these

resources could be hampered, such that, only a specialized KM program can bring them to the fore.

#### **4.2.6 The State of Knowledge Management Practices in HEIs in Zambia**

Out of the six dimensions that were assessed only two, namely KM Policies and Strategies and Knowledge Capture barely had high scores. The rest of the dimensions, that is, Leadership, Incentives, Training and Mentoring and Communication had low scores, though a bit close to the cut-off point. This can only imply that KM practices in HEIs in Zambia are in an unconcerned state which is a state equivalent to a level 1 KM organisation see table 4.

This rudimentary position implies that the attitudes and perceptions of employees in these institutions are unresponsive towards KM both as a solution to organisational problems and as a strategic resource for enhancing an organisation's competitiveness. This is more evident from The University of Zambia and The Copperbelt University, where the value of knowledge seems to have been less clearly recognized as there were low rankings on written knowledge management policies and strategies. This suggests that although knowledge seems to have been managed in these institutions, it is managed in an ad hoc manner without any strategic focus.

The findings of the Copperbelt University and the University of Zambia are consistent with the Mongolian Universities study by Demchig, (2014), the Nigerian Universities study by Krubu and Krub (2011) and the Pakistani universities study by Sharif et al. (2014) where it was found that the state of KM practices was at a basic level 1. This was due to mainly weaknesses in the social aspects of KM such as Leadership, Incentives, Training and Mentoring and Communication. The low ranking of these dimensions could hamper the creation of social networks necessary for knowledge sharing and creation in these institutions.

However, Knowledge Management practices at Mulungushi University can be classified to be in a state of literacy see table 4. This is equivalent to a level 3 position where management is generally responsive to the value of knowledge. In this state, management and employees are acquainted with knowledge but they still require outside support to act on KM initiatives. This is similar to the Brazilian study by Youssef and Dolci (2008) and the Palestinian study

by Naser (2016), where there was not only leadership and technology support necessary for knowledge capture and sharing but also proper communication channels.

In this state, Mulugushi University still needs to improve in their knowledge culture and reward regimes where there are incentives that are supportive of knowledge management initiatives. This is necessary for the institution to move towards being proactive as in the case of the Malaysian study by Mohayidin et al. (2007), or better still, be a knowledge vigilant institution where the both the social and technical components of KM are not only well institutionalized but they are reviewed and assessed constantly.

Suffice to mention, however, that the perceptions of leaders in the three universities show some significant variations given the differences in the responses. The reason for these variations could be due to the variability of the participants. It could also be due to variations in understanding the KM principles, tools, techniques, approaches and challenges.

Nevertheless, and in general, it seems that knowledge management practices in the three universities are ad hoc such that they are still not a practical reality. Therefore, they are in a state of infancy whereby they have not reached the maturity level that resembles knowledge vigilant institutions similar to Malaysian study by (Mohayidin et al., 2007).

#### **4.2.7 Provide valuable insights about the existing knowledge challenges in HEIs in Zambia**

This section of our study provides insights of the existing knowledge challenges in the three universities. This is important because Knowledge challenges highlight the knowledge limitations of an organisation so that areas that require interventions for improvement can be identified. Knowledge challenges also help to identify appropriate knowledge solutions that can help position HEIs on the right KM track. In this study, the dimensions of Incentives, Leadership, Training and Mentoring and Communication are the obvious knowledge challenges facing these universities in Zambia. They have been highlighted in order that they are improved upon.

The study has found that there were more knowledge challenges than knowledge accomplishments in HEIs in Zambia. These knowledge challenges emanate from the assessed

individual items that include: monetary and non-monetary incentives; storytelling; funding, written KM policies and strategies, virtual knowledge sharing, capture of knowledge before retiring, undefined KM roles, reviewing performance based on knowledge sharing, training, mentoring and submitting best practices and lessons learned in repositories as demonstrated in table 7.

The existence of most of the knowledge challenges in these institutions is mostly due to low scores in the social components for leveraging knowledge. Incentives and Communication, in particular, have hampered social networking needed for knowledge sharing and creation. This is consistent with the findings by Demchig (2014), Anduvare (2015), Vali (2014) and (Biloslavo and Trnavcevic, 2007) where there were inadequacies in the social components of KM.

Low scores in the leadership dimension were also a major knowledge challenge in the three universities. The role of leadership in KM is to find, enable, and communicate a coherent vision or mental model of the environment and of where the organisation wants to go (Anatantumula, 2010 in Green, Stankosky and Vanderdriff, 2010). Without leadership there is no motivation to set the tone and direction KM initiatives, if any, should take.

#### **4.2.8 Highlight the existing knowledge management culture in HEIs in Zambia**

While the highly ranked knowledge management practices still need further improvement, it is the lowly ranked practices that have revealed the prevailing KM culture in the studied HEIs in Zambia. These knowledge pit falls need to be developed in order to guide these institutions towards KM maturity. In our context, maturity means provoking HEIs to be more knowledge vigilant than they are currently.

According to Wiig (2004), knowledge vigilance is a state in which everyone in an organization understands how to create, capture, build and apply the best knowledge whereby leaders, systems, goals, culture and incentives within the organisation are fully supportive of KM. However, the study has revealed that the existing culture is not cognizant of these knowledge vigilance values mentioned above. This seems to be largely due to the lack of incentives and leadership as seen from the low scores of these dimensions.

The KM culture in these institutions also seems to be unsupportive of knowledge sharing, in that, knowledge seems to exist in isolated cases which can lead to sporadic knowledge management. The reason for this claim is that respondents have recorded low scores for a written KM policy and strategy.

Therefore, in order to fully internalize this vigilant KM culture, HEIs firstly need to come up with a clearly written knowledge management policy and strategy. This can help deal with the undesirable state of implementing KM informally and intuitively.

Secondly, leaders should show commitment and support for these policies and strategies and set the direction or path which KM practices should take. In relation to our study leaders need to show support and commitment to KM initiatives by promoting a reward mechanism that includes incentives. This is consistent with the claim by Anantatumula (2010 in Green, Stankosky and Vanderdriff 2010) that making real practice of knowledge requires intervention of leadership and managers because it is associated with incentivizing vision and planned change in direction.

Thirdly, the social components of KM practices need more attentions than the technological aspects. It is evident in our study that knowledge capture and KM policies and Strategies were ranked highly by respondents in the three universities. But they still need improvement and that it is the social components such as the employees, communication, training and mentoring and a culture of incentives and knowledge sharing that has been problematic. If they have to be knowledge vigilant, HEIs need to deal with the social aspects of knowledge because this is where the greatest benefits are derived from (Mohayidin et al., 2007).

#### **4.2.9 Generate relevant hypothesis for clearly defined studies**

The attempt to meet this expectation was based on the correlation between independent variables and the dependent variables. A number of associations were discovered, but there was no statistically significant association between demographic variables (gender, role, number of year served, and level of education and KM experience) and the dependent variables (Knowledge management policies and strategies, leadership, incentives, knowledge capture, training and mentoring and communication) as they were independent of each other.

There was also no statistically significant association between the independent variable, incentives and the dependent variables (knowledge capture, training and mentoring and communication) as they were also independent of each other.

However, the following were the associations with the clearest relationships that helped our study generate relevant hypotheses:

1. If Knowledge Management Policies and Strategies are related to Knowledge Capture, then the greater the perceptions about Knowledge Management Policies and Strategies are the more likely that there will be improvement in Knowledge Capturing in HEIs.
2. If Knowledge Management Policies and Strategies are related to Training and Mentoring, then the greater the perceptions about Knowledge Management Policies and Strategies are the more likely that there will be improvement in Training and Mentoring in HEIs in Zambia.
3. If Knowledge Management Policies and Strategies are related to Communication then, the greater the perceptions about Knowledge Management Policies and Strategies are the more likely that there will be improvement in Communication in HEIs in Zambia
4. If Leadership is related to Training and Mentoring then, the greater the perceptions are about leadership the more likely that there will be improvement in training and mentoring in HEIs in Zambia
5. If leadership is related to communication then, the greater the perceptions about leadership are the more likely that there will be improvement in Communication in HEIs in Zambia.
6. If leadership is related to incentives, then the greater the perceptions about leadership are the more likely that there will be improvement in incentives in HEIs in Zambia.

Based on the findings and their interpretation above, it can be stated that the originality of this study is in the holistic manner in which the problem has been tackled. The systems thinking perspective which was been used to guide the study using systems archetypes to identify undesirable states in relation to KM practices is also based on the holistic principle.

The assessment instrument was holistic because it looked at the context of our study, the general applicability, the stages or knowledge states, a subjective criterion, as in, assessing the perceptions of leaders, the validation which was a multi-case study and key areas, that is, the knowledge dimensions.

In addition, the KMAT which was used to determine the state of KM in HEIs includes knowledge goals which are an oversight in many studies. The importance of goals in KM is to align the KM initiative with the organisation goals so that KM is not implemented in isolation. There is no study that has used such a holistic approach. Many studies leave out measurements such as applicability, assessment, validation and goals in their evaluation criterion.

### **4.3 Implications and Contribution of the Study to the Body of Knowledge**

The implications of the findings of this study could be in provoking leaders to take an assessment of their knowledge capabilities in their respective institutions. The study could also provoke leaders to change their mindset about the value of knowledge in an organisation. Knowledge could be viewed as a strategic resource for high performance and competitiveness.

The study has contributed to the body of knowledge by highlighting methodological approaches in other researches, thereby providing background and better understanding of the research problem. This has led to the design of a holistic methodology for KM assessment. This in turn could ultimately contribute positively in the movement towards finding a generally accepted criterion for assessing KM as emphasized by Stankosky (2005) and Green et al. (2010).

## 5.0 CHAPTER 5: CONCLUSION

This chapter endeavors to provide conclusive observations about this thesis. The summary of the findings is highlighted in section 5.1 in order to remind our readers of the important findings of our study. Then the research conclusions are drawn from the summary and discussed in line with the research question and the research expectations that were posed in Chapter 1. The final part of this chapter attempts to explore further research opportunities to extend this study and to add value to the KM discipline.

### 5.1 Summary

The study was conducted for the purpose of determining the state of knowledge management practices in HEIs in Zambia in order to gain insights of the current position of these institutions, with regards to their knowledge capability. The Methodology of the study followed a quantitative, exploratory survey technique in which the questionnaire was used as an instrument for collecting data.

The questionnaire was used along with a KM capability assessment instrument called Knowledge Vigilant States adopted from Wiig (2004) and extended to include KM goals. This was a difference in many of the capability instrument reviewed which have no goals. This capability instrument helped us determine the KM state in which the universities find themselves. The States in the instrument show a progression of stages from a basic state (unconcerned) to an advanced state (vigilant).

A representative sample of 82 leaders, both academic and administrative leaders, at the three universities were selected using a purposive sampling procedure of which 55 (67%) successfully completed the questionnaire.

In view of the above the summary of the findings of our study are based on the research question “*What are the perceptions of the leaders in Higher Education Institutions in Zambia about Knowledge Management Practices?*”

There were six dimensions that were assessed as Knowledge management practices. These include Knowledge Management Practices and Strategies, Leadership, Incentives, Knowledge Capture, Training and Mentoring as well as Communication.

The perceptions of leaders at the three universities show that only two Knowledge Management practices had high score in the three universities studied. These include Knowledge management Policies and Strategies which had a score just at the cut-off point (Mean=2.5) and Knowledge Capture which also had a score at the cut-off point (Mean=2.5). The rest of the practices had low scores, these include Leadership (Mean=2.4), Incentives (Mean=1.8), Training and Mentoring (Mean=2.4) and Communication (Mean=2.3).

Four expectations were considered in the study. Firstly, the study considered “*Determining the state of KM practices in HEIs in Zambia*”. The finding of this expectation was that KM practices in *Zambian HEIs* were in an unconcerned state. This is a rudimentary or infancy state of knowledge management. Table 4.0 in section 3.4 elaborates on this state of KM in an organization.

Secondly, the study also had: “*providing valuable insights about the existing knowledge challenges in HEIs in Zambia*” as an expectation. In view of this, the study reveals that there were many knowledge gaps existing in HEIs in Zambia. Firstly, there was lack of Leadership, particularly lack of employee performance review in assessing knowledge sharing (Median=2.0), a lack of KM responsibility among non-management workers (Median=2.0) and lack of a responsible unit or officer for KM (Median=2.0). Secondly, there was lack of incentives both monetary (Median=2.0) and non-monetary (Median=2.0).

Thirdly, there was lack of training and mentoring in HEIs, particularly lack of formal and informal training and mentoring and funding to study courses in KM. All the items in the training and mentoring dimension also had a Median score of 2.0.

Fourthly, and finally there was lack of communication in HEIs particularly with regards to submitting best practices or lessons learned to knowledge repositories or portals (Median=2.0), facilitating virtual knowledge sharing via communities of practice or teams not physically located in the same place (Median=2.0) and lack of storytelling to convey meaning in these institutions (Median=2.0)

The other expectation of this study was to: “*highlight the existing knowledge management culture in HEIs in Zambia*”. To this effect the study considered this expectation by observing that although Knowledge Management Policies and Strategies (Mean=2.5) and Knowledge Capture (Mean=2.5) had some level of focus in HEIs, this was average. Hence the need to improve upon these dimensions and to particularly emphasize on the cultural components of KM which include leadership, Incentives, Training and Mentoring and Communication as these are claimed to produce the most benefits from KM initiatives of any institution.

The final expectation of this study was to “*generate relevant hypothesis that can be used for investigating clearly defined studies*”. In view of this, correlations using the Spearman’s correlation coefficient were run and it was found that there was no statistically significant association between the demographic variables (independent variables) and the six assessed variables (dimensions). There was also no statistically significant correlation between incentives and the six assessed variables. However, there were statistically significant associations between the independent variables and the dependent variables within the six dimensions. Although it is not apparent whether there was causation or effect among these variables.

## **5.2 Conclusions**

The conclusion that can be drawn from the findings as outlined under the summary is that leaders in HEIs in Zambia lowly ranked most of the KM practices that were investigated in this study. This implies that the state of KM in HEIs is poor as attitudes and perceptions of leaders in these institutions are not supportive of this phenomenon. This may have implications on not only the performance of these institutions, but also their survival in the knowledge economy.

The findings also draw the conclusion that there are many knowledge challenges prevailing in HEIs in Zambia. Most of these challenges are related to the poor ranking of the social aspects of KM practices. Failure to address these knowledge challenges can lead to failure in recognizing the knowledge capabilities of these institutions. This in turn may lead to failure to leverage the most relevant knowledge needed to gain competitive advantage.

It can also be concluded from the findings that a knowledge vigilant culture in HEIs in Zambia is absent. This was apparent in the University of Zambia and the Copperbelt University findings. This deficiency has profound implications on organisational change. The apparent implication may be resistance to change the management style of these institutions, as they may opt to preserve the status quo of bureaucracy and the hoarding culture of knowledge. Failure to change can be tragic in this knowledge economic environment where adaptation is critical for organisational survival.

This dire situation requires that knowledge is strategically focused in these institutions. This is only possible through a written KM policy and strategy. A reward mechanism that includes recognition for sharing knowledge as well as leadership support and commitment to valuing knowledge, should be high on the agenda.

The survival of HEIs in the knowledge economy requires that they enhance their performance to meet both their short term and long term goals. This can only be possible by prioritizing knowledge and making it the main asset ahead of all the institutions' resources.

### **5.3 Suggestions for Future research**

The study has provided reasonable background of the existing KM situation in HEIs. However, given the exploratory nature of our study there is still need for future research to consolidate our findings. Hence, this section of the thesis highlights the potential types of future research suggestions that may help to build upon the findings in our research thereby help address the flaws that may be inherent in our study. This section can also help address some of the unexpected results in our study as well as the unanswered aspects of our study. The following are the propositions for potential future research:

There is need to conduct a similar research study but based on a qualitative research design so as to consolidate the quantitative results. This can reduce bias that is inherent with the purposive sampling procedure that was used in this research. Such a study can check the validity and reliability of our study by reducing partiality while raising neutrality and certainty. This can prove beneficial to both leaders in HEIs and to KM researchers as this can consolidate the findings of this research.

It would be interesting to conduct another study of this sort but with the KM practitioners as the participants. Their points of view can prove valuable particularly that our study did not have an expert group. This can help minimize trait bias by establishing that the concepts that were being measured in our study were fully and genuinely understood, more so that the instrument that was used is a forced choice questionnaire. Whereas some participants assessed claimed to have experience, the majority of them did not have practical experience.

The study was prone to outliers which is a characteristic weakness of Likert scales. In addition, due to variability of the participants there were also variations in the perceptions judging from the deviations of the responses from the mean. Outliers and variability of responses tend to make the mean larger than it should, which can affect the reliability of findings. This suggests that another future research project should be to have an in depth exploration to determine the underlying causes of the differences in perceptions between the different groups of leaders.

It would be interesting to conduct another similar study which will look at only the top level management staff preferably only provosts of HEIs in Zambia in order to get their perceptions about KM. This group of participants was critical to our study as they have the potential to give direction to KM initiatives in these institutions. But as noted they have a busy schedule making them a challenging group to study. Early appointments, constant reminders and clarifying the benefits of the research may help stimulate interest in them to take part in such a study.

The research was within the HEIs context; however, it would be interesting to conduct a future research project outside this context such as in government agencies or in the private sector outside the education sector. This may be valuable in checking whether the instruments and the methodology used may be generally applicable. One of the outstanding issues in KM research is in finding generally applicable frameworks, methodologies and instruments that can offer direction or the path to take in KM, hence this was part of the reason for undertaking this exploratory study.

There is also need to conduct a longitudinal study in order to arrive at definitive and conclusive evidence at a large scale. The study should observe not only the same subjects but should also include academic staff and other stakeholders in both the public and private universities. This is a future research suggestion particularly at doctoral level.

The study shows that there was sufficient knowledge sharing despite the lack of identified incentives. This is reason enough to conduct further research on the value of incentives in relation to knowledge sharing given that the majority of the studies reviewed in the literature suggest that knowledge sharing is enhanced by incentives.

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## 7.0 APPENDIXES

### Appendix A: Questionnaire



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#### STELLENBOSCH UNIVERSITY

QUESTIONNAIRE  
BY  
SILUMESI KABILWA

---

**RESEARCH TOPIC:** *“Determining the State of Knowledge Management in Higher Education Institutions in Zambia: An Exploratory Study of Three Public Universities”.*

#### **CONFIDENTIALITY**

All the responses you will give will not be attributed to you. This is in order to ensure confidentiality. The study is entirely for academic purposes. It is a requirement in partial fulfillment of a Master of Philosophy in Information and Knowledge Management (MIKM).

#### **INSTRUCTIONS**

There are seven parts in this questionnaire and you are required to answer all of them by filling out blank spaces in part I while the rest requires you to tick  in the appropriate box.

#### **DEFINITION:**

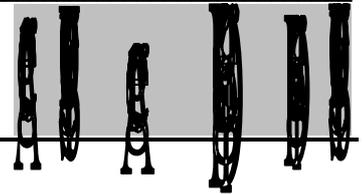
**Knowledge management:** is the systematic and clear process for the creation and use of knowledge to maximize knowledge-related effectiveness of an organization Wiig, (1997). It involves the capture of an organization’s collective expertise wherever it resides – in people’s heads, or in databases, on paper – and distribution of the expertise wherever it can produce the biggest returns Hibbard, (1997).

**PART I**

This section attempts to solicit background information. Fill-out the blank spaces provided:

1. Gender.....
2. Position of the respondent .....
3. Number of years served in this position.....
4. Highest level of Educational qualification obtained .....  
(e.g Diploma, Degree, Masters, Phd etc.)
5. Do you have any practical formal or informal experience with Knowledge Management? YES/NO .....

Parts II to VII requires you to choose your response by ticking  in the appropriate box provided. The responses are measured using a Likert-Scale from “Strongly Agree” to “Strongly Disagree”.

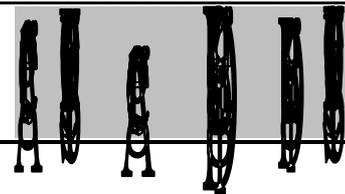


**PART II**  
**Policies and strategies; the university:**

	4	3	2	1
1. Has an effective written knowledge management policy or strategy;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has an effective values system or culture intended to promote knowledge sharing;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Has either policies or programs intended to improve workforce retention;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Uses either partnerships or strategic alliances to acquire knowledge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**PART III**  
**Leadership; in your university KM practices are:**

	4	3	2	1
5. Explicit criteria for assessing knowledge-sharing in the employee Performance Review	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. A responsibility of managers and executives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. A responsibility of non-management workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. A responsibility of a knowledge management officer or KM business unit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



**PART IV**

Incentives at the university specifically recognize or rewards knowledge-sharing with:

	4	3	2	1
9. Monetary incentives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Nonmonetary incentives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**PART V**

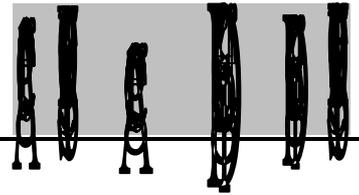
Knowledge capture; the university regularly:

	4	3	2	1
11. Captures undocumented knowledge from employees prior to retirement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Captures explicit knowledge of best practices or lessons learned in knowledge repositories or portals accessible for possible reuse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Captures external knowledge obtained from research institutions, universities and industry sources and communicates it within the organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Encourages workers to participate in cross-department teams or Communities of Practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Encourages workers to participate in cross-agency teams or Communities of Practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**PART VI**

Training and mentoring; the university:

	4	3	2	1
16. Provides formal training related to knowledge management practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Provides informal training related to knowledge management practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Provides formal mentoring practices within the organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Provides informal mentoring practices within the organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Encourages experienced workers to transfer their knowledge to new or less Experienced Workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Encourages workers to continue their education by providing funding for successfully completed work-related courses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Provides funding for courses of study in knowledge management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



**PART VII**

**Communications in the university; workers share knowledge and information by:**

	4	3	2	1
23. Accessing directories or expertise locators to find subject-matter experts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Accessing shared documents on a portal with the aid of a taxonomy or content management capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Regularly submitting best practices or lessons learned to knowledge repositories or portals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Facilitating virtual knowledge-sharing via community of practice or teams not physically located in the same place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Using storytelling as a mechanism to convey organizational meaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. Are there any knowledge management practices that your university uses that we have not included in this survey?

**NO**

**YES**  Please specify.....

Thank you for your cooperation.

--The End--

## Appendix B: Consent Form



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jou kennisvennoot • your knowledge partner

### STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH

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**Research Title:** Determining the State of Knowledge Management in Higher Education Institutions in Zambia: An Exploratory Study of Three Public Universities.

You are asked to participate in a research study conducted by Silumesi Kabilwa a Master of Philosophy in Information and Knowledge management (MPhil IKM) student at the Department of Information Science at Stellenbosch University. The results of this study will be a contribution to my dissertation. You were selected as a possible participant in this study because you are deemed as having better than average educational qualification and experience and that you hold a managerial level position. Participants with these characteristics, I believe, will be able to understand organizational operations, particularly, in relation to knowledge management.

**Note:** Knowledge management is the systematic and explicit creation and use of knowledge to maximize knowledge-related effectiveness of an organization Wiig (1997). It involves the capture of an organization's collective expertise wherever it resides – in people's heads, or in databases, on paper – and distribution of the expertise wherever it can produce the biggest returns Hibbard, (1997).

## **1. PURPOSE OF THE STUDY**

The purpose of this quantitative exploratory survey research is to determine the state of KM in Higher Education Institutions in Zambia particularly within three public universities in Zambia.

## **2. PROCEDURES**

If you volunteer to participate in this study, we would ask you to fill-out a questionnaire which consists of 7 parts with a total of 27 questions. Except for part I, the rest of the parts will have to be answered by marking (X) in the appropriate box. This will represent the respondent's choice regarding the statements from strongly agrees to strongly disagree.

Part I will solicit for demographic information from the respondents; part II will have statements that will deal with Policies and strategies in the University; part III will address Leadership in the university; whereas part IV will address Incentives in the university specifically recognition or reward regimes in knowledge-sharing. In addition, part V will deal with Knowledge capture; while part VI deals with Training and mentoring in the University. The final section, which is, part VII will deal with Communications in the University particularly knowledge and information sharing among workers in the university.

## **3. POTENTIAL RISKS AND DISCOMFORTS**

This research has no risks, neither physical nor psychological. It is purely for academic purposes. The only inconvenience will be that the questionnaire will take up to a maximum of 15 minutes of your time. However, they are required to read the consent form before agreeing to take part in the study. Participants will be given 10 days in which to answer the questionnaire.

## **POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

The benefit will be that a copy of the outcome of this research, that is, the dissertation, will be sent to your institution. Individual participants, however, will not benefit directly from this research.

In addition, this research is a contribution to a number of disciplines in the sciences particularly, in the field of computer science and library Science, biology, engineering, organization and management theory to name a few, by way of increasing understanding of knowledge management. The state of knowledge management in Zambian universities will be known thereby providing understanding of this organizational phenomenon.

### **4. PAYMENT FOR PARTICIPATION**

The participants will not receive any payment for taking part in this research.

### **5. CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of a Statistical Package for Social Scientists (SPSS) program that will be used to code each response whereby the participant's personal information and responses will not be revealed. The answered questionnaires will be secured to a safe location which only the investigator is will be knowledgeable.

### **6. PARTICIPATION AND WITHDRAWAL**

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

### **7. IDENTIFICATION OF INVESTIGATORS**

If you have any questions or concerns about the research, please feel free to contact the principal Investigator; Mr. Silumesi Kabilwa, +260977988876 E-mail: silumesii1@gmail.com. The University of Zambia P.O Box 32379, Lusaka. You can also contact the supervisor: Christian Maasdorp at: [chm2@sun.ac.za](mailto:chm2@sun.ac.za) and (+27) 218082423 Stellenbosch University, Department of Information Science.

## **RIGHTS OF RESEARCH SUBJECTS**

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [[mfouche@sun.ac.za](mailto:mfouche@sun.ac.za); 021 808 4622] at the Division for Research Development.

<b>SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE</b>
--

The information above was described to me by Silumesi Kabilwa in English and I am in command of this language. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

---

**Name of Subject/Participant**

---

**Name of Legal Representative (if applicable)**

---

**Signature of Subject/Participant or Legal Representative**

---

**Date**

**SIGNATURE OF INVESTIGATOR**

I declare that I explained the information given in this document to \_\_\_\_\_  
and his/her representative \_\_\_\_\_. He/she was encouraged and given ample  
time to ask me any questions. This conversation was conducted in English and no translator  
was used.

\_\_\_\_\_  
*Signature of Investigator*

\_\_\_\_\_  
*Date*