

**THE UNIVERSITY OF ZAMBIA**  
**INSTITUTE OF DISTANCE EDUCATION**

**An Investigation of Knowledge Management and its Influence of Organisational: A case  
study of the Zambia Revenue Authority**

**By**

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A Dissertation submitted to the University of Zambia in fulfillment of the requirements for the  
award of Masters' Degree in Library and Information Science.

The University of Zambia

Lusaka, 2023

## **DECLARATION**

I, Lukonde Namfukwe do hereby declare that this dissertation represents my own work and that it has not been submitted by anyone else at the University of Zambia or at any other University for purpose of acquiring a degree.

**Sign** .....

**Date**.....

## **CERTIFICATE OF APPROVAL**

This dissertation of Lukonde Namfukwe has been approved as a fulfillment for the award of Masters' Degree in Library and Information Science by the University of Zambia.

| <b>Name of Examiner</b> | <b>Signature</b> | <b>Date</b> |
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## **ABSTRACT**

This study examined the knowledge management practices and its influence on performance at the Zambia Revenue Authority Headquarters in Lusaka. A case study design based on the quantitative approach was used in conducting this study. The data was collected through structured questionnaires comprising of closed-ended questions. A total of 108 employees responded to the questionnaire. SPSS version 25 was used as the statistical software for data analysis. The study findings revealed that a slightly large proportion (58%) of the respondents reported that there is a KM strategy/or policy at the Authority. The study findings suggest that KM has been partially integrated in the operations of the Authority. The study found that the Authority has several KM strategies in place to support the process of managing knowledge within the institution. The most common type of KM strategies reported by the respondents included database management systems (81.5%), Website (s) on its activities (74%), shared databases (71.3%), electronic mails (70.4%), internet and intranet (66.7%). The study established several knowledge capture and acquisition sources commonly used to capture and acquire knowledge include formal discussions/brainstorming, meetings/discussions, appraisals/evaluations, and lessons learned from projects. The study found that knowledge is moderately shared among different functional units within the Authority. Most of the respondents (76.9%) broadly agreed that the Authority utilises various written devices such as newsletter and manuals, to store the knowledge they capture from employees. Overall, it was established that KM practices significantly influence organisational performance. The findings revealed a positive highly significant relationship between Knowledge Capture and Acquisition and Organisational Performance. A significant positive relationship was also found between Knowledge Storage practices and Organisational Performance and between knowledge Sharing practices and Organisational Performance. However, no significant relationship was found between Knowledge Utilisation practices and Organisational Performance. The study findings provide a basic understanding of knowledge management practices and their influence on performance at the Zambia Revenue Authority. The study recommends that tax organisations should adopt KM practices to enhance their organisational performance; and consequently, may improve their service delivery.

**Keywords:** Employees, knowledge management practices, knowledge capture and acquisition, knowledge sharing, performance, storage, strategy.

## **DEDICATION**

This research paper is sincerely dedicated to my supportive family namely my mother Annie Harawa-Simfukwe, Mbita and my late brother, who encouraged and inspired me in conducting this study. They have never left my side throughout the process and gave me strength and hope when I thought of giving this up. They gave me a great sense of enthusiasm and perseverance in continuing this. Without their love and assistance, this research would not have been made possible.

## **ACKNOWLEDGEMENTS**

I wish to take this opportunity to thank the almighty God for allowing me complete this study. My heartfelt gratitude goes to my supervisor Dr. Christine Wamunyima Kanyengo for her sustained and diligent supervision offered throughout the process of the study. I also wish to thank all those who offered help directly and indirectly in the processes of my research. Finally, I thank the Almighty God for all the blessings he has bestowed upon me and to my family, for their prayers and encouragement.

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# TABLE OF CONTENTS

## Table of Contents

|                                                                       |      |
|-----------------------------------------------------------------------|------|
| <b>DECLARATION</b> .....                                              | i    |
| <b>CERTIFICATE OF APPROVAL</b> .....                                  | ii   |
| <b>ABSTRACT</b> .....                                                 | iii  |
| <b>DEDICATION</b> .....                                               | iv   |
| <b>ACKNOWLEDGEMENTS</b> .....                                         | v    |
| <b>COPYRIGHT DECLARATION</b> .....                                    | vi   |
| <b>TABLE OF CONTENTS</b> .....                                        | vii  |
| <b>LIST OF TABLES</b> .....                                           | xi   |
| <b>LIST OF FIGURES</b> .....                                          | xii  |
| <b>LIST OF ACRONYMS</b> .....                                         | xiii |
| <b>CHAPTER 1: INTRODUCTION</b> .....                                  | 14   |
| 1.0 Overview .....                                                    | 14   |
| 1.1 Background to the study .....                                     | 14   |
| <b>1.1.1 Contextual Background</b> .....                              | 16   |
| <b>1.1.2 A brief background of the Zambia Revenue Authority</b> ..... | 17   |
| 1.2 Statement of the problem .....                                    | 18   |
| 1.3 The Main Objective of the Study .....                             | 19   |
| 1.4 Specific Objectives of the study .....                            | 19   |
| 1.5 Research questions .....                                          | 19   |
| 1.6 Significance of the study .....                                   | 19   |
| 1.7 Conceptual framework .....                                        | 20   |
| 1.8 Hypothesis .....                                                  | 21   |
| 1.9 Operation definition of key concepts .....                        | 21   |
| 1.10 Chapter Summary .....                                            | 23   |
| <b>CHAPTER 2: LITERATURE REVIEW</b> .....                             | 24   |
| 2.0 Overview .....                                                    | 24   |
| 2.1 Importance of Knowledge Management in Organisations .....         | 24   |
| 2.2 Knowledge Management Practices (KMPs) .....                       | 27   |
| <b>2.2.1 Knowledge Capture and Acquisition sources</b> .....          | 27   |
| <b>2.2.2 Knowledge storage practices</b> .....                        | 30   |

|                                                                           |           |
|---------------------------------------------------------------------------|-----------|
| 2.2.3 Knowledge sharing practices .....                                   | 32        |
| 2.2.4 Knowledge utilisation practices.....                                | 34        |
| 2.2.5 Knowledge Management practices in Public Sector Organisations ..... | 35        |
| 2.3 The Impact of Knowledge Management on organisational performance..... | 37        |
| 2.4 Chapter Summary .....                                                 | 41        |
| <b>CHAPTER THREE: RESEARCH METHODOLOGY.....</b>                           | <b>43</b> |
| 3.0 Overview .....                                                        | 43        |
| 3.1 Research design .....                                                 | 43        |
| 3.2 Target population .....                                               | 44        |
| 3.3 Sample and sampling procedure .....                                   | 44        |
| 3.3.1 Sample size.....                                                    | 45        |
| 3.4 Data collection methods and procedures.....                           | 45        |
| 3.4.1 Data collection instruments.....                                    | 45        |
| 3.4.2 Data collection procedures .....                                    | 47        |
| 3.5 Data analysis .....                                                   | 47        |
| 3.6 Reliability and Validity.....                                         | 48        |
| 3.6.1 Reliability.....                                                    | 48        |
| 3.6.2 Validity of research findings.....                                  | 49        |
| 3.7 Ethical considerations .....                                          | 49        |
| 3.8 Limitations of the study .....                                        | 50        |
| 3.9 Chapter Summary .....                                                 | 50        |
| <b>CHAPTER FOUR: PRESENTATION OF FINDINGS .....</b>                       | <b>51</b> |
| 4.0 Introduction .....                                                    | 51        |
| 4.1 Background information of respondents.....                            | 51        |
| 4.2 Knowledge management resources at Zambia Revenue Authority .....      | 53        |
| 4.2.1 Knowledge management strategy/or policy .....                       | 53        |
| 4.2.2 Knowledge management resources .....                                | 53        |
| 4.2.3 Use of KM tools in support of ZRA KM activities .....               | 54        |
| 4.2.4 Knowledge capture and acquisition sources .....                     | 56        |
| 4.2.4 Knowledge capture and acquisition practices .....                   | 57        |
| 4.3 Knowledge storage, sharing practices and methods.....                 | 58        |
| 4.3.1 Extent of knowledge sharing within ZRA .....                        | 58        |
| 4.3.2 Knowledge storage practices .....                                   | 59        |

|                                                                                                     |           |
|-----------------------------------------------------------------------------------------------------|-----------|
| 4.3.3 Knowledge sharing practices .....                                                             | 60        |
| 4.3.4 Knowledge sharing methods.....                                                                | 61        |
| 4.3.5 Knowledge dissemination - sharing practices amongst employees .....                           | 61        |
| 4.3.5 Knowledge application practices within ZRA.....                                               | 63        |
| 4.4. Knowledge management and organisational performance .....                                      | 64        |
| 4.4.1 Organisational performance and strategic objectives.....                                      | 64        |
| 4.4.2 Organisational effectiveness against stated objectives.....                                   | 64        |
| 4.5 Relationship between knowledge management practices and organisational performance .....        | 65        |
| 4.5.0 Preliminary Statistical Analysis .....                                                        | 65        |
| 4.5.1 Descriptive statistics .....                                                                  | 65        |
| Table 12. Descriptive statistics of study variables.....                                            | 67        |
| <b>4.5.2 Principal Component Analysis .....</b>                                                     | <b>67</b> |
| 4.5.2.1 <b>Evaluation of assumptions</b> .....                                                      | 67        |
| 4.5.2.2 <b>Sampling Adequacy</b> .....                                                              | 68        |
| Table 13: KMO and Bartlett's Test .....                                                             | 68        |
| Table 14: KMO Values for the Individual Variables .....                                             | 69        |
| 4.5.2.3 Bartlett's Test of Sphericity.....                                                          | 70        |
| 4.5.2.4 <b>The Results of the Principal Components Analysis</b> .....                               | 70        |
| Table 15 The Rotated Component Matrix with Varimax Rotation .....                                   | 71        |
| 4.5.3 Reliability Analysis.....                                                                     | 71        |
| Table 16 Reliability Analysis .....                                                                 | 72        |
| Table 17: Cronbach's Alpha Classifications .....                                                    | 73        |
| 4.5.4 Component-Based Scores .....                                                                  | 73        |
| Table 18: Correlation Matrix and Descriptive Statistics of Study Variables .....                    | 74        |
| 4.5.5 Hierarchical Multiple Regression Analysis .....                                               | 74        |
| 4.5.6 Evaluation of assumptions .....                                                               | 74        |
| 4.5.7 Interpretation of the Findings.....                                                           | 77        |
| Table 19: Hierarchical Multiple Regression with Client Satisfaction as the dependable variable..... | 77        |
| Table 20: Hypothesis Testing Results .....                                                          | 78        |
| 4.5 Chapter Summary .....                                                                           | 79        |
| <b>CHAPTER FIVE: DISCUSSION OF FINDINGS .....</b>                                                   | <b>80</b> |
| 5.0 Introduction .....                                                                              | 80        |
| 5.1 Background information of respondents.....                                                      | 80        |

|                                                                                                                   |           |
|-------------------------------------------------------------------------------------------------------------------|-----------|
| 5.2 Knowledge management resources at Zambia Revenue Authority .....                                              | 80        |
| 5.2.1 Knowledge management strategy/or policy.....                                                                | 80        |
| 5.2.2 Knowledge management resources .....                                                                        | 81        |
| 5.3 Knowledge capture and acquisition practices at Zambia Revenue Authority .....                                 | 82        |
| 5.3.1 Use of KM tools in support of ZRA KM activities .....                                                       | 82        |
| 5.3.2 Knowledge capture and acquisition sources .....                                                             | 82        |
| 5.4 Knowledge storage and sharing methods .....                                                                   | 83        |
| 5.5 Effect of knowledge management practices on organisational performance .....                                  | 85        |
| <b>5.5.1 What is the effect of knowledge capture and acquisition sources on organisational performance? .....</b> | <b>86</b> |
| <b>5.5.2 What is the effect of knowledge storage practices on organisational performance? .....</b>               | <b>86</b> |
| <b>5.5.3 What is the effect of knowledge sharing practices on organisational performance? .....</b>               | <b>87</b> |
| <b>5.5.4 What is the effect of knowledge utilisation practices on organisational performance? .....</b>           | <b>88</b> |
| 5.6 Summary .....                                                                                                 | 88        |
| <b>CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS .....</b>                                                 | <b>89</b> |
| 6.0 Introduction .....                                                                                            | 89        |
| 6.1. Knowledge management resources at Zambia Revenue Authority .....                                             | 89        |
| 6.2 Knowledge capture and acquisition practices at Zambia Revenue Authority .....                                 | 90        |
| 6.3 Knowledge storage and sharing practices at Zambia Revenue Authority .....                                     | 90        |
| 6.4 Effect of knowledge management practices on organisational performance .....                                  | 91        |
| 6.5 Conclusion .....                                                                                              | 91        |
| 6.5 Recommendations .....                                                                                         | 91        |
| 6.6 Recommendations for further studies.....                                                                      | 92        |
| <b>REFERENCES.....</b>                                                                                            | <b>93</b> |
| <b>APPENDICES.....</b>                                                                                            | <b>99</b> |
| Appendix I: Questionnaire for Knowledge management practices and organisational performance. ..                   | 99        |
| Appendix 2: Principal Components Analysis and Reliability Analysis .....                                          | 109       |

## LIST OF TABLES

|                                                                                                     |    |
|-----------------------------------------------------------------------------------------------------|----|
| Table 1: Knowledge capture and acquisition guidelines .....                                         | 29 |
| Table 2: Frequency and percentages of the characteristics of the respondents (n=108) .....          | 52 |
| Table 3: Use of knowledge management tools .....                                                    | 55 |
| Table 4: Knowledge capture and acquisition sources .....                                            | 57 |
| Table 5: Knowledge capture and acquisition practices.....                                           | 57 |
| Table 6: Knowledge storage practices .....                                                          | 60 |
| Table 7: Knowledge sharing practices .....                                                          | 60 |
| Table 8: Knowledge sharing methods.....                                                             | 61 |
| Table 9: Knowledge dissemination - sharing practices amongst employees.....                         | 62 |
| Table 10: Knowledge application practices within ZRA.....                                           | 63 |
| Table 11: Organisational effectiveness .....                                                        | 65 |
| Table 12. Descriptive statistics of study variables.....                                            | 67 |
| Table 13: KMO and Bartlett's Test.....                                                              | 68 |
| Table 14: KMO Values for the Individual Variables.....                                              | 69 |
| Table 15 The Rotated Component Matrix with Varimax Rotation.....                                    | 71 |
| Table 16 Reliability Analysis.....                                                                  | 72 |
| Table 17: Cronbach's Alpha Classifications.....                                                     | 73 |
| Table 18: Correlation Matrix and Descriptive Statistics of Study Variables.....                     | 74 |
| Table 19: Hierarchical Multiple Regression with Client Satisfaction as the dependable variable..... | 77 |
| Table 20: Hypothesis Testing Results.....                                                           | 78 |

## LIST OF FIGURES

Figure 1: Knowledge management practices in an organisation (Ongus et al, 2016) . **Error! Bookmark not defined.**

Figure 2: Existence knowledge management strategy/policy ..... 53

Figure 3: Knowledge management resources ..... 54

Figure 4: Extent of knowledge sharing within ZRA ..... 59

Figure 5: Strategic goals attainment ..... 64

## **LIST OF ACRONYMS**

|        |                                             |
|--------|---------------------------------------------|
| HEIs:  | Higher Education Institutions               |
| IT :   | Information Technology                      |
| KM:    | Knowledge Management                        |
| KMAI : | Knowledge Management Assessment Instrument  |
| KMC:   | Knowledge Management Capability             |
| KMI :  | Knowledge Management Infrastructure         |
| KMPs : | Knowledge Management Practices              |
| KMP :  | Knowledge Management Process                |
| MIS :  | Management Information System               |
| NRDC:  | Natural Resources Development College       |
| OP :   | Organisational Performance                  |
| R&D :  | Research and Development                    |
| SPSS:  | Statistical Package for the Social Sciences |
| UAE:   | United Arab Emirates                        |
| UNZA : | University of Zambia                        |
| ZRA:   | Zambia Revenue Authority                    |

## **CHAPTER 1: INTRODUCTION**

### **1.0 Overview**

This study examines the knowledge management practices and performance at the Zambia Revenue Authority Headquarters in Lusaka. This chapter mainly focuses on the background to the study, the statement problem, objectives, and research questions, justification of study, significance of study and operational definition of key concepts. Thereafter, a summary of the chapter is given.

### **1.1 Background to the study**

The 21<sup>st</sup> century is the era of the knowledge economy, in which most organisations possess and depend on knowledge that enables them to improve their performance (Zaied, Hussein and Hassan, 2012). The knowledge economy is forcing organisations to rethink the nature of their resources and capability. Progressively organisations are considering knowledge as a key resource for navigating uncertainty and competition. A number of studies have shown that in the present era of information and knowledge, knowledge has become a key economic resource that enhances organisational performance, and perhaps maybe, even the only source of competitive advantage (Ongus et al., 2016; Chang and Chuang, 2009). However, Darroch (2005) argues that although knowledge in itself is a resource, the effective management of knowledge enables those within the organisation to extract more from all resources available to it, including knowledge.

Some studies have revealed that throughout the world, organisations are facing a universal challenge consequential from rapid change in a new knowledge economy (Zwain, Teong and Othman, 2012). The main challenge here relates to establishing an effective knowledge management system and practice in order to efficiently make use of the internal knowledge that exists within an organisation. The field of knowledge management (KM) emerged to help organisations leverage their organisational knowledge. Sharing and application of knowledge is the basic remedy to this universal challenge arising from the rapid change in today's world of information.

In the 21<sup>st</sup> century KM is equivalent to information management. It is an umbrella term for making use of the human knowledge efficiently that exists within an organisation. Broadly speaking, KM is a multidisciplinary subject bordering on strategic management, human resources management,

information technology, cognitive science, library studies, computer science, as well as organisational learning (Mvula, 2018). It has therefore been defined in many different ways in scientific literature based on the bias of the field in which it is discussed. Gupta et al. (2000) define KM as a process that helps organisations to find, select, organise, disseminate, and transfer important information and expertise necessary for activities. Burke and Howard (2005) describe KM as a systematic approach to facilitate the flow of data, information, and knowledge to the right people at the right time so that they can act more efficiently and effectively. They divide the process into 3 stages, namely: (i) retrieve and understand the structured and unstructured data; (ii) convert data into useful information; and (iii) share the knowledge. Correspondingly, Filemon and Uriarte (2008) define KM as the broad process of locating, organizing, transferring, and using the information and expertise within an organisation. However, the general definition of knowledge management that covers most of the disciplines is the process by which knowledge is created, acquired, shared, utilised and retained in organisations to improve performance and competitive advantage (Mohamad, 2012).

Knowledge management is all about improving the process of acquisition, integration and usage of knowledge (Kovacic, Bosiji and Loncar, 2006). According to Darroch (2005), the main component of KM practices includes knowledge creation and acquisition, knowledge dissemination and responsiveness to knowledge. Thomas et al. (2001) suggests four critical stages of KM as being knowledge creation and acquisition, knowledge transfer, interpretation of the knowledge to serve organisational goals and application of knowledge to achieve organisational goals. The focus of this study will mainly be on knowledge capture and acquisition, knowledge sharing, KM policies and strategies.

Knowledge is the primary driver of performance of individual, and consequently the organisation as a whole (Papulová, 2007). Knowledge may affect performance by making it possible for people to perform good and effective actions. Management of knowledge therefore provides opportunities for higher performance. This is because KM plays an important supporting function by providing a coordinating mechanism to enhance the conversion of resources into capabilities.

Knowledge management helps organisations to gain insights and understanding from its own experience (Kalam, 2004; Nnabuike, Onwuka and Ojukwu, 2015). KM is an audit of intellectual assets that highlights unique resources, critical functions and potential bottlenecks, which hinder

knowledge flow to the point of use (Nnabuike, Onwuka and Ojukwu, 2015). In light of this, KM protects intellectual assets from decay, seeks opportunities to enhance decisions, services and products through adding intelligence, increasing value and providing flexibility in an organisation. In a nut shell, the expectations of KM are to improve growth and innovation, productivity and efficiency reflected in cost savings, customer relationships, decision making, innovation, corporate agility, rapid development of new product lines, employee learning, satisfaction and retention, and management decision making (Cranfeld, 2011; Ongus et al., 2016).

Research has shown that many organisations worldwide have accepted KM as a management paradigm in order to cope with the changing expectations of the organisation. For instance, a study conducted by Chiu and Chen (2016) in Taiwan showed that most organisations in Taiwan have realised the growing importance of knowledge management. The rise of KM in businesses has not spared government organisations such as public utilities. Chiu and Chen (2016) examined the effect of knowledge management capability (KMC) on organisational effectiveness in Taiwan using a public utility. Their findings showed that there exists a significant relationship between knowledge management capability and organisational effectiveness. In other words, KMC significantly influenced organisation effectiveness in a positive manner according to Chiu and Chen (2016).

### **1.1.1 Contextual Background**

In Zambia, available literature suggests that although knowledge seems to be managed in most institutions, it is managed in an ad hoc manner without any policies or strategic focus (Kabilwa, 2018; Kabilwa & Maasdorp, 2017; Kaira & Phiri, 2022). These findings that show a gap in the way KM is coordinated in most institutions in Zambia are relevant to this study because they provide evidence on the state of KM practices in Zambian institutions. In Zambia, studies related to KM and organisational performance, particularly in public utilities like the Zambia Revenues Authority (ZRA) are scarce. This is because most studies have mainly focused their attention on KM practices only and have mainly been undertaken in higher education institutions (HEIs) (Wamundila, 2008; Mvula, 2018; Kabilwa, 2018) and the mining sector (Banda, Sichinsambwe and Tembo, 2018). However, despite the scarcity in empirical literature in Zambia on public utilities such as in tax administration, studies conducted in other countries have shown that government organisations, such as public institutions, are now expending significant efforts on

technological and technical innovation to increase competitiveness and upgrade their capabilities (Chiu and Chen, 2016). It is therefore imperative to investigate the knowledge management practices in public institutions in Zambia. Moreover, in order to improve performance and competitive advantage in public organisations in Zambia, a better understanding of the KM practices therein is important, hence the rationale for conducting this study. This study will investigate the knowledge management in practices at ZRA one of the public institutions in Zambia.

### **1.1.2 A brief background of the Zambia Revenue Authority**

Zambia Revenue Authority was established on 1<sup>st</sup> April 1994 as a corporate body, under the Zambia Revenue Authority Act, Chapter 321 of the Laws of Zambia enacted in 1993 (Zambia Revenue Authority, 2015). Pursuant to this Act, the Authority is charged with the responsibility of collecting revenue on behalf of the Government of the Republic of Zambia under the supervision of the Minister of Finance.

The operations of ZRA are overseen by a Governing Board. The Governing Board oversees the organisation and administration of the Authority and management of its resources, services, property, personnel and develops the corporate strategic plan and such other administrative policies as are necessary for the smooth running of the Authority. The membership of this Board as provided for in the Act includes; the Secretary to the Treasury, the Permanent Secretary – Ministry of Justice; the Governor of the Bank of Zambia; representatives from the Law Association of Zambia; the Zambia Association of Chambers of Commerce and Industry, the Bankers Association of Zambia, the Zambia Institute of Chartered Accountants; and two other members appointed by the Minister of Finance. The Chairman of the Board is elected from amongst its members. The Chief Executive Officer of ZRA is the Commissioner General who is appointed by the President of the Republic of Zambia without parliament having a say in it, and is responsible for executive functions as directed by the Board (Zambia Revenue Authority, 2015). ZRA has two operating divisions, namely the Domestic Taxes Division and the Customs Services Division. Each of these divisions is headed by a Commissioner.

Scholars of KM theory and practice agree that effective management of knowledge enables those within the organisation to extract more from all resources available to it (Darroch, 2005). For

public utilities like the ZRA, an effective knowledge management system may reduce the costs of inefficiency by making organisational knowledge more available, accessible, and accurate. It's particularly important for the Authority because it has multiple branches, and hence the need for a system of distributing knowledge. Furthermore, effective knowledge management is important for the ZRA because it reduces operational costs and improves productivity. This is because KM provides seven key benefits, which includes, spending less time recreating existing knowledge; getting the needed information sooner; making fewer mistakes; making informed decisions; standardising processes; providing better service to employees and customers. The effective management of knowledge may allow support teams within ZRA to resolve employee and customer requests quickly and correctly. Consequently, employees will be happy and productive that may lead to service delivery.

## **1.2 Statement of the problem**

Government organisations worldwide, such as quasi-public organisations have accepted knowledge management as a management paradigm in order to cope with the changing expectations of the organisation (Chiu and Chen, 2016). However, despite the value placed on knowledge management, the actual effectiveness of KM practices in enhancing performance in public utilities has not received empirical research in Zambia. Meanwhile research continues to reveal that although knowledge seems to be managed in most institutions, it is managed in an ad hoc manner without any strategic focus (Kabilwa, 2018); and that knowledge management practices are not particularly well coordinated and are hard to improve on actively (Mvula, 2018). The problem here is that knowledge management practices in most government organisations are in a basic or rudimentary state (Kabilwa, 2018). Consequently, this may hinder these organisations from effectively leveraging their knowledge.

Furthermore, it is feared that without knowledge of the actual effectiveness of KM practices in enhancing performance in government organisations such as public utilities, it would remain uncertain as to how knowledge is used and created from the stored knowledge, and the effects that it has on organisational performance in government organisations such as Zambia Revenue Authority. For ZRA, KM is critical because it plays an important supporting function by providing a coordinating mechanism to enhance the conversion of resources into capabilities within the ZRA.

These capabilities may help to reduce the Authority's operational costs and improves its productivity. This is because KM may allow ZRA to effectively plan, create, organise and motivate employees by making the most of its knowledge resources. This is supported by Kalam (2004), who reported that KM helps an organisation to gain insights and understanding from its own experience. This underscores the need to investigate the role of knowledge management in enhancing performance in public organisation like the ZRA. Hence, the need to conduct this study in order to explore the role of KM practices in enhancing performance at ZRA.

### **1.3 The Main Objective of the Study**

The main objective of this study was to examine the knowledge management practices and its influence on performance at the Zambia Revenue Authority Headquarters in Lusaka.

### **1.4 Specific Objectives of the study**

1. To find out the knowledge management resources at Zambia Revenue Authority.
2. To establish the knowledge management practices at the Zambia Revenue Authority.
3. To determine the effect of knowledge management practices on organisational performance at Zambia Revenue Authority.

### **1.5 Research questions**

1. What are the knowledge management resources at Zambia Revenue Authority?
2. What are the knowledge management practices at the Zambia Revenue Authority?
3. What is the effect of knowledge management practices on organisational performance at Zambia Revenue Authority?

### **1.6 Significance of the study**

The field of knowledge management emerged to help organisations leverage their organisational knowledge. By examining the knowledge management practices at the ZRA this study may contribute to the understanding of the state of KM in Zambian tax public institutions. Undertaking this study is important to the ZRA because this information may be needed to develop targeted interventions by ZRA to reduce operational costs and improves its productivity using KM. The results are likely to help ZRA sharpen its knowledge management practices.

In addition, findings of this study may be widely available to policy makers, the public and government leaders, and could allow them to make evidence-based diagnoses of the state of KM practices and its effect on organisation performance in their institutions. The study findings may also help policy makers, decision-makers at ZRA, researchers and government ministries make informed decisions about KM and organisational performance. Furthermore, the findings of this study may aid policy and decision makers at different administrative levels of government in coming up with interventions aimed at improving performance in government organisations. The study may also raise awareness at ZRA on the state and level of KM practices. Further, the study findings may open an opportunity to advocate for other institutions to assess the organisational environment that promote knowledge management, as well as assessing awareness of their knowledge management practices. Finally, the findings of this study may be used to build upon future research in this field.

### **1.7 Conceptual framework**

Knowledge Management be assessed with the utilisation of knowledge management practices measurements. Conceptual framework as shown in figure 1 is a diagrammatic representation of how the constructs of the independent variable (Knowledge Management) affect the construct of the dependent variable (organisational performance). It shows the linkages expected between KM practices and organisational performance.

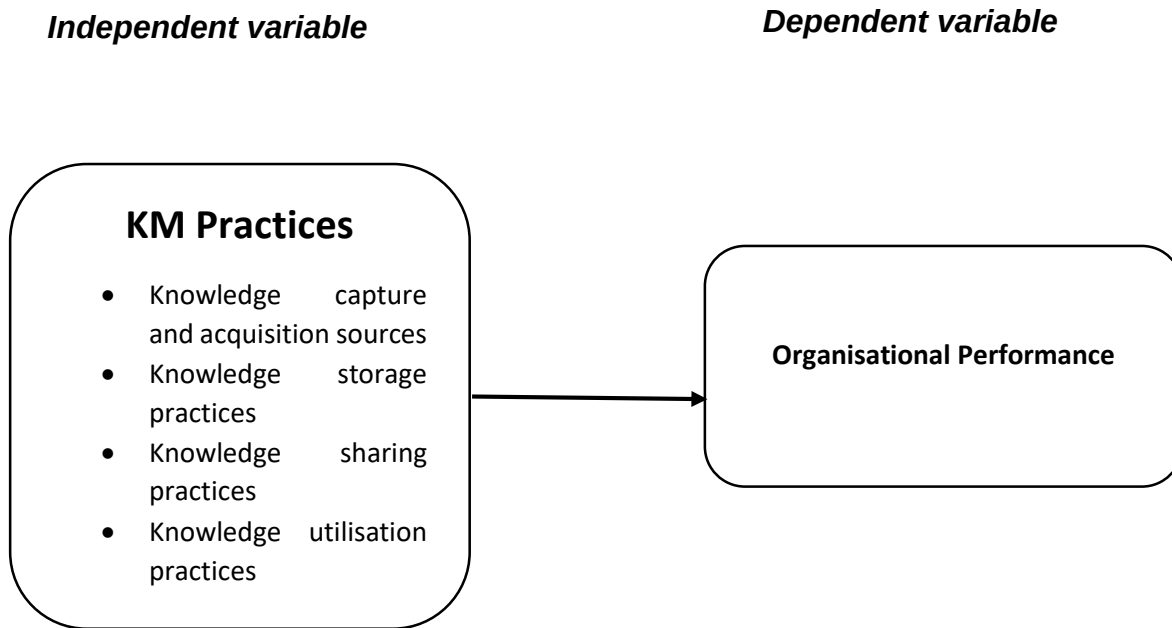


Figure 1.7 Conceptual Framework

### 1.8 Hypothesis

Based on the conceptual framework, 4 hypotheses were derived. These were:

1. **H1:** There is a significant and positive relationship between knowledge capture and acquisition sources and organisational performance
2. **H2:** There is a significant and positive relationship between knowledge storage practices and organisational performance
3. **H3:** There is a significant and positive relationship between knowledge sharing practices and organisational performance
4. **H4:** There is a significant and positive relationship between knowledge utilisation practices and organisational performance

### 1.9 Operation definition of key concepts

**Information:** Information is data that is accurate and timely, specific and organised for a purpose, presented within a context that gives it meaning and relevance, and can lead to an increase in understanding and decrease in uncertainty (Omotayo, 2015)

**Knowledge:** Knowledge can be broadly classified into two types: explicit and tacit knowledge (Asian Productivity Organisation, 2009). Explicit knowledge can be expressed in words and numbers and easily communicated and shared. It comes in various forms such as documents, books, manuals, procedures, rules, regulations, images, patents, databases, among others. Tacit knowledge, in contrast, is found in the minds of employees such as skills, experience, expertise and thoughts, etc., the experience of customers, or the memories of past vendors, among others (Asian Productivity Organisation, 2013). Tacit knowledge is difficult to document, communicate, and share with others. Therefore, in order to share or transfer tacit knowledge, it has to be made explicit in some form that can be easily communicated to others, generally through codification or social interaction (Asian Productivity Organisation, 2013).

knowledge and information are two different things. Information can be defined as the general data articulated by words, numbers, sounds, images, and so on. While, knowledge is defined as the practical application or use of the information (Anand, 2011). The distinction between the two is that information can be easily transported, stored or shared without lots of difficulties but knowledge cannot.

**Knowledge management:** The process by which knowledge is created, acquired, shared, utilised and retained in organisations to improve performance and competitive advantage (Mohamad, 2012). According to (Anand, 2011), KM is managing the available knowledge and encouraging employees to share it with one another to be able to create value, adding services and products.

Pircher and Pausits (2011) define knowledge management as, “a process that forms determining factors for employees so as to foster the transfer, development and utilisation of the knowledge of the organisation (individual, organisation, explicit, tacit) in the best possible way in order to be able to achieve the strategic aims of the organisation” (p.11). Firestone and McElroy (2005) view knowledge management as the management of processes that enable the movement of knowledge into, through and out of the organisation with the ultimate aim of enhancing organisational efficiency and performance.

**Knowledge capture and acquisition:** Knowledge acquisition is the process of extracting, structuring and organising knowledge from human experts so that it can be captured and transferred into machine readable form (Ongus et al, 2016) whereas knowledge capture is

organisational ability of ensuring that knowledge available in the organisation is stored for future reference in either databases or manuals.

**Knowledge management practices:** These are organisational capabilities, which cover any intentional and systematic process or practice of acquiring, capturing, storing, sharing, transmitting and using productive knowledge wherever it resides to enhance learning and performance in organisations (Scarborough, Swan and Preston, 1999).

**Organisation:** A group of people (or businesses, etc.) who work together for an explicit purpose, with organised rules and structures.

**Performance:** The act of performing; of doing something successfully; using knowledge as distinguished from merely possessing (Ongus, 2016).

**Policy:** A plan of action adopted by an individual or social group.

### **1.10 Chapter Summary**

This chapter has introduced the topic under study and presented the background to the study, statement of the problem, purpose of the study, research objectives and research questions. The chapter has also presented the significance of the study, conceptual framework and definition of key terms/concepts. The next chapter presents the literature review related to the topic under study.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.0 Overview**

This chapter of the study presents the literature reviewed related to knowledge management practices and organisational performance. This part of the study is mainly based on a review of empirical studies to identify existing knowledge and research gaps on the topic under study. The literature review covers documents accessed by the researcher including articles, journals and other published materials as well as unpublished reports. The literature review is organised according to themes arising from the research objectives. The literature review starts by defining the concepts of knowledge and knowledge management, followed by discussions on knowledge management practices in public sector organisations, effects of knowledge acquisition and knowledge sharing practices on organisational performance, and ending with a summary.

### **2.1 Importance of Knowledge Management in Organisations.**

Cucović & Cucović (2014) sees knowledge management as the practice of mobilising and exploiting intellectual capital in order to create competitive advantage and loyalty of consumers through efficient, swift and effective decision-making. According to Wigg (2000), knowledge management aims firstly to facilitate an organisation in acting intelligently, in order to secure its viability, success, and secondly to make an organisation to realise the best value of its knowledge assets. Anantatmula (2005) advances that the primary focus of knowledge management is to utilise business processes, best practices, culture, information technology and tools to create as well as share knowledge within an organisation, and connecting those who possess knowledge to those who need it.

According to Cucović & Cucović (2014), there are three key reasons, which make knowledge management increasingly important:

- i. Facilitation of decision-making possibilities,
- ii. Developing of an organisation which learns, making learning a routine, and
- iii. Encouraging innovation.

In the organisation, knowledge management is a process of research, identification, generation, storing, utilising and transferring knowledge, which the employees can create, improve and apply, all for the purpose of creating competitive advantage (Cucović & Cucović, 2014).

There are broadly two components of knowledge management; these are Knowledge Management Infrastructure (KMI) and Knowledge Management Process (KMP). The focus of this study is on the knowledge management process. According to Chang & Chuang (2011), the knowledge management process is defined as the degree to which the firm creates, shares, and utilises knowledge resources across functional boundaries. Knowledge management process capabilities have been discussed through the following elements: acquisitions; conversions; applications, storing and protections (Zaied, et al., 2012).

The knowledge management process is an everyday business process within the organisation, with a major role in the transfer of relevant information for decision-making across all levels of structure and corporate governance. Jelenic (2011) postulates that the ultimate result of well-created process of knowledge management is that every employee in the organisation fulfills its mission, which reaches the corporate objectives and strategies, and identifies the most valuable knowledge from the 'sea of information'. However, it is not an easy task because it involves the management structure at the highest levels of management. They are responsible for the processes of finding, selecting, organising and presentation of information in a manner that promotes understanding of employees in a particular area of interest.

Knowledge management is an important managerial tool which promotes the creation and sharing of new knowledge in an organisation through corporate values (Jelenic, 2011). In this sense, managers need to have a greater sense of invisible and intangible assets of people, featured in the minds and experiences of employees. Jelenic (2011) argues that without these assets, organisations lack the vision and ability to predict the future. Jelenic (2011) further stresses that the use of knowledge management process increases the effectiveness of decision-making processes, as well as the level of operational efficiency, flexibility, commitment and involvement of employees in an organisation.

Cucović and Cucović (2014) inform us that efficient knowledge management drastically reduces the cost of managing the organisation. This is important in order to avoid 'reinventing the wheel', specifically in situations where employees attempt to do something which has been done in other

places long before. Cucović and Cucović (2014), again identified a number of benefits associated with efficient management of knowledge in an organisation. According to them, the benefits from efficient knowledge management are reflected in:

- i. Reduction of organisational management costs,
- ii. Potential for organisations expansion and growth,
- iii. Increase in profitability,
- iv. Improvement of products and services,
- v. Swifter reaction to changes in the surrounding environment, and
- vi. Improvement of services provided to consumers (Cucović & Cucović, 2014. p17).

The process of KM helps to increase revenues of an organisation (Jelenic, 2011), this is because the products and services are delivered to the market faster. In addition, the KM process helps to reduce organisational costs because it eliminates redundant and unnecessary business processes. Jelenic (2011) claims that this process increases the time that employees spend in the organisation, because their Knowledge and efforts are valued by the system of rewards. Ultimately, the knowledge management process increases the value of the organisation and its competitiveness as a whole, because it increases the efficiency and effectiveness, the relationship of all resources and innovation (Tisen et al., 2006, p. 47 cited in Jelenic, 2011). Research has shown that knowledge management process aims to support innovation and encourage the free flow of ideas throughout the organisation (Jelenic, 2011). According to Cucović & Cucović (2014), almost all modern products represent an innovation from an older version which is based on knowledge.

Knowledge is interwoven in everything an organisation does, while its proper management leads it towards innovations. However, literature has shown that knowledge management is not only associated with managing knowledge as a resource, but also to manage business processes that take place using that resource (Jelenic, 2011). In this regard, KM should involve the analysis of existing knowledge as a resource, as well as defining the objectives regarding the generation, protection and application of new knowledge, then transfer, exchange and dissemination of knowledge, effective use of knowledge and performance measurement. Therefore, according to the studies cited above, we can conclude that knowledge management is an important managerial tool in an organisation because it facilitates the mobilisation and exploitation of intellectual capital

(knowledge) which in turn create competitive advantage and loyalty of consumers through efficient, swift and effective decision-making.

However, poor knowledge management practices may negatively affect organisational performance through lost institutional memory, knowledge gaps, information redundancy and misinformed decision-making (Jain & Jeppesen, 2013; Alhamoudi, 2015). Literature has shown that little has been done to develop rigorous measurements of KM within organisations, as Botha (2005) noted that, although much progress has been made during the past decades to develop a philosophy and conceptual framework of KM, the discipline still lacks proven practice.

## **2.2 Knowledge Management Practices (KMPs)**

This study adopted the definition of knowledge management practices (KMPs) from Scarborough et al. (1999) that, these are organisational capabilities that covers any intentional and systematic process or practice of acquiring, capturing, storing, sharing, transmitting and using productive knowledge wherever it resides to enhance learning and performance in organisations. Scarborough et al. (1999) argue that, knowledge management practices should be assessed often and appraised in terms of contribution they make to the strategic direction of an organisation. The different knowledge management practices are discussed below.

### **2.2.1 Knowledge Capture and Acquisition sources**

The values of knowledge capture and acquisition practices have been exceedingly recognised. Aming'a (2015) claim that knowledge capture and acquisition mechanisms facilitate better decision making due to availability of the right knowledge to the right people at the right time to enhance effective and efficient decision making. Furthermore, knowledge capture and acquisition mechanisms enhance staff turnover control through supporting knowledge capture and transfer (Aming'a, 2015).

The acquisition relates to the intra-organisational process that facilitates the creation of tacit and explicit knowledge, starting from individuals and integrating the organisational level as well as the identification and absorption of information and external knowledge source (Gold et al., 2001). Therefore, this study assumes that acquisition is the creation of knowledge within the organisation

through a learning process, and the acquisition of external knowledge, originated in associative action with other organisations and business consulting. According to Lopez and Esteves (2012), knowledge acquisition involves the ability of the firm to absorb knowledge from their primary knowledge basis in a learning perspective. Organisational actions involved in the process of knowledge acquisition sources includes, training of individuals; encouraging the trial-and-error process; development of a culture aimed at learning; hiring and partnerships with other firms; hiring new employees representing new knowledge; and acquisition of patents (Gonzalez & Martins, 2017).

On the other hand, knowledge capture is the process by which knowledge is converted from tacit to explicit form (residing within people, artifacts or organisational entities) and vice versa through the sub-processes of externalisation and internalisation (Becerra-Fernandez & Sabherwal, 2010). The knowledge being captured might reside outside the organisational boundaries including consultants, competitors, customers, suppliers among others. Externalisation is the sub-process through which an organisation captures the tacit knowledge its workers possess so that it can be documented, verbalised and shared (Becerra-Fernandez & Sabherwal, 2010). This is a difficult process because tacit knowledge is often difficult to articulate. Internalisation is the sub-process through which workers acquire tacit knowledge (Becerra-Fernandez & Sabherwal, 2010). It represents the traditional notion of learning. Knowledge capture can also be conducted outside an organisation (Siddique., 2012).

Examples of knowledge capturing process in organisations includes workshops at the start of a project to learn from previous mistakes and prepare a team for potential issues before starting a project. Knowledge capturing processes also include exit interviews with departing experts, (both consultants and staff) to capture essential knowledge.

According to the knowledge capture and acquisition guidelines by Aming'a (2015), the following are the knowledge capture and acquisition mechanisms, (Table1).

**Table 1: Knowledge capture and acquisition guidelines**

| <i>Knowledge Acquisition Mechanisms</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>Knowledge Capture Mechanisms</i>                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Recruitment</li><li>• Training and development</li><li>• Memos</li><li>• Policy manuals and regulations</li><li>• Knowledge repositories</li><li>• Internet and organisational website</li><li>• Brainstorming</li><li>• Conferences</li><li>• Expert systems</li><li>• Books, journals, newspapers and articles</li><li>• Human experts</li><li>• Employee satisfaction survey</li><li>• Customer satisfaction survey</li><li>• Reports</li></ul> | <ul style="list-style-type: none"><li>• Interviewing experts and record proceedings</li><li>• Observe experts solve problems and record proceedings</li><li>• Case analysis</li><li>• Public seminars</li><li>• Process tracking</li><li>• Commentaries</li><li>• Video recording</li></ul> |

Researchers who have investigated knowledge acquisition practices in public sector organisations and businesses have reported a number of knowledge acquisition sources that have been adopted in these organisations. In his study titled ‘knowledge management initiatives in the United Arab Emirates: a baseline study’, Siddique (2012) identified a number of knowledge acquisition sources among UAE organisations and companies. These ranged from, team leaders and lessons learned from projects, daily experiences, benchmarking, internal discussions, brainstorming sessions, and external KM experts and consultants. As a large scale, quantitative study, Siddique (2012)’s work provides evidence of the various knowledge acquisition sources of organisations in the UAE, but did not explain how knowledge acquisition affects organisational performance. The current study attempts to gain deeper insights into these findings by answering questions that have not been unexplored: how do knowledge capture and acquisition practices affect organisational performance? To answer this question, the study has used a case study of the Zambia Revenue Authority in order to gain insights into the topic.

New ideas and creativity are said to bring about innovation (Nonaka & Akeuchi, 1995) and innovation brings about new products or service. This is one of the cornerstones of KM. Komanyane (2010) investigated KM practices in the public sector in Botswana and found that most (74%) of the participants reported that they had brainstorming sessions to encourage employees to come up with new ideas and experience. Research has shown how brainstorming

brings about innovation and consequently, organisational performance (Nonaka & Takeuchi, 1995).

Literature continue to reveal different sources of knowledge capturing and acquisition sources in organisations. Aming'a (2015) investigated the knowledge capture and acquisition mechanisms at Kisii University, Kenya. This was a case study in which data were collected on knowledge capture and acquisition mechanisms through interviews and questionnaires. The findings by Aming'a (2015) revealed a number of knowledge capture and acquisition sources. These ranged from training, recruitment, consultancy, manuals, mobile phones, groupware technologies, flow charts, seminars, notices, meetings, induction, workshops, multimedia, benchmarking with other institutions, field trips, schemes of service, work procedures, work plan, partnerships, staff exchange programmes, minutes, benchmarking, partnerships, and research papers. Although Aming'a's (2015) study was based on a single university, its findings provides evidence of some of the knowledge capture and acquisition practices in organisations.

### **2.2.2 Knowledge storage practices**

Knowledge storage refers to the organisational memory formation process, in which knowledge is formally stored in physical memory systems and informally retained as values, rules and beliefs that are associated to culture and organisational structure (Alavi & Leidner, 2001; Argote, et al., 2003; cited in Gonzalez & Martins, 2017). Walsh and Ungson (1991) emphasise the importance of this phase, defining organisational memory as stored information from an organisation's history that can be expressed to bear on present decisions. It is information stored about the history of the organisation, which are considered in these decisions.

The organisation stores knowledge in different ways. Walsh and Ungson (1991) identified five types of knowledge repositories;

- i. Individuals: the first is the individuals who compose the organisation, whose knowledge repositories are based on their experiences and direct observations.
- ii. Culture: culture defines the way of thinking and feeling of the problems experienced by individuals. The language and frameworks that exist within an organisation and form shared interpretations.
- iii. Transformations: the third repository is the transformation process that occurs through the development, selection, and analysis of new working methods, which are subsequently

socialised. These are procedures and formalised systems that the organisation employs. These systems reflect the firm's experiences and are repositories for embedded knowledge.

- iv. Structures: structure stores the set of rules, hierarchies, and attributes that define the functional model of the organisation. These link the individual to other individuals and to the environment. Social interaction is conditioned by mutual expectations between individuals based on their roles within the organisation. The interaction sequences for a pattern over time and begin to extend to an organisational level. This can take place both through formal and informal structures and it constitutes a social memory, which stores information about an organisation's perception of the environment.
- v. External activities: the surroundings of the organisation where knowledge and information can be stored. For example, former employees, government bodies, competitors among others.

Lin (2007) explains that knowledge storage implies in a conversion process involving organisation, structuring, storage and, finally, the combination of knowledge in order to facilitate future use by those concerned. Thus, according to Alavi and Leidner (2001), Information Technology (IT) appears as a key tool in this phase, offering three applications: (i) encoding and knowledge sharing; (ii) creation of corporate knowledge directories; (iii) creation of networks of knowledge.

Gonzalez and Martins (2017) distinguished three main principles that guide the references of knowledge storage. The first considers the importance of the individual as a tacit knowledge retention device, and thus the constant capacity of the individual is essential in order to acquire a capacity for increased absorption, enabling a greater accumulation of knowledge (Gonzalez & Martins, 2017).

The second major factor is knowledge storage by means of organisational pathways, called knowledge institutionalization (Grant, 1996 cited Gonzalez & Martins, 2017). In this institutionalisation process, the importance of structure and organisational cultures retention vehicles cannot be overstated (Gonzalez & Martins, 2017). Hence, culture carries part of organisational knowledge through the values, beliefs, and actions that are considered valid between individuals and groups; and the organisational structure mobilises part of knowledge

through patterns, routines and established hierarchy (Levy, 2011; Martins & Meyer, 2012; Gonzalez & Martins, 2017).

Information Technology is the third important factor in publications about knowledge storage (Gonzalez & Martins, 2017). Alavi and Leidner (2001) argue that although knowledge has an explicit portion, capable of encoding through physical memories, such as databases, it acts as a support function in the knowledge storage process.

### **2.2.3 Knowledge sharing practices**

In order for knowledge to be utilised once it is created, thereby providing value to the organisation, it must be shared with colleagues, teammates, and co-workers. Sharing and transferring of knowledge is very vital to KM, given the fact that organisations struggle with knowledge loss resulting from employee turnover (Omotayo, 2015). In addition to retirement, critical knowledge loss occurs by job transfer, mobility and alternative work arrangements. It is therefore the responsibility of all members in an organisation to generate and share knowledge by adopting the attitude of ‘knowledge as part of self’ under which sharing knowledge becomes a personal issue and one that requires personal commitment (Omotayo, 2015).

Knowledge sharing or distribution refers to the process by which new information from different sources are shared and eventually can drive the creation of new knowledge, understanding and information (Huber, 1991). Becerra-Fernandez and Sabherwal (2010) define knowledge sharing as the process through which explicit or tacit knowledge is communicated to other individuals. According to them, typical examples of knowledge sharing includes, writing books or research papers; delivering a lecture or making a speech or presentation; participating in a dialogue over coffee or lunch; participating in communities of practice; mentoring of new staff; and shadowing an expert (Becerra-Fernandez & Sabherwal, 2010). Depending on whether explicit or tacit knowledge is being shared, exchange or socialisation processes are used. Exchange is used to communicate or transfer explicit knowledge among individuals, groups and organisations (Becerra-Fernandez & Sabherwal, 2010).

However, according to Lee and Yang (2000) cited in (Gonzalez & Martins, 2017), this sharing process requires the organisation to mobilise in order to create a ‘sharing environment’. According

to them, the most effective way to disseminate knowledge and best practices is through systematic transfer. That is, to create a knowledge sharing environment. Previous researchers (Gonzalez & Martins, 2017) agree that the mere fact that an organisation has possession of knowledge is insufficient. An organisation should ensure the flow of knowledge in order to enable the learning process between individuals, resulting in improved performance (Yuan et al., 2010). Previous research has shown that knowledge sharing throughout the organisation enhances existing organisational business processes, introduces more efficient and effective business processes and removes redundant processes (Bhojaraju, 2005).

Levine and Prietula (2012) identified four ways of transferring knowledge. The first, called self-learning, refers to the knowledge acquired through manual reports of the organisation containing relevant information. The second form refers to changes that occur due to contact of individuals of the organisation, in a social life perspective. The third, called performative relations, include the specific knowledge exchanges in a group, coming from communities of practice which dominate specific knowledge and a common language (Gonzalez & Martins, 2017). Finally, the fourth form of distribution of knowledge according to Levine and Prietula (2012) is based on exchanges that an organisation performs with other companies. Important example includes, external knowledge that the organisation acquires.

Therefore, the forms of interaction and distribution of knowledge consider their tacit and explicit state. According to Gonzalez and Martins (2017), self-learning is basically based on the distribution via explicit knowledge. However, other forms highlighted by Levine and Prietula (2012) refer to tacit and explicit knowledge exchanges.

Research has shown that in some public sector organisations of developing countries, it is mandatory for staff to pass on and share new knowledge after attending seminars, workshops and conferences (Komanyane, 2010). Siddique (2012) identified several knowledge sharing methods which included, meetings, discussion forums, workshops, seminars, project groups' teams, and company's internal documents – manuals, reports, policy papers, training and development programmes, mentoring and benchmarking. Furthermore, Siddique (2012) observed that other means of knowledge sharing such as internet/intranet and company web sites are also gaining recognition as effective sources to disseminate knowledge across an organisation. The findings by Siddique (2012), provides an overview of the knowledge sharing methods that have been adopted

by organisations as part of their KM system. It is evident from Siddique (2012)'s work that there are many sharing methods available for organisations to adopt.

Literature continues to reveal how knowledge is shared in public sector organisations. Komanyane (2010) used a quantitative questionnaire survey approach to investigate the KM practices in public sector organisations in Botswana and found that most of the respondents indicated that they report back at meetings, while others indicated that they write a report for directors as ways of sharing knowledge after attending seminars, workshops and conferences. In their study, Chitumbo and Kanyengo (2017) indicated that cataloguers at the University of Zambia shared experiences, ideas and skills verbally amongst themselves; usually in a practical and demonstrative way.

#### **2.2.4 Knowledge utilisation practices**

Knowledge application or utilisation is when available knowledge is used to make decisions and perform tasks through direction and routines (Becerra-Fernandez & Sabherwal, 2010). According to Becerra-Fernandez and Sabherwal (2010), direction refers to the process through which the individual possessing the knowledge directs the action of another individual without transferring to that individual the knowledge underlying the direction. It is when an individual who possesses knowledge advises another. For example, direction is the process used when a production worker calls an expert to ask him/her how to solve a particular problem with a machine and then proceeds to solve the problem based on the instructions given by the expert. Routines on the other hand, involve the utilisation of knowledge embedded in procedures, rules, norms and processes that guide future behaviour (Becerra-Fernandez & Sabherwal, 2010). Becerra-Fernandez and Sabherwal (2010) inform us that both direction and routines are applicable to either tacit or explicit knowledge. They argue that application does not require the person applying the knowledge to understand it.

According to Zack (1999) cited in Gonzalez and Martins (2017), knowledge utilisation is associated with the ability of individuals of an organisation to locate, access, and use information and knowledge stored in the formal and informal organisation of memory systems. Gonzalez and Martins (2017) stress that, knowledge must be used as the basis for the development of new knowledge through integration, innovation, creation, and extension of the existing knowledge base; and should still be used as a basis for decision making. Thus, utilisation has an exploitative

character of knowledge when through it decisions or improvements are made, utilising, therefore, the same knowledge base; or an explorative character, when the knowledge base is used as a primary knowledge to create new knowledge in an innovative proposal (Granarolo, et al., 2016; Nooteboom, et al., 2007). For Magnier-Watanable and Senoo (2008), the ways of using exploitative and explorative knowledge are directly related to the strategy chosen by the organisation: reactive or innovative. According to them, the first strategy exploits existing knowledge. That is, it is limited to utilising knowledge in order to facilitate a defined strategy. The innovative strategy uses an explorative model to differently compete in the current market or in new markets (Gonzalez & Martins, 2017).

Walsh and Ungson (1991) see knowledge utilisation as a retrieval process, which manifests itself in two levels. The first level, called automatic, refers to the retrieval of information through routine, using for this purpose procedures, structure, and a culture shared among individuals in their workplaces within the organisation. The second, called controlled, is achieved through changes in retention pathways outlined in the retention process (Walsh & Ungson, 1991). It has further been argued that knowledge utilisation is the “application of knowledge once it has been received by an individual, institution, society or country. This application may entail various things, for example, use of that knowledge can change behaviour, change policy and result in the adoption of new features, knowledge can be applied for teaching purposes, or it can be used to create new knowledge” (Kanyengo, 2020: 19).

### **2.2.5 Knowledge Management practices in Public Sector Organisations**

Research has shown that in developing countries, public sector organisations are increasingly embracing knowledge management (KM) tools and practices for the holistic growth of society (Jain & Jeppesen, 2013). Public sector organisations are stakeholder-dependent, while the private sector is shareholder-dependent. Additionally, the public sector emphasises democratic values like participation, citizen-orientation, and knowledge-orientation (Salavati et al., 2010). Furthermore, it is often argued that public sector organisations face greater pressures for representativeness, accountability and responsiveness than private sector firms (Jain & Jeppesen, 2013). The range of legitimate demands placed on public-sector organisations may also be greater in the public sector than in the private sector (Jaffee, 2001 cited in Jain & Jeppesen, 2013). Therefore, this necessitates

the improvement of KM practices in public sector organisations for the growth of economies in developing countries like Zambia. In this regard, a better understanding of the KM practices in public sector organisations is important.

Komanyane (2010) investigated KM practices in the public sector in Botswana and provided a more accurate picture of KM in the various central government departments based in the capital of Gaborone. The findings by Komanyane (2010) revealed that from among the 43 departments that were selected to take part in the study, only five departments had a written KM policy or strategy and that 28 had no formal mechanisms to capture the knowledge of departing employees. It is evident from the findings of Komanyane (2010) that public sector organisations in developing countries still face difficulties in implementing KM. The implication here is that if no mechanism is available to capture and store knowledge of its employees, an organisation may suffer from loss of institutional memory. Alhamoudi (2015) also noted that while organisations recognise that KM is essential for improving performance, many have difficulties in developing strategies for implementation. In relation to the current study, the findings by Komanyane (2010) are important because they provide an overview of KM practices in public sector organisations from developing countries. However, Komanyane (2010) used the quantitative approach which is fixed and limited to numerical results, the current study attempts to use a mixed methods approach in order to gain more insights into the KM practices at the Zambia Revenue Authority.

In investigating the role of knowledge management in enhancing the organisational performance in some Egyptian organisations, Zaied et al. (2012) also measured the level of knowledge management capabilities in these organisations. Their results indicated that Egyptian organisations pay attention to storing processes for knowledge by hiring qualified human resources. Zaied et al., (2012) emphasised on organisations to put more effort on improving the other dimensions like structure, protection, and acquisitions.

KM in the tax administration organisations in Zambia is relatively under researched compared to institutions of higher learning. Most research has been conducted in universities or higher education institutions. For example, Wamundila and Ngulube (2011) found out a number of knowledge management practices, such as knowledge assessment, knowledge acquisition, knowledge transfers and knowledge sharing that are existent at the University of Zambia (UNZA) as a whole and not specifically in administrative departments. Further, Wamundila and Ngulube

(2011) and Mvula 2018 established that knowledge retention was lacking at UNZA, and Malekano and Kanyengo argue that knowledge retention at the Natural Resource Development College (NRDC) was taking place using documentary processes. However, in order for KM to be successful in whatever organisation it is implemented in, it requires a policy framework (Wamundila, 2008). Research done by Wamundila and Ngulube (2011) concentrated on KM practices in higher education institutions in Zambia, this research adds knowledge on knowledge management practices in tax administration with a focus on ZRA, and specific looking on KM and organisation performance.

### **2.3 The Impact of Knowledge Management on organisational performance**

The impact of knowledge management on organisational performance is understood better with an understanding of the definition of organisational performance. Literature on strategy usually associates organisational performance with the achievement of strategic goals such as sales growth, market share, new products development and quality as well as customer satisfaction targets among others. For Janepuengporn and Ussahawanitchakit (2011) organisational performance (OP) means to what extent, the organisational goals and objectives can be achieved. According to Tseng and Lee (2014) organisational performance is the level of target achieved by an organisation or an evaluation of the effectiveness of the individuals, groups, or organisation. While Hashim (2007) is of the view that measuring organisational performance is comparing the expected results to actual results, investigating deviations from plans, assessing individual performance and examining progress being made towards meeting the targeted objectives.

Several empirical and conceptual studies have been conducted to test the relationship between knowledge management and organisational performance. For example, Abuaddous and Al Sokkar (2018) investigated the influence of knowledge management and some of its practices on organisational performance. It was found that KM, including knowledge process and infrastructure capabilities affected positively in a huge manner on all aspects of organisational performance directly or indirectly.

Similarly, Kharabsheh, Magableh and Sawadha (2012) investigated the organisational impact of knowledge management practices. They reported that knowledge management practices including communication, the ability to create new knowledge, acquisition, policies and strategies of KM

and training affected organisational performance which included (financial performance, new product success, customer satisfaction, and market share) in a positive way among all the dimensions. The findings by Kharabsheh, Magableh and Sawadha (2012) clearly indicate that KM practices significantly affect the extent to which an organisation achieves its goals and objectives. However, Kharabsheh, Magableh and Sawadha (2012) study was conducted in pharmaceutical firms and therefore, their findings may only apply to those firms. The current study attempts to provide insights of KM practices in a public utility organisation and establish how these KM practices affect its ability to achieve its set goals and objectives.

Rašula et al (2012) claim that one of the key benefits of introducing KM practices in organisations is its positive impact on organisational performance. The research conducted in Croatia by Fugate et al. (2009) suggests that KM positively affects organisational outcomes of company innovation, product improvement and employee improvement. According to Fugate et al. (2009), results collected in a logistics operations context proved the existence of a strong positive relationship between a KM process and operational and organisational performance. However, Rašula et al. (2012) argued that it is still not well understood how different KM strategies affect organisational performance. Choi et al. (2008) showed that combining the tacit-internal-oriented and explicit-external-oriented KM strategies indicates a complementary relationship, which implies synergistic effects of KM strategies on performance. The findings of the study conducted by Zheng et al. (2009) suggest that KM fully mediates the impact of organisational culture on organisational effectiveness, and partially mediates the impact of organisational structure and strategy on organisational effectiveness.

It is very important to note that for an organisation to operate an effective knowledge management system, knowledge identification and acquisition are the first two stages that they cannot afford to misrepresent. Research has shown that knowledge identification and knowledge acquisition are important for an effective practice of knowledge management (Ahmad et al., 2013). Darroch (2005) examined the link between knowledge management and innovation and firm performance in New Zealand and found that knowledge acquisition affects performance but this relationship was mediated by responsiveness to knowledge. Others have observed that knowledge creation has a significant effect on the innovation capabilities and performance of companies (Donate & Sánchez de Pablo, 2015; Forés & Camisón, 2016).

Using descriptive survey design, Nnabuife et al. (2015) examined the extent to which knowledge management improves the performance of selected commercial banks in Awka, Anambra State, Nigeria. The findings from their analysis indicated that knowledge identification contributes to organisational performance. Their findings further revealed that knowledge acquisition has a significant effect on organisational performance (Nnabuife, et al., 2015). These findings confirm the impact of knowledge capture and acquisition practices on organisational performance. Similarly, Mills and Smith (2011) studied the impact of knowledge management resources on organisational performance. Their results showed that some knowledge resources such as structure and acquisition were directly related to organisational performance, while others (technology & culture) were not directly related to organisational performance. These findings also correspond to the observation by Chang and Chuang (2011). On the basis of these studies (Mills & Smith, 2011; Chang & Chuang, 2011; Nnabuife, et al., 2015), it is evident that knowledge capture and acquisition practices have a positive effect on organisational performance. That is, they significantly improve the performance of an organisation.

Research has further shown that the knowledge sharing activities between employees have a significant effect on the employees' performance (Kuzu & Özilhan, 2014) and consequently, the organisation as a whole. This is because every employee in the organisation has knowledge embedded in their mind as tacit knowledge which is very difficult to be extracted directly (Ipe, 2003), as employees share knowledge through various methods highlighted in this study, it leads to accelerated learning and innovation which in turn improves the performance of the organisation. This particular activity of KM is becoming important to organisations (Ipe, 2003). The sharing of knowledge is a vital part of the process of KM, and it is critically important in the public sector, because it has a client focus that places a specific emphasis on the continuous knowledge sharing required between public workers and the public (Gorry, 2008).

Torabia and Jamal (2018) investigated the role of tacit knowledge sharing on organisational productivity. Their results demonstrated interesting insights into the role of knowledge sharing on organisational productivity. According to Torabia and Jamal (2018), employees' intention to share and consequently the sharing of tacit knowledge has direct positive impacts on productivity. In addition, their analysis demonstrated that not only productivity increased as a result of knowledge sharing, but also employees' innovative contributions increased as a result of exposure to others'

knowledge, expertise, and experiences. Similarly, Ngah and Ibrahim (2010) examined the impact of knowledge sharing on organisational performance of Small and Medium Enterprises (SMEs) in Malaysia. Their findings showed that knowledge sharing was positively influencing organisational performance. Ngah and Ibrahim (2010) recommended that SMEs should focus more on knowledge sharing activities when setting its strategies. Despite the fact that Ngah and Ibrahim (2010)'s study was conducted among SMEs, it shows that knowledge sharing practices have a positive effect on organisational performance. Other researchers have also reported that knowledge sharing improves organisational performances (Lesser & Storck, 2001; Fraihat & Samadi, 2017).

The findings by the studies cited above are important to this study because they provide evidence of how knowledge sharing impacts of organisational performance. It is clear from these studies that knowledge sharing activities have a significant effect on organisational performance, that they have a positive effect on the performance of an organisation. However, none of these studies (Lesser & Storck, 2001; Ngah & Ibrahim, 2010; Fraihat & Samadi, 2017) have pointed out a single knowledge sharing method that impacts highly on organisational performance. This information is important for coming up with decisions on what knowledge sharing methods to adopt for the organisation's KM system. Therefore, this study attempts to address this gap.

Knowledge sharing has been linked to the business strategy of companies. Chang and Chuang (2011) investigated the influence of knowledge sharing on the strategy of companies and found a direct and significant influence. Similarly, a study conducted by Chen and Fong (2012) to identify the effect of knowledge sharing on the company performance showed that knowledge sharing significantly affected company performance.

Other researchers have contradicting views on how knowledge sharing affects organisational performance. According to these researchers, knowledge sharing does not necessarily improve organisational performance. For example, Darroch (2005) examined the link between knowledge dissemination and innovation and firm performance and found that there was no support for the hypothesis that knowledge dissemination affects performance. Darroch (2005) concluded that firms with a knowledge management capability do not necessarily perform better. The differences here could be due to variations in the location in which the studies were conducted and adoption of KM practices in these locations.

## **2.4 Chapter Summary**

The literature review has discussed the adoption of knowledge management practices in public sector organisations, effects of knowledge acquisition and sharing practices on organisational performance. It was evident from the literature that in developing countries, public sector organisations are increasingly embracing knowledge management (KM) tools and practices for the holistic growth of society (Jain & Jeppesen, 2013). The literature also revealed that while organisations recognise that KM is essential for improving performance, many have difficulties in developing strategies for implementation (Alhamoudi, 2015).

Knowledge acquisition practices that emerged from the literature includes, team leaders and lessons learned from projects, daily experiences, benchmarking, internal discussions, brainstorming sessions, external KM experts and consultants (Siddique, 2012). Siddique (2012) also identified several knowledge sharing methods which included, meeting and discussion forums, workshops and seminars, project groups, teams, and company's internal documents – manuals, reports and policy papers, training and development programmes, mentoring and coaching, and benchmarking. It was also evident from the literature that knowledge creation has a significant effect on the innovation capabilities and performance of companies (Donate & Sánchez de Pablo, 2015; Forés & Camisón, 2016). Similarly, previous researchers have also reported that knowledge sharing improves organisational performance (Lesser & Storck, 2001; Fraihat & Samadi, 2017). Therefore, we can conclude that according to the reviewed literature KM significantly improves organisational performance (Zaied, et al., 2012).

KM in tax administration organisations in Zambia is relatively under researched. This is because research on KM has mainly been focused in institutions of higher learning (Wamundila, 2008; Wamundila & Ngulube, 2011; Mvula, 2018; Kabilwa, 2018) and the mining sector (Banda, Sichinsambwe & Tembo, 2018)). Furthermore, none of these studies have sought to examine the effects of knowledge management practices on organisational performance; this research adds knowledge on knowledge management practices in tax administration organisations with a specific focus on KM and organisation performance.

The next chapter of study discusses the research methodology of the study.



## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.0 Overview**

This section discusses the methods and techniques that were used in carrying out this study. The section discusses the research design, target population, sample size and sampling procedure, data collection methods and procedures, data analysis and ethical considerations of the study.

### **3.1 Research design**

A research design refers to the overall strategy to integrate different components of a study in a coherent and logical way, thereby, ensuring that the research problem has been addressed (Johnson & Christensen, 2004). It constitutes the outline for the collection, measurement, and analysis of data. There are a number of research designs, which include experiments, longitudinal design, cross-sectional design as well as case study.

Since understanding knowledge management and organisational performance is complex, a deep and thorough investigation was needed. This study therefore, used a single case study design which Hancock (2002) and Rowley (2002) explains that it facilitates ‘in-depth analysis’ of the study case. In this sense, the single-case study was adopted as the most appropriate research design, in order for the researcher to sufficiently delve in the issues deeply. As Rowley (2002) stated, case studies are widely used because they may offer insights that might not be achieved with other strategies. Furthermore, the choice of the research design was influenced by the type of research topic because the researcher intended to get an in depth understanding of the knowledge management and practices at the ZRA.

To meet the requirements of information needed, the study used the quantitative approach. Quantitative research was used in this study in order to obtain statistical data that enabled comparison and analysis of information using statistical methods. This involved the collection of quantitative data from a segment of the population at one point in time (Saunders et al., 2009). As the name implies, the quantitative approach frames numbers as a representation of data. According to Polite and Beck (2010) the quantitative method refers to the investigation of phenomena that lend themselves to precise measurement and quantification. The quantitative approach was

preferred because according to Kobus (2011), it is systematic and objective in its ways of using numerical data from a selected subgroup of a population being studied. According to Babbie (2013) a quantitative approach often makes observations more explicit. This is because it makes it easier to aggregate, compare, and summaries data. Furthermore, it opens up the possibility of statistical analysis.

### **3.2 Target population**

The study targeted employees at the Zambia Revenue Authority (ZRA) headquarters in Lusaka. ZRA is located in Lusaka, Zambia and is part of the Government organisation. ZRA has 1755 employees at this location. ZRA work force is divided into the operational and support segments. The study targeted both junior and senior employees.

### **3.3 Sample and sampling procedure**

Sampling refers to the researcher's process of selecting the sample from a population in order to obtain information regarding a phenomenon in a way that represents the population of interest (Brink et al, 2012).

Participants for the questionnaire were selected through stratified random sampling because the population at the Zambia Revenue Authority is not homogenous. Stratified in conjunction with systematic random sampling technique was used to randomly select the study participants. The universe that is Zambia Revenue Authority employees was divided into various strata in relation to the different departments at the Authority and then systematic random selection of the target participants from the different sections/departments was used in selecting the study participants. The strata's used were junior worker, middle supervisor and senior level.

Since each stratum is more homogenous than the total population, the researcher was able to get more precise estimates for each stratum and by estimating more accurately each of the component parts to give a better estimate of the whole. This also ensured that an appropriate representation of the population was selected systematically and objectively. The reason for choosing this technique was to increase the precision of estimates and remove biasness in the selection of the sample units.

Moreover, this method was preferred because it is systematic and objective in the way of selection of the sample units and ultimately data collection.

### 3.3.1 Sample size

According to Brink et al. (2012), a sample is a part or fraction of a whole or a subset of a larger set selected by the researcher to participate in a research study. The minimum sample size was estimated using the formula adopted from Charan and Biswas (2013). The reason for using this formula was because the exact number of the study population is not known. Hence, the study relied on proportions.

$$n = \frac{Z^2 P(1-P)}{d^2}$$

Where;

- d is the desired margin error
- p is the (assumed/estimated) proportion of the employees' population.
- z is the standard normal deviate

Since there was no similar study at the Zambia Revenue Authority and taking into account the researchers' capacity, the study estimated a 10% proportion. Considering: 95% (Z = 1.96) confidence interval, and 5% margin error. Therefore,

$$\frac{(1.96)^2 \times 0.10(1-0.10)}{(0.05)^2} = 132$$

Hence the total sample size for this study was 132.

## 3.4 Data collection methods and procedures

### 3.4.1 Data collection instruments

In this study, data was collected using a self-administered questionnaire. This method was adequate in facilitating the collection of the needed data to answer the research questions.

**Questionnaires:** Self-reporting standard questionnaire were used to collect the data. The questionnaire was divided into 4 sections to specifically address the three objectives determined

in this study (see appendix I). The questions were adapted from various authors in the field of knowledge management and strategic research including the KM Assessment Instrument (KMAI) developed by Lawson (2003). Lawson's KMAI has been used in many studies regarding knowledge management processes in organisations. The key multi-item measures and their operational definitions are briefly described in the following;

**Knowledge acquisition sources:** Adopting from previous research (Gold et al., 2001; Siddique, 2012), a list of 14 knowledge acquisition sources covering areas such as benchmarking, team leaders, lessons learned from experience, customers, and informal and formal discussions was developed. The respondents were asked to rate each source on a 5-point Likert scale anchored on “unimportant” to “very important”

**Knowledge Storage:** The respondents were given statements on knowledge storage practices and were requested to rate them on a 5 -point Likert scale anchored on “Strongly Agree” to “Strongly Disagree. The statements were developed through extensive literature review and adapting from previous studies (Lawson, 2003; Bakar, et al., 2014)

**Knowledge sharing methods:** The respondents were first asked about the extent to which ZRA share knowledge with different functional units within the company. Following this, they were given statements on knowledge sharing practices in the organisation abstracted from existing research on information and knowledge management (Ongus et al., 2016) and were requested to rate them on a 5-point Likert scale anchored on “Strongly Agree” to “Strongly Disagree. Furthermore, the respondents were given a list of 10 knowledge sharing methods, abstracted from the existing research on explicit and tacit knowledge (Gold et al., 2001; Syed-Ikhsan and Rowland, 2004;Nonaka, 2007; Siddique, 2012), and were requested to rate them on a 5-point Likert scale with “not at all” and “most common” endpoints.

**Knowledge application:** To measure knowledge application, respondents were given statements on knowledge application practices in the organisation adapted from existing research (Lawson, 2003; Bakar, et al., 2014) and were requested to rate them on a 5-point Likert scale anchored on “Strongly Agree” to “Strongly Disagree.

**Organisational performance:** Literature on strategy usually associates organisational performance with the achievement of strategic goals such as sales growth, market share, new

products development, quality and customer satisfaction targets among others (Powell & Dent-Micallef, 1999; Jaffe & Trajtenberg, 2005).

The questionnaire was adopted because it takes less time to administer and complete and is cost effective. This is particularly appropriate as some of the respondents were busy people who may not have had the time to answer an interview schedule. Furthermore, it offers greater anonymity, as there is no face-to-face interaction between the respondent and the researchers. Additionally, it is the best tool for the quantitative study and it helps to increase the likelihood of obtaining accurate data (Babbie, 2013). The questionnaire is attached as appendix I.

#### *3.4.2 Data collection procedures*

The researcher travelled to the field site to collect primary data from the study participants. The researcher administered the questionnaire by hand. Babbie (2013) informs us that, there are actually three main methods of administering questionnaires to a sample of respondents, these are: self-administered questionnaires, in which respondents are asked to complete the questionnaire themselves; surveys administered by interviewers in face-to-face encounters; and surveys conducted by telephone. This study adopted the self-administered questionnaire method, in which respondents were asked to complete the questionnaire themselves. Thus, participants in this study were required to read and complete the questionnaire themselves.

### **3.5 Data analysis**

According to Johnson and Christensen (2004), data analysis refers to the process of creating value from the raw data. Quantitative data was analysed quantitatively using the Statistical Package for the Social Sciences (SPSS) version 25. The data collected from the questionnaire was coded and categorised 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.

Most of the items in the questionnaire were ranked on a 5-point Likert scale. The response categories in Likert scales have a rank order, but the intervals between values cannot be presumed

equal. Therefore, Jamieson (2004) argue that the mean (and standard deviation) is inappropriate for ordinal data. Jamieson (2004) recommends that statistics one can use are:

- i. Frequencies and percentages; which was adopted by this study.

To better understand the characteristics of each variable, descriptive statistics analysis was used to illustrate the frequencies and percentages. To aid interpretation of data, data was summarised and organised in frequency tables and bar charts and Microsoft excel was used for data presentation.

Furthermore, inferential statistics used in this study included factor analysis and regression analysis. Factor analysis is a statistical technique that reduces a set of variables by extracting all their commonalities into a smaller number of factors. Since the researcher was studying organisational performance related to knowledge management practices at ZRA, the researcher posed several questions about the knowledge management practices and organisational performance through a survey questionnaire. These questions were quantified on a numeric scale. The researcher was looking for the underlying dimensions or “factors” regarding organisational performance. Factor analysis used the variables from the survey to determine them indirectly. Furthermore, regression analysis was used to determine the relationship between knowledge management practices and organisational performance. P-value <0.05 was considered to decide statistically significant.

### **3.6 Reliability and Validity**

Reliability and validity are essentially the key attributes of good measurement and the keys to assessing the trustworthiness of any research study, hence the need to ensure reliability and validity in this study.

#### *3.6.1 Reliability*

Reliability is a necessary condition for validity but may not be sufficient on its own, thus it is a pre-requisite for reliability. According to Adams et al (2007), reliability refers to the consistency and stability in the measurement. For the research instrument to be valid it has to produce reliable results. In this study, reliability was ensured and enhanced through using the supervisor of the research to review the data collection instruments to ensure that all variables in the study are listed and well sequenced.

To establish the degree of internal consistency of the questionnaire, the research used the application of a coefficient alpha, known as Cronbach's Alpha. Cronbach's alpha test is a measure of internal consistency, that is, how closely related a set of items are as a group (Huck, 2000, cited in the works of Mambwe 2019). It is also considered to be a measure of scale reliability. The rule of thumb is that a Cronbach's alpha of 0.70 and above is acceptable. A Cronbach's Alpha test will be run in SPSS version 25 to check whether the questions in the questionnaire all consistently measured the same latent variable on the Likert item provided. This was important because without reliability, it was going to be difficult to be sure about the validity of the data collected. The questionnaire was considered to be reliable based on its reliability coefficient, which was over 0.70.

### *3.6.2 Validity of research findings*

The validity of the research refers to the accuracy of the inferences, interpretations and/or actions made based on quantitative data (Creswell & Miller, 2000). The researcher also undertook a pilot study to pre-test the data collection tools to ensure that there is consistency and content validity. Further, the supervisor of the research who went through it to check if it satisfactorily covered what the researcher intends to measure. In addition, the researcher collected the data from a diverse range of individuals who were involved in the study, such as junior employees, middle management employees and managers in high positions.

## **3.7 Ethical considerations**

The researcher must at all times ensure that research embarked on, meets the conduct of ethically informed social research which should be completed before the start of data production (Mvula, 2018). In this study, the researcher ensured quality and integrity of the study by seeking informed consent from participants before administering the questionnaire. The informed consent form that was used has been attached as Appendix II. All the data collected was treated with the utmost confidentiality and the identity of respondents of the questionnaire were treated anonymous as names were not be required to be included in the data collection instrument. The researcher ensured that privacy of respondents.

### **3.8 Limitations of the study**

In this study, the main limitation encountered was the use of a case study design. The study design was a case study of one institution which is ZRA and its findings may not be applicable to some organisations. However, generalisation is not one of the study's goals. The main goal of this study was to get a better understanding of the state of KM.

### **3.9 Chapter Summary**

This chapter has provided information about the methods and procedures that were employed to address the objectives of this study. The discussion was based on the following headings amongst others: research design, target population, sample size, sampling technique, data collection instruments and procedures, validity and reliability, data analysis as well as ethical considerations. All these methodological procedures were aimed at providing data to the research objectives of this study to fulfill the primary aim: to investigate the knowledge management practices and performance at the Zambia Revenue Authority Headquarters in Lusaka District. The results of the study are presented in the next chapter.

## **CHAPTER FOUR: PRESENTATION OF FINDINGS**

### **4.0 Introduction**

This chapter presents the findings after the analysis of data collected from the field. The analysis of data was guided by the research objectives as presented in chapter one of this study. All statistical analyses were performed in SPSS version 25. The chapter starts by presenting the background information of the respondents and thereafter presents the findings related to specific objectives. Tables and charts including pie charts and bar graphs created using MS Excel are used to present the findings.

### **4.1 Background information of respondents**

Employees at ZRA Headquarters in Lusaka District were the target population for this study. Structured questionnaires were taken to these employees at ZRA Headquarters in Lusaka District. 132 questionnaires were distributed and 108 were returned resulting in an 81.8% response rate. Table 2 below presents the background characteristics of the respondents.

The distribution of respondents based on gender shows that the majority (57.4%) were females, while males were 42.6%. In terms of age, most of the participants were in the age groups 31-40 years (32.4%) and 41-50 years (37%). Information on highest educational level attained showed that most of them had either Bachelor's Degree (47.2%) or Diploma (38.9%). Slightly more than half of the respondents were junior workers (51.9%), the rest were middle supervisors (32.4%) and senior level (15.7%). Finally, in terms of years of working at the Authority, most of the participants had been working for 10-14 years (40.7%). See Table 2 below.

**Table 2: Frequency and percentages of the characteristics of the respondents (n=108)**

| <b>Background characteristics</b> | <b>Frequency</b> | <b>Percent (%)</b> |
|-----------------------------------|------------------|--------------------|
| <b>Gender</b>                     |                  |                    |
| Male                              | 46               | 42.6               |
| Female                            | 62               | 57.4               |
| <b>Total</b>                      | <b>108</b>       | <b>100</b>         |
| <b>Age</b>                        |                  |                    |
| 20-30 years                       | 19               | 17.6               |
| 31-40 years                       | 35               | 32.4               |
| 41-50 years                       | 40               | 37                 |
| 51 years and above                | 14               | 13                 |
| <b>Total</b>                      | <b>108</b>       | <b>100</b>         |
| <b>Educational Level</b>          |                  |                    |
| Certificate                       | 0                | 0                  |
| Diploma                           | 42               | 38.9               |
| Bachelor degree                   | 51               | 47.2               |
| Master degree                     | 15               | 13.9               |
| PhD                               | 0                | 0                  |
| <b>Total</b>                      | <b>108</b>       | <b>100</b>         |
| <b>Job position</b>               |                  |                    |
| Junior worker                     | 56               | 51.9               |
| Middle supervisor                 | 35               | 32.4               |
| Senior level                      | 17               | 15.7               |
| <b>Total</b>                      | <b>108</b>       | <b>100</b>         |
| <b>Years of service</b>           |                  |                    |
| 0-4 years                         | 15               | 13.9               |
| 5-9 years                         | 20               | 18.5               |
| 10-14 years                       | 44               | 40.7               |
| 15-19 years                       | 19               | 17.6               |
| 20 years and above                | 10               | 9.3                |
| <b>Total</b>                      | <b>108</b>       | <b>100</b>         |

## 4.2 Knowledge management resources at Zambia Revenue Authority

### 4.2.1 Knowledge management strategy/or policy

This study sought to find out whether there is a Knowledge Management (KM) strategy/or policy at the Authority. The results in Figure 2 indicates that the majority (58%) of the respondents reported that there is a KM strategy/or policy at the Authority, while 11% were not sure of the existence of a KM strategy/or policy at the authority. However, 31% of the sampled employees were of the opinion that there is no KM strategy/or policy at the Authority.

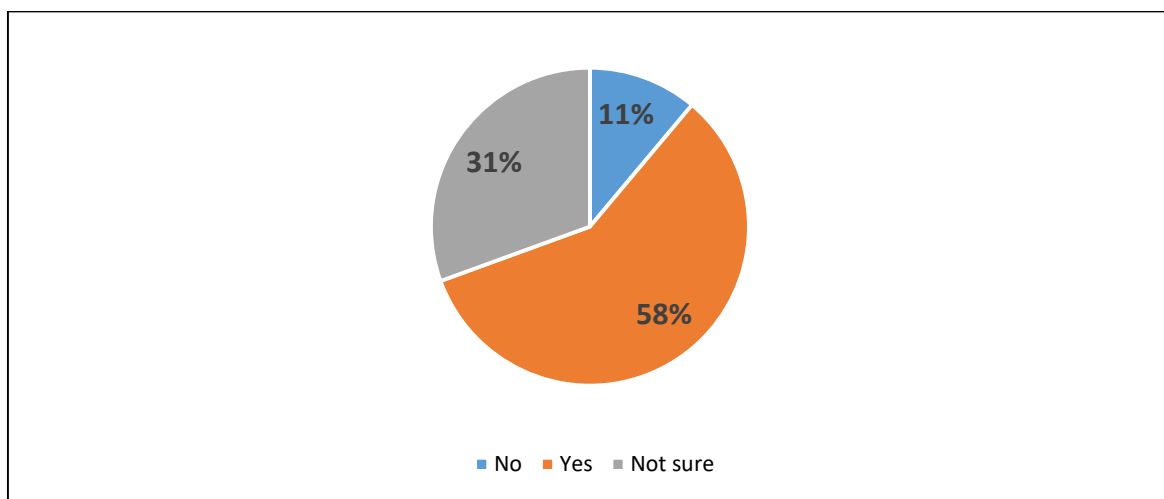


Figure 1: Existence knowledge management strategy/policy

### 4.2.2 Knowledge management resources

The study investigated KM resources through a series of KM related resources (identified through the literature review) to which respondents indicated the resources that the organisation had at the time of the study. As depicted in Figure 3 below, KM related resources that were reported to be available by the majority of the respondents in order of frequency were database management systems (81.5%), Website (s) on its activities (74%), library or reading room (72%), shared databases (71.3%), electronic mails (70.4%), internet and intranet (66.7%), data warehousing/storing (65.7%), document repositories (64.8%), video conferencing (62.0%), research and development (62.0%), management information system (58.3%), and groupware (50%).

Furthermore, other knowledge management resources such as executive information system (46.3%), information knowledge management leader (41.0%), and full or part-time KM officer/executive (38.9%) were also reported to be available but to a lower extent as can be seen from the results presented. See Figure 3 below.

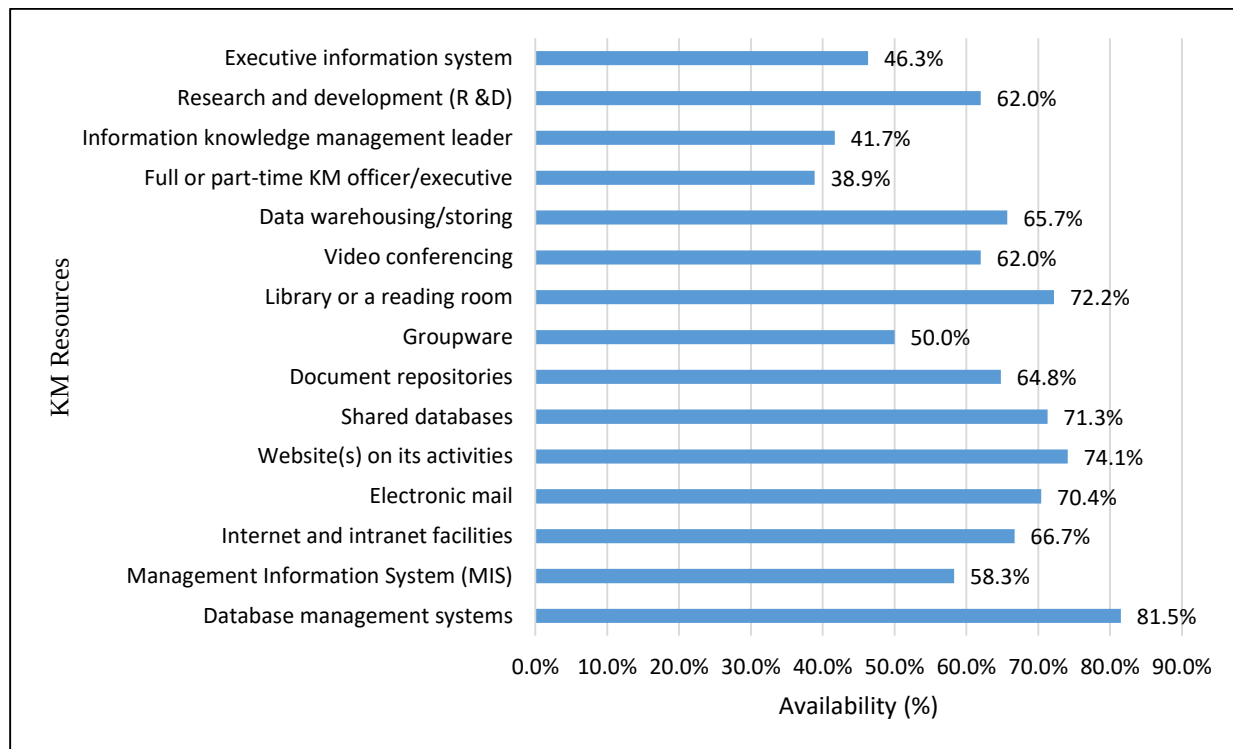


Figure 2: Knowledge management resources

#### 4.2.3 Use of KM tools in support of ZRA KM activities

Respondents in this study were asked to indicate their level of agreement, disagreement or not sure depending on the how the Authority uses the provided KM tools to coordinate and support KM activities in the Authority. Their responses are presented in Table 3 below.

The cumulative percentages as shown in Table 3 below indicates that most of the respondents broadly agreed that the Authority uses database management systems (72.2%), management information systems (61.1%), internet and intranet facilities (80.6%), electronic mails (72.2%), its' website (75%), and document repositories (63%) to coordinate and support KM activities in the Authority.

Furthermore, the cumulative percentages also show that 75% of the respondents broadly agreed that ZRA uses video conferencing to support KM activities and 63.9% agreed that the Authority uses data warehousing/storing to facilitate and support KM activities. Interestingly, 28.7% were not sure whether ZRA has a library or a reading room which it uses to support KM activities in the authority.

**Table 3: Use of knowledge management tools**

| Knowledge Management resources                                                                                          | Response       |               |               |               |                   | Cumulative Agree & Disagree (%) |               |
|-------------------------------------------------------------------------------------------------------------------------|----------------|---------------|---------------|---------------|-------------------|---------------------------------|---------------|
|                                                                                                                         | Strongly Agree | Agree         | Not sure      | Disagree      | Strongly Disagree | Agree                           | Disagree      |
| ZRA uses database management systems to support KM activities                                                           | 8<br>(7.4%)    | 70<br>(64.8%) | 18<br>(16.7%) | 8<br>(7.4%)   | 4<br>(3.7%)       | 78<br>(72.2%)                   | 12<br>(11.1%) |
| ZRA uses the Management Information System (MIS) to support KM activities                                               | 4<br>(3.7%)    | 62<br>(57.4%) | 13<br>(12%)   | 27<br>(25%)   | 2<br>(1.9%)       | 66<br>(61.1%)                   | 29<br>(26.9%) |
| The authority uses internet and intranet facilities to support KM activities                                            | 17<br>(15.8%)  | 70<br>(64.8%) | 8<br>(7.4%)   | 13<br>(12%)   | 0<br>(0%)         | 87<br>(80.6%)                   | 13<br>(12%)   |
| The authority uses electronic mails to support KM activities                                                            | 11<br>(10.2%)  | 67<br>(62%)   | 15<br>(13.9%) | 13<br>(12%)   | 2<br>(1.9%)       | 78<br>(72.2%)                   | 15<br>(13.9%) |
| The authority uses its' website to support KM activities                                                                | 13<br>(12%)    | 68<br>(63%)   | 9<br>(8.3%)   | 18<br>(16.7%) | 0<br>(0%)         | 81<br>(75%)                     | 18<br>(16.7%) |
| ZRA uses shared databases to support KM activities                                                                      | 11<br>(10.2%)  | 55<br>(50.9%) | 12<br>(11.1%) | 24<br>(22.2%) | 6<br>(5.6%)       | 66<br>(61.1%)                   | 30<br>(27.8%) |
| The authority has document repositories which it uses to facilitate KM activities                                       | 0<br>(0%)      | 68<br>(63%)   | 18<br>(16.6%) | 20<br>(18.5%) | 2<br>(1.9%)       | 68<br>(63%)                     | 22<br>(20.4%) |
| The authority uses Groupware to support KM activities                                                                   | 4<br>(3.7%)    | 52<br>(48.1%) | 17<br>(15.8%) | 35<br>(32.4%) | 0<br>(0%)         | 56<br>(51.8%)                   | 35<br>(32.4%) |
| ZRA has a library or a reading room which it uses to support KM activities in the authority                             | 4<br>(3.7%)    | 55<br>(50.9%) | 31<br>(28.7%) | 14<br>(13%)   | 4<br>(3.7%)       | 59<br>(54.6%)                   | 18<br>(16.7%) |
| ZRA uses video conferencing to support KM activities                                                                    | 20<br>(18.5%)  | 61<br>(56.5%) | 11<br>(10.2%) | 16<br>(14.8%) | 0<br>(0%)         | 81<br>(75%)                     | 16<br>(14.8%) |
| The authority uses data warehousing/storing to facilitate and support KM activities                                     | 8<br>(7.4%)    | 61<br>(56.5%) | 11<br>(10.2%) | 23<br>(21.3%) | 5<br>(4.6%)       | 69<br>(63.9%)                   | 28<br>(25.9%) |
| The authority has a full or part-time KM officer/executive to facilitate and support the KM activities in the authority | 0<br>(0%)      | 24<br>(22.2%) | 37<br>(34.3%) | 47<br>(43.5%) | 0<br>(0%)         | 24<br>(22.2%)                   | 47<br>(43.5%) |
| ZRA has a Research and development (R &D) section which facilitate and support KM activities in the authority           | 4<br>(3.7%)    | 60<br>(55.6%) | 19<br>(17.6%) | 25<br>(23.1%) | 0<br>(0%)         | 64<br>(59.3%)                   | 25<br>(23.1%) |

#### *4.2.4 Knowledge capture and acquisition sources*

This part of chapter four presents results on the several knowledge capture and acquisition sources that were investigated in this study.

Adopting from previous research (Gold et al., 2001; Siddique, 2012), a list of 14 knowledge acquisition sources covering areas such as benchmarking, team leaders, lessons learned from experience, customers, and informal and formal discussions was developed. The respondents were asked to rate each source on a 5-point Likert scale anchored on “not all important” to “extremely important”. The argument made was that the level of importance that the organisation attaches to a given KM source will influence its frequency of use to capture and acquire knowledge in the organisation. Table 4 below presents the findings on this aspect of knowledge management.

Respondents in the study were asked to rate the importance of the given KM sources in the context of their department. The general picture that emerged was that there were variations in the ratings of the KM sources used in this study (see Table 4 below). The results show that KM sources that were rated as highly and very important included, formal discussions/brainstorming (65.7%), meetings/discussions with subject matter experts (62%), appraisals/evaluations (59.3%), and lessons learned from projects (50%).

Further, other KM sources were rated as moderately important by the respondents; these ranged from training (68.5%), senior employees/mentors (63.9%), consultancy (58.3%), line managers (57.4%), informal discussions (56.5%), and to customers (55.6%).

The study findings also revealed that some KM sources were considered to be somewhat important by the sampled workers, and as such, they were rated as slightly important in terms of how important they were in facilitating the acquisition and capturing of knowledge in the Authority. These included the following: daily experiences (69.4%), exit interviews (63.9%), benchmarked companies/practices (58.4%) and team leaders (53.7%). However, knowledge capture and acquisition sources such as recruitment were rated as not at all important by 46.3% of the respondents.

**Table 4: Knowledge capture and acquisition sources**

| Knowledge acquisition sources                    | Not at all Important | Slightly Important | Moderately Important | Very Important | Extremely important |
|--------------------------------------------------|----------------------|--------------------|----------------------|----------------|---------------------|
| Team leaders                                     | 21 (19.4%)           | 58 (53.7%)         | 29 (26.9%)           | 0 (0%)         | 0 (0%)              |
| Lessons learned from projects                    | 12 (11.1%)           | 17 (15.7%)         | 15 (13.9%)           | 54 (50%)       | 10 (9.3%)           |
| Daily experiences                                | 25 (23.2%)           | 75 (69.4%)         | 8 (7.4%)             | 0 (0%)         | 0 (0%)              |
| Senior employees/mentors                         | 7 (6.5%)             | 32 (29.6%)         | 69 (63.9%)           | 0 (0%)         | 0 (0%)              |
| Benchmarked companies/practices                  | 20 (18.5%)           | 63 (58.4%)         | 4 (3.7%)             | 21 (19.4%)     | 0 (0%)              |
| Line managers (middle and senior)                | 16 (14.8%)           | 30 (27.8%)         | 62 (57.4%)           | 0 (0%)         | 0 (0%)              |
| Customers                                        | 23 (21.3%)           | 25 (23.1%)         | 60 (55.6%)           | 0 (0%)         | 0 (0%)              |
| Informal discussions                             | 9 (8.3%)             | 26 (24.1%)         | 61 (56.5%)           | 12 (11.1%)     | 0 (0%)              |
| Appraisals/evaluations                           | 15 (13.9%)           | 12 (11.1%)         | 17 (15.7%)           | 64 (59.3%)     | 0 (0%)              |
| Formal discussions/brainstorming                 | 8 (7.4%)             | 14 (13%)           | 15 (13.9%)           | 71 (65.7%)     | 0 (0%)              |
| Meetings/discussions with subject matter experts | 6 (5.6%)             | 22 (20.4%)         | 13 (12%)             | 67 (62%)       | 0 (0%)              |
| Exit interviews                                  | 16 (14.8%)           | 69 (63.9%)         | 23 (21.3%)           | 0 (0%)         | 0 (0%)              |
| Suppliers                                        | 81 (75%)             | 15 (13.9%)         | 12 (11.1%)           | 0 (0%)         | 0 (0%)              |
| Training                                         | 19 (17.6%)           | 15 (13.9%)         | 74 (68.5%)           | 0 (0%)         | 0 (0%)              |
| Recruitment                                      | 50 (46.3%)           | 26 (24.1%)         | 27 (25%)             | 5 (4.6%)       | 0 (0%)              |
| Consultancy                                      | 24 (22.3%)           | 21 (19.4%)         | 63 (58.3%)           | 0 (0%)         | 0 (0%)              |

#### 4.2.4 Knowledge capture and acquisition practices

In this study, knowledge capture and acquisition practices were also investigated through a series of statements to which respondents indicated their level of agreement, disagreement or undecided. The general picture that emerged was a positive one, as depicted in Table 5 below.

**Table 5: Knowledge capture and acquisition practices**

| Knowledge capture & acquisition practices                  | Response       |            |            |            |                   | Cumulative Agree & Disagree (%) |            |
|------------------------------------------------------------|----------------|------------|------------|------------|-------------------|---------------------------------|------------|
|                                                            | Strongly Agree | Agree      | Undecided  | Disagree   | Strongly Disagree | Agree                           | Disagree   |
| Minutes are taken to capture ideas during meetings         | 57 (52.8%)     | 31 (28.7%) | 14 (13%)   | 6 (5.6%)   | 0 (0%)            | 88 (81.5%)                      | 6 (5.6%)   |
| I consult my colleagues when undertaking my duties         | 14 (13%)       | 60 (55.6%) | 15 (13.8%) | 14 (13%)   | 5 (4.6%)          | 74 (68.6%)                      | 19 (17.6%) |
| Work manuals and procedures are prepared for workers       | 0 (0%)         | 60 (55.6%) | 10 (9.3%)  | 38 (35.2%) | 0 (0%)            | 60 (55.6%)                      | 38 (35.2%) |
| Regular trainings related to work activities are organized | 0 (0%)         | 50 (46.2%) | 11 (10.2%) | 41 (38%)   | 6 (5.6%)          | 50 (46.2%)                      | 47 (43.6%) |
| Databases of good practices are regularly updated          | 13 (12%)       | 56 (51.8%) | 15 (13.9%) | 20 (18.5%) | 4 (3.7%)          | 69 (63.8%)                      | 24 (22.2%) |

The cumulative percentage showed that the majority (81.5%) of the respondents agreed that minutes are taken to capture ideas during meetings. Furthermore, 68.6% broadly agreed that they

consult their colleagues when undertaking their duties. In addition, the cumulative percentages also showed that 63.8% agreed that databases of good practices are regularly updated. On the other hand, 43.6% broadly disagreed that regular trainings related to work activities are organised, while 35.2% disagreed that work manuals and procedures are prepared for workers. See Table 5 above.

### **4.3 Knowledge storage, sharing practices and methods**

This section of chapter four presents findings on the knowledge storage and sharing practices. On knowledge sharing methods, the respondents were first asked about the extent to which the Authority shares knowledge with different functional units within the company. Following this, they were given statements on knowledge sharing practices in the organisation abstracted from existing research on information and knowledge management (Ongus et al., 2016) and were requested to rate them on a 5 - point Likert scale anchored on “Strongly Agree” to “Strongly Disagree”. Furthermore, the respondents were given a list of 10 knowledge sharing methods, abstracted from the existing research on explicit and tacit knowledge (Gold et al., 2001; Syed-Ikhsan and Rowland, 2004; Nonaka, 2007; Siddique, 2012), and were requested to rate them on a 5-point Likert scale with “not at all” and “most common” endpoints.

#### *4.3.1 Extent of knowledge sharing within ZRA*

In this study, respondents were asked to indicate the extent to which their department shared knowledge with different functional units within the Authority. Their responses are presented in Figure 4 below. The results show that more than half (53.7%) of the respondents indicated that their department shares knowledge with different functional units within the Authority to a moderate extent, whilst 20.4% indicated to a high extent. Some indicated low (23.1%), and only 2.8% indicated none.

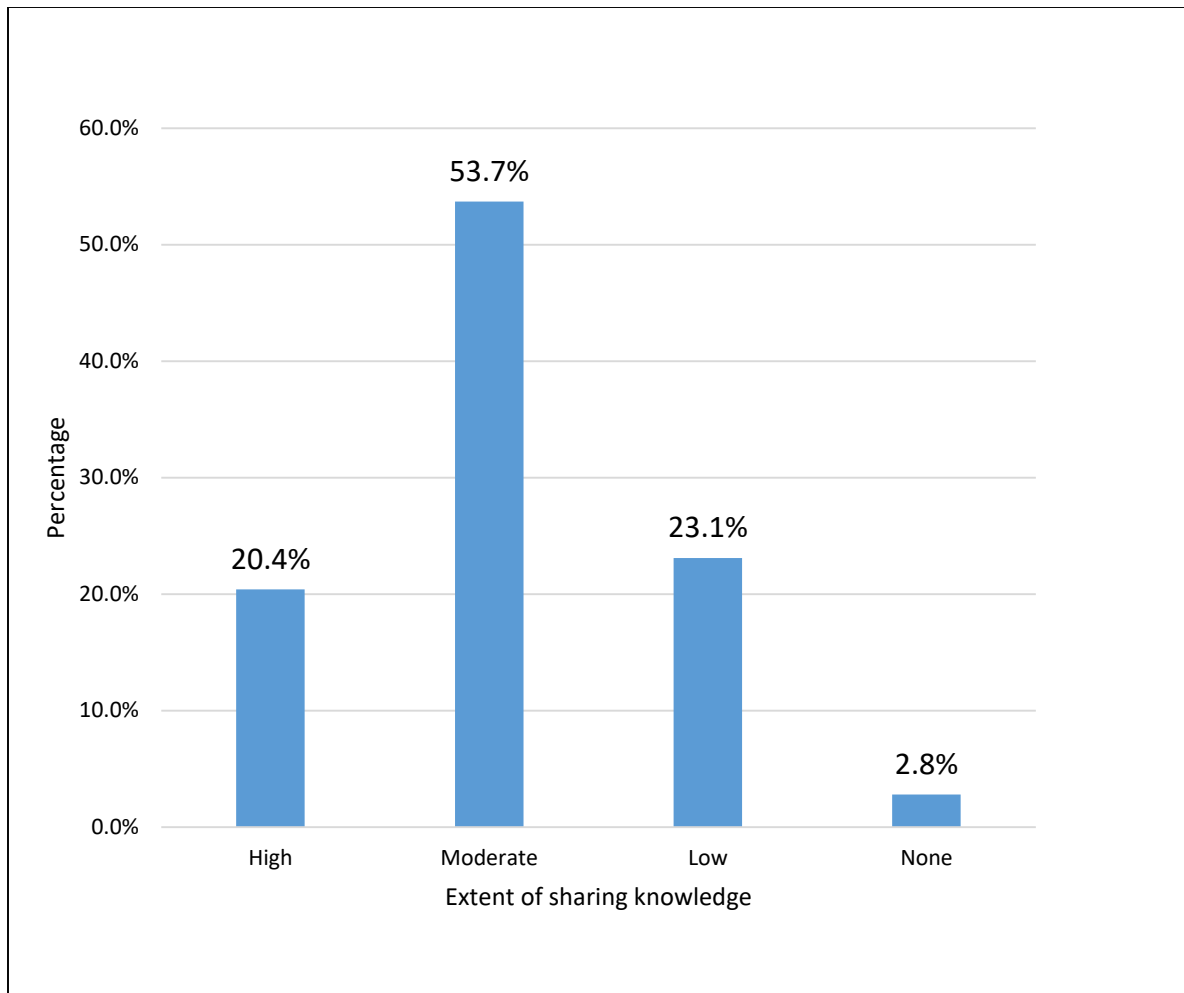


Figure 3: Extent of knowledge sharing within ZRA

#### 4.3.2 Knowledge storage practices

The study investigated the knowledge storage practices through a set of 3 statements to which respondents indicated their level of agreement, disagreement or undecided to the statements related to knowledge storage practices. The cumulative percentages as shown in Table 6 below indicates that the majority (76.9%) of the respondents broadly agreed that the organisation utilises various written devices such as newsletter and manuals, to store the knowledge they capture from employees. Additionally, 70.4% broadly agreed that the organisation has different publications to display the captured knowledge. Finally, the majority (68.5%) also agreed that the organisation has mechanisms to patent and copyright new knowledge.

**Table 6: Knowledge storage practices**

| Statements on knowledge Storage                                                                                                       | Response       |               |               |               |                   | Cumulative Agree & Disagree (%) |               |
|---------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|---------------|---------------|-------------------|---------------------------------|---------------|
|                                                                                                                                       | Strongly Agree | Agree         | Undecided     | Disagree      | Strongly Disagree | Agree                           | Disagree      |
| The organisation utilises various written devices such as newsletter and manuals, to store the knowledge they capture from employees. | 33<br>(30.6%)  | 50<br>(46.3%) | 13<br>(12%)   | 9<br>(8.3%)   | 3<br>(2.8%)       | 83<br>(76.9%)                   | 12<br>(11.1%) |
| The organisation has different publications to display the captured knowledge.                                                        | 12<br>(11.1%)  | 64<br>(59.3%) | 15<br>(13.9%) | 12<br>(11.1%) | 5<br>(4.6%)       | 76<br>(70.4%)                   | 17<br>(15.7%) |
| The organisation has mechanisms to patent and copyright new knowledge.                                                                | 7<br>(6.5%)    | 67<br>(62%)   | 4<br>(3.7%)   | 30<br>(27.8%) | 0<br>(0%)         | 74<br>(68.5%)                   | 30<br>(27.8%) |

#### 4.3.3 Knowledge sharing practices

Respondents in this study were required to rate their level of agreement, disagreement or undecidedness to the statement relating to knowledge sharing practices with the organisation. The cumulative percentage as shown in Table 7 below revealed that the majority (74.1%) of the respondents agreed that new employees are normally taken through an orientation programme, while 73.1% agreed that staff meetings are normally held. Further analysis also indicated that 68.6% broadly agreed that they regularly share their experiences with colleagues. In addition, 68.6% equally agreed that seminars and workshops are normally held for employees. However, the majority (62.1%) broadly disagreed that members of staff are usually rotated in various functions, and 16.7% were undecided on this matter.

**Table 7: Knowledge sharing practices**

| Statements on knowledge sharing practices                         | Response       |               |               |               |                   | Cumulative Agree & Disagree (%) |               |
|-------------------------------------------------------------------|----------------|---------------|---------------|---------------|-------------------|---------------------------------|---------------|
|                                                                   | Strongly Agree | Agree         | Undecided     | Disagree      | Strongly Disagree | Agree                           | Disagree      |
| New employees are normally taken through an orientation programme | 22<br>(20.4%)  | 58<br>(53.7%) | 11<br>(10.2%) | 17<br>(15.7%) | 0<br>(0%)         | 80<br>(74.1)                    | 17<br>(15.7%) |
| Staff meetings are normally held                                  | 12<br>(11.1%)  | 67<br>(62%)   | 14<br>(13%)   | 15<br>(13.9%) | 0<br>(0%)         | 79<br>(73.1%)                   | 15<br>(13.9%) |
| I regularly share my experiences with my colleagues               | 18<br>(16.7%)  | 56<br>(51.9%) | 11<br>(10.2%) | 23<br>(21.3%) | 0<br>(0%)         | 74<br>(68.6%)                   | 23<br>(21.3%) |
| Seminars and workshops are normally held for employees            | 13<br>(12%)    | 61<br>(56.5%) | 7<br>(6.5%)   | 21<br>(19.4%) | 6<br>(5.6%)       | 74<br>(68.6%)                   | 27<br>(25%)   |
| Members of staff are usually rotated in various functions         | 0<br>(0%)      | 23<br>(21.3%) | 18<br>(16.7%) | 53<br>(49.1%) | 14<br>(13%)       | 23<br>(21.3%)                   | 67<br>(62.1%) |

#### 4.3.4 Knowledge sharing methods

Table 8 below presents information on respondents' ratings on the various knowledge sharing methods in terms of how common they use them to share knowledge in the Authority and/or departments. The results indicate that knowledge sharing methods that were rated as very common included, workshops, conferences, and seminars (59.2%), Internet/intranet (57.4%), company web site (55.6%), company's internal documents (47.2%) and meetings/discussion forums (44.4%). Further analysis revealed that knowledge sharing methods like statements/speeches given by senior managers (59.2%), mentoring and coaching (57.4%), training and development programmes (53.7%), and Internal benchmarking (50%) were rated as moderately common. The results also show that project groups and teams (55.6%) were rated as slightly common.

**Table 8: Knowledge sharing methods**

| Knowledge sharing methods                                              | Not at all common | Slightly common | Moderately common | Very common   | Most common |
|------------------------------------------------------------------------|-------------------|-----------------|-------------------|---------------|-------------|
| Meetings/discussion forums                                             | 10<br>(9.3%)      | 17<br>(15.7%)   | 25<br>(23.1%)     | 48<br>(44.4%) | 8<br>(7.4%) |
| Workshops, conferences, and seminars                                   | 0<br>(0%)         | 6<br>(5.6%)     | 24<br>(22.2%)     | 64<br>(59.2%) | 14<br>(13%) |
| Project groups and teams                                               | 18<br>(16.7%)     | 60<br>(55.6%)   | 20<br>(18.5%)     | 10<br>(9.3%)  | 0<br>(0%)   |
| Company's internal documents (reports, policy papers and publications) | 24<br>(22.2%)     | 17<br>(15.7%)   | 16<br>(14.8%)     | 51<br>(47.2%) | 0<br>(0%)   |
| Training and development programmes                                    | 20<br>(18.5%)     | 10<br>(9.3%)    | 58<br>(53.7%)     | 20<br>(18.5%) | 0<br>(0%)   |
| Mentoring and coaching                                                 | 29<br>(26.9%)     | 17<br>(15.7%)   | 62<br>(57.4%)     | 0<br>(0%)     | 0<br>(0%)   |
| Internal benchmarking                                                  | 6<br>(5.6%)       | 42<br>(38.7%)   | 54<br>(50%)       | 6<br>(5.6%)   | 0<br>(0%)   |
| Statements/speeches given by senior managers                           | 15<br>(13.9%)     | 23<br>(21.3%)   | 64<br>(59.2%)     | 6<br>(5.6%)   | 0<br>(0%)   |
| Company web site                                                       | 15<br>(13.9%)     | 10<br>(9.3%)    | 18<br>(16.7%)     | 60<br>(55.6%) | 5<br>(4.6%) |
| Internet/intranet                                                      | 12<br>(11.1%)     | 6<br>(5.6%)     | 28<br>(25.9%)     | 62<br>(57.4%) | 0<br>(0%)   |

#### 4.3.5 Knowledge dissemination - sharing practices amongst employees

The study also investigated knowledge dissemination - sharing practices through a series of statements to which respondents indicated their level of agreement, disagreement or undecided to the statements related to knowledge dissemination-sharing practices in the organisation. The

results as shown in Table 9 below revealed that the majority (81.5%) of the respondents broadly agreed with the statement that employees routinely and voluntarily shared relevant information with other parts of the organisation where it may be needed. In addition, 79.6% broadly agreed that the organisation sends out timely reports with appropriate information to employees, customers, and other relevant organisations. Whilst 74.1% also broadly agreed that the organisation has libraries, resource centre, and other forums to display, share and disseminate knowledge. It was evident from the results that problem of hoarding (keeping) knowledge does not exist and employees willingly share their knowledge with co-workers, as 68.5% broadly agreed to this statement. What emerged from the findings was that there is presence of expertise and skills transfer in the Authority. This was clear from the cumulative percentages which revealed that 64.8% broadly disagreed, that expertise and skills were not effectively transferred to junior staff from more experienced employees. Furthermore, 60.2% broadly disagreed that employees often do not know where in the organisation to find specialised knowledge and information.

**Table 9: Knowledge dissemination - sharing practices amongst employees**

| Statements on knowledge sharing practices                                                                                        | Response       |               |               |               |                   | Cumulative Agree & Disagree (%) |               |
|----------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|---------------|---------------|-------------------|---------------------------------|---------------|
|                                                                                                                                  | Strongly Agree | Agree         | Un decided    | Dis-agree     | Strongly Disagree | Agree                           | Dis-agree     |
| The organisation sends out timely reports with appropriate information to employees, customers, and other relevant organisations | 19<br>(17.6%)  | 67<br>(62%)   | 8<br>(7.4%)   | 14<br>(13%)   | 0<br>(0%)         | 86<br>(79.6%)                   | 14<br>(13%)   |
| The organisation has libraries, resource centre, and other forums to display and disseminate knowledge.                          | 12<br>(11.1%)  | 68<br>(63%)   | 10<br>(9.3%)  | 18<br>(16.6%) | 0<br>(0%)         | 80<br>(74.1%)                   | 18<br>(16.6%) |
| Employees often do not know where in the organisation to find specialized knowledge and information                              | 0<br>(0%)      | 17<br>(15.7%) | 26<br>(24.1%) | 65<br>(60.2%) | 0<br>(0%)         | 17<br>(15.7%)                   | 65<br>(60.2%) |
| The problem of hoarding (keeping) knowledge does not exist and employees willingly share their knowledge with co-workers         | 13<br>(12%)    | 61<br>(56.5%) | 15<br>(13.7%) | 19<br>(17.6%) | 0<br>(0%)         | 74<br>(68.5%)                   | 19<br>(17.6%) |
| Expertise and skills are not effectively transferred to junior staff from more experienced employees                             | 7<br>(6.5%)    | 21<br>(19.4)  | 10<br>(9.3%)  | 58<br>(53.7%) | 12<br>(11.1%)     | 28<br>(25.9%)                   | 70<br>(64.8%) |
| Employees routinely and voluntarily share relevant information with other parts of the organisation where it may be needed       | 22<br>(20.4%)  | 66<br>(61.1%) | 12<br>(11.1%) | 8<br>(7.4%)   | 0<br>(0%)         | 88<br>(81.5%)                   | 8<br>(7.4%)   |

#### 4.3.5 Knowledge application practices within ZRA

To measure knowledge application, respondents were given statements on knowledge application practices in the organisation adapted from existing research (Lawson, 2003; Bakar, et al., 2014) and were requested to rate them on a 5-point Likert scale anchored on “Strongly Agree” to “Strongly Disagree. Knowledge application practices in this study were examined through a series of statements to which respondents indicated their level of agreement, disagreement and undecided. The cumulative percentages in Table 10 below show that the majority (72.2%) of the respondents broadly agreed that the organisation has different methods for employees to further develop their knowledge and apply them to new situations, while 18.5% disagreed on this matter. In addition, 65.7% broadly agreed that the organisation has a mechanism to protect knowledge from inappropriate or illegal use inside and outside the organisation, whilst 28.7% disagreed on this matter. The cumulative percentages also showed that 66.7% agreed that the organisation applies knowledge to critical competitive needs and quickly links sources of knowledge in problem solving. Going further, more than half (57.4%) broadly agreed that the organisation has methods to analyse and critically evaluate knowledge to generate new patterns and knowledge for future use; however, 27.8% broadly disagreed on this matter.

**Table 10: Knowledge application practices within ZRA**

| Statements on knowledge application practices                                                                                  | Response       |               |               |               |                   | Cumulative Agree & Disagree (%) |               |
|--------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|---------------|---------------|-------------------|---------------------------------|---------------|
|                                                                                                                                | Strongly Agree | Agree         | Undecided     | Disagree      | Strongly Disagree | Agree                           | Disagree      |
| The organisation has different methods for employees to further develop their knowledge and apply them to the new situations.  | 19<br>(17.6%)  | 59<br>(54.6%) | 10<br>(9.3%)  | 20<br>(18.5%) | 0<br>(0%)         | 78<br>(72.2%)                   | 20<br>(18.5%) |
| The organisation has a mechanism to protect knowledge from inappropriate or illegal use inside and outside the organisation    | 21<br>(19.4%)  | 50<br>(46.3%) | 6<br>(5.6%)   | 28<br>(25.9%) | 3<br>(2.8%)       | 71<br>(65.7%)                   | 31<br>(28.7%) |
| Our organisation applies knowledge to critical competitive needs and quickly links sources of knowledge in problem solving.    | 18<br>(16.7%)  | 54<br>(50%)   | 13<br>(12%)   | 23<br>(21.3%) | 0<br>(0%)         | 72<br>(66.7%)                   | 23<br>(21.3%) |
| The organisation has methods to analyse and critical evaluate knowledge to generate new patterns and knowledge for future use. | 10<br>(9.3%)   | 52<br>(48.1%) | 16<br>(14.8%) | 30<br>(27.8%) | 0<br>(0%)         | 62<br>(57.4%)                   | 30<br>(27.8%) |

#### 4.4. Knowledge management and organisational performance

##### 4.4.1 Organisational performance and strategic objectives

Respondents in this study were asked to rate the overall performance of the Authority in attaining its strategic goals. Their responses are presented in Figure 5 reveals that more than half (52.8%) of the respondents rated the overall performance of the Authority as meeting its standards, and 25.9% indicated above standards. The rest indicated far above standards (13.0%) and below standards (8.3%) at the time of the study.

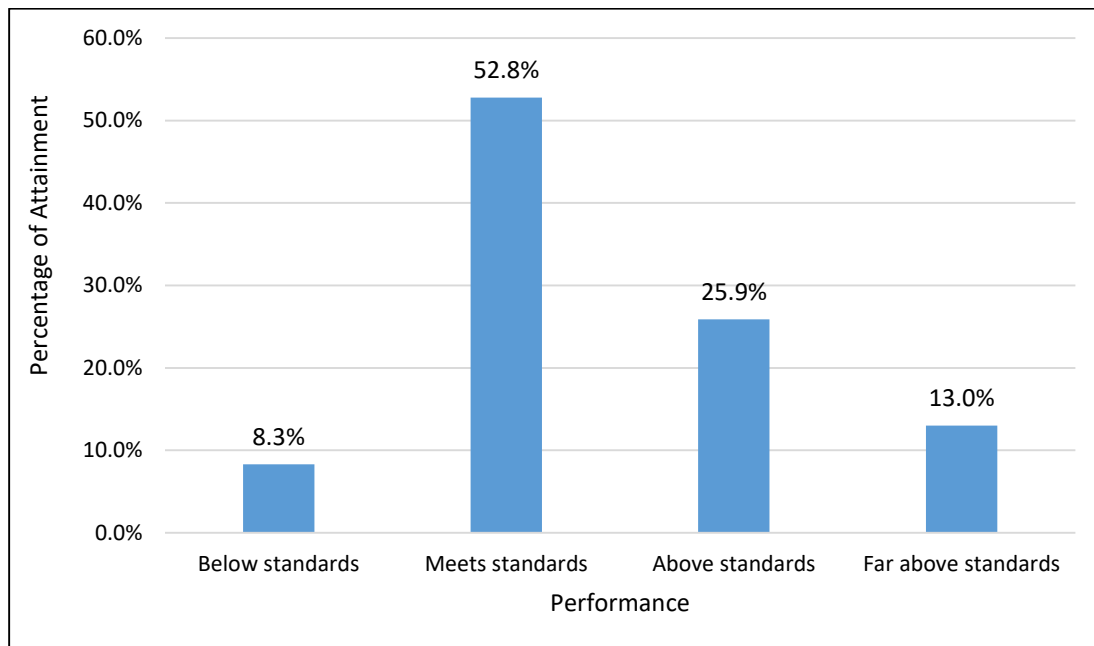


Figure 4: Strategic goals attainment

##### 4.4.2 Organisational effectiveness against stated objectives

Organisational effectiveness measured by the average Likert measurements for the variables of (1) Strongly Agree, (2) Agree, (3) Undecided, (4) Disagree and (5) Strongly Disagree. The results as presented in Table 11 below reveals that cumulatively the majority (80.5%) of the respondents broadly agreed that weekly operations objectives are regularly met, while 13% were undecided on this matter. Furthermore, 78.7% broadly agreed that the organisation is effective at managing its external interfaces (i.e., the regulator, public, suppliers, contractors), and only 16.7% disagreed on this matter.

**Table 11: Organisational effectiveness**

|                                                                    | Response       |             |             |               |                   | Cumulative Agree & Disagree (%) |               |
|--------------------------------------------------------------------|----------------|-------------|-------------|---------------|-------------------|---------------------------------|---------------|
| Statements on organisational performance                           | Strongly Agree | Agree       | Un decided  | Disagree      | Strongly Disagree | Agree                           | Disagree      |
| Weekly operations objectives are regularly met                     | 20<br>(18.5%)  | 67<br>(62%) | 14<br>(13%) | 7<br>(6.5%)   | 0<br>(0%)         | 87<br>(80.5%)                   | 7<br>(6.5%)   |
| The organisation is effective at managing its external interfaces. | 31<br>(28.7%)  | 54<br>(50%) | 5<br>(4.6%) | 11<br>(10.2%) | 7<br>(6.5%)       | 85<br>(78.7%)                   | 18<br>(16.7%) |

#### **4.5 Relationship between knowledge management practices and organisational performance**

Regression analysis was conducted to predict organisational performance (outcome variable) based on the KM practices (predictor variables). Age, gender and job position were used as control variables. Before testing the hypotheses, it was important to conduct preliminary statistical analysis.

##### *4.5.0 Preliminary Statistical Analysis*

Before the hypotheses testing could be conducted, preliminary statistical analyses were conducted on the data. This section mainly focused on data for the independent variables and the dependent variable. The analysis included: Descriptive Statistics, Factor and Reliability analyses and hierarchical regression, respectively.

##### *4.5.1 Descriptive statistics*

Descriptive statistics were very useful in describing and summarising the data relating to the study variables. The main focus of the descriptive statistics analysis was to calculate frequencies, means, standard deviations, kurtosis and the skewness. The skewness was useful in showing the symmetry distribution of the data, whilst the kurtosis provided information on the 'peakedness' of the distribution of the data (Pallant, 2016). Additionally, the skewness and kurtosis were useful in the assessment of the data for the violation of normality. The recommended values of the skewness and kurtosis should be between +2 and -2 to provide evidence that there is no serious deviation from normal univariate distribution of the data (George & Mallery, 2010).

Data was collected using a 5-point Likert Scale with 1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree, and 5-Strongly agree. Thus, mean values significantly greater than 3.5 meant that, on average, the respondents agreed or strongly agreed with the statement on the factor, whilst mean values significantly less than 2.5 indicated that, on average, the respondents disagreed or strongly disagreed with the statement on the factor. Whereas, mean values between 2.5 and 3.5 indicated that, on average, the respondents were undecided or neutral with regards to the statement on the factor.

Table 12 below presents the descriptive statistics of the study variables. The mean ranged from 2.39 to 4.10, while standard deviation ranged from 0.534 to 1.223. The skewness of all the variables ranged from -1.136 to 0.453 which was within the range of -2 to +2. Furthermore, the kurtosis of all the variables ranged from -1.771 to 0.944, these values were within the range of -2 to +2. Hence, it can be concluded that from this that, the study variables did not deviate from normality.

*Table 12. Descriptive statistics of study variables*

| Variable                  | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Mean | ST Deviation | Skewness | Kurtosis |
|---------------------------|----------------|-------|---------|----------|-------------------|------|--------------|----------|----------|
| capture and aquisition_1  | 57             | 23    | 14      | 10       | 4                 | 4.10 | 1.168        | -1.135   | 0.228    |
| capture and acquisition_2 | 14             | 60    | 15      | 14       | 5                 | 3.59 | 1.023        | -0.921   | 0.287    |
| capture and acquisition_3 | 0              | 60    | 9       | 39       | 0                 | 3.19 | 0.942        | -0.401   | -1.771   |
| capture and acquisition_4 | 0              | 50    | 11      | 41       | 6                 | 2.97 | 1.036        | -0.252   | -1.516   |
| capture and acquisition_5 | 4              | 56    | 15      | 29       | 4                 | 3.25 | 1.015        | -0.522   | -0.957   |
| storage_1                 | 50             | 33    | 13      | 9        | 3                 | 4.09 | 1.081        | -1.136   | 0.527    |
| storage_2                 | 12             | 64    | 15      | 12       | 5                 | 3.61 | 0.984        | -1.065   | 0.721    |
| storage_3                 | 7              | 67    | 4       | 30       | 0                 | 3.47 | 0.971        | -0.638   | -1.036   |
| sharing_1                 | 20             | 56    | 14      | 18       | 0                 | 3.72 | 0.955        | -0.593   | -0.526   |
| sharing_2                 | 12             | 67    | 14      | 15       | 0                 | 3.70 | 0.846        | -0.806   | 0.088    |
| sharing_3                 | 22             | 58    | 11      | 17       | 0                 | 3.79 | 0.948        | -0.700   | -0.325   |
| sharing_4                 | 13             | 61    | 2       | 21       | 11                | 3.41 | 1.223        | -0.765   | -0.687   |
| sharing_5                 | 0              | 23    | 14      | 43       | 18                | 2.39 | 1.003        | 0.453    | -0.888   |
| sharing_6                 | 19             | 67    | 8       | 14       | 0                 | 3.84 | 0.866        | -0.917   | 0.414    |
| sharing_7                 | 12             | 68    | 10      | 18       | 0                 | 3.69 | 0.882        | -0.831   | -0.086   |
| sharing_8                 | 0              | 17    | 66      | 25       | 0                 | 2.93 | 0.622        | 0.049    | -0.380   |
| sharing_9                 | 0              | 12    | 77      | 19       | 0                 | 2.94 | 0.534        | -0.064   | 0.548    |
| sharing_10                | 21             | 65    | 10      | 12       | 0                 | 3.88 | 0.851        | -0.879   | 0.479    |
| sharing_11                | 21             | 67    | 12      | 8        | 0                 | 3.94 | 0.777        | -0.862   | 0.944    |
| utilisation_1             | 19             | 59    | 10      | 20       | 0                 | 3.71 | 0.967        | -0.655   | -0.519   |
| utilisation_2             | 19             | 52    | 6       | 28       | 3                 | 3.52 | 1.14         | -0.51    | -0.951   |
| utilisation_3             | 18             | 54    | 13      | 23       | 0                 | 3.62 | 1.002        | -0.48    | -0.862   |
| utilisation_4             | 10             | 52    | 16      | 30       | 0                 | 3.39 | 0.994        | -0.268   | -1.194   |
| performance_1             | 20             | 67    | 14      | 7        | 0                 | 3.93 | 0.758        | -0.795   | 0.912    |
| performance_2             | 19             | 49    | 10      | 30       | 0                 | 3.53 | 1.080        | -0.322   | -1.230   |
| performance_3             | 12             | 41    | 5       | 44       | 6                 | 3.08 | 1.208        | 0.032    | -1.396   |

#### **4.5.2 Principal Component Analysis**

A Principal Components Analysis (PCA) was used to reduce the indicators to components so that further analysis could take place.

##### **4.5.2.1 Evaluation of assumptions**

In order for the Principal components analysis to be conducted on the data, the following assumptions had to be met.

Assumption 1: There are multiple variables measured at the continuous level (ordinal data is also considered). The questionnaire consisted of 26 statements that measured five constructs at the ordinal level of measurement (Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree and Strongly Agree).

Assumption 2: There should be a linear relationship between all variables. This was tested using the correlation matrix (See Appendix 2). According to Laerd Statistics (2015), the level of correlation considered worthy of a variable's inclusion is usually  $r \geq 0.3$ . In this data set, none of the items violated this assumption.

Assumption 3: There should be a large sample size - 10 cases per variable was the rule of thumb used to determine this assumption (Tabachnick and Fidell, 2014). Only a total of 20 variables met the minimum factor loading of 0.7, this translates into a minimum of 200 cases. The data set for the analysis had 108 cases; hence, this assumption was met.

#### 4.5.2.2 *Sampling Adequacy*

The data set was tested for sampling adequacy using the KMO Index. The KMO for this data is 0.752, which is acceptable according to Kaiser (1974). All KMO measures for the individual items were above 0.6 except for knowledge sharing\_5 and knowledge utilisation\_3 (see Table 14 below).

*Table 13: KMO and Bartlett's Test*

| <b>KMO and Bartlett's Test</b>                   |                    |          |
|--------------------------------------------------|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | .752     |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 5373.488 |
|                                                  | df                 | 136      |
|                                                  | Sig.               | .000     |

Table 14: KMO Values for the Individual Variables

| Item                               | KMO Measure |
|------------------------------------|-------------|
| knowledge storage_3                | 0.784       |
| knowledge storage_2                | 0.848       |
| knowledge storage_1                | 0.811       |
| knowledge capture & acquisition_3  | 0.801       |
| knowledge capture & acquisition _2 | 0.868       |
| knowledge capture & acquisition _4 | 0.807       |
| knowledge capture & acquisition _1 | 0.894       |
| knowledge sharing_2                | 0.637       |
| knowledge sharing_1                | 0.643       |
| knowledge sharing_4                | 0.872       |
| knowledge sharing_3                | 0.855       |
| knowledge sharing_5                | 0.531       |
| knowledge sharing_7                | 0.622       |
| knowledge sharing_9                | 0.712       |
| knowledge utilisation _2           | 0.700       |
| knowledge utilisation_3            | 0.506       |
| knowledge utilisation_4            | 0.802       |
| organisational_performance_1       | 0.722       |
| organisational performance_2       | 0.760       |
| organisational performance_3       | 0.629       |

#### *4.5.2.3 Bartlett's Test of Sphericity*

Bartlett's test of sphericity tests whether the correlation matrix is an identity matrix. Bartlett's test of sphericity is statistically significant ( $p < 0.05$ ) (see Table 13 above); therefore, the correlation matrix is not an identity matrix. This indicates that the data was suitable for a Principal component analysis.

#### **4.5.2.4 The Results of the Principal Components Analysis**

A Principal Components Analysis (PCA) was run on a 26-question questionnaire that measured the link between knowledge management practices and organisation performance. The suitability of PCA was assessed before conducting the analysis. The correlation matrix showed that all the 26 variables had at least one correlation coefficient greater than 0.3. The overall Kaiser-Meyer-Olkin (KMO) measure was 0.752, with all the individual KMO measures greater than the minimum acceptable cut-off of 0.6 (except knowledge sharing\_5 and knowledge utilisation\_3), Bartlett's test of sphericity was statistically significant ( $p < .005$ ), indicating that the data was likely factorizable.

The Principal Components Analysis extracted five components which explained 27.352%, 17.644%, 16.760%, 11.095% and 6.183% of the total variance, respectively (see Appendix 2 for outputs). Visual inspection of the scree plot showed that five components should be retained (Cattell, 1966). Additionally, only five-component satisfied the requirements of the interpretability criterion. As such, six components were retained: Knowledge Capture and Acquisition, Knowledge Sharing, Knowledge Storage, Knowledge Utilisation and Organisational Performance.

The five-component solution explained 84.036 % of the total variance. To aid in interpreting this, a Varimax orthogonal rotation was utilized. The rotated solution exhibited a 'simple structure' (Thurstone, 1947). The interpretation of the data was in line with the attributes the questionnaire which was designed to measure with strong loadings of Knowledge Storage (1), Knowledge Capture and Acquisition (2), Knowledge Sharing (3), Knowledge Utilisation (4) and Organisational Performance (5). Table 15 below presents component loadings and communalities of the rotated solution (the full outputs are in Appendix 2).

Table 15 The Rotated Component Matrix with Varimax Rotation

|                                                     | Rotated Component Matrix <sup>a</sup> |              |              |              |              |               |
|-----------------------------------------------------|---------------------------------------|--------------|--------------|--------------|--------------|---------------|
|                                                     | Component                             |              |              |              |              |               |
|                                                     | 1                                     | 2            | 3            | 4            | 5            | Communalities |
| knowledge storage_3                                 | <b>0.923</b>                          | 0.081        | 0.026        | 0.065        | 0.186        | 0.628         |
| knowledge storage_2                                 | <b>0.891</b>                          | 0.030        | 0.043        | 0.068        | 0.188        | 0.629         |
| knowledge storage_1                                 | <b>0.884</b>                          | 0.093        | 0.093        | -0.026       | 0.099        | 0.747         |
| knowledge capture & acquisition_3                   | 0.058                                 | <b>0.963</b> | 0.021        | 0.077        | 0.169        | 0.652         |
| knowledge capture & acquisition_2                   | 0.046                                 | <b>0.940</b> | 0.023        | 0.045        | 0.054        | 0.604         |
| knowledge capture & acquisition_4                   | 0.031                                 | <b>0.912</b> | 0.004        | 0.058        | 0.044        | 0.799         |
| knowledge capture & acquisition_1                   | 0.072                                 | <b>0.871</b> | 0.035        | 0.055        | -0.008       | 0.783         |
| knowledge sharing_2                                 | 0.045                                 | 0.019        | <b>0.945</b> | -0.078       | 0.058        | 0.767         |
| knowledge sharing_1                                 | 0.033                                 | 0.040        | <b>0.946</b> | -0.042       | 0.167        | 0.665         |
| knowledge sharing_4                                 | 0.025                                 | -0.014       | <b>0.902</b> | -0.048       | 0.071        | 0.732         |
| knowledge sharing_3                                 | 0.018                                 | 0.027        | <b>0.807</b> | -0.046       | 0.074        | 0.746         |
| knowledge sharing_5                                 | 0.116                                 | 0.039        | <b>0.801</b> | 0.152        | -0.098       | 0.694         |
| knowledge sharing_7                                 | 0.111                                 | 0.030        | <b>0.753</b> | 0.163        | 0.155        | 0.653         |
| knowledge sharing_9                                 | 0.032                                 | 0.143        | <b>0.728</b> | 0.128        | 0.031        | 0.726         |
| knowledge utilisation_2                             | 0.304                                 | 0.102        | -0.014       | <b>0.934</b> | 0.043        | 0.603         |
| knowledge utilisation_3                             | 0.245                                 | -0.003       | -0.015       | <b>0.931</b> | 0.061        | 0.754         |
| knowledge utilisation_4                             | 0.425                                 | -0.006       | 0.047        | <b>0.889</b> | 0.003        | 0.802         |
| organisational_performance_1                        | 0.040                                 | 0.274        | 0.110        | -0.043       | <b>0.899</b> | 0.739         |
| organisational_performance_2                        | 0.092                                 | 0.029        | 0.005        | 0.164        | <b>0.876</b> | 0.692         |
| organisational_performance_3                        | 0.018                                 | 0.216        | 0.072        | 0.243        | <b>0.803</b> | 0.643         |
| Extraction Method: Principal Component Analysis.    |                                       |              |              |              |              |               |
| Rotation Method: Varimax with Kaiser Normalization. |                                       |              |              |              |              |               |
| a. Rotation converged in 5 iterations               |                                       |              |              |              |              |               |

#### 4.5.3 Reliability Analysis

Since a questionnaire was used to compute dissimilar, basic constructs, reliability analysis had to be carried out on the data. The Cronbach alphas of the variable constructs are shown in Table 16 below. The outputs for the reliability analysis are attached in appendix 2.

*Table 16 Reliability Analysis*

| <b>Construct</b>                | <b>Item</b>                                                                                                                                                   | <b>Cronbach's Alpha</b> |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Knowledge Storage               | knowledge storage_1<br>knowledge storage_2<br>knowledge storage_3                                                                                             | 0.931                   |
| Knowledge capture & acquisition | knowledge capture & acquisition_1<br>knowledge capture & acquisition _2<br>knowledge capture & acquisition _3<br>knowledge capture & acquisition _4           | 0.915                   |
| Knowledge sharing               | knowledge sharing_1<br>knowledge sharing_2<br>knowledge sharing_3<br>knowledge sharing_4<br>knowledge sharing_5<br>knowledge sharing_7<br>knowledge sharing_9 | 0.886                   |
| Knowledge utilisation           | knowledge utilisation _2<br>knowledge utilisation_3<br>knowledge utilisation_4                                                                                | 0.895                   |
| Organisational performance      | organisational_performance_1<br>organisational performance_2<br>organisational performance_3                                                                  | 0.846                   |

A rule of thumb for Cronbach's alpha provided by George and Mallery (2010), is shown in **Table 17** below. **Table 16** above shows that all the variable constructs had cronbach's alpha values greater than .8, which were in the range between 'good' and 'Excellent'.

Table 17: Cronbach's Alpha Classifications

| Alpha Coefficient Range  | Interpretation |
|--------------------------|----------------|
| $\alpha < 0.5$           | Not acceptable |
| $\alpha > 0.5$           | Poor           |
| $\alpha > 0.6$           | Questionable   |
| $\alpha > 0.7$           | Acceptable     |
| $\alpha > 0.8$           | Good           |
| $0.9 < \alpha \leq 0.95$ | Excellent      |

#### 4.5.4 Component-Based Scores

A component-based score is an average of the scores on all the items that loaded strongly on a particular component. For example, Knowledge storage 1, 2 and 3 all loaded strongly on Component 1, associated with Knowledge storage items. Each item's scores were averaged to generate a component-based score for Knowledge storage. The component-based scores for the five components (which will now be known as variables) were used in the hierarchical multiple regression below.

Table 18. below shows the means, standard deviations and correlation coefficients for the four independent variables, the control variables and the dependent variable (Organisational Performance).

Table 18: Correlation Matrix and Descriptive Statistics of Study Variables

|                                                            |                                 | Mean  | Std. Dev | Correlations |         |        |        |        |       |        |         |   |
|------------------------------------------------------------|---------------------------------|-------|----------|--------------|---------|--------|--------|--------|-------|--------|---------|---|
|                                                            |                                 |       |          | 1            | 2       | 3      | 4      | 5      | 6     | 7      | 8       | 9 |
| 1                                                          | Organisational Performance      | 3.670 | 1.023    | 1            |         |        |        |        |       |        |         |   |
| 2                                                          | Knowledge Capture & Acquisition | 3.373 | 1.117    | 0.140**      | 1       |        |        |        |       |        |         |   |
| 3                                                          | Knowledge Storage               | 3.971 | 0.974    | 0.156**      | 0.014   | 1      |        |        |       |        |         |   |
| 4                                                          | Knowledge Sharing               | 3.142 | 1.210    | 0.554**      | 0.133*  | 0.110* | 1      |        |       |        |         |   |
| 5                                                          | Knowledge Utilisation           | 2.783 | 1.480    | 0.154**      | 0.307** | -0.011 | 0.077  | 1      |       |        |         |   |
| 6                                                          | Job position                    | 3.571 | 1.044    | 0.221        | 0.066   | 0.045  | 0.122* | 0.020  | 1     |        |         |   |
| 7                                                          | Gender                          | 1.660 | 0.473    | -0.001       | 0.063   | 0.008  | 0.030  | -0.06  | -0.05 | 1      |         |   |
| 8                                                          | Education                       | 4.340 | 0.666    | 0.067        | 0.045   | 0.049  | 0.049  | 0.118* | 0.06  | -0.35  | 1       |   |
| 9                                                          | Age                             | 2.890 | 0.740    | 0.065        | 0.024   | 0.038  | 0.006  | 0.101  | 0.02  | 0.106* | 0.754** | 1 |
| ** Correlation is significant at the 0.01 level (2-tailed) |                                 |       |          |              |         |        |        |        |       |        |         |   |
| * Correlation is significant at the 0.05 level (2-tailed)  |                                 |       |          |              |         |        |        |        |       |        |         |   |

Table 18 above indicates that: none of the control variables (Job Position, Gender, Age, and education) were significantly related to the dependent variable (Organisational Performance) at the .05 level of significance. All of the independent variables (Knowledge capture and acquisition, Knowledge storage, Knowledge Sharing and Knowledge utilisation) were significantly related to the dependent variable at the .01 level of significance. The correlation matrix in Table 18 above also helps us assess if multi-collinearity occurs upon conducting an Ordinary Least Square multiple regression analysis. All the continuous independent variables have correlations less than 0.7 therefore, multi-collinearity would not occur.

#### 4.5.5 Hierarchical Multiple Regression Analysis

In order for a hierarchical multiple regression to be conducted; the following assumptions were made, based on characteristics exhibited by the data.

##### 4.5.6 Evaluation of assumptions

**Assumption #1:** One dependent variable measured at a continuous level (i.e., the interval or ratio level).

After the components-based scores procedure, the variable Organisational Performance became continuous.

**Assumption #2:** One or more independent variables measured on a continuous scale.

In this study, the following independent variables were considered continuous variables after the component-based score procedure; Knowledge capture and acquisition, Knowledge storage, Knowledge Sharing and Knowledge utilisation. The control variables used were: Job Position (Ordinal), Gender of the Respondent (nominal), Age of the Respondent (ordinal), and Education Level of the Respondent (ordinal).

**Assumption #3:** There should be independence of errors (residuals).

This was assessed using the Durbin-Watson statistic. The Durbin Watson statistic was 2.046 which is between 1.5 and 2.5 and therefore the data is not auto-correlated. As such, this assumption was met.

**Assumption#4:** A linear relationship should exist between the predictor variables and the dependent variable.

To assess whether a linear relationship existed between the dependent and independent variables a scatter plot of the studentised residuals against the unstandardised predicted values was plotted (see appendix 3). The residuals form a horizontal band.

Therefore, the relationship between the dependent variable and independent variables is linear.

To establish if a linear relationship exists between the dependent variable and each of independent variables, partial regression plots were evaluated.

*Knowledge capture & acquisition:* A partial regression plot in Appendix 3 shows a linear relationship between Knowledge capture & acquisition and Organisational Performance.

*Knowledge storage:* A partial regression plot in Appendix 3 shows a linear relationship between Knowledge sharing and Organisational Performance.

*Knowledge sharing:* A partial regression plot in Appendix 3 shows a linear relationship between Knowledge sharing and Organisational Performance.

*Knowledge utilisation:* A partial regression plot in Appendix 3 shows a linear relationship between Knowledge utilisation and Organisational Performance.

**Assumption #5:** There should be homoscedasticity of residuals

This assumption was assessed by inspecting the plotted graph of studentised residuals against the unstandardised predicted values (see Appendix 3). The residuals appear randomly scattered. Therefore, this assumption was met.

**Assumption#6:** There should be no multicollinearity

To check for multi collinearity, correlation coefficient/ VIF values were inspected. None of the independent variables in Table 18 had correlations greater than .7. Additionally, in the regression coefficient output in Appendix 3, none of the VIF is greater than 5. Therefore, this assumption was met.

**Assumption#7:** There should be no significant outliers, high leverage points or highly influential points.

To check for outliers, the residual statistics output was inspected. Values greater than  $\pm 3$  are an indication of the presence of an outlier. From the residual statistics table in Appendix 3, none of the residual values are outside  $\pm 3$ ; thus, the data did not have outliers.

Leverage values less than 0.2 are safe, 0.2 to less than 0.5 are risky, and values of 0.5 and above are dangerous (Huber, 1981). From the residual statistics table in Appendix 3, the maximum leverage point is 0.061, and the minimum leverage point is .004. Therefore, there is no evidence of serious high leverage points.

Cook's Distance values for each case were inspected to check for influential points. From the residual statistics in Appendix 3, the maximum Cook's value is .036, and the minimum value is .000. There were no Cook's Distance values above 1, therefore no evidence of an influential case (Cook and Weisberg, 1982).

**Assumption #8:** Errors (residuals) should be approximately normally distributed.

Two methods were used to check for the residuals' normality assumptions: A histogram with a superimposed normal curve and a P- P Plot.

The histogram in Appendix 3 shows that the standardized residuals appear to be approximately normally distributed. To confirm this finding, the P-P Plot was examined. From the P-P Plot in Appendix 3, the points are not perfectly aligned along the diagonal line; however, they are close enough to indicate that residuals are close enough to normal for the analysis to proceed.

#### 4.5.7 Interpretation of the Findings

A hierarchical multiple regression was conducted to determine whether there is a relationship between Knowledge capture & acquisition, Knowledge storage, Knowledge Sharing and Knowledge utilisation and Organisational Performance over and above the control variables of Job Position, Gender of the Respondent, Age of the Respondent, and Education Level of the Respondent. See Table 19 below for full details on each regression model.

*Table 19: Hierarchical Multiple Regression with Client Satisfaction as the dependable variable*

|                                 | Organisational Performance |         |          |         |
|---------------------------------|----------------------------|---------|----------|---------|
|                                 | Model 1                    |         | Model 2  |         |
|                                 | B                          | $\beta$ | B        | $\beta$ |
| Variable                        |                            |         |          |         |
| Constant                        | 3.144                      |         | 1.097    |         |
| Job position                    | 0.024                      | 0.019   | 0.213    | 0.107   |
| Gender                          | 0.042                      | 0.020   | -0.044   | -0.020  |
| Education                       | 0.070                      | 0.046   | -0.100   | -0.066  |
| Age                             | 0.052                      | 0.038   | 0.138    | 0.101   |
| Knowledge capture & acquisition |                            |         | 0.110    | 0.105*  |
| Knowledge storage               |                            |         | 0.457    | .544**  |
| Knowledge sharing               |                            |         | 0.070    | .101*   |
| knowledge utilisation           |                            |         | 0.000    | 0.000   |
| R squared                       | 0.006                      |         | 0.393    |         |
| F                               | 0.722                      |         | 29.266** |         |
| Adjusted R Squared              | 0.006                      |         | 0.387    |         |
| Adjusted F                      | 0.722                      |         | 46.125** |         |
| Note: n=108 *p<.05 **p<.01      |                            |         |          |         |

There was linearity as assessed by the graphs of the partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as demonstrated by a Durbin-Watson statistic of 2.046. There was homoscedasticity, as concluded by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as demonstrated by correlations and Variance Inflation Factors (VIFs). There was no studentized deleted residual greater than  $\pm 3$  standard deviations, no leverage value

greater than 0.2, and none of the values for Cook's distance was above 1. The assumption of normality was met, as assessed by the histogram of residuals and the P-P Plot.

The full model of Job Position, Gender, Age, Education Level, Knowledge capture & acquisition, Knowledge storage, Knowledge Sharing and Knowledge utilisation was statistically significant  $R^2 = .393$ ,  $F(3, 102) = 29.266$ ,  $p < .05$ ; adjusted  $R^2 = .387$ . This means that almost 40% of the variability or changes in the dependent variable (Organisational Performance). The addition of the control variables of Job Position, Gender of the Respondent, Age of Respondent, and Education Level of the Respondent did not lead to a statistically significant change in  $R^2$  of .006,  $F(2, 95) = 0.722$ ,  $p > .05$ .

#### 4.5.8 Hypothesis Testing

*Table 20: Hypothesis Testing Results*

| Hypothesis                                                                                                                                 | t - value | p - value   | Comment          |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------|------------------|
| <b>H1:</b> There is a significant and positive relationship between knowledge capture & acquisition sources and organisational performance | 2.338     | <b>.020</b> | <b>Supported</b> |
| <b>H2:</b> There is a significant and positive relationship between knowledge storage practices and organisational performance             | 2.545     | <b>.011</b> | <b>Supported</b> |
| <b>H3:</b> There is a significant and positive relationship between knowledge sharing practices and organisational performance             | 12.942    | <b>.000</b> | <b>Supported</b> |
| <b>H4:</b> There is a significant and positive relationship between knowledge utilisation practices and organisational performance         | 0.011     | .991        | Not supported    |

**Table 20** above reveals the following:

**H<sub>1</sub>** – There was a significant and positive relationship between the variable knowledge capture & acquisition and Organisational Performance ( $t = 2.338$ ,  $p < 0.05$ ). Hence, this hypothesis was supported.

**H<sub>2</sub>** – There was a significant and positive relationship between the variable knowledge storage and organisational performance ( $t = 2.545$ ,  $p < 0.05$ ). Hence, this hypothesis was supported.

**H<sub>3</sub>** – There was a significant and positive relationship between the variable knowledge sharing practices and organisational performance ( $t = 12.942$ ,  $p < 0.05$ ). Hence, this hypothesis was supported.

**H<sub>4</sub>** – There was no significant positive relationship between the variable knowledge utilisation practices and organisational performance ( $t = 0.011$ ,  $p > 0.05$ ). Hence, this hypothesis was not supported.

#### **4.5 Chapter Summary**

This chapter has presented the findings of the study. The findings have revealed that the Authority has a KM strategy/or policy for coordinating and guiding the management of knowledge. Furthermore, the study found that the Authority has several KM resources in place to support the process of managing knowledge within the institution which included; database management systems, website (s) on its activities, library or reading room, shared databases, electronic mails, internet and intranet, data warehousing/storing, document repositories, video conferencing, research and development, management information systems and groupware. It was also evident from the study findings that the Authority has various mechanisms for capturing and acquiring knowledge ranging from formal discussions/brainstorming, meetings/discussions with subject matter experts, appraisals/evaluations, and lessons learned from projects, training, senior employees/mentors, consultancy, line managers, informal discussions, customers to team leaders. The study established that the knowledge is moderately shared at the Authority. It was observed that the Authority uses several mechanisms to store and share knowledge with the Authority. Further, it was concluded that knowledge management has an impact on organisational performance. The next chapter of study discusses the findings of the study in light of the literature reviewed and research objectives.

## **CHAPTER FIVE: DISCUSSION OF FINDINGS**

### **5.0 Introduction**

This chapter presents the discussion of the findings of this study which was aimed at examining the knowledge management practices at the Zambia Revenue Authority Headquarters in Lusaka. The findings have been discussed in light of the reviewed literature and following research questions. The researcher made an effort to reflect, confirm, and extend current knowledge and thinking on knowledge management practices in public organisations. The discussion is presented in sub-themes as presented in the previous chapter of this study.

### **5.1 Background information of respondents**

Employees at the Zambia Revenue Authority were the target population for this study. A total of 108 employees participated and provided information for this study in order to address the three specific objectives set out in chapter one of this study. There were more males, people with bachelor's degree, in middle management and had worked for longer at the authority; all aspects that are important for the growth and stability of knowledge management activities in an organisation (Ali Al Dhanhani and Al Naqbi, (2022).

### **5.2 Knowledge management resources at Zambia Revenue Authority**

#### *5.2.1 Knowledge management strategy/or policy*

The first objective of the study sought to determine the knowledge management resources at ZRA. This was meant to find out what knowledge management resources are available at the institution. Therefore, guided by this objective the study investigated the management resources. The study findings revealed that a slightly large proportion (58%) of the respondents reported that there is a KM strategy/or policy at the Authority. The study found that the Authority has several KM strategies in place to support the process of managing knowledge within the institution. The study findings suggest that KM has been integrated in the operations of the Authority, although on a small scale. In relation to previous studies, the findings of this study are consistent with earlier observations by Syed-Ikhsan and Rowland (2004) who reported that knowledge management was integrated in procedures and policies of the Ministry of Entrepreneur Development in Malaysia. The possible explanation here could be the management at the Authority have realised the benefits

that comes with having a strategy or policy for managing knowledge. The implication of having an adequate KM system in place is that it provides opportunities for improving the delivery of quality services to the members of the public. Therefore, some public service organisations have a KM strategy/or policy in place to coordinate and standardise the management of knowledge in these organisations.

### *5.2.2 Knowledge management resources*

The most common type of KM strategies reported by the respondents included database management systems (81.5%), Website (s) on its activities (74%), shared databases (71.3%), electronic mails (70.4%), internet and intranet (66.7%). These findings are consistent with the findings of a study conducted among UAE organisations and companies by Siddique (2012) who found that nearly all organisations had internet (99.2%) and electronic mail facilities (98.1%) and had designed web sites to provide information on company history, products and services (94.1%). This was also consistent with the observations by Komanyane (2010) who reported that Internet (85.7%) and Intranet (64.3%) constituted the most common type of KM resources possessed by government departments in Botswana, this was followed by database management systems (38.1%) and Groupware such as Lotus notes/Microsoft exchange (33.3%).

Other KM -related resources that were reported to be available by the majority of the respondents included library or reading room (72%), data warehousing/storing (65.7%), document repositories (64.8%), video conferencing (62.0%), research and development (62.0%), management information system (58.3%), and groupware (50%). In relation to previous studies, the findings of the study are in line with the findings by Siddique (2012) who observed that most organisations had in-house database (80%), management information systems (73 %) and an in-house library or a reading room facility in place to support knowledge management.

The findings of this study are also supported by earlier findings by Ondari-Okemwa (2007) who found that government-owned organisations in Kenya had some form of knowledge repository in their organisation and that knowledge was managed through library services, documentation services, records management, communication and public relations services. The findings of this study suggest that ZRA possess resources and tools to pursue KM practices.

### **5.3 Knowledge capture and acquisition practices at Zambia Revenue Authority**

#### *5.3.1 Use of KM tools in support of ZRA KM activities*

Knowledge management tools that were found to be used for the coordination and support of KM activities in the Zambia Revenue Authority are in tandem with what has been reported on different KM tools that have been deployed in tax administration authorities elsewhere (Subroto, 2020). Modern organisations require knowledge management tools in order for them to be successful in managing knowledge resources for effective tax administration. It is for this reason that organisation make heavy investments in adopting and deploying KM tools to support that administration of services so that it is easier to offer tax services to the people they serve.

#### *5.3.2 Knowledge capture and acquisition sources*

Research has shown that knowledge capture and acquisition mechanisms facilitate better decision making due to availability of the right knowledge to the right people at the right time to enhance effective and efficient decision making (Aming'a, 2015). Knowledge capture and acquisition mechanisms also enhance staff turnover control through supporting knowledge capture and transfer (Aming'a, 2015). Objective two of the study sought to establish the knowledge capture and acquisition practices at ZRA. The study established several knowledge capture and acquisition sources commonly used to capture and acquire knowledge at the Authority. The findings suggest that these knowledge capture and acquisition sources were considered very important in terms of how important they have been to capture and acquire knowledge at the Authority. The possible explanation here could be that these knowledge capture and acquisition practices are most common, for example, discussions and meetings are common in most government organisations. This was evident from the study findings, which showed that the majority (81.5%) of the respondents agreed that minutes are taken to capture ideas during meetings. The findings of this study are in line with the findings of a study done by Komanyane (2010) among government departments in Botswana who found that most of the participants reported that they have brainstorming sessions to encourage employees to come up with new ideas and experience. Similarly, Siddique (2012) identified a number of knowledge acquisition sources among UAE organisations and companies, ranging from benchmarking, internal discussions, to brainstorming sessions.

Further, study found that other KM sources were rated as moderately important and these ranged from training (68.5%), senior employees/mentors (63.9%), consultancy (58.3%), line managers (57.4%), and informal discussions (56.5%) to customers (55.6%). These findings are supported by the findings of Aming'a (2015) who identified a number of knowledge capture and acquisition sources in Kenya which included training, consultancy, manuals, mobile phones, groupware technologies, flow charts, meetings, induction, workshops, work procedures, benchmarking and research papers (Komanyane, 2010; Siddique 2012). The study findings also revealed that some KM sources were considered to be somewhat important in terms of how important they are in facilitating the acquisition and capturing of knowledge in the Authority. These included the following, daily experiences (69.4%), exit interviews (63.9%), benchmarked companies/practices (58.4%) and team leaders (53.7%). These findings correspond to several findings (Wamundila, 2008; Lopez & Esteves, 2012; Siddique 2012; and Aming'a, 2015). The findings of this study provide evidence of some of the knowledge capture and acquisition practices in government organisations which conform to the literature reviewed. However, knowledge capture and acquisition sources such as recruitment were rated as not at all important by 46.3% of the respondents. This is not in line with earlier findings by (Aming'a, 2015). The differences here could be due to variations in the location and study population used in the studies.

#### **5.4 Knowledge storage and sharing methods**

The third objective of the study was designed to examine the knowledge storage and sharing practices at Zambia Revenue Authority. The study found that knowledge is moderately shared among different functional units within the Authority. Most of the respondents (76.9%) broadly agreed that the Authority utilises various written devices such as newsletter and manuals, to store the knowledge they capture from employees and use different publications to display the captured knowledge.

The findings on knowledge sharing practices revealed that the Authority uses staff meetings, seminars and workshops to share knowledge with employees. Similarly, Komanyane (2010) found that most of the respondents in the various government departments in Botswana indicated that they report back at meetings, while others indicated that they write a report for directors as ways

of sharing knowledge after attending seminars, workshops and conferences. The findings of this study are consistent with the findings by Siddique (2012) who identified several knowledge sharing methods which included, meetings, discussion forums, workshops, seminars, project group teams, and company's internal documents, reports, policy papers, training and development programmes, mentoring and benchmarking, internet/intranet and company web sites.

The findings of the current study provide an overview of the knowledge sharing methods that have been adopted by the Authority as part of its KM system. It is evident from the study findings that there are various sharing methods available for government organisations to adopt as part of their KM practices. Further analysis revealed that knowledge sharing methods like statements/speeches given by senior managers (59.2%), mentoring and coaching (57.4%), training and development programmes (53.7%), and internal benchmarking (50%) were rated as moderately common. This is consistent with several studies' findings; for example, Komanyane (2010) who found that most of the respondents in the various government departments in Botswana indicated that they report back at meetings, while others indicated that they write a report for directors as ways of sharing knowledge after attending seminars, workshops and conferences. Similar findings were also reported in the UAE by Siddique (2012).

The study established 74.1% broadly agreed that the Authority has libraries, resource centre, and other forums to display and disseminate knowledge. It was established from the findings that problem of hoarding (keeping) knowledge does not exist and employees willingly share their knowledge with co-workers. What emerged from the findings was that there is presence of expertise and skills transfer in the Authority. This was evident from the cumulative percentages which revealed that 64.8% broadly disagreed that expertise and skills are not effectively transferred to junior staff from more experienced employees. Furthermore, 60.2% broadly disagreed that employees often do not know where in the organisation to find specialised knowledge and information. The findings also showed that most of the respondents expressed that the Authority applies knowledge to critical competitive needs and quickly links sources of knowledge in problem solving. This is line with earlier observations by (Levine & Prietula, 2012; Siddique, 2012; Gonzalez & Martins, 2017; Chitumbo & Kanyengo, 2017).

As shown in the conceptual framework (fig 1), there could be direct links between the constructs of KM practices and organisational performance. For example, knowledge capture and acquisition coupled with knowledge sharing practices may directly affect the performance of an organisation. The reasoning here is that best KM practices may make it possible for people to perform better and thereby being able to make effective decisions and actions, which may lead to improved performance in the organisation. Finally, institution management policies may also affect organisation performance. For example, the existence of a knowledge sharing policy may encourage employees to share knowledge among themselves within the organisation and thereby improving the flow of information and consequently improvement in performance. The reasoning here is that the existence of a knowledge sharing policy may help coordinate the flow of knowledge.

### **5.5 Effect of knowledge management practices on organisational performance**

The discussion of the results here was done in response to the research question three. Factor analysis yielded a five (5) factor model in which the twenty-six (26) variables were categorized into five (5) factors namely: 1. Capture and Acquisition (1, 2, 3, 4 and 5), 2. Knowledge Storage (1, 2 and 3), 3. Knowledge Sharing (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11) 4. Knowledge Utilisation (1, 2, 3 and 4) and 5. Organisational Performance (1, 2 and 3). A five-point Likert scale was used to measure the variables: 5. Strongly Agree, 4. Agree, 3. Neutral, 2. Disagree, 1. Strongly Disagree.

In this study, KMP was subdivided into four constructs namely; (1) Knowledge Capture and Acquisition, (2) Knowledge Storage, (3) Knowledge Sharing and (4) Knowledge Utilisation. To this effect, four hypotheses were formulated:

1. **H1:** There is a significant and positive relationship between knowledge capture and acquisition sources and organisational performance
2. **H2:** There is a significant and positive relationship between knowledge storage practices and organisational performance
3. **H3:** There is a significant and positive relationship between knowledge sharing practices and organisational performance
4. **H4:** There is a significant and positive relationship between knowledge utilisation practices and organisational performance

### ***5.5.1 What is the effect of knowledge capture and acquisition sources on organisational performance?***

The results in Table 20 above revealed that, the hypothesis ‘There is a significant and positive relationship between knowledge capture and acquisition sources and organisational performance’ is supported. This implies that knowledge capture and acquisition sources have a significant effect on organisational performance at ZRA. In other words, there is a significant relationship between knowledge capture and acquisition sources and Organisational Performance. The findings suggest that improved knowledge capture and acquisition strategies does necessarily lead to enhanced organisational performance.

In relation to previous studies, the findings of this study are consistent with the findings of a study done in Awka, Anambra State, Nigeria by Nnabuike et al. (2015) who equally found that knowledge identification contributed to organisational performance and that knowledge acquisition has a significant effect on organisational performance. Similarly, Mills and Smith (2011) studied the impact of knowledge management resources on organisational performance and observed that some knowledge resources such as structure and acquisition were directly related to organisational performance. These findings also correspond to the observation by Chang and Chuang (2011). Earlier on, Darroch (2005) examined the link between knowledge management and innovation and firm performance in New Zealand and found that knowledge acquisition affects performance. These findings confirm the impact of knowledge capture and acquisition practices on organisational performance. It is evident that knowledge capture and acquisition practices have a positive effect on organisational performance. That is, they significantly improve the performance of an organisation.

### ***5.5.2 What is the effect of knowledge storage practices on organisational performance?***

The results in Table 20 above revealed that, the hypothesis ‘There is a significant and positive relationship between knowledge storage practices and organisational performance’ is supported. This implies that knowledge storage practices have a significant positive effect on organisational performance. In other words, there is a significant relationship between knowledge storage practices and Organisational Performance. The study findings suggest that improved storage of knowledge leads to higher Organisational Performance.

This is consistent with the findings by Abuaddous and Al Sokkar (2018) who investigated the influence of knowledge management and some of its practices on organisational performance and found that KM, including knowledge process and infrastructure capabilities affected positively in a huge manner on all aspects of organisational performance directly or indirectly. It was concluded that knowledge sharing infrastructure capabilities significantly affect organisational performance.

### ***5.5.3 What is the effect of knowledge sharing practices on organisational performance?***

The results in Table 20 above revealed that, the hypothesis ‘There is a significant and positive relationship between knowledge sharing practices and organisational performance’ is supported. This implies that knowledge sharing practices have a significant positive effect on organisational performance at ZRA. In other words, enhanced knowledge sharing practices leads to higher organisational performance.

This is consistent with earlier observations by Torabia and Jamal (2018) who investigated the role of tacit knowledge sharing on organisational productivity and employees’ intension to share and consequently the sharing of tacit knowledge has direct positive impacts on productivity, productivity increased as a result of knowledge sharing. Similarly, Ngah and Ibrahim (2010) found that knowledge sharing was positively influencing organisational performance among Small and Medium Enterprises (SMEs) in Malaysia. Fraihat and Samadi (2017) also reported that knowledge sharing improves organisational performances. Similarly, a study conducted by Chen and Fong (2012) to identify the effect of knowledge sharing on the company performance showed that knowledge sharing significantly affected company performance.

However, contracting findings have been reported elsewhere where it has been argued that knowledge sharing does not necessarily improve organisational performance. For example, Darroch (2005) examined the link between knowledge dissemination and innovation and firm performance and found that there was no support for the hypothesis that knowledge sharing/dissemination affects performance. Darroch (2005) concluded that firms with a knowledge management capability do not necessarily perform better. The differences here could be due to variations in the location in which the studies were conducted and adoption of KM practices in these locations. This current study recommends that public and private organisations and / or

companies should focus more on knowledge sharing activities when setting its strategies as this has shown to significantly positively affect organisational performance.

#### ***5.5.4 What is the effect of knowledge utilisation practices on organisational performance?***

The results in Table 5.20 above reveal that, the hypothesis ‘There is a significant and positive relationship between knowledge utilisation practices and organisational performance’ was not supported. This implies that knowledge utilisation does not have a significant positive effect on organisational performance. In other words, enhanced utilisation of knowledge does not necessary lead to higher organisational performance.

This finding is not consistent with the findings of a study done by Kharabsheh, Magableh and Sawadha (2012) who investigated the organisational impact of knowledge management practices and found that knowledge management practices including communication, the ability to utilise new knowledge and strategies of KM affected organisational performance which included (financial performance, new product success, customer satisfaction, and market share) in a positive way among all the dimensions. These findings clearly indicate that KM utilisation practices significantly affect the extent to which an organisation achieves its goals and objectives. Therefore, organisations should focus on improving the utilisation of knowledge within and outside of their organisations to improve on their performance.

### **5.6 Summary**

This chapter has discussed the findings of the study. The findings have been discussed in light of the reviewed literature and research objectives. The findings revealed a number of KM resources available at the Authority. It was also evident from the study findings that the Authority has various mechanisms for capturing and acquiring knowledge, as well as storing and sharing knowledge. The next chapter concludes the study and gives recommendations.

## **CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **6.0 Introduction**

This chapter presents the summary, conclusion, as well as the recommendations based on the findings of the study. This section of the study presents recapitulates the objectives of the study, methodology used, and summary of the key findings. This study investigated the knowledge management practices and performance at the Zambia Revenue Authority Headquarters in Lusaka District. Specifically, the study was designed: (1) to determine the knowledge management resources at ZRA; (2) to establish the knowledge capture and acquisition practices at ZRA; and (3) to examine the knowledge storage and sharing practices at ZRA.

A case study design was used in conducting this study. To meet the requirements of information needed, the study used the quantitative approach, and as a result, a questionnaire was used. The study was conducted at the ZRA headquarters in Lusaka and targeted employees at the Authority. A total of 108 employees responded to the questionnaire. The data was collected through a structured questionnaire comprising of closed-ended questions. The Statistical Package for the Social Sciences (SPSS) version 25 was used as the statistical software for data analysis. Descriptive statistics including frequencies and percentages were used to interpret the findings. Furthermore, inferential statistics used in this study included factor analysis and regression analysis. Regression analysis was used to determine the relationship between knowledge management practices and organisational performance.

### **6.1. Knowledge management resources at Zambia Revenue Authority**

The study findings revealed that there is a KM strategy/or policy at the Authority. The study findings suggest that KM has been integrated in the operations of the Zambia Revenue Authority. The implication of having an adequate KM system in place is that it provides opportunities for improving the delivery of quality services to the members of the public. The study found that the Authority has several KM strategies in place to support the process of managing knowledge within the institution. The most common type of KM strategies included database management systems, Website (s) on its activities, shared databases, electronic mails, internet and intranet. Other KM -

related resources included library or reading room, data warehousing/storing, document repositories, video conferencing, research and development, management information system, and groupware. The findings of this study suggest that ZRA possess impressive resources and tools to pursue KM practices. The implications of these findings are that tax organisations should enhance their KM resources in order to effectively manage knowledge for improved delivery of services to the citizens.

## **6.2 Knowledge capture and acquisition practices at Zambia Revenue Authority**

The study established several knowledge capture and acquisition sources commonly used to capture and acquire knowledge at the Authority. The findings of the study revealed that formal discussions/brainstorming, meetings/discussions, appraisals/evaluations, and lessons learned from projects were rated as highly very important. The findings suggest that these knowledge capture and acquisition sources were considered very important in terms of their importance in capturing and acquiring knowledge at the Authority. It was evident from the study findings that minutes are taken to capture ideas during meetings. Further, the study found that other KM sources included training, senior employees/mentors, consultancy, line managers, informal discussions, daily experiences, exit interviews, and team leaders. The findings of this study provide evidence of some of the knowledge capture and acquisition practices in government tax organisations.

## **6.3 Knowledge storage and sharing practices at Zambia Revenue Authority**

The study found that knowledge is moderately shared among different functional units within the Authority. Most of the respondents (76.9%) broadly agreed that the Authority utilises various written devices such as newsletter and manuals, to store the knowledge they capture from employees. Additionally, 70.4% broadly agreed that the Authority has different publications to display the captured knowledge. The findings on knowledge sharing practices revealed that new employees are normally taken through an orientation programme, and staff meetings are normally held. Further analysis also indicated that seminars and workshops are normally held for employees. The study findings also revealed that knowledge sharing methods that were rated as very common included, workshops, conferences, and seminars, Internet/intranet, company web site, company's internal documents and meetings/discussion forums. The findings of the current study provide an

overview of the knowledge sharing methods that have been adopted by the Authority as part of its KM system. It is evident from the study findings that there are various sharing methods available for government organisations to adopt as part of their KM practices.

#### **6.4 Effect of knowledge management practices on organisational performance**

Overall, it was established that knowledge management practices significantly influence organisational performance. The findings revealed a positive highly significant relationship between Knowledge Capture and Acquisition and Organisational Performance. A significant positive relationship was also found between Knowledge Storage practices and Organisational Performance and between knowledge Sharing practices and Organisational Performance. However, no significant relationship was found between Knowledge Utilisation practices and Organisational Performance.

#### **6.5 Conclusion**

The study examined the knowledge management practices and performance at the Zambia Revenue Authority Headquarters in Lusaka. The study findings provide a basic understanding of knowledge management practices and performance at the Zambia Revenue Authority. Hence, KM should be incorporated in the day-to-day operations and management of the Authority and pay attention to the various practices involved in KM. Since KM management has been found to improve service delivery and performance, understanding the knowledge management practices in a government tax organisation like ZRA is important as it may provide insights in designing interventions for improving delivery of service and performance through proper management of organisational knowledge. Thus, the findings suggests contextually specific evidence which may be taken into consideration when rethinking and designing programme to improve the management of knowledge in Zambian public sector organisations as a whole and consequently improve service delivery and organisational performance in those organisation.

#### **6.5 Recommendations**

Based on the findings of the study, the following recommendations have been put forward. The study recommends that:

1. The departments should align its KM strategy /policy with its organisational strategy. The strategy will act as a guideline on the sharing of knowledge, as to whom, how, when and where the knowledge should be shared internally and externally.
2. Management should design incentive programmes for knowledge sharing that may encourage people to share their knowledge. This enhances knowledge sharing in the organisation.
3. The fact that there was no one responsible for KM at ZRA, the study further recommends ZRA should create positions for people who can be directly responsible for knowledge management.
4. This current study recommends that public and private organisations and / or companies should focus more on knowledge sharing activities when setting its strategies as this has shown to significantly positively affect organisational performance.
5. Organisations should focus on improving the utilisation of knowledge within and outside of their organisations to improve on their performance.

## **6.6 Recommendations for further studies**

1. A comparison study of the KM practices in public organisations and private organisations should be conducted to compare the practices with regards to the management of knowledge.
2. Another similar study could use the mixed method research and provide more detailed understanding of the knowledge management practices and performance in other institutions. It is hoped that the baseline data of this study can encourage further research on KM in other institutions in both the public and private sectors.

## REFERENCES

- Abuaddous, H. Y. & Al Sokkar, A. A., 2018. The Impact of Knowledge Management on Organisational Performance. *International Journal of Advanced Computer Science and Applications*, 9(4), pp. 204-208.
- Adams, R. J., Lucash, C., Schutte, L. & Waits, P. L., 2007. *Locating hybrid individuals in the red wolf (Canis rufus) experimental population area using a spatially targeted sampling strategy and faecal DNA genotyping*. s.l.:Blackwell Publishing Ltd. *Molecular Ecology* (2007) 16, 1823–1834 doi: 10.1111/j.1365-294X.2007.03270.
- Ahmed, F., Mohamed, O. & Ibrahim, I., 2013. Knowledge Acquisition among Engineering in MNCs. *Independent Journal of Management and Production*, 4(1).
- Alavi, M. & Leidner, D. E., 2001. Knowledge management and knowledge management systems: conceptual foundations and research issues. *Management Information Systems Quarterly*, 25(1), pp. 107-136.
- Ali Al Dhanhani, M. & Al Naqbi, S. (2022). Identifying Enablers and Obstacles for Knowledge Management in a Police Organisation: Case Study of Abu Dhabi Police, *Policing: A Journal of Policy and Practice*, 16(2): 270–281, <https://doi.org/10.1093/police/paac019>
- Alhamoudi, S., 2015. Knowledge Management Strategies in Public Sector—Case Study. *China-USA Business Review*, 14(3), pp. 159-170.
- Aming'a, N. N., 2015. Knowledge capture and acquisition mechanisms at Kisii University. *Interdisciplinary Journal of Information, Knowledge, and Management*, Volume 10, pp. 105-116.
- Anand, A., 2011. Understanding Knowledge Management: a literature review. *International Journal of Engineering Science and Technology*, 3(2), pp. 926-936.
- Anantatmula, V., 2005. Outcomes of knowledge management initiatives. *International Journal of Knowledge Management*, 1(2), pp. 50-57.
- Argote, L., Mcevily, B. & Reagans, R., 2003. Managing knowledge in organisations: an integrative framework and review of emerging themes. *Management Science*, 49(4), pp. 571-582.
- Asian Productivity Organisation, 2., 2009. *Knowledge Management: Facilitators' Guide*, Tokyo: s.n.
- Asian Productivity Organisation, 2., 2013. *Knowledge Management for Public-sector Productivity*, Tokyo: Asian Productivity Organisation.
- Aujirapongpan, S., Vadhanasindhu, P., Chandrachai, A. & P, C., 2010. Indicators of knowledge management capability for KM effectiveness. *The journal of information and knowledge management systems*, 40(2), pp. 183-203.
- Babbie, E. R., 2013. *The practice of social research*. Belmont: Wadsworth Cengage Learning.
- Bakar, A. H. A., Tufail, M. A., Virgiyanti, W. & Yusof, M. N., 2014. Assessing Knowledge Management Processes and Competitive Advantage in Local Authorities using Knowledge Management Assessment Instrument (KMAI).

- Banda, M.K., Sichinsambwe, C. and Tembo J.M., (2019) “Factors Influencing Operational Effectiveness in the Zambian Copper Mining Industry”, *Global Journal of Management and Business Research*, 19(A14), pp. 25–31. Available at: <https://journalofbusiness.org/index.php/GJMBR/article/view/2949> (Accessed: 5 February 2023)
- Becerra-Fernandez, I. & Sabherwal, R., 2010. *Knowledge Management: Systems and Processes*. London: M.E. Sharpe.
- Bhojaraju, G., 2005. Knowledge Management: Why do we need it for Corporate?. *Malaysian journal of Library and Information Science*, 10(2), pp. 37-50.
- Botha, D. F., 2005. Towards an instrument for surveying Knowledge Management Practices. *South African Journal of Business Management*, 31(1), pp. 5-6.
- Chang, T. & Chuang, S., 2011. Performance implications of knowledge management processes: Examining the roles of infrastructure capability and business strategy. *Expert Systems with Applications*, Volume 38, p. 6170–6178.
- Charan, J. & Biswas, T., 2013. How to calculate sample size for different study designs in medical research?. *Indian Journal Psychol Med*, Volume 35, pp. 121-126.
- Chitumbo, E. M. M. & Kanyengo, C. W. (2017). *Knowledge management culture among library cataloguers: The University of Zambia library experience*. *Library Philosophy and Practice (e-journal)*. 1561: 1-16. <https://digitalcommons.unl.edu/libphilprac/1561/>
- Choi, B., Poon, S. & Davis, J., 2008. Effects of knowledge management strategy on organisational performance: A complementary theory-based approach. *Omega – the International Journal of Management Science*, Issue 36, pp. 235-251.
- Connelly, L. M., 2016. Trustworthiness in qualitative research. *MedSurg Nursing*, 25(6).
- Creswell, J., 2008. *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Upper Saddle River, NJ: Merrill Prentice Hall.
- Creswell, J. W. & Miller, D. L., 2000. Determining Validity in Qualitative Inquiry. *Theory into Practice*, 39 (3), pp. 124-130.
- Cucović, A. & Cucović, O., 2014. The importance of knowledge management in contemporary management. *Geo Information*, Volume 3, pp. 26-34.
- Cummings, J. N., 2004. Work Groups, Structural Diversity, and Knowledge Sharing in a Global Organisation. *Management Science*, 50(3), p. 352–364.
- Darroch, J., 2005. Knowledge management, innovation and firm performance. *Journal of knowledge management*, 9(3), pp. 101-115.
- Dell, O. C., C.J. G. & Essaides, N. O., 1998. If Only We Knew What We Know.
- Donate, M. J. & Sánchez de Pablo, J. D., 2015. The role of knowledge-oriented leadership in knowledge management practices and innovation. *Journal of Business Research*, 68(2), p. 360–370.
- Firestone, J. M. & McElroy, M. W., 2005. Doing Knowledge Management. *The Learning Organisation*, 12(5), pp. 189-212.

- Forés, B. & Camisón, C., 2016. Does incremental and radical innovation performance depend on different types of knowledge accumulation capabilities and organisational size?. *Journal of Business Research*, 69(2), pp. 831-848.
- Fraihat, B. A. M. A. & Samadi, B., 2017. Knowledge Management Capabilities and Organisational Performance of Public Listed Companies: A conceptual Framework. *International Journal of Business and Social Research*, 7(11), pp. 09-20.
- Fugate, B., Stank, T. & Mentzer, J., 2009. Linking improved knowledge management to operational and organisational performance. *Journal of Operations Management*, Issue 27, pp. 247-264..
- Ganzaroli, A., De Noni, I., Orsi, L. & Belussi, F., 2016. The combined effect of technological relatedness and knowledge utilization on explorative and exploitative invention performance post-M&A. *European Journal of Innovation Management*, 19(2), pp. 167-188.
- Gold, A., Malhotra, A. & Segars, A., 2001. Knowledge management: an organisational capabilities perspective. *Journal of Management Information Systems*, 18(1), pp. 185-214.
- Gonzalez, R. V. D. & Martins, F. M., 2017. Knowledge Management Process: a theoretical-conceptual research. *Gest. Prod., São Carlos*, 24(2), pp. 248-265.
- Gonzalez, R. V. D. & Martins, M. F., 2017. Knowledge Management Process: a theoretical-conceptual research. 24(2).
- Gorry, G. A., 2008. Sharing knowledge in the public sector: two case studies. *Knowledge Management Research* & #38, p. 105–111.
- Grant, R. M., 1996. Toward a knowledge-based theory of the firm. *Strategic Management Journal*, Volume 17, pp. 109-122.
- Huber, G., 1991. Organisational learning the contributing processes and the literatures. *Organisation Science*, 2(1), pp. 88-115.
- Ipe, M., 2003. Knowledge sharing on organisations: A conceptual framework.. *Human Resource Development Review*, 2(4), pp. 337-358.
- Jaffee, D., 2001. *Organisation Theory: Tension and Change*, Sociology Series, Singapore: McGraw-Hill International Editions.
- Jain, A. & Jeppesen, H., 2013. Knowledge Management Practices in a Public Sector Organisation: The Role of Leaders' Cognitive Styles. *Journal of Knowledge Management*, 24 May, Volume 17, pp. 347-362.
- Janepuengporn, K. & Ussahawanitchakit, P., 2011. The Impacts of Knowledge Management Strategy on Organisational Performance: An Empirical Study of Clothing Manufacturing Businesses in Thailand. *International Journal of Business Strategy*, 11(1), pp. 92-109.
- Jelenic, D., 2011. *The importance of knowledge management in organisations – with emphasis on the balanced scorecard learning and growth perspective*. s.l., s.n.
- Kabilwa, S. (2018). *Knowledge management practices in Zambian higher education: an exploratory study of three public universities*. Stellenbosch University. (MA Dissertation). Available: <https://scholar.sun.ac.za/handle/10019.1/103714>

- Kabilwa, S., & Maasdorp, C. (2017). Determining the state of knowledge management in higher education institutions in Zambia: an exploratory study of public universities. *The International Journal of Multi-Disciplinary Research*, 1-10.
- Kaira, W. & Phiri, J. (2022). A model for improved knowledge management performance in higher education institutions in developing countries: a case of Zambia. *Open Journal of Business and Management*. 10(01): 543-563. DOI: 10.4236/ojbm.2022.101030
- Kanyengo, C. W., 2020. *Knowledge production practices in higher institutions of learning in Zambia: a case of the University of Zambia*. University of Cape Town. (PhD Thesis). Available at: <https://open.uct.ac.za/handle/11427/32516>
- Kharabsheh, R., Magableh, I. & Sawadha, S., 2012. Knowledge Management Practices (KMPs) and Its Impact on Organisational Performance in Pharmaceutical Firms. *European Journal of Economics, Finance and Administrative Sciences*, Volume 48, pp. 6-15.
- Komanyane, K., 2010. *Knowledge Management Practices in the Public Sector in Botswana*, s.l.: s.n.
- Korstjens, I. & Moser, A., 2018. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1), pp. 120-124.
- Kuzu, Ö. H. & Özilhan, D., 2014. The Effect of Employee Relationships and Knowledge Sharing on Employees' Performance: An Empirical Research on Service Industry. *Procedia - Social and Behavioral Sciences*, 109(2016), p. 1370–1374.
- Lee, C. & Yang, J., 2000. Knowledge value chain. *Journal of Management Development*, 19(9), pp. 783-794.
- Lesser, E. & Storck, J., 2001. Communities of Practice and organisational performance. *IBM Systems Journal*, 40(4), pp. 831-841.
- Levy, M., 2011. Knowledge retention: minimizing organisational business loss. *Journal of Knowledge Management*, 15(4), pp. 582-600.
- Liao, C. & Chuang, S., 2006. *Exploring the Role of Knowledge Management for Enhancing Firm's Innovation and Performance*. USA, s.n.
- Lincoln, Y. & Guba, E., 1985. *Naturalistic inquiry*. California: Sage Publications.
- Lodhi, M. S. & Mikulecky, P., 2010. *Knowledge Management Implementation in Public Services*. s.l., s.n.
- Lopez, V. W. B. & Esteves, J., 2012. Acquiring external knowledge to avoid wheel re-invention. *Journal of Knowledge Management*, 17(1), pp. 85-105.
- Magnier-Watanable, R. & Senoo, D., 2008. Organisational characteristics as prescriptive factors of knowledge initiatives. *Journal of Knowledge Management*, 12(1), pp. 21-36.
- Martins, E. C. & Meyer, H. W. J., 2012. Organisational and behavioral factors that influence knowledge retention. *Journal of Knowledge Management*, 16(1), pp. 77-96.
- Medicine, N. A. o. S. E. a., 2017. Chapter 3 - Techniques for Knowledge Capture and Learning.. In: *Keeping What You Paid For—Retaining Essential*. Washington, DC: The National Academies Press.

- Mills, A. & Smith, T., 2011. Knowledge management and organisational performance: a decomposed view. *Journal of Knowledge Management*, 15(1), pp. 156-171.
- Mohamad, R., 2012. *Knowledge Management as Innovation: Organisational Culture Factors Affecting Knowledge Management Practices in Malaysian Higher Factors Affecting Knowledge Management Practices in Malaysian Higher Educational Administration*, s.l.: s.n.
- Mvula, M., 2018. *Knowledge Management Practices in University Administration: The Case of the University of Zambia*, s.l.: Stellenbosch University .
- Ngah, R. & Ibrahim, A. R., 2010. *The Effect of Knowledge Sharing on Organisational Performance in Small and Medium Enterprises*. Kuala Trengganu, Malaysiia, s.n.
- Nnabuife, E. K., Onwuka, E. M. & Ojukwu, H. S., 2015. Knowledge Management And Organisational Performance In Selected Commercial Banks In Awka, Anambra State, Nigeria. *IOSR Journal of Business and Management*, 17(8), pp. 25-32.
- Nonaka, I., 1994. A dynamic theory of organisational knowledge creation. *Organisation Science*, 5(1), pp. 14-37.
- Nonaka, I. & Takeuchi, H., 1995. *The knowledge-creating company*. New York: Oxford University Press.
- Nooteboom, B. et al., 2007. Optimal cognitive distance and absorptive capacity. *Research Policy*, 36(7), pp. 1016-1034.
- Omotayo, F. O., 2015. Knowledge Management as an important tool in Organisational Management: A Review of Literature. *Library Philosophy and Practice (e-journal)*.
- Pircher, R. & Pausits, A., 2011. Information and Knowledge Management at Higher Education Institutions. *Management Information Systems*, 6(2), pp. 8-16.
- Powell, T. C. & Dent-Micallef, A., 1999. Information technology as competitive advantage: the role of human, business, and technology resources. *Journal of Strategic Management*, 18(5), pp. 375-405.
- Rašula, J., Vukšić, B. V. & Štemberger, I. M., 2012. The Impact of Knowledge Management on Organisational Performance. *Economic and Business Review*, 14(2), p. 147–168.
- Rowley, J., 2002. Using Case Studies in Research. *Management Research News*, 25(1), pp. 16-27.
- Salavati, A., Shafei, R. & Ebadi, S., 2010. A model for adoption of knowledge management in Iranian public organisations. *European Journal of Social Sciences*, 17(1), pp. 109-116.
- Suboto, G. (2020). Knowledge management in tax administration: a case study in Indonesia. *Scientax*, 1(1), pp. 203-235.
- Scarborough, H., Swan, J. & Preston, J., 1999. *Knowledge Management: A literature review*, London: Institute of Personnel and Development.
- Siddique, M. C., 2012. Knowledge management initiatives in the United Arab Emirates: a baseline study. *Journal of Knowledge Management*, 16(5), pp. 702 - 723.

- Smith, T., Mills, A. & Dion, P., 2010. Linking Knowledge Management Capabilities to the Business Strategy for Organisational Effectiveness. *International Journal of Knowledge Management*, 6(3), pp. 22-43.
- Tisen, R., Andriessen, D. & Lekan, D. F., 2006. The Knowledge Dividend: Creating high-performance companies through value-based knowledge management.
- Torabia, F. & Jamal, E.-D., 2018. *The impact of Knowledge Management on Organisational Productivity: A Case Study on Koosar Bank of Iran*. Bali, Elsevier B.V.
- Tseng, S. M. & Lee, P. S., 2014. The effect of knowledge management capability and dynamic capability The effect of knowledge management capability and dynamic capability. *Journal of Enterprise Information Management*, 27(2), p. 158–179.
- Walsh, J. P. & Ungson, G. R., 1991. Organisational Memory. *Academy of Management Review*, 16(1), pp. 57-91.
- Wamundila, S., Mulauzi, F. & Mtanga, N., 2012. Information professionals as “hybrid managers” in the knowledge economy: a review from the zambian perspective. *Zambia Library Association Journal*, 27(1 & 2), pp. 77- 84.
- Wamundila, S. & Ngulube, P., 2011. Enhancing knowledge retention in higher education: A case of the University of Zambia. *South African Journal of Knowledge Management*, 13(1), pp. 1-9.
- Wamundila, S., 2008, 'Developing guidelines for a knowledge management policy to enhance knowledge retention at the University of Zambia', Thesis (Masters), Pretoria, University of South Africa, viewed 21 May 2017, from <http://www.academia.edu/1762104/Developing-guidelines-for-a-knowledge-management-policy-to-enhance-knowledge-retention-at-the-University-of-Zambia>
- Wigg, K., 2000. Knowledge Management: An emerging discipline rooted in a long history', In Dupres, C., & Chauvel, D. (Eds.). *Knowledge horizons* , pp. 3-26.
- Yuan, Y. C., Fulk, J., Monge, P. R. & Contractor, N., 2010. Expertise directory development, shared task interdependence, and strength of communication network ties as multilevel predictors of expertise exchange in transactive memory work groups. *Communication Research*, 37(1), pp. 20-47.
- Zaied, A. N. H., Hussein, G. S. & Hassan, M. M., 2012. The Role of Knowledge Management in Enhancing Organisational Performance. *International Journal of Information Engineering and Electronic Business*, Volume 4, pp. 27-35.
- Zheng, W., Yang, B. & McLean, G., 2009. Linking organisational culture, structure, strategy, and organisational effectiveness. *Mediating role of knowledge management, article in press..*

## **APPENDICES**

### **Appendix I: Questionnaire for Knowledge management practices and organisational performance.**

**THE UNIVERSITY OF ZAMBIA**

**SCHOOL OF EDUCATION**

**INSTITUTE OF DISTANCE EDUCATION**

**DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE**

#### **Questionnaire for Knowledge management practices and organisational performance**

**Questionnaire #.....**

**Date of interview.....**

**TOPIC:** Knowledge Management and Performance at the Zambia Revenue Authority.

**INFORMED CONSENT:** Dear **respondent** am a masters' student from The University of Zambia conducting a research on Knowledge Management and Performance at the Zambia Revenue Authority. You have been randomly selected to participate in this study. Kindly note that this research is for academic purposes and the information you are requested to give will be treated with maximum confidentiality. Please return this questionnaire to me after answering.

**Thanking you in anticipation.**

#### **INSTRUCTIONS:**

1. Please do not write your name or anything that can identify you.
2. Tick the answer that expresses your view as shown [✓]
3. For questions that require written responses write in the spaces provided.
4. Pleases answer all questions.

## SECTION A: Demographic Information

Q1. What is your gender?

- a. Male [    ]                      b. Female      [    ]

Q2. What is your age?

- a. 20-30 [    ]  
b. 31-40 [    ]  
c. 41-50 [    ]  
d. 51+    [    ]

Q3. What is the highest level of education you have attained?

- a. Certificate                      [    ]  
b. Diploma                        [    ]  
c. Bachelor degree                [    ]  
d. Master degree                  [    ]  
e. Doctoral degree                [    ]

Q5. Please rank your position in the organisation

- a. Junior worker                  [    ]  
b. Middle supervisor              [    ]  
c. Senior level                    [    ]

Q6. How long have you been working at the Zambia Revenue Authority (ZRA)?

- d. 0-4 years                        [    ]  
e. 5-9 years                        [    ]  
f. 10-14 years                      [    ]  
g. 15-19 years                      [    ]  
h. 20 years and above              [    ]

## SECTION B: Knowledge management strategy and plan

Q7. Does your organisation have a written Knowledge Management strategy?

a. Yes [     ]                      b. No [     ]                      C. Not Sure [     ]

Q8. The table below contains statements related to Knowledge management strategy and plan at your organisation. Please indicate your level of disagreement, agreement or neutral to the statements in the table by ticking in the appropriate boxes [√].

| Statement                                                                                                                                                                                     | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------|-----------|----------|-------------------|
| Implementation of the knowledge management strategy and plan is openly and actively supported by management                                                                                   |                |       |           |          |                   |
| Knowledge management roles and responsibilities are clearly defined and understood by managers and employees                                                                                  |                |       |           |          |                   |
| Other management strategies (e.g. human resources, information systems, operations, communications and maintenance plans) are closely aligned with the knowledge management strategy and plan |                |       |           |          |                   |
| The needs and gaps in the organisational knowledge base are periodically reviewed and the knowledge management strategy and plan are revised to address them                                  |                |       |           |          |                   |

## SECTION C: Knowledge managements Practices at the Zambia Revenue Authority

### Knowledge capture and acquisition sources

Q9. The table below presents various knowledge acquisition sources. Please rate the following knowledge acquisition sources according to their importance in your organisation.

| Knowledge acquisition sources                       | Not at all<br>Important | Slightly<br>Important | Moderately<br>Important | Very<br>Important | Extremely<br>Unimportant |
|-----------------------------------------------------|-------------------------|-----------------------|-------------------------|-------------------|--------------------------|
| Team leaders                                        |                         |                       |                         |                   |                          |
| Lessons learned from projects                       |                         |                       |                         |                   |                          |
| Daily experiences                                   |                         |                       |                         |                   |                          |
| Senior employees/mentors                            |                         |                       |                         |                   |                          |
| Benchmarked companies/practices                     |                         |                       |                         |                   |                          |
| Line managers (middle and senior)                   |                         |                       |                         |                   |                          |
| Customers                                           |                         |                       |                         |                   |                          |
| Informal discussions                                |                         |                       |                         |                   |                          |
| Appraisals/evaluations                              |                         |                       |                         |                   |                          |
| Formal discussions/brainstorming                    |                         |                       |                         |                   |                          |
| Meetings/discussions with subject<br>matter experts |                         |                       |                         |                   |                          |
| Exit interviews                                     |                         |                       |                         |                   |                          |
| Suppliers                                           |                         |                       |                         |                   |                          |
| Competitors                                         |                         |                       |                         |                   |                          |

Q10. Please indicate your level of agreement, disagreement or undecided to statements on knowledge capture and acquisition practices in this organisation.

| <b>Statements on knowledge capture and acquisition practices</b> | <b>Strongly Agree</b> | <b>Agree</b> | <b>Undecided</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|------------------------------------------------------------------|-----------------------|--------------|------------------|-----------------|--------------------------|
| Minutes are taken to capture ideas during meetings               |                       |              |                  |                 |                          |
| I consult my colleagues when undertaking my duties               |                       |              |                  |                 |                          |
| Work manuals and procedures are prepared for workers             |                       |              |                  |                 |                          |
| Regular trainings related to work activities are organized       |                       |              |                  |                 |                          |
| Databases of good practices are regularly updated                |                       |              |                  |                 |                          |

### **Knowledge Storage**

Q11. Please indicate your level of disagreement, agreement or neutral to statements relating to knowledge storage in this organisation.

| <b>Statement</b>                                                                                                                      | <b>Strongly Agree</b> | <b>Agree</b> | <b>Undecided</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|------------------|-----------------|--------------------------|
| The organisation utilises various written devices such as newsletter and manuals, to store the knowledge they capture from employees. |                       |              |                  |                 |                          |
| The organisation has different publications to display the captured knowledge.                                                        |                       |              |                  |                 |                          |
| The organisation has mechanisms to patent and copyright new knowledge.                                                                |                       |              |                  |                 |                          |

### **Knowledge sharing methods**

Q13. Indicate the extent to which your organisation share knowledge with different functional units within the organisation.

- a. High [    ]
- b. Moderate [    ]
- c. Low [    ]
- d. None [    ]

Q14. Please indicate your level of agreement, disagreement or undecided to statements on knowledge sharing practices in this organisation.

| Statement                                                         | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
|-------------------------------------------------------------------|----------------|-------|-----------|----------|-------------------|
| I regularly share my experiences with my colleagues               |                |       |           |          |                   |
| Staff meetings are normally held                                  |                |       |           |          |                   |
| New employees are normally taken through an orientation programme |                |       |           |          |                   |
| Seminars and workshops are normally held for employees            |                |       |           |          |                   |
| Members of staff are usually rotated in various functions         |                |       |           |          |                   |

Q14. The table below presents various knowledge sharing methods. Please rate the sharing methods in terms of how common you use them to share knowledge in this organisation.

| Knowledge sharing methods            | Not at all common | Slightly common | Moderately common | Very common | Most common |
|--------------------------------------|-------------------|-----------------|-------------------|-------------|-------------|
| Meetings/discussion forums           |                   |                 |                   |             |             |
| Workshops, conferences, and seminars |                   |                 |                   |             |             |
| Project groups and teams             |                   |                 |                   |             |             |

|                                                                       |  |  |  |  |  |
|-----------------------------------------------------------------------|--|--|--|--|--|
| Company's internal documents(reports, policy papers and publications) |  |  |  |  |  |
| Training and development programmes                                   |  |  |  |  |  |
| Mentoring and coaching                                                |  |  |  |  |  |
| Internal benchmarking                                                 |  |  |  |  |  |
| Statements/speeches given by senior managers                          |  |  |  |  |  |
| Company web site                                                      |  |  |  |  |  |
| Internet/intranet                                                     |  |  |  |  |  |

Q15. Please indicate your level of disagreement, agreement or neutral to statements relating to knowledge dissemination/sharing practices in this organisation.

| <b>Statement</b>                                                                                                                  | <b>Strongly Agree</b> | <b>Agree</b> | <b>Undecided</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|------------------|-----------------|--------------------------|
| The organisation sends out timely reports with appropriate information to employees, customers, and other relevant organisations. |                       |              |                  |                 |                          |
| The organisation has libraries, resource centre, and other forums to display and disseminate knowledge.                           |                       |              |                  |                 |                          |
| Employees often do not know where in the organisation to find specialized knowledge and information                               |                       |              |                  |                 |                          |
| The problem of hoarding (keeping) knowledge does not exist and employees willingly share their knowledge with co-workers          |                       |              |                  |                 |                          |
| Expertise and skills are not effectively transferred to junior staff from more experienced employees                              |                       |              |                  |                 |                          |
| Employees routinely and voluntarily share relevant information with other parts of the organisation where it may be needed        |                       |              |                  |                 |                          |

### Knowledge application

Q16. Please indicate your level of disagreement, agreement or neutral to statements relating to knowledge application practices in this organisation.

| Statement                                                                                                                      | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
|--------------------------------------------------------------------------------------------------------------------------------|----------------|-------|-----------|----------|-------------------|
| The organisation has different methods for employees to further develop their knowledge and apply them to the new situations.  |                |       |           |          |                   |
| The organisation has a mechanism to protect knowledge from inappropriate or illegal use inside and outside the organisation    |                |       |           |          |                   |
| Our organisation applies knowledge to critical competitive needs and quickly links sources of knowledge in problem-solving.    |                |       |           |          |                   |
| The organisation has methods to analyse and critical evaluate knowledge to generate new patterns and knowledge for future use. |                |       |           |          |                   |

## SECTION D: Organisational performance (effectiveness)

Q16. Overall, how would you rate the performance of the Authority in attaining its strategic goals?

- a. Far below standards [    ]
- b. Below standards [    ]
- c. Meets standards [    ]
- d. Above standards [    ]
- e. Far above standards [    ]

Q15. Please indicate your level of disagreement, agreement or neutral to statements relating to organisational effectiveness in this organisation.

| Statement                                                                                                             | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
|-----------------------------------------------------------------------------------------------------------------------|----------------|-------|-----------|----------|-------------------|
| The organisation has difficulty making operational changes smoothly and in a timely manner                            |                |       |           |          |                   |
| Weekly operations objectives are regularly not met                                                                    |                |       |           |          |                   |
| The organisation is effective at managing its external interfaces(i.e. the regulator, public, suppliers, contractors) |                |       |           |          |                   |

## Appendix 2: Principal Components Analysis and Reliability Analysis

### Appendix 2: Principal Components Analysis and Reliability Analysis

| Correlation Matrix <sup>a</sup> |                           |                           |                           |                           |                           |           |           |           |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
|---------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|---------------|---------------|---------------|---------------|------------------|------------------|------------------|-------|--|--|
|                                 | capture and acquisition_1 | capture and acquisition_2 | capture and acquisition_3 | capture and acquisition_4 | capture and acquisition_5 | storage_1 | storage_2 | storage_3 | sharing_1 | sharing_2 | sharing_3 | sharing_4 | sharing_5 | sharing_6 | sharing_7 | sharing_8 | sharing_9 | sharing_10 | sharing_11 | utilisation_1 | utilisation_2 | utilisation_3 | utilisation_4 | performance_ce_1 | performance_ce_2 | performance_ce_3 |       |  |  |
| Correlation                     | 1.000                     | -0.395                    | -0.103                    | -0.198                    | -0.187                    | -0.178    | 0.246     | -0.208    | 0.000     | -0.111    | -0.208    | -0.010    | 0.022     | 0.487     | -0.313    | -0.002    | -0.019    | 0.295      | 0.296      | -0.024        | 0.016         | -0.094        | 0.054         | -0.160           | -0.080           | 0.166            |       |  |  |
| capture and acquisition_1       |                           |                           |                           |                           |                           |           |           |           |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| capture and acquisition_2       | -0.395                    |                           |                           |                           |                           |           |           |           |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| capture and acquisition_3       | -0.103                    | -0.004                    |                           |                           |                           |           |           |           |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| capture and acquisition_4       | -0.198                    | 0.016                     | 0.044                     |                           |                           |           |           |           |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| capture and acquisition_5       | -0.187                    | 0.045                     | 0.320                     | 0.087                     |                           |           |           |           |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| storage_1                       | -0.178                    | 0.364                     | 0.028                     | -0.048                    | 0.064                     |           |           |           |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| storage_2                       | 0.246                     | -0.168                    | -0.018                    | -0.111                    | -0.098                    | -0.291    |           |           |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| storage_3                       | -0.208                    | 0.073                     | -0.122                    | -0.108                    | 0.050                     | 0.011     | -0.060    |           |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| sharing_1                       | 0.000                     | 0.046                     | -0.102                    | 0.219                     | 0.034                     | -0.361    | 0.292     | -0.059    |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| sharing_2                       | -0.111                    | 0.010                     | 0.026                     | -0.041                    | 0.011                     | -0.143    | -0.095    | 0.172     | -0.045    |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| sharing_3                       | -0.208                    | 0.305                     | 0.099                     | -0.035                    | 0.036                     | 0.184     | -0.060    | -0.052    | 0.048     | -0.161    |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| sharing_4                       | -0.010                    | 0.044                     | 0.036                     | 0.097                     | 0.090                     | -0.022    | 0.063     | 0.017     | 0.194     | 0.009     | 0.221     | 1.000     | -0.085    | 0.035     | 0.059     | -0.169    | 0.055     | -0.132     | -0.149     | -0.106        | -0.073        | 0.005         | -0.162        | 0.295            | -0.044           | -0.105           |       |  |  |
| sharing_5                       | 0.022                     | 0.156                     | -0.170                    | 0.172                     | -0.344                    | 0.285     | -0.110    | -0.046    | -0.150    | -0.315    | 0.058     | -0.085    | 1.000     | 0.168     | 0.182     | -0.133    | 0.222     | -0.120     | -0.135     | 0.116         | 0.002         | 0.046         | 0.025         | -0.011           | 0.007            | 0.050            |       |  |  |
| sharing_6                       | 0.487                     | -0.336                    | -0.157                    | 0.099                     | -0.337                    | -0.284    | 0.125     | -0.122    | 0.003     | -0.051    | -0.269    | 0.035     | 0.168     | 1.000     | -0.261    | 0.065     | 0.038     | 0.456      | 0.290      | 0.035         | -0.040        | 0.038         | 0.169         | -0.260           | -0.050           | 0.280            |       |  |  |
| sharing_7                       | -0.313                    | 0.353                     | 0.311                     | 0.215                     | 0.005                     | 0.354     | -0.175    | 0.001     | -0.083    | 0.124     | 0.131     | 0.059     | 0.182     | -0.261    | 1.000     | -0.009    | -0.044    | -0.375     | -0.330     | 0.014         | -0.022        | 0.012         | 0.045         | 0.202            | -0.050           | -0.124           |       |  |  |
| sharing_8                       | -0.002                    | -0.165                    | -0.102                    | -0.022                    | -0.074                    | -0.226    | 0.059     | 0.151     | -0.019    | 0.615     | -0.217    | -0.149    | -0.133    | 0.065     | -0.009    | 1.000     | -0.183    | 0.054      | 0.067      | -0.051        | -0.054        | 0.104         | -0.029        | -0.190           | 0.226            | 0.083            |       |  |  |
| sharing_9                       | -0.019                    | 0.295                     | 0.044                     | -0.121                    | -0.211                    | 0.188     | -0.031    | -0.013    | -0.091    | -0.229    | 0.080     | 0.055     | 0.222     | 0.038     | -0.044    | -0.183    | 1.000     | -0.264     | -0.371     | 0.108         | -0.036        | -0.011        | -0.093        | 0.150            | -0.296           | -0.122           |       |  |  |
| sharing_10                      | 0.295                     | -0.368                    | -0.227                    | 0.007                     | -0.051                    | -0.313    | 0.156     | -0.044    | 0.016     | 0.002     | -0.183    | -0.132    | -0.120    | 0.456     | -0.375    | 0.054     | -0.264    | 1.000      | 0.794      | -0.054        | -0.176        | -0.164        | -0.033        | -0.159           | 0.182            | 0.255            |       |  |  |
| sharing_11                      | 0.296                     | -0.351                    | -0.136                    | -0.084                    | 0.021                     | -0.293    | 0.236     | 0.041     | 0.038     | -0.030    | -0.159    | -0.149    | -0.135    | 0.290     | -0.330    | 0.067     | -0.371    | 0.794      | 1.000      | -0.013        | -0.078        | -0.092        | 0.033         | -0.104           | 0.175            | 0.255            |       |  |  |
| utilisation_1                   | -0.024                    | 0.145                     | 0.052                     | -0.036                    | -0.145                    | 0.035     | 0.225     | 0.086     | -0.037    | -0.059    | -0.098    | -0.106    | 0.116     | 0.035     | 0.014     | -0.051    | 0.108     | -0.054     | -0.013     | 1.000         | 0.026         | 0.060         | 0.030         | -0.055           | -0.220           | 0.013            |       |  |  |
| utilisation_2                   | 0.016                     | 0.039                     | 0.018                     | -0.067                    | 0.242                     | 0.120     | -0.093    | 0.182     | -0.055    | -0.140    | -0.079    | -0.073    | 0.002     | -0.040    | -0.022    | -0.064    | -0.036    | -0.176     | -0.078     | 0.026         | 1.000         | 0.199         | -0.015        | 0.132            | 0.094            | -0.181           |       |  |  |
| utilisation_3                   | -0.094                    | -0.006                    | 0.079                     | 0.053                     | 0.223                     | 0.128     | -0.037    | 0.196     | 0.113     | 0.031     | 0.072     | 0.005     | 0.046     | 0.038     | 0.012     | 0.104     | -0.011    | -0.164     | -0.092     | 0.060         | 0.199         | 1.000         | 0.159         | -0.013           | 0.006            | -0.005           |       |  |  |
| utilisation_4                   | 0.054                     | 0.001                     | 0.078                     | -0.062                    | -0.125                    | -0.112    | -0.016    | -0.066    | -0.092    | -0.062    | -0.080    | -0.162    | 0.025     | 0.169     | 0.045     | -0.029    | -0.093    | -0.033     | 0.033      | 0.030         | -0.015        | 0.159         | 1.000         | -0.023           | 0.007            | -0.043           |       |  |  |
| performance_ce_1                | -0.160                    | 0.178                     | 0.073                     | 0.093                     | 0.182                     | 0.271     | -0.127    | -0.054    | -0.093    | -0.035    | 0.186     | 0.295     | -0.011    | -0.260    | 0.202     | -0.190    | 0.150     | -0.159     | -0.104     | -0.055        | 0.132         | -0.013        | -0.023        | 1.000            | 0.105            | -0.228           |       |  |  |
| performance_ce_2                | -0.080                    | -0.066                    | -0.083                    | 0.122                     | 0.219                     | -0.186    | -0.236    | 0.117     | -0.101    | 0.142     | -0.072    | -0.044    | 0.007     | -0.050    | -0.050    | 0.226     | -0.296    | 0.182      | 0.175      | -0.220        | 0.094         | 0.006         | 0.007         | 0.105            | 1.000            | 0.030            |       |  |  |
| performance_ce_3                | -0.166                    | -0.169                    | -0.129                    | 0.136                     | -0.162                    | -0.120    | -0.020    | -0.193    | 0.036     | -0.030    | 0.097     | -0.105    | 0.050     | 0.280     | -0.124    | 0.083     | -0.122    | 0.255      | 0.255      | 0.013         | -0.181        | -0.005        | -0.043        | -0.228           | 0.030            | 1.000            |       |  |  |
| capture and acquisition_1       |                           |                           |                           |                           |                           |           |           |           |           |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |
| capture and acquisition_2       | 0.000                     |                           | 0.144                     | 0.020                     | 0.026                     | 0.033     | 0.005     | 0.016     | 0.498     | 0.126     | 0.015     | 0.460     | 0.412     | 0.000     | 0.000     | 0.490     | 0.422     | 0.001      | 0.001      | 0.405         | 0.434         | 0.165         | 0.289         | 0.049            | 0.205            | 0.043            |       |  |  |
| capture and acquisition_3       | 0.000                     | 0.482                     | 0.436                     | 0.322                     | 0.000                     | 0.041     | 0.226     | 0.319     | 0.457     | 0.001     | 0.325     | 0.054     | 0.000     | 0.000     | 0.000     | 0.044     | 0.140     | 0.000      | 0.000      | 0.067         | 0.346         | 0.474         | 0.496         | 0.033            | 0.250            | 0.040            |       |  |  |
| capture and acquisition_4       | 0.144                     | 0.482                     |                           | 0.326                     | 0.000                     | 0.387     | 0.425     | 0.105     | 0.146     | 0.394     | 0.154     | 0.356     | 0.039     | 0.053     | 0.001     | 0.145     | 0.326     | 0.009      | 0.080      | 0.298         | 0.425         | 0.208         | 0.211         | 0.227            | 0.195            | 0.091            |       |  |  |
| capture and acquisition_5       | 0.020                     | 0.436                     | 0.326                     |                           | 0.186                     | 0.312     | 0.125     | 0.134     | 0.011     | 0.335     | 0.361     | 0.158     | 0.037     | 0.154     | 0.013     | 0.370     | 0.105     | 0.472      | 0.195      | 0.356         | 0.246         | 0.294         | 0.262         | 0.170            | 0.105            | 0.080            |       |  |  |
| storage_1                       | 0.026                     | 0.322                     | 0.000                     | 0.186                     |                           | 0.256     | 0.156     | 0.304     | 0.364     | 0.455     | 0.354     | 0.176     | 0.000     | 0.000     | 0.479     | 0.223     | 0.014     | 0.299      | 0.416      | 0.067         | 0.006         | 0.010         | 0.099         | 0.029            | 0.011            | 0.047            |       |  |  |
| storage_2                       | 0.033                     | 0.000                     | 0.387                     | 0.312                     | 0.256                     | 0.001     |           | 0.001     | 0.453     | 0.001     | 0.069     | 0.029     | 0.412     | 0.001     | 0.001     | 0.000     | 0.009     | 0.025      | 0.000      | 0.001         | 0.361         | 0.108         | 0.094         | 0.124            | 0.002            | 0.027            | 0.107 |  |  |
| storage_3                       | 0.005                     | 0.041                     | 0.425                     | 0.125                     | 0.156                     | 0.001     | 0.268     | 0.000     | 0.165     | 0.270     | 0.259     | 0.128     | 0.099     | 0.035     | 0.271     | 0.377     | 0.054     | 0.007      | 0.010      | 0.168         | 0.350         | 0.435         | 0.096         | 0.007            | 0.420            | 0.020            |       |  |  |
| storage_4                       | 0.016                     | 0.226                     | 0.105                     | 0.134                     | 0.304                     | 0.453     | 0.268     |           | 0.273     | 0.038     | 0.296     | 0.429     | 0.317     | 0.104     | 0.498     | 0.059     | 0.440     | 0.327      | 0.337      | 0.188         | 0.030         | 0.021         | 0.248         | 0.291            | 0.115            | 0.023            |       |  |  |
| storage_5                       | 0.498                     | 0.319                     | 0.146                     | 0.011                     | 0.364                     | 0.001     | 0.002     | 0.273     |           | 0.322     | 0.312     | 0.022     | 0.061     | 0.487     | 0.198     | 0.422     | 0.176     | 0.435      | 0.346      | 0.354         | 0.285         | 0.121         | 0.172         | 0.169            | 0.149            | 0.354            |       |  |  |
| sharing_1                       | 0.126                     | 0.457                     | 0.394                     | 0.335                     | 0.455                     | 0.069     | 0.165     | 0.038     | 0.322     |           | 0.048     | 0.462     | 0.000     | 0.298     | 0.100     | 0.000     | 0.009     | 0.482      | 0.381      | 0.271         | 0.075         | 0.373         | 0.263         | 0.361            | 0.071            | 0.377            |       |  |  |
| sharing_2                       | 0.015                     | 0.001                     | 0.154                     | 0.361                     | 0.354                     | 0.029     | 0.270     | 0.296     | 0.312     | 0.048     |           | 0.011     | 0.274     | 0.002     | 0.088     | 0.012     | 0.196     | 0.029      | 0.051      | 0.157         | 0.210         | 0.231         | 0.205         | 0.027            | 0.230            | 0.158            |       |  |  |
| sharing_3                       | 0.460                     | 0.325                     | 0.356                     | 0.158                     | 0.176                     | 0.412     | 0.259     | 0.429     | 0.022     | 0.462     | 0.011     |           | 0.192     | 0.361     | 0.271     | 0.040     | 0.286     | 0.087      | 0.062      | 0.138         | 0.228         | 0.478         | 0.047         | 0.001            | 0.326            | 0.139            |       |  |  |
| sharing_4                       | 0.412                     | 0.054                     | 0.039                     | 0.037                     | 0.000                     | 0.001     | 0.128     | 0.317     | 0.061     | 0.000     | 0.274     | 0.192     |           | 0.041     | 0.030     | 0.085     | 0.011     | 0.108      | 0.061      | 0.116         | 0.493         | 0.318         | 0.399         | 0.455            | 0.471            | 0.303            |       |  |  |
| sharing_5                       | 0.000                     | 0.000                     | 0.053                     | 0.154                     | 0.000                     | 0.001     | 0.099     | 0.104     | 0.487     | 0.298     | 0.002     | 0.361     | 0.041     |           | 0.003     | 0.252     | 0.347     | 0.000      | 0.001      | 0.360         | 0.342         | 0.347         | 0.040         | 0.003            | 0.303            | 0.002            |       |  |  |
| sharing_6                       | 0.000                     | 0.000                     | 0.001                     | 0.013                     | 0.479                     | 0.000     | 0.035     | 0.498     | 0.198     | 0.100     | 0.088     | 0.271     | 0.030     | 0.003     |           | 0.464     | 0.327     | 0.000      | 0.000      | 0.444         | 0.410         | 0.453         | 0.322         | 0.018            | 0.305            | 0.100            |       |  |  |
| sharing_7                       | 0.490                     | 0.044                     | 0.145                     | 0.370                     | 0.223                     | 0.009     | 0.271     | 0.059     | 0.422     | 0.000     | 0.012     | 0.040     | 0.085     | 0.252     | 0.464     |           | 0.029     | 0.291      | 0.244      | 0.299         | 0.255         | 0.141         | 0.385         | 0.024            | 0.009            | 0.197            |       |  |  |
| sharing_8                       | 0.422                     | 0.140                     | 0.326                     | 0.105                     | 0.014                     | 0.025     | 0.377     | 0.449     | 0.176     | 0.009     | 0.196     | 0.286     | 0.011     | 0.347     | 0.327     | 0.029     |           | 0.003      | 0.000      | 0.132         | 0.354         | 0.453         | 0.169         | 0.061            | 0.001            | 0.105            |       |  |  |
| sharing_9                       | 0.001                     | 0.000                     | 0.009                     | 0.472                     | 0.299                     | 0.000     | 0.054     | 0.327     | 0.435     |           |           |           |           |           |           |           |           |            |            |               |               |               |               |                  |                  |                  |       |  |  |

a. Measures of Sampling Adequacy(MSA)

### Communalities

|                           | Initial | Extraction |
|---------------------------|---------|------------|
| capture and aquisition_1  | 1.000   | .596       |
| capture and acquisition_2 | 1.000   | .604       |
| capture and acquisition_3 | 1.000   | .652       |
| capture and acquisition_4 | 1.000   | .799       |
| capture and acquisition_5 | 1.000   | .747       |
| storage_1                 | 1.000   | .572       |
| storage_2                 | 1.000   | .629       |
| storage_3                 | 1.000   | .628       |
| sharing_1                 | 1.000   | .665       |
| sharing_2                 | 1.000   | .767       |
| sharing_3                 | 1.000   | .746       |
| sharing_4                 | 1.000   | .732       |
| sharing_5                 | 1.000   | .694       |
| sharing_6                 | 1.000   | .733       |
| sharing_7                 | 1.000   | .653       |
| sharing_8                 | 1.000   | .726       |
| sharing_9                 | 1.000   | .588       |
| sharing_10                | 1.000   | .783       |
| sharing_11                | 1.000   | .810       |
| utilisation_1             | 1.000   | .603       |
| utilisation_2             | 1.000   | .603       |
| utilisation_3             | 1.000   | .754       |
| utilisation_4             | 1.000   | .802       |
| performance_1             | 1.000   | .639       |
| performance_2             | 1.000   | .592       |
| performance_3             | 1.000   | .643       |

Extraction Method: Principal Component Analysis.

| Total Variance Explained |                     |               |              |          |               |              |                                   |               |              |
|--------------------------|---------------------|---------------|--------------|----------|---------------|--------------|-----------------------------------|---------------|--------------|
| Component                | Initial Eigenvalues |               |              | Loadings |               |              | Rotation Sums of Squared Loadings |               |              |
|                          | Total               | % of Variance | Cumulative % | Total    | % of Variance | Cumulative % | Total                             | % of Variance | Cumulative % |
| 1                        | 4.650               | 27.352        | 27.352       | 4.650    | 27.352        | 27.352       | 3.499                             | 20.583        | 20.583       |
| 2                        | 2.999               | 17.644        | 44.996       | 2.999    | 17.644        | 44.996       | 3.261                             | 19.185        | 39.768       |
| 3                        | 2.849               | 16.760        | 61.755       | 2.849    | 16.760        | 61.755       | 2.993                             | 17.606        | 57.374       |
| 4                        | 1.886               | 11.095        | 72.851       | 1.886    | 11.095        | 72.851       | 1.887                             | 11.099        | 68.473       |
| 5                        | 1.051               | 6.183         | 79.034       | 1.051    | 6.183         | 79.034       | 1.593                             | 9.369         | 77.842       |
| 6                        | .850                | 5.002         | 84.036       | .850     | 5.002         | 84.036       | 1.053                             | 6.194         | 84.036       |
| 7                        | .575                | 3.380         | 87.416       |          |               |              |                                   |               |              |
| 8                        | .463                | 2.724         | 90.139       |          |               |              |                                   |               |              |
| 9                        | .419                | 2.466         | 92.605       |          |               |              |                                   |               |              |
| 10                       | .284                | 1.673         | 94.278       |          |               |              |                                   |               |              |
| 11                       | .236                | 1.390         | 95.667       |          |               |              |                                   |               |              |
| 12                       | .223                | 1.312         | 96.979       |          |               |              |                                   |               |              |
| 13                       | .170                | 1.001         | 97.980       |          |               |              |                                   |               |              |
| 14                       | .139                | .819          | 98.799       |          |               |              |                                   |               |              |
| 15                       | .120                | .706          | 99.505       |          |               |              |                                   |               |              |
| 16                       | .063                | .368          | 99.873       |          |               |              |                                   |               |              |
| 17                       | .022                | .127          | 100.000      |          |               |              |                                   |               |              |

Extraction Method: Principal Component Analysis.

