# THE ROLE OF HRM IN INTRA-FIRM OPERATIONALIZATION OF TACIT KNOWLEDGE IN KENYAN STATE CORPORATIONS

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# The Role of HRM in Intra-Firm Operationalization of Tacit Knowledge in Kenyan State Corporations

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# DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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This thesis has been submitted for examination with our approval as University Supervisors.

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## DEDICATION

I would like to dedicate this entire work to my late parents Mrs. Kabale Guyo and Mr.

Guyo Wako. They are the icon of my strength in life.

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In a nutshell every effort has been made by various people in different capacities to make this entire thesis developed this far. First and foremost, I would like to register my full appreciation with my supervisors Dr. Roselyn Gakure and Dr. Kabare Karanja for their encouragement, professional support and more so for their unfailing availability in supervising this work.

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# LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **BPR** | Business Process Engineering |
| **CFA** | Confirmatory Factor Analysis |
| **CFI** | Comparative Fit Index |
| **CoP** | Community of Practice |
| **Df** | Degree of Freedom |
| **EKR** | Electronic Knowledge Repositories |
| **ERP** | Enterprise Resource Planning |
| **GDP** | Gross Domestic Product |
| **GFI** | Goodness-of-Fit Index |
| **GFIs** | Goodness-of-Fit Indices |
| **HR** | Human Resource |
| **HRD** | Human Resource Development |
| **HRM** | Human resource Management |
| **IT** | Information Technology |
| **KIF** | Knowledge Intensive Firm |
| **KM** | Knowledge Management |
| **KMO** | Kaiser-Meyer-Olkin |
| **KR** | Kunder-Richardson |
| **LISREL** | Linear Structural Relation |
| **MDG** | Millennium Development Goals |
| **MRA** | Multiple Regression Analysis |

| | |
|---|---|
| **MQRAP** | Multiple Regression Quadratic Assignment Procedure |
| **NFI** | Normed Fit Index |
| **NNFI** | Non-normed Fit Index |
| **OECD** | Organization for Economic Cooperation and Development |
| **RBV** | Resource-Based View |
| **RMSEA** | Root Mean Squared Error of Approximation |
| **ROI** | Return on Investment |
| **RoK** | Republic of Kenya |
| **SECI** | Socialization, Externalization, Combination and Internalization |
| **SEM** | Structural Equation Modeling |
| **SPSS** | Statistical Package for Social Sciences |
| **SWOT** | Strengths Weaknesses Opportunities Threats |
| **TKE** | Tacit Knowledge Externalization |
| **TS** | Test Statistic |
| **TQM** | Total Quality Management |
| **UK** | United Kingdom |
| **UNCTD** | United Nation Conference on Trade and Development |
| **US** | United States |
| **USA** | United States of America |
| **USBLS** | United State Bureau of Labour Statistics |

**ABSTRACT**

In the 21st. century, the dynamic conditions of the market and the competitive advantage is mainly dependent on knowledge; while capital, land and labour are becoming subsidiary resources gradually. In the US, the percentage of people who work with things or deliver non-professional services has fallen by 42% of the workforce in the last 100 years, whilst the percentage of those who primarily work with information has risen by same percent. However, there were no such studies done that reflect the state and the rate of embracement of the knowledge management and economy in the developing world Kenya being one of them. While the bottom-line imperative of workforce development and knowledge management in organizations dominate many discussions about how Human Resource Management (HRM) contributes to the firm, one particular area of neglect in joining the link between the two is the role of HRM in sharing of tacit knowledge. This study sought to investigate the role of HRM in intra-firm operationalization (sharing) of tacit knowledge in Kenyan State Corporations.

The study adopted an exploratory design. The target population of the study is the state-owned corporations in Kenya that totals to 128. The study targeted human resource managers of the corporations as the respondents since the objective of the study is technical and thus demands the perception and opinion of practicing human resource managers. Thus, the population was also regarded as homogeneous and simple random sampling technique was used to select a sample size of 38 corporations which forms 30% of the total population which has been justified as adequate. Interviewer-administered questionnaire was used to collect primary data while secondary data

gathered through reviews of both theoretical and empirical literatures. Pilot testing was conducted to obtain some assessment of the questions' validity and the likely reliability of the data. Reliability of the pre-test observation schedule was tested using internal consistency technique. The data obtained was analyzed using both qualitative and quantitative analysis. A confirmatory factor analysis was used to examine the measurement model using structural equation modeling (SEM).

The study found out that performance and reward strategies contributes to the sharing of tacit knowledge; mentoring and role modeling influence the operationalization of tacit knowledge and that employee training also significantly contribute to the sharing of the firm's tacit knowledge. The result strongly supported the presumption that social environment mediates the effect of independent variables of dependent variable. Finally, the development dimension of the independent variable was found to be insignificant and likewise the role of knowledge management infrastructure as a moderating variable in the priori model was not supported.

Based on the findings, it can be concluded that the role of HRM through social environment is to transmit corporations' core cultural values, create the conditions where social interactions are more likely to emerge and facilitate the creation of organizational capabilities such as the ability to locate and share knowledge rapidly and respond to market changes. Thus, the study recommended that HR managers need to emphasize on building social networks and promote a culture of informal learning organization to facilitate the sharing of tacit knowledge within their organizations.

## 1.0 INTRODUCTION

### 1.1 Background

### 1.1.1 Overview of State Corporations

The State corporations in Kenya are regarded as one of the factors that are and have a great potential to facilitate growth (Njiru, 2008). Against the background of economic growth that started from an all time low of – 0.3 % GDP in 2001, Kenya has been experiencing positive growth rate that is still not good enough especially with its ambitious vision 2030. At its current economic growth there is still need for boosted strategies to achieve sustained growth of 10%. In Kenya, the government forms the state Corporations to meet both its commercial and social goals. They exist for various reasons including to correct market failure, to exploit social and political objectives, provide education, health, redistribute income or develop marginal areas among others republic of Kenya (RoK, 1965). However, State Corporations in Kenya have been experiencing myriad of problems, including politicization and poor corporate governance, weak supervisory mechanism, financial structure and management and abuse of office (Petiffor, 2001). This is a clear manifestation of governance problems which require a critical examination of the management approach in practice.

On a broader scope, the rapid change in the global landscape coupled with the shifts to the knowledge-based economy has resulted to yet another era in the doctrines of management which emphasize the management of knowledge. This change, however, not only poses some challenges, but also offers opportunities for both private and public

sectors alike. In order to gain competitive advantage for their survival due to this transformation, most of the large companies in the private sector have been actively taking initiatives to adopt new management tools, techniques and philosophies. Governments always follow suit. History shows that the surfeit of the management philosophies such as Enterprise Resource Planning (ERP), Business Process Re-engineering (BPR), and Total Quality Management (TQM) was first practiced in the large company (Mc Adam and Reid, 2000). Once they gained foot in the field, then they were adopted in the other sectors. This was followed by knowledge management (KM) which unlike others, has passed the fad stage and is here to stay.

Nevertheless, the concept of KM is nothing new (Hansen, Nohria and Tierney, 1999). Organizations have always used KM practices (in various disguises) to make decisions, and to produce goods and services, though not in a deliberate and systematic manner. KM has for sometime been at the core of government and public corporations' tasks – inseparable from strategy, planning, consultation and implementation. However, evidence drawn from the existing literature suggests that public sector is falling behind in these practices (OECD, 2001).

Essentially, what is new about KM is the act of being conscious about the existence of a KM process (Sarvary, 1999). Organizations that use the KM practices without knowledge and awareness of it will not reap the benefits to its full, if any at all. Deliberately managing knowledge in a systematic and holistic way can increase awareness of benefits to both individuals and organizations. However, there seems lack

of utilization of KM in the government and government-owned corporations especially in the developing economies in Africa. This can severely hinder the effective implementation of KM initiatives in organizations in search of increased performance (Sarvary, 1999).

As in most developing economies, Kenya's economic framework is such that the role of the public sector cannot be ignored in the wealth creation process. Wealth creation will continue to be undertaken by the public sector, private sector and cooperative societies working in concert. State-owned corporations will continue to play an important role in the production and creation of wealth necessary for enhancing national development.

In Kenya, most State-corporations were first established during the colonial era where majority were in Agricultural sector which predominate the country's economy since independence. As at 2007, Agriculture accounted for about 24.2% of the Gross Domestic Product (GDP) (RoK, 2007). The formation of State-Corporations was driven by a national desire to accelerate socio-economic development, need to redress regional economic imbalance, citizen's participation in economy and promoting indigenous entrepreneurship. For state-corporations in Kenya to play this role, it is important that they are governed and managed efficiently, effectively and sustainably. This has not always been the case in the past, particularly in the recent past. There are numbers of State-corporation which have been a burden on the Exchequer over the decades due to its dismal performance, while many others have been operating below their potential (RoK, 2009).

## 1.1.2 Public Enterprise Performance and Knowledge Management

State Corporations can be defined as nationalized corporations which are publicly owned by the state or government and in Kenya they are established under the State Corporations Act, Chapter 446 laws of Kenya. The establishment of the parastatals was driven by a national desire to accelerate economic social development, redress regional economic imbalances, increase Kenyan Citizen's participation in the economy, and promote indigenous entrepreneurship and foreign investments as reflected in the Sessional Paper No. 10, 1965.

A comprehensive review of the public enterprises performance was carried out by the government in two major documents. The first one was Report on the Review of Statutory Boards, 1979 which pointed out that the growth in the parastatal sector had not been accompanied by development of efficient systems to ensure that the sector plays its role in an efficient manner. Additionally, there was clear evidence of prolonged inefficiency, financial mismanagement, waste and malpractices in many parastatals. The report also pointed out that the government investments had largely been at the initiative of private promoters with government being brought in either as an indispensable partner or to undertake rescue measures. Other issues highlighted by the report was that many of the parastatals had moved away from their primary functions, especially the regulatory boards most of which had translated their regulatory role into executive one, resulting in waste and confusion and there was danger of over-politicizing production and distribution through establishment of too many parastatals.

The second document was the Report on the Working Party on Government Expenditures which concluded that productivity of the State Corporations was quite low while at the same time they continued to absorb an excessive portion of the budget, becoming a principal cause of long-term fiscal problem. The report made four observations that: (a) Kenyanization had remained merely presentational through state ownership  (b) State Corporations' operations had become inefficient and unprofitable partly due to multiplicity of objectives (c) Existence of parastatals in commercial activities had stifled private sector initiative (d) Many of the joint ventures had failed, and this forced the Government to shoulder major financial burden.

## 1.2 Statement of the Problem

In Kenya, state corporations are regarded as an engine of economic growth and recovery (Njiru, 2008). According to the Sesional paper No. of 1965, the establishment of state corporations were driven by national desire to accelerate social economic development and among other things promote indigenous entrepreneurship and foreign investment. However, the continued poor service delivery in state corporations has increased the country's cost of production, thereby affecting adversely Kenya's external competitiveness and leading to loss of jobs and of economic opportunities (RoK, 1992; 2005).

According to World Bank (2004), Kenya has an over-abundance of state corporations many of which are a drain on public resources; more to the point, they have been the locus of corruption that thrives in public monopolies, especially when coupled with lax

oversight, management and fiduciary control procedures. This partly has resulted into over-employment in these enterprises which have been a major cause of their financial problems hence creating the need for radical organizational change that manifested itself in the form of massive layoffs. Legovini (2002) pointed out that these retrenchments were part of the structural reforms aimed at promoting macroeconomic revolution. This is to ensure effective and efficient service delivery as well as competitiveness in these Corporations.

On a broader spectrum, a study by Pierce and Waring (2008) indicates that one of the glaring gaps in the governance of corporate affairs in the public sector is the management of knowledge. Indeed, in all workplaces, knowledge and skills have become widely recognized as increasingly important assets. They are important because expertise is a "must" for proficient performance in these domains. Past study conducted by United States Bureau of Labour Statistics (USBLS) in 1999 on the relationship between worker skills to workforce productivity indicated that 32% of increased workforce productivity was due to increased knowledge and skill. This underscores the increasing importance of knowledge and its management to economic growth and development as well as gradual metamorphosis in human resource management approach.

Furthermore, this importance is increasing more than ever before in this wake of hard economic times when many organizations downsize, with many of the knowledgeable personnel being laid off. This poses an adverse consequence associated with losing their

expertise. An estimate by Botkin and Seeley (2001) revealed that an overwhelming 80% of the organizational knowledge is tacit and since this is knowledge embedded in the human resources of an organization; it forms a very important component of the corporate memory. Thus, maintaining competence within an organization despite a high turnover of employees, either through retirement or retrenchment poses a major management challenge as tacit knowledge is lost (Nonaka and Takeuchi, 1995). The key question is how to retain knowledge and its distinctive properties in such knowledge intensive organizations such as the state corporations.

Nevertheless, with the proliferations of technology that revolutionized employees' skills, technology has become a core capability leveler making human creativity and innovation as a survival strategy for most organization. This puts a premium on KM as a cardinal competitive differentiator. Thus, the identification of aligning Human Resource Management (HRM) practices, facilitators and constraints for enabling the sharing of tacit knowledge within firms seems to be of paramount importance in theory as well as in practice in both HRM and organizational studies. In addition to the linkage of tacit knowledge with corporate memory, further empirical evidence indicates that organizations which provide the environmental accouterments that enable individuals to utilize their tacit knowledge and expertise increase organizational performance and productivity (Miller, 2003).

Nonetheless, previous study (Kuan, 2008) on Knowledge Management have largely centered on the perceptions and practices of organizations in advanced countries.

However, with the continued dismal performance of the public enterprises according to RoK (1992) there are still little attempts to empirically investigate its current adoption status in developing countries such as Kenya with a view to minimize such corporate memory loss through knowledge transfer. The purpose of this study therefore was to bridge this gap by investigating the role of HRM practices in intra-firm transfer of the tacit knowledge in Kenyan State Corporations. Nevertheless, since tacit knowledge is usually difficult to imitate, transfer and replicate (Wu, 2003) this study focused only on the understanding of how knowledge sharing takes place.

## 1.3 General Objective

The general objective of this study was to examine the role of human resource management in intra-firm operationalization of tacit knowledge with specific focus on knowledge sharing in state corporations in Kenya.

## 1.4 Specific Objectives

The specific objectives were:

1. To find out whether the employee training and development contribute to sharing of firm's tacit knowledge in state corporations.

2. To investigate if performance and reward strategies contribute to sharing of tacit knowledge in state corporation.

3. To find out if mentoring and role modeling practices enhances operationalization of tacit knowledge in state corporations.

4. To establish whether the knowledge management infrastructure moderates sharing of tacit knowledge in state corporations.

## 1.5 Research Questions

The study sought to address the following questions:

1. Do the employee training and development contribute to sharing of tacit knowledge in State Corporation?

2. Do the performance and reward strategies of the firms contribute to sharing of tacit knowledge in State Corporations?

3. Do mentoring and role modeling practices enhance operationalization of tacit knowledge in state Corporations?

4. Does the knowledge management infrastructure moderate sharing of tacit knowledge in state corporations?

## 1.6 Justification of the Study

Most companies are focused on producing a product or service for customers. However, one of the most significant keys to value-creation comes from placing emphasis on producing knowledge. The production of knowledge needs to be a major part of the overall production strategy. One of the biggest challenges behind knowledge management is the dissemination of knowledge. People with the highest knowledge have the potential for high levels of value creation. But this knowledge can only create value if it's placed in the hands of those who must execute on it. Knowledge is usually difficult to access – it leaves when the knowledge professional resigns.

While according to Chao (2000) there are no much arguments that knowledge management is the new way in which enterprises can share their explicit knowledge and tacit knowledge, Nonaka and Takeuchi (1995) argue that tacit knowledge plays a central role in repeated innovations. The role of human resource management in enhancement of the possible utilization of these hidden resources will therefore be of a considerable contribution to this unfolding transformation in economic revolution hence making this study significant to a number of organizations and individuals as follows:

### 1.6.1 Policy Makers

The coexistence between various states and governments with different partners in economic cooperation is gaining momentum day by day due to common global goals and local actions. In addition to the (MDG) Millennium Development goals, the Kenyan vision 2030 is a roadmap which is expected to move Kenya into a new economic platform. The findings of this study will be important in providing insight in new economic shifts and direction from industrial to knowledge economy so that appropriate policy decisions can be taken along the wave of the anticipated economic taxonomy.

### 1.6.2 Entrepreneurs

State corporations like any other are an entrepreneurial venture. Although the study capitalizes on the state corporations due to the fact that it has a more developed human resource function that the government ministries, the study will enlighten entrepreneurs across the board on the importance of not only the objective knowledge but also the tacit stock which is as well important to the success of the business. Business enterprises will

also redouble their efforts where necessary to build a learning organization culture in the process of finding ways of recognizing and possibly exploiting this tacit stock.

### 1.6.3 The Community

Since the larger community does not operate in isolation, it becomes one of the major beneficiaries of this study. From time to time many business enterprises and corporate organizations spend a large amount of money under the auspices of discharging their corporate-social responsibilities which requires the involvement of the surrounding community who will in turn benefit from such programme. This partnership through socialization not only utilize the knowledge of the organizational members but a great source of hidden knowledge within the community members through sharing of some mutual interests, sentiments or concerns, act together and in concert.

### 1.6.4 Research and Academic Community

The study may also prove to be invaluable to researchers and academics in providing more insights on the importance of organizational workforce development through knowledge management. Knowledge management involves the panoply of procedures and techniques used to get the most from an organization's tacit and codified know-how (Teece, 2000). Hence, this study may lay a theoretical framework for future empirical study on inter-organizational knowledge transfer on the same platform that emphasize on the role of HRM practices in the process. As mentioned earlier there have been very few attempts to empirically research tacit skills, this study may be a source of inspirations to other researchers in developing a more practical methodology of

operationalizing tacit know-how in order to assist human resource accountants quantify such tacit stock of an organization.

## 1.7 Scope and Limitations of the Study

According to Argote and Ingram (2000) intra-firm knowledge sharing is a process through which a firm's employees are affected by their coworkers' experience and which results in changes in the recipients' knowledge or performance. This is because the knowledge under investigation, which is tacit knowledge, is hard to formalize and is best transferred through direct social interaction according to Nonaka (1994). Since it is difficult to make a clear-cut distinction between tacit and explicit knowledge due to their inseparable relatedness (Tsoukas, 1996) this study therefore focused on the understanding of how tacit knowledge sharing takes place.

With regard to the sharing and conversion of tacit knowledge many literature points to the role of social environment and employee relations as a mediating enabler for intra-firm tacit knowledge sharing. More so, since HRM is a socially complex process, the selection of the cluster of HR practices to be examined in this study was based on various literatures which link them with social interrelationship among employees in an organization. Therefore, this study focused on the role of HR practices on socialization process which is presumed to trigger the mechanisms of sharing of tacit knowledge between the employees within the organization.

However, since it is not be possible to study all variables that influence the conversion of knowledge, the study was designed to generate basic understanding of this dimension of knowledge, and integrating it to the framework and attention of HRM within the firm. The result of this study is hoped to create more elaborate insight on the typologies of knowledge and skill resources that will help explain and support an appropriate methodology of operationalizing tacit know-how further in future.

## 1.8 Definitions of Terminologies

### Knowledge

This is a fluid mix of framed experience, values, contextual information, expert insight and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information (Davenport and Prusak, 1998).

### Management

Management is a set of processes that can keep a complicated system of people and technology running smoothly. The most important aspects of management include planning, budgeting, organizing, staffing, controlling, and problem solving (Kotter, 1996).

### Knowledge Management

This is the process of exploring, providing, creating and expanding, sharing, saving, evaluating, and applying the right knowledge by the right person in appropriate time, that could be realized through combination among human resources, information

technology, and communication; and by implementing appropriate structure to meet the organization goals (Afrazeh, 2005).

**Codified Knowledge**

This is the knowledge which is organized and coordinated in a form and a structure meaningful to a user (Howells, 1996).

**Explicit Knowledge**

Explicit knowledge refers to knowledge that is transmittable in formal, systematic language, while tacit knowledge is highly personal, context-specific, and therefore, hard to formalize or communicate (Nonaka and Takeuchi, 1995).

**Tacit Knowledge**

It is a form of knowledge that is highly personal and context specific and deeply rooted in individual experiences, ideas, values and emotions (Gourlay, 2002). Davenport and Prusak (1998) further defined tacit knowledge as "knowledge that resides in the minds of the people in an organization but has not been put in a structured or documented based form. Similarly, Busch and Richards (2004) described it as a knowledge that resides in the minds of the people in an organization but has not been put in a structured or documented based form.

**Human Resource Management**

Is a strategic and coherent approach to the management of an organization's most valued assets; the people working there who individually and collectively contribute to the achievement of its objective (Armstrong, 1996).

**Knowledge Sharing**

Knowledge sharing is the process of mutually exchanging knowledge and jointly creating new knowledge. It implies synergistic collaboration of individuals who work toward a common goal (Van den Hooff & de Ridder, 2004).

**Performance Management**

Performance management can be defined as a systematic process for improving organizational performance by developing the performance of individuals and teams. It is a means of getting better results by understanding and managing performance within an agreed framework of planned goals, standards and competency requirements (Armstrong, 1996).

**Reward Management**

Reward management is concerned with the formulation and implementation of strategies and policies, the purposes of which are to reward people fairly, equitably and consistently in accordance with their value to the organization and thus help the organization to achieve its strategic goals. It deals with the design, implementation and maintenance of reward systems (reward processes, practices and procedures) that aim to meet the needs of both the organization and its stakeholders (Armstrong, 1996).

**Reward Strategy**

Reward strategy sets out what the organization intends to do in the longer term to develop and implement reward policies, practices and processes that will further the achievement of its business goals (Armstrong, 1996).

**Mentoring**

Mentoring is the process of using specially selected and trained individuals to provide guidance, pragmatic advice and continuing support, which will help the person or persons allocated to them to learn and develop (Armstrong, 1996).

**Training**

Training is the use of systematic and planned instruction activities to promote learning. It involves the use of formal process to impart knowledge and help people to acquire the skills necessary for them to perform their jobs satisfactorily. It is described as one of several responses an organization can undertake to promote learning (Armstrong, 1996).

**State Corporation**

This is a nationalized corporation which is publicly owned by the state or government and is a legal entity created by a government to undertake commercial activities with a view to develop and indigenize its economy. In Kenya, the provision of its establishment, control and regulations is set out under the State Corporations Act chapter 446 laws of Kenya (RoK, 2009).

## 2.0 LITERATURE REVIEW

### 2.1 Introduction

This chapter presents the review of relevant theoretical and empirical literature. It comprises of the theoretical review, concept of knowledge management, the resource-based view of a firm, various dimensions and dichotomies of knowledge and human resource management (HRM).

### 2.2 Theoretical Review

Concepts are sometimes called "the building blocks of theory" (Walker & Avant, 2005). A theory, according to Thomas (1997) is a definitions and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining natural phenomena. However, a conceptual framework links various concepts and serves as an impetus for the formulation of theory (Seibold, 2002). The sensitizing concepts included in this study formed the conceptual framework which shows the relationship of the dependent variable (sharing of tacit knowledge), independent variable (performance and reward management, training and development, mentoring and role modeling); moderating variable (knowledge management infrastructure) and mediating variable (social environment).

### 2.2.1 Conceptual Framework

This study, on a broader spectrum, was built on the framework of the resource-based view of the firm with its specific investigations based on the Nonaka and Takeuchi's

(1995) socialization, externalization, combination, and internalization (SECI) model of knowledge creation and transfer. In the resource-based view, knowledge was seen as a strategic asset with the potential to be a source of sustainable competitive advantage for an organization (Barney, 1986, 1991; Prahalad and Hamel, 1990; Peteraf, 1993 and Conner, 1991). At the core of Nonaka and Takeuchi (1995) SECI model is the conversion processes between tacit and explicit knowledge that result in a cycle of knowledge creation. Conversion involves four processes all of which convert between tacit and/or explicit knowledge.

Since organization's knowledge is personal, building of organizational knowledge is unthinkable without employees (Lesser and Prusak, 2001). In this view, Yahya and Goh (2002) argued that human resource management needs to adopt a unique role to support the successful factors of the implementation of knowledge management. More so, the adoption of knowledge management process in an organization requires specified structural, physical, and logical changes in their conduct of operation which was defined as knowledge management infrastructures by Becerra-Fernandez, Gonzales and Sabherwa (2004) and Gold, Malhotra and Segars (2001).

**Strategies for Acquisition of Tacit Knowledge**

The participation of the employees in the process of organization as a social community promotes the flow of knowledge which also facilitates its development (Wenger, 1998). Personal willingness to share and learn from one another comes from connections between people (Mohrman, 2003). Since several efforts of knowledge conversion and in

particular the operationalization of tacit knowledge lies within socialization process where knowledge is shared between people, HRM is a likely tool that can help in locating where the organizational tacit knowledge and skills resides.

Another way to raise self-efficacy to share complex, tacit knowledge is a person's direct past experiences. Das (2003) suggested that organizations should facilitate employees drawing on their own past experiences to harness and share knowledge. For example, effective training may promote sharing past successful knowledge, sharing experiences or uncovering related skills that can enhance knowledge sharing. Shipton, Dawson, Birdi and Patterson (2006) suggest that failure to train employees can lead to their perceptual difficulties, especially in perceiving how they can apply different experiences and perspectives. As revealed by Horowitz, Teng and Quazi (2003), flexible job design and challenging work assignments are associated with higher levels of knowledge processes within organizations. They further emphasized that development opportunities are other HR strategies that could lead to innovations within organizations and training opportunities provide room for collective work.

 Further on how to set the organization's tacit knowledge free, Bandura (1997) asserted that high self-efficacy being one's ability to share tacit knowledge then may result in challenging personal goals, as well as higher effort, persistence, satisfaction, and performance. Wasko and Faraj (2005) suggested that increasing tacit knowledge sharing requires support through praise, recognition, performance appraisals that include measures of knowledge sharing behaviors, or goals that are motivating. Along the same

line, Szulanski (1996) identified lack of motivation of a knowledge source as an important impediment to the transfer of best practices within an organization. Contingent rewards, appraisal and team-work facilitate innovation within organizations (Shipton *et al.*, 2006). According to them, incentive bonuses are motivation-based HR strategies in organizations. Such incentive programs enhance the collective problem-solving efforts, which is one of the suggested method through which tacit knowledge is transferred.

Perceived supervisor and peer support was found as an organizational environmental factor that foster knowledge sharing (Cabrera, Collins and Salgado, 2006). They also noted openness to experience as a psychological variable that have strong relationship with knowledge sharing. Lubit (2001) pointed out that the mentor-protégé relationships at workplaces speed up the rate of learning more easily, and that coaching arrangements and opportunities to observe experts are more efficient at conveying tacit knowledge.

Other researchers (Gupta and Govindarajan, 2000; Macneil, 2001; Hislop, 2003) also found that senior management support as essential to promote knowledge sharing When external information from persuasion, mastery experiences, or role models provide evidence that one can perform a task such as tacit knowledge sharing, a person then analyzes the environment and the self to determine self-efficacy. They can be platforms that support a corporation's strategic objectives for transferring tacit knowledge (www.howatthr.com).

Yahya and Goh (2002) in their work "Managing Human Resources toward Achieving Knowledge Management" emphasized that there is a relationship between various areas of human resource management and smooth transfer of knowledge within the framework of Nonaka and Takeuchi's SECI model. This then leads to the viability and sustained advantages of the companies, as described by Boxall and Purcell (2003) which is what the resource based view of the firm advocates. Moreover, the identification of tacit knowledge is often heavily hindered, but is made possible through the scope of personal contacts (Rüdiger & Vanini, 1998) where ideas are sharply critiqued but individuals are respected. A popular technique for capitalizing on the respective insights and intuitions (tacit knowledge) of a group of individuals is to conduct brainstorming sessions. Brainstorming sessions should occur at crucial stages in the innovation process and have been shown to lead to important consequences for the organization as a whole (Sutton & Hargadon, 1996).

Furthermore, a certain level of personal intimacy is necessary to establish comfortable communication of tacit knowledge. This involves recognizing networks of relationships as Scarbrough (2003) highlighted as a critical resource for exchange of knowledge required to promote innovation and create intellectual capital (Nahapiet & Ghoshal, 1998). Transfer of tacit knowledge strongly depends on the distinction between face-to-face and arm's length relationships (Spring, 2003). These therefore emphasize the importance of interaction and social process in an organization as an important moderating environment for the sharing of tacit knowledge which will enable its transfer.

Recent research on mediating mechanisms in the HRM–firm performance link has argued that human resource (HR) practices affect organizational effectiveness indirectly (Collins & Smith, 2006; Youndt & Snell, 2004). More specifically, in their discussion of mediating mechanisms, Collins and Smith (2006) suggested social networks as a possible mediator within the relationship between HR practices and knowledge exchange. Based on this assumption it is presumed that social environment mediate the transfer of tacit knowledge. In broader sense HRM is not uni-dimensional concept and encompasses many aspects of a social context. Since it is itself a socially complex process, the study will consider socially inter-related sets of HR practices that are expected to influence the social dimensions within the organization which according to the literature enables the sharing of tacit knowledge. The following is a schematic conceptual model indicating the key constructs and the nature of relationships between variables and the phenomena under investigation shown in figure 2.1.

**Performance & Reward**

**Training & Development**

**Mentoring & Role Modeling**

**Role of HRM**

**Knowledge Management Infrastructure**

**Social Environment**

**Tacit Knowledge Sharing**

| Independent Variable | Moderating Variable | Mediating Variable | Dependent Variable |
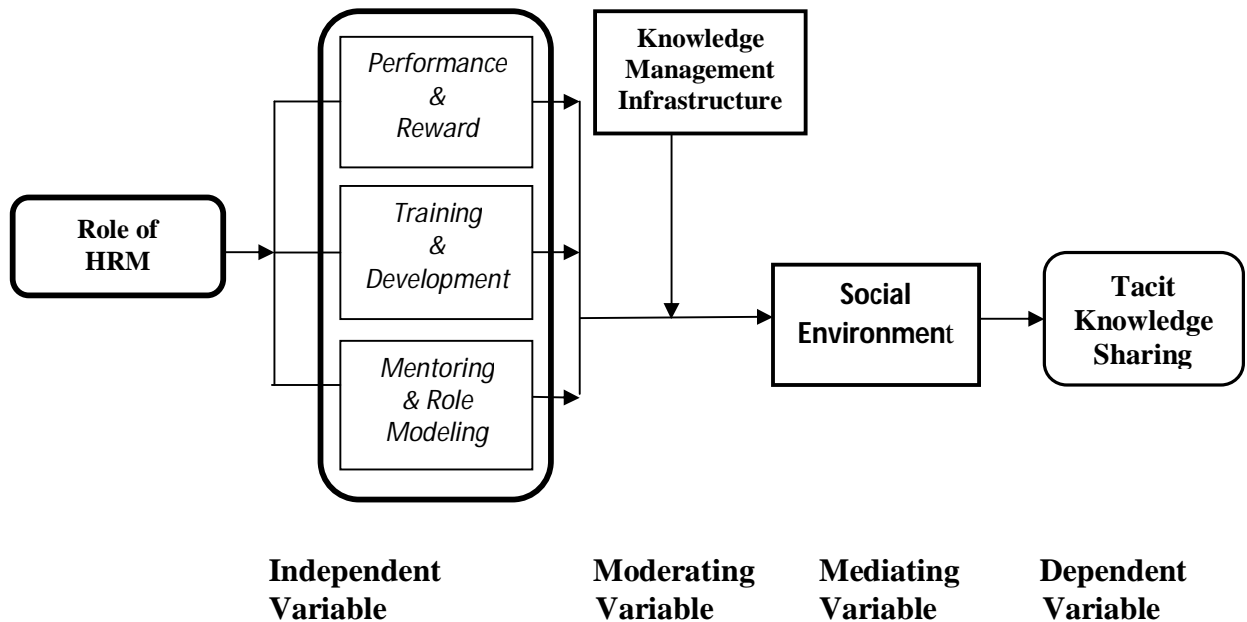
**Figure 2.1 Conceptual Framework**

### 2.2.2 The Concept of Knowledge Management

Knowledge management (KM) is about developing, sharing and applying knowledge within the firm to gain and sustain a competitive advantage (Petersen and Poulfelt, 2002). Its popularity has increased rapidly in the last decade, and it has become a central topic of management philosophy. Also, KM has been widely used recently by firms and organizations in order to improve decision making, product innovation, productivity and profits (Edvardsson, 2006).

Scholars have argued recently that knowledge is dependent on people and that HRM issues, such as recruitment and selection, education and development, performance management, pay and reward, as well as the creation of a learning culture are vital for managing knowledge within firms (Evans, 2003; Carter and Scarbrough, 2001; Currie

and Kerrin, 2003; Hunter, Beaumont and Lee, 2002; Robertson and O'Malley Hammersley, 2000). The trace of the origin of KM went to as far as changes in HRM practices: One of the key factors in the growth of interest in knowledge management in the 1990s was the rediscovery that employees have skills and knowledge that are not available to (or "captured" by) the organization. According to Little, Ouintas and Ray (2002), it is perhaps no coincidence that this rediscovery of the central importance of people as possessors of knowledge vital to the organization followed an intense period of corporate downsizing, outsourcing and staff redundancies in the West in the 1980s.

Nevertheless, despite such growing interests, defining knowledge management is difficult because it has multiple interpretations (Choi, 2000). According to Van Ewyk (2000), knowledge management is a "conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that will improve organizational performance". The management of knowledge can be thought of as a "deliberate design of processes, tools, structures, with the intent to increase, renew, share or improve the use of knowledge represented in any of the three elements (structural, human, and social) of intellectual capital" (Seemann, DeLong, Stucky and Guthrie, 1999).

### 2.2.3 Models of Knowledge Management

### 2.2.3.1 Nonaka and Takeuchis' Model

In developing a general framework for understanding KM, it is important to refer to perhaps the most influential framework developed by Nonaka and Takeuchi (1995),

which is also called Knowledge creation cycle as shown in figure 2.2. In their studies of knowledge creation and use in Japanese companies, Nonaka and Takeuchi (1995) distinguish between two types of knowledge; explicit and tacit. Tacit knowledge is "basically experiential", whilst explicit knowledge is "expressed and often seen as transferable in one way or another; it includes cognitive and technical elements". Cognitive elements operate through mental models, working worldviews that develop through the creation and manipulation of mental analogies.
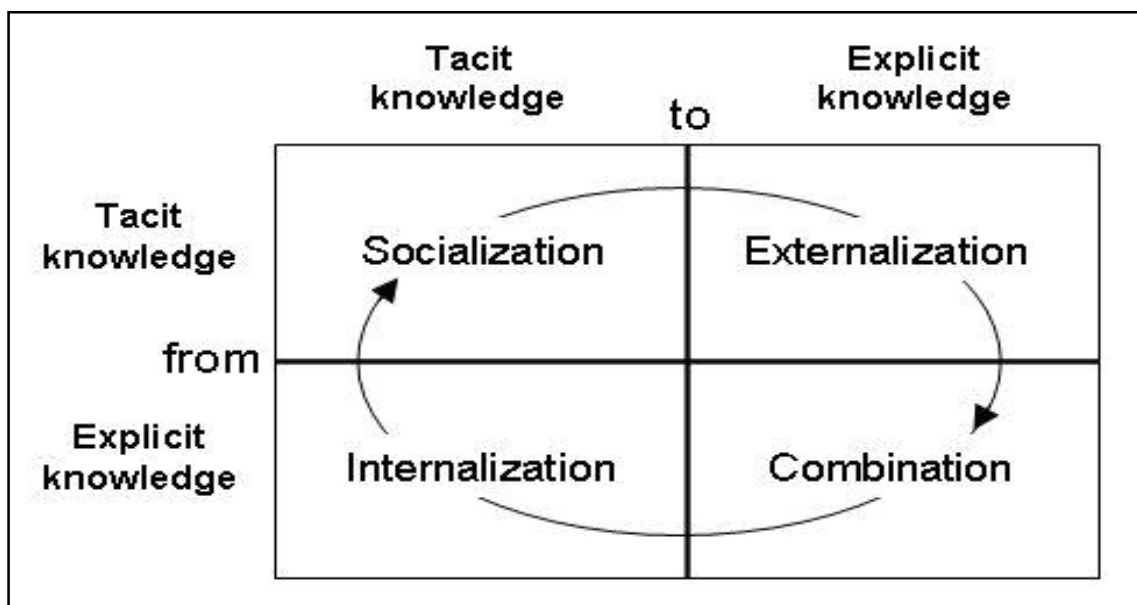


**Figure 2.2: Nonaka and Takeuchis' Model (Nonaka & Takeuchi, 1995)**

### 2.2.3.2 Gunnlaugsdottir's Model

Nonaka and Takeuchi's framework was modified in Gunnlaugsdottir (2003) model of forming organization knowledge. Here the cycle of tacit conversion to explicit

knowledge appears to be the core of knowledge formation which is closely related to knowledge management. This model is as shown in figure 2.3.
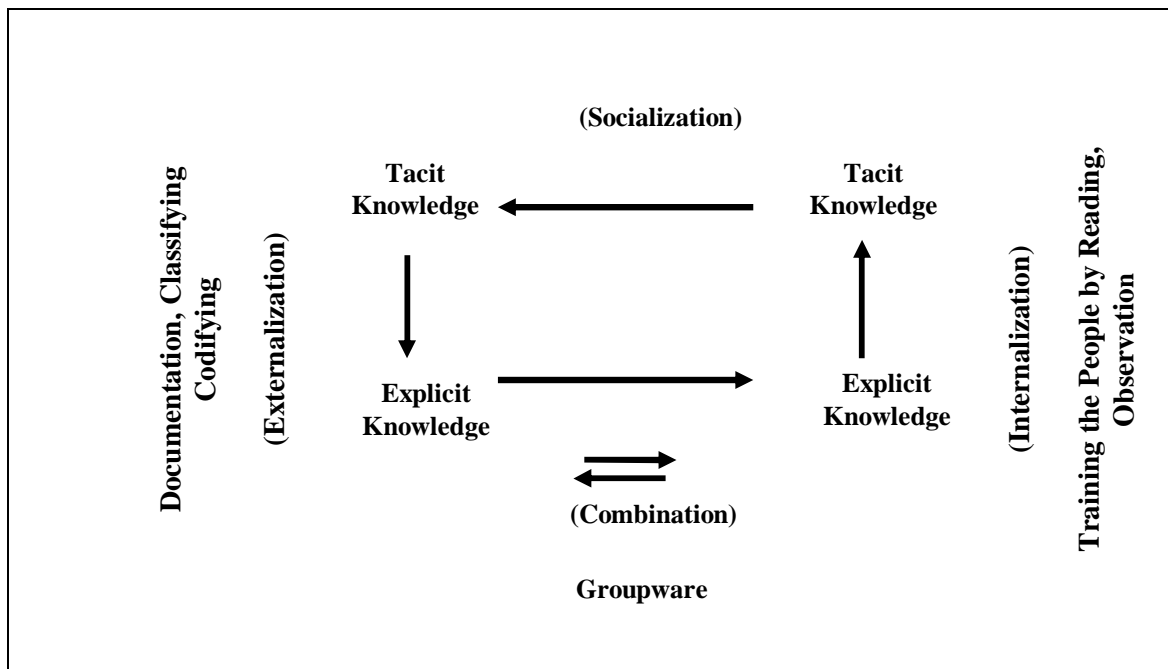


**Figure 2.3: Model of Organizational Knowledge (Gunnlaugsdottir, 2003)**

**2.2.4 The Concept of Tacit Knowledge**

**2.2.4.1 Definition and Taxonomy of Tacit Knowledge**

Tacit knowledge: definition and types Discussions on tacit knowledge date back to 1962 with Polanyi being the forefather of the term. Polanyi (1962) in Cavusgil, Calantone and Zhao (2003) defined tacit knowledge as the knowledge that is not verbalized, intuitive and unarticulated. Similarly, McInerney (2002) in Stover (2004) stressed that tacit knowledge constitutes knowledge which lacks documentation and articulation. Many

authors argue that it is the deeply ingrained knowledge which resides in peoples' mind, while others quote the most decisive phrase used by Polanyi (1962) . . . "we know more than we can tell" in a desperate attempt to define something they themselves are unsure about.

Thus, this knowledge has been mostly compared with the experience obtained from the firm's environment. Therefore, Davenport and Prusak (1998) defined tacit knowledge as "knowledge that resides in the minds of the people in an organization but has not been put in a structured or documented based form" (Busch and Richards, 2004); while Koskinen and Vanharanta (2002) believe that it represents knowledge based on the experience of individuals.

In addition to these definitions, several authors as reflected in table 2.1 have further categorized tacit knowledge into various types. Although analyzing the types or classifications of tacit knowledge is not a primary objective of this study, the different taxonomy of tacit knowledge are interesting, since they provide a better understanding on what tacit knowledge may be and include. It is also worth discussing a controversial type of tacit knowledge, namely implicit knowledge. Although the implicitness dimension of knowledge is not embraced by many researchers, there are interesting perspectives from distinguished figures. The most noteworthy writings are that of Polanyi (1966) who argued that implicit knowledge is an explicit type of tacit knowledge that catalytically facilitates or inhibits tacit knowledge externalization. From another perspective, Nonaka and Takeuchi (1991) made no explicit distinction between

tacit and implicit, but they argue that implicit knowledge is part of tacit knowledge. The

following are the categorizations by different recent authors as shown in table 2.1.

**Table 2.1: Taxonomy of Tacit Knowledge (Sigala & Chalkiti, 2007)**

| | |
|---|---|
| Haldin-Herrgard (2000) | Intuition, rule of thumb, gut feeling, personal skills |
| Koskinen (2000) | Just do it this way – it will work |
| Li and Gao (2003) | We know more than we realize |
| Polanyi (1966); Senker (1993) | We know more than we can tell |
| Polanyi (1966); Johnson and Laird (1983); Nonaka and Takeuchi (1995); Koskinen (2000) | Beliefs, values, viewpoint, intuitions, routines |
| Koskinen and Vanharanta (2002) | Attitudes, commitment, motivation |
| Lyles and Schwenk (1992); Starbuck (1992); Cavusgil, Calantone and Zhao (2003). | Employee schemes, skills, habits |
| Lyles and Schwenk (1992); Nelson and Winter (1982); Nonaka and Takeuchi (1995); Cavusgil, Calantone and Zhao (2003). | Culture |

**2.2.4.2 Dichotomies within the Tacit Knowledge Literature**

Central to effective knowledge management, as a source of competitiveness, is an

appreciation of the skills and processes involved in the application, communication,

development and retention of tacit knowledge in the work place. Much of the knowledge

employees gain through experience is not recorded shared or effectively used (Leonard and Sensiper, 1998; Kreiner, 2002; Zack, 1999; Tsoukas, 2003). There are two issues associated with tacit knowledge, which supports the views of Gourlay (2002) & Gourlay (2004). The first is whether tacit knowledge is an individual trait or a trait that can be shared by both individuals and groups, and the second is whether tacit knowledge can be made explicit.

Firstly, is tacit knowledge something that characterizes individuals or both individuals and groups? Von Krogh and Roos (1995) provide conceptual arguments for tacit knowledge being wholly a trait of individuals. For Nonaka and Takeuchi (1995), it is a personal form of knowledge, but they also denote that groups can have shared tacit knowledge. Baumard (1999) argues that tacit knowledge can be both individual and collective.

The second issue concerns whether tacit knowledge can be made explicit. Von Krogh and Roos (1995) and Baumard (1999) state that it cannot be communicated. Nonaka (1994), states that it is difficult to make explicit. To some degree these issues are interconnected, as one of the goals of making tacit knowledge explicit is to enable it to be shared throughout the organization (Collis and Winnips, 2002). Since Sternberg, Forsythe, Hedlund, Horvath, Wagner, Williams, Snook and Grigorenko (2000) ''view all tacit knowledge simply as knowledge that has not been made explicit'', they have developed ways to measure tacit knowledge (Gourlay, 2002, 2004). If it is to be used in knowledge management systems, tacit knowledge needs be made explicit. Bordum

(2002) views the move to capture tacit knowledge in knowledge management systems as an exercise of power by managers over workers.

Other issues related to tacit knowledge have been raised by Hager (2000) and Farrell, (2001). Hager suggests that tacit knowledge is an ambiguous concept, and in many cases labeling something tacit knowledge only renames a problem and therefore closes off further inquiry. Farrell discusses how globalization with its emphasis on a knowledge economy is leading to the redesign and standardization of local practices in many workplaces. When this happens, local knowledge, much of which is tacit, can be mistakenly discounted.

In order to gain a deeper understanding of tacit Knowledge, one needs to explore further the barriers and enablers of its existence rather than its conversion to tacit knowledge. This dichotomy is summarized in figure 2.4. Thus, it is recommended that managers keep abreast of current developments in the field of tacit knowledge to ensure that emergent themes are incorporated within their organizations at each of the levels suggested, namely corporate, group and individual. Ultimately, there is an opportunity to leverage this learning and development into increased innovation and competitiveness (Tsoukas, 2003; Lawson and Lorenzi, 1999).
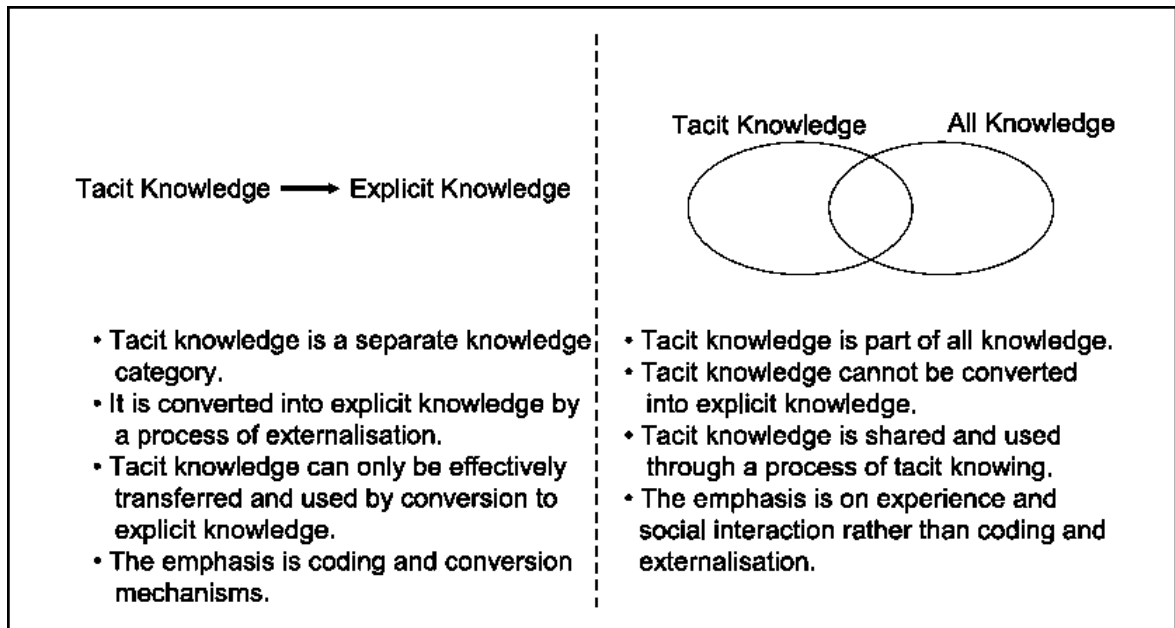
**Figure 2.4 Dichotomies within Tacit Knowledge (McAdam, Mason & McCroryare, 2007)**

### 2.2.4.3 Sharing Tacit Knowledge

The conceptual differences in relation to tacit knowledge give rise to different approaches to sharing of tacit knowledge. There are two different schools of thought regarding externalization and codification of tacit knowledge. One view espouses that tacit knowledge must be made explicit for sharing and another that regards tacit knowledge as always being tacit. For example, Nonaka and Konno (1998) assert that converting tacit knowledge to explicit knowledge using a process of externalization before sharing can take place. However, Polanyi (1966) suggest that to be able to share tacit knowledge the possessor of it must first become conscious of the knowledge he/she

possesses and then find a way to express the knowledge. Only after this occurs can a sharing of knowledge take place. They suggest that many of the traditional methods of knowledge sharing are not suited to this approach.

Irrespective of the need of externalization in sharing tacit knowledge there is an agreement in the literature that tacit knowledge diffusion is more difficult than the sharing of explicit knowledge. Many of the existing methods for knowledge sharing in organizations assume an overly mechanistic or coded view of tacit knowledge and how it is shared (Brockmann and Anthony, 1998). Tacit knowledge cannot be taught, trained or educated (Brockmann and Anthony, 1998), it can only be learned and facilitated.

The sharing mechanisms, the methods used by experts and ways to surmount the difficulties and make use of the hidden part of the iceberg of knowledge resources in organizations are summarized as follows: The explicit knowledge of ''know-what'' requires the more tacit ''know-how'' to put the ''know-what'' form into practice (Brown and Duguid, 1998); the efficiency of making decisions, serving customers or producing goods is improved by the use of tacit knowledge (Brockmann and Anthony, 1998; Bennett, 1998); and its sharing to resolve the problem of ''reinventing the wheel'' which occurs when one staff leave the company.

Cross, Parker, Prusak, and Borgatti (2004) also posit the value of knowledge sharing in today's economy, "where collaboration and innovation are increasingly central to organizational effectiveness. However, Recent HRM research (Evans & Davis, 2005) has strongly considered implications of a firm's social structure and content as a

mediator between experienced HR practices and intra-firm knowledge transfer. This is the background on which social environment as an enabler of tacit knowledge sharing is built in this research.

### 2.2.4.4. Tacit Knowledge as a Resource

The resource-based view of the firm examines the link between internal characteristics of a firm and firm performance (Barney, 1991). Broadly speaking, this means that the resource-based view is concerned with the relationships between a firm's resources and competitive advantage. The view suggests that an organization can be regarded as a bundle of resources and that resources that are simultaneously valuable, rare, imperfectly imitable and imperfectly substitutable (Barney, 1991), are a firm's main source of sustainable competitive advantage. The characteristics therefore show why tacit knowledge can be argued to be a source of advantage according to the resource-based view: it is unique, imperfectly mobile, imperfectly imitable and non-substitutable.

Tacit knowledge and skills are deeply ingrained in people or organizations, they are implicit, taken for granted (Nelson and Winter, 1982), and so according to Sobol and Lei (1994) it becomes difficult for outsiders to imitate or copy them. Tacit knowledge cannot quickly migrate, that is, it cannot be transposed to other firms, because the knowledge depends upon specific relationships (such as between colleagues and customers) and because 'unlike knowledge of a computer code or a chemical formula, it cannot be a clearly and completely communicated to someone else through words or other symbols' (Badaracco, 1991). Tacitness also generates ambiguity because the

organization may be unaware of the resources and notably the actions it undertakes that are sources of its competitive advantage. In other words, the relation between actions and results is causally ambiguous (Reed and DeFillippi, 1990).

## 2.2.5 Human Resource Management and Tacit Knowledge

### 2.2.5.1 The Concept of Knowledge Worker

Presently, increasing changes in human resource structures and workforce demands, in the light of new trends in knowledge processes and learning concepts, suggests that the human resource management function must play a critical role in creating, applying, sharing and preserving the organizational knowledge required to ensure a competitive position. According to Nonaka (1994), there has been a growing interest in viewing organizations as places of knowledge creation. Organizational knowledge is created by a continuous dialogue between employees (Bradley, Paul and Seeman, 2005).

The concept of knowledge worker is viewed differently by different authors. According to Helton, (1988) and Kelly (1990) knowledge worker is somebody doing non-repetitive, non-routine work, which entails substantial levels of cognitive activity. Hence they possess specialized skills and training, which they have acquired by investing significant resources (time and money) towards their education. Knowledge workers are also classified as "problem solvers" for the research and development companies, "problem identifiers" and "problem brokers" for advertising companies (Reich, 1991). Moreover, Tampoe (1992) described knowledge workers as those who have traditionally been referred to as professionals such as practicing lawyers, accountants, technologists and

scientists of today, provided they work within an organization's context. Several studies viewed knowledge workers as being related to knowledge work that is challenging and non-routine; it can be further described as being related to the solving of unstructured tasks and problems. Sveiby (1997) considered knowledge workers as those who are highly qualified and highly educated professionals.

**2.2.5.2 HRM Process Model**

Elements that hold more values are increasingly replacing natural resources, technology and even money in the global competitive environment. This according to Tuzuner and Berber (2001) is knowledge which is also 80% people and 20% technology. This implies that the increase in the knowledge workers in an organization means human resource management is expected to play a cardinal role in creating and engaging the much needed and significant knowledge. Drucker (2003) maintains that knowledge workers are unlike previous generations of workers, not only in the high levels of education they have obtained, but because in knowledge-based organizations, they own the organization's means of production, which is knowledge. However, according to Jayne (2006), Drucker's believes is that performance of knowledge based industries depends on organizations attracting, holding, and motivating knowledge workers.

Alternatively, modern organizations being faced with continuous change should develop their management competency, specifically effective knowledge management. The goal is impossible to meet just through developing individual abilities to find, create, transfer, share, apply, and save the organizational knowledge stock, or developing the human

recourse knowledge management. This means in new firm the old knowledge-base of the workforce is inadequate, and the results of the old studies and research are nearly extant in relation to contemporary environment, so there is need for knowledge-based human resource management processes to be put in place.

Furthermore, Muscatello (2003) implies the idea of Grant (1991) that for knowledge management to become a competitive advantage, its value must be associated with durability (the rate at which it becomes obsolete), transparency (the speed with which other firms can develop the same knowledge), transferability (how easily firms can transfer and share it) and replicability (how easily firms can reproduce and use it) (Muscatello, 2003). Jayne (2006) has taken the model by Wright, McMahan and McWilliams (1994) one step further by addressing knowledge and the knowledge creation process into the strategy-competitive advantage link. Jayne (2006) proposed that human resource practices moderate the relationship between tacit knowledge and sustained competitive advantage by affecting human resource behaviors.

A successful example is the model of "behavioral approach" by Jackson, Hitt and DeNisi (2003). In this model as shown in figure 2.5, HRM functions are the main factor that motivate and conduct the ''staff behavior'', that is itself one important element of organization efficacy. These issues, as the most important factors in successful execution of the four human resource management (HRM) duties, are in accordance with the effective people knowledge management. In this system the basis of KM is people tacit and explicit knowledge and the exchanging cycle of them to create, share, apply, and

make it up to date; to finally meet the organization goals (Jackson *et al.,* 2003). Hong and Kuo (1999) believe that HRM should take action to create a learning organization by establishing challenging work, changing perception and assessment patterns. Since knowledge is the crucial element for superior competitive activities, organizations became places where knowledge is referred to as ''a way of behaving'', indeed, ''a way of being'', in which every individual is a knowledge worker (Nonaka, 1991). According to Senge (1990) organization is the place where people continually expand their capacity to create the results they truly desire. Having strong human resources policies in an organization will affect how the organization manages its knowledge (Monavvarian and Kasaei, 2007).
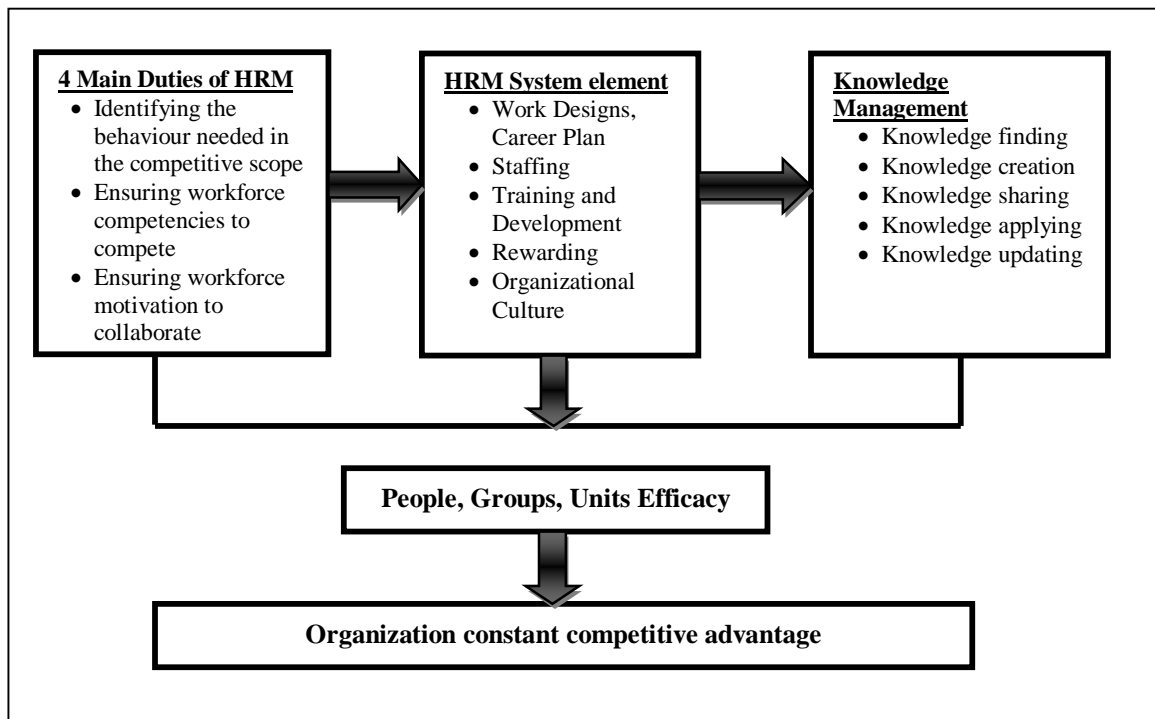


**Figure 2.5: HRM Process Model (Jackson, Hitt & DeNisi, 2003)**

### 2.2.5.3 Knowledge Sharing and HRM Practices

Since knowledge is embedded in organizational human resources, the process of learning is closely linked to ways the organization manages these resources. "HRM function in firms involved in international alliances must be centered on the process of learning. The transformation of the HR system to support the process of organizational learning is clearly the key strategic task facing the HR function in many multinational firms today (Pucik, 1998).

Despite the absence of theoretical and empirical investigations on the role of HRM practices in the process of knowledge sharing, one should on a priory ground assume the importance of HRM practices in bringing knowledge. Obviously, practices themselves do not provide benefit to the organizations, but the way of implementation is important and varies significantly. The presumption here is the existence of HRM system, which is defined here as "a set of distinct but interrelated activities, functions, and processes that are directed at attracting, developing and maintaining (or disposing of) a firm's human resources" (Lado and Wilson, 1994).

However, this is not enough; various HRM practices must form part of an integrated system in order to be effective. It is important to recognize that HRM is not only a set of distinctive HR practices, but a process of developing, applying, and evaluating policies, procedures and programs relating to the individual in the organization (Miner and Crane, 1995). HRM process is a set of interrelated HRM practices, which indeed occur simultaneously but still in a certain order.

Moreover, selection of the most appropriate practices should be appropriate to the strategy and lead to behaviors that are supportive of the strategy. Furthermore, environmental influences are continually impinging on all components of human resource management, forcing adaptations and development (Schuler and MacMillan, 1984). Building a supportive learning environment which "facilitates the learning of its members and continually transforms itself" (Pedler, Burgoyne, and Boydell, 1991) is another "mission" of HRM practices. Not all HRM practices are intentionally focused on organizational knowledge sharing; some of them act more as "catalyst" for learning. Moreover, as it was found recently usage of certain innovative (or new) HRM practices positively influence financial performance (Laursen and Foss, 2000).

Human resource managers should be aware of the importance of building supportive learning environment to create continuous learning opportunities, to promote inquire and dialogue, to encourage collaboration and team learning, to establish systems to capture and share learning and to empower people to have a collective vision among others (Watkins and Marsick, 1993).

Further, Hislop (2003) specifically highlighted the importance of HRM in terms of developing and encouraging commitment among knowledge workers to participate in knowledge management. Based on the SECI Model, Soliman and Spooner (2000) put forward the roles of HRM in supporting the knowledge management process, in the form of "knowledge mapping" shown in figure 2.6. In the other words, both models could work hand in hand by first disseminating knowledge during the "socialization"

activities, followed by the use and transformation of that knowledge to meet the needs of the company during the "externalization" as well as the "combination" activities, and finally constructing or reinterpreting it accordingly during the "internalization" process. The summary of the models reviewed are also shown in the table 2.2.
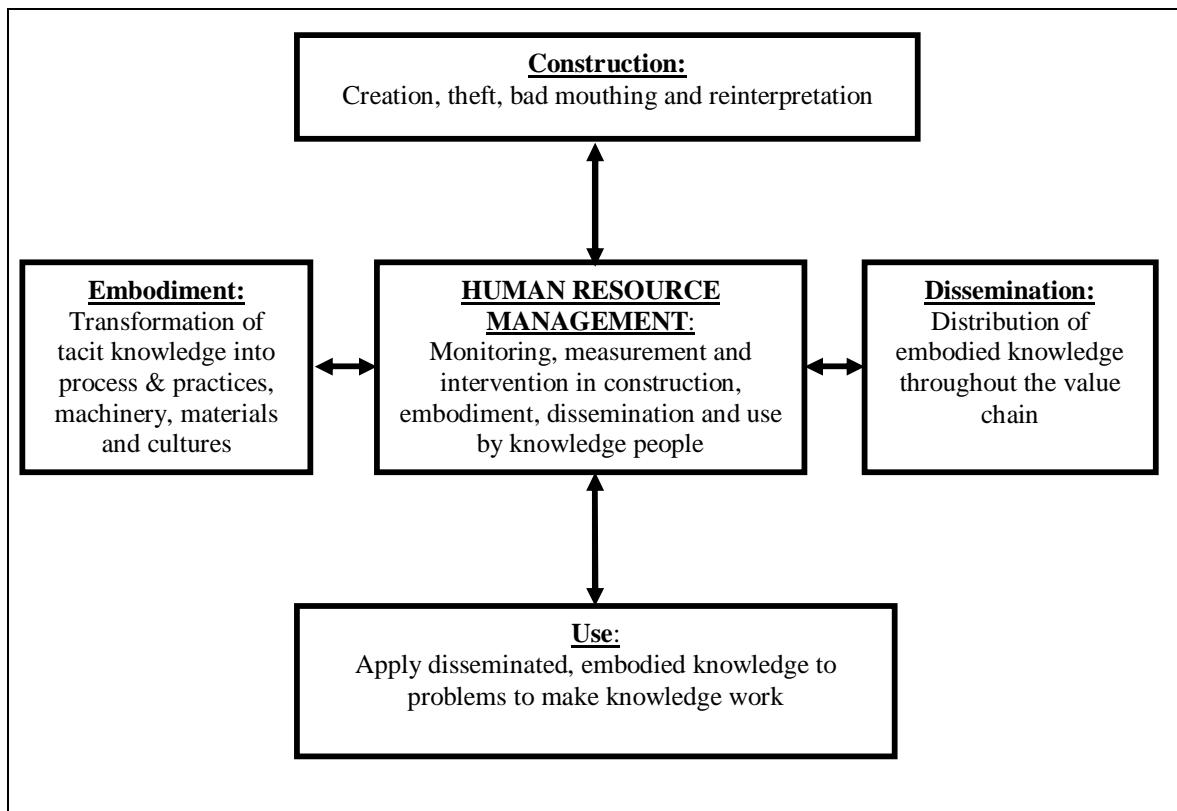


**Figure 2.6: Knowledge Mapping Model (Soloman & Spooner, 2000)**

### 2.2.6 Summary of the Models Reviewed

In the theoretical literature, several models which explain the concepts of both knowledge management and human resource management were reviewed. The models not only describe the concepts but also suggest the various peripherals that link the

human resource management to knowledge management. This is significant to this study since it aims to link human resource management to tacit knowledge which is a knowledge management factor. The summary of the models reviewed are shown in the table 2.2.

**Table 2.2 Summary of the Models Reviewed**

| Author | Model Name | Findings | Critique |
|---|---|---|---|
| 1. Nonaka & Takeuchi (1995) | (SECI Model) | Classified knowledge as explicit and tacit. tacit is experiential, Explicit is expressed, and often seen as transferable in one way or another. It culminated to a defined pattern of knowledge creation cycle. | While the model contributed a lot towards the understanding of tacit knowledge, it suggests that tacit knowledge is not transferable. This contradicts the contemporary empirical evidences which show that tacit knowledge can be transferred through the sharing of employees in a social environment. |
| 2. Gunnlaugsdottir (2003) | Gunnlaugsdottir's Model | This modified the pattern of knowledge creation cycle by Nonaka and Takeuchi. It emphasized the conversion of tacit knowledge to be the main cycle which is crucial in knowledge creation. | However, although it underpinned the significance of tacit knowledge formation, the model does not give any suggestive mechanisms in the conversion process of tacit knowledge. Hence the literatures of operationalization of tacit knowledge as a function of social environments, behaviors and tacit knowledge transfer intentions are not taken any step further. |
| 3. Jackson *et al.* (2003) | HRM process model | In this model, HRM functions are regarded as the main factor to motivate and conduct the how employees behave. It placed premium on employee behaviour as an important element of organization efficacy. thus linking HRM as one of the most effective people knowledge management | Despite linking HRM and tacit knowledge management, the model did not specify and give a clear justification of why only the selected HRM systems are seen as influencing the employees' behaviour at workplace. The model proposition of HRM as the mediator to sharing of tacit knowledge is debatable but against the widely accepted social capital and resource theories. |
| 4. Soliman and Spooner (2000) | Knowledge Mapping Model | The model underline changes in the field of human resource management and how exactly it links to knowledge management | However, the model brings more confusion and do not answer the question on whether strategic human resource management is required for knowledge management or whether knowledge management is required for strategic HRM |

### 2.2.7 Operationalization of Study Variables

### 2.2.7.1 Organizational KM Infrastructure

To adopt KM processes in an organization, specified structural, physical, and logical changes are required in their conduct of operation. These preconditions, on which KM resides, have been defined as KM infrastructures in the KM literature (Becerra-Fernandez, Gonzales and Sabherwa, 2004; Gold, Malhotra and Segars, 2001). According to Jalaldeen, Karim, and Mohamed (2009) KM infrastructure includes KM supportive organizational culture, structure, and supportive Information Technology edifice. Though they termed differently, several authors have stated these factors as the main contributing factors for adoption of KM processes, though they have termed them differently. For example, KM enablers Lee and Choi (2003), KM critical success factors Al-Alawi, Al-Marzooqi and Mohammed (2007); Hung, Huang, Lin and Mei-Ling-Tsai (2005); Wong (2005), influencing factors on KM Holsapple and Joshi (2000) and KM initiatives (Kulkarni, Ravindran and Freeze, 2007).

Various literatures also points out to different HR-related parameters that can act as a knowledge management infrastructure within an organization. According to Acton and Golden (2003); Cohen and Backer (1999), a well-engineered training initiatives can aid in retention of knowledge within the organization. Moreover, employee involvement which describes how all employees can contribute effectively to meeting the organization's objectives is another key factor in successful KM implementation. This was according to Bartlett and Ghoshal (2002) who further argued that the nature of knowledge creation and sharing is unthinkable without employee involvement.

Greengard (1998) adds that the transformation to a knowledge-based organization requires peer-to-peer collaboration, that is, teamwork is an essential source of the knowledge generation process. Creating teams allows organizations to apply diverse skills and experiences towards its processes and problem-solving. An organization's members must work together and build on each other's ideas and strengths. Anyone who has knowledge and interest in a problem should be included on the team.

Employee empowerment is also a key factor for KM success because true empowerment can give the employees a sense of ownership in the overall aim of the organizational KM system. Employers can value their employees' expertise through empowerment (Martinez, 1998). Further, employers can tap into employees' knowledge and help them communicate their knowledge by creating ways to capture, organize, and share knowledge. For successful KM project, the visible leadership and commitment of top management must be sustained throughout a KM effort because effective knowledge creation is not possible unless leaders empower employees and show a strong commitment to the organization. That is, top management must be willing to communicate with employees to make knowledge realistic and coordinate KM implementation process (Dess and Picken, 2000).

A persuasive environmental stimulus may be senior management's support of knowledge sharing activities (Lin and Lee, 2004). In a survey of Taiwanese senior managers, the authors showed that a supportive supervisor and his/her attitude toward knowledge sharing behavior positively influenced intentions to encourage knowledge

sharing. Other researchers also found that senior management support is essential to promote knowledge sharing (Gupta and Govindarajan, 2000; Macneil, 2001; Hislop, 2003).

### 2.2.7.2 Performance Management

Performance management processes have become prominent in recent years as means of providing a more integrated and continuous approach to the management (Armstrong, 2006). Egan (1995) proposes the guiding principles for performance management on the premise that most employees want direction, freedom to get their work done, and encouragement not control hence performance management system should be a control system only by exception and the solution is to make it a collaborative development system.

Performance management identifies who or what delivers the critical performance with respect to the business strategy and objectives, and ensures that performance is successfully carried out (Roberts, 2001). Performance management systems can inhibit knowledge sharing, as much of the conflict between different functions can be due to the divergent objectives set out for employees in the performance agreements. The objectives are, moreover, often short-term and mostly measurable in nature. The opposite is the case in long-term developmental focus on performance management found in many knowledge intensive companies (Currie and Kerrin, 2003; Swartz and Kinnie, 2003).

Finally, Gloet and Berrell (2003) emphasize that the KM strategies see effort, measurement and rewards differently. As a result, within the codification strategy, efforts associated with systems and technologies are more likely to be recognized and rewarded. Inside such a paradigm, key performance is related to technology, technology application and the volume of data. The personalization paradigm focuses more on people, where key performance indicators are related to people and tacit forms of knowledge as well as the quality of data.

Although little is known about the role and characteristics of managerial performance management systems in diverse international settings, an exploratory analysis of the purposes and practices of these systems on a cross national basis indicate significant differences between managerial performance management in 11 US and European multinationals. According to Carlos and Niclas (2007), the degree to which the system was used as an instrument of intra-organizational cross-border knowledge flows had a significant impact on the selection of managerial performance management system. Moreover, persuasion should increase tacit knowledge sharing. Support may be through praise, recognition, performance appraisals that include measures of knowledge sharing behaviors, or goals that are motivating. In the software community, motivation to freely share expertise may be increased respect and a reputation as an ''expert'' (Wasko and Faraj, 2005). Joia (2006) also adds that it is important to develop performance appraisal systems that take knowledge sharing into consideration.

### 2.2.7.3 Reward and Recognition

In order to encourage people to share their knowledge, they need to be adequately rewarded (Disterer, 2003; Szulanski, 1996). Davenport and Prusak (2003) maintain that: to establish a consistent culture of knowledge sharing, the use of financial incentives such as substantial gratuities, wage increases, promotion and so forth are necessary. Systems for reward of those who possess considerable technical expertise, without considering those who use their time to share knowledge, does not encourage the dissemination of knowledge (Hansen *et al.,* 1999; Leonard and Sensiper, 1998; O'Dell and Grayson, 1998).

Reward systems indicate what the organization values and shapes individuals' behaviour. Studies on knowledge workers have found that they tend to have a high need for autonomy, significant drives for achievement, stronger identity and affiliation with a profession than a company, and a greater sense of self-direction. These characteristics make them likely to resist the authoritarian imposition of views, rules and structures (Despres and Hiltrop, 1995; Herzberg, 1997; Horowitz, Teng and Quazi*,* 2003).

Accordingly, mixtures of rewards are needed to motivate knowledge workers. These include: equitable salary structures; profit-sharing or equity-based rewards; a variety of employee benefits; flexibility over working time and location, as well as being given credit for significant pieces of work. For many knowledge workers it is as motivating to have free time to work on knowledge-building projects, going to conferences or spending time on interesting projects, as monetary rewards (Evans, 2003; Despres and

Hiltrop, 1995). It has already been noted that Hansen, Nohria and Tierney (1999) has argued that the two KM strategies call for different incentive systems. Furthermore, it is worth recalling that Gloet and Berrell (2003) emphasize that within the codification strategy efforts associated with systems and technology are more likely to be recognized and rewarded, while the personalization paradigm focuses more on people.

On the other hand, several organizations have introduced reward systems to encourage employees to share their knowledge with others. For example, Buckman Laboratories recognizes its 100 top knowledge sharers with an annual conference at a resort. Lotus Development, a division of IBM, devotes 25% of the total performance evaluation of its customer support workers on the extent of their knowledge sharing activities (Davenport, 2002).

Researchers such as Fisher and Fisher (1998) and Tobin (1998) have expressed concern that effective sharing of knowledge among individuals or teams may not take place in organizations. French and Raven (1959) identified knowledge (expertise) as a source of power, the disclosure of which might lead to erosion of individual power, thereby partly explaining an individual's reluctance to share it with others. Szulanski (1996) identified lack of motivation of a knowledge source as an important impediment to the transfer of best practices within an organization. Some of the reasons, identified by Szulanski for the reluctance of a person to share knowledge are: fear of losing superiority arising due to ownership of that knowledge, perception of not being adequately rewarded for a

knowledge sharing action, and the lack of time and resources that the individual has to affect such a transfer.

Bartol and Locke (2000) identified several important aspects of organizational reward systems that are useful for motivating individuals to perform the targeted behaviors. These factors include, but are not limited to, perceived fairness of rewards, employees setting challenging goals in order to achieve the attractive rewards, and practices that insure that employees possess high self-efficacy for performing the tasks. In order that reward systems meet these criteria and are effective, two basic prerequisites are that it should be possible for the reward giver to observe or record the target behavior and to assess its value. Study finding by Amabile (1993) revealed that particular forms of extrinsic motivation can be combined in an additive way with intrinsic motivation to promote prospects for creativity. According to Darr, Argote and Epple (1995) while the generation of novel ideas will sometimes be important in tapping the expertise of individuals in organizations, arguably the sharing of known technical information is of considerable value in many instances. In either case, it appears possible to apply rewards in ways that support rather than undermine intrinsic motivation in behalf of knowledge sharing.

According to Mayfield (2010) targeted rewards are the most powerful means to increase worker tacit knowledge sharing where behavior is shaped by rewards, and tacit knowledge sharing will respond accordingly. Greenberg (1990) suggest that fair rewarding convey a signal to employees that the organization values them and this may

prompt them to respond with organizational citizenship behaviors that could include sharing tacit knowledge with co-workers so as to help them.

### 2.2.7.4 Employee Training and Tacit Knowledge

The influx of new employees, the transfer of employees between areas and the promotion of employees demand appropriate training, as early as possible, such that these employees become familiarized with their new activities (Joia, 2007). Training is, therefore, a strategic activity and can be conducted in different ways. The type of training applied indicates the propensity of the company towards prioritizing the dissemination of tacit knowledge. However, Stewart (1998) contradicted this view as he noted that establishing a direct correlation between learning and training is one of the most common mistakes made by companies.

Formal training, with classes and presentations, facilitates the exchange of explicit knowledge (Nonaka and Takeuchi, 1997; Murray and Peyrefitte, 2007). This type of training can be given by instructors or through distance-learning systems and is appropriate for codified knowledge transference, such as rules and procedures (Murray and Peyrefitte, 2007). People are encouraged to read pamphlets or manuals and tests are often given to measure the knowledge acquired (Joia, 2007).

More tailored strategies, based on personal contacts and which demand more time, such as coaching and mentoring, are more appropriate for the transmission of tacit knowledge (Disterer, 2003; Leonard and Sensiper, 1998). In this type of training, the more experienced employees are encouraged to transfer their knowledge to the newer

employees. As a general rule, this type of on-the-job training focuses on work activities per se (Joia, 2007). Another relevant indicator for tacit knowledge transfer associated with the extent to which the organization prioritizes personal training for its employees was thus created.

Training encompasses a large variety of activities designed to facilitate learning (of knowledge, skills and abilities or competencies) by those being trained. According to Armstrong (1996), all learning and development activities are conducted and controlled by a department which is a training centre. Methodologies can include: classroom instruction, simulations, role-plays, computer/web-based instruction, small and large group exercises and more. Thus, there is need for the organizations to invest in training, mentoring, and maybe retaining experts to convert as much of the acquired explicit knowledge resources as possible into tacit knowledge.

The educational training is propitious to widen the transmitted channel of knowledge. Through taking part in the training project together, managers from different departments in the enterprise can develop formal and informal communications and establish close human relation network. Training project in Xerox Company shows that most skills learned by technical commissaries who take part in the training are not from formal training tutorial, but from some activities outside the relative domains, such as the participation to solve the actual problems and informal discussions with colleagues (Shufang, 2008). In fact, when technical commissaries drink coffee, have lunch and

solve difficult problems, their experiences told each other have very important meanings for their individual learning.

Traditionally, training groups or functions within organizations have been responsible for helping people develop their skills and capabilities. However, organizations embracing best-practice have begun to involve their in-house training functions in knowledge retention and transfer efforts. Training is also a critical success factor in the deployment of a KM system. In fact, according to study by Hung, Huang, Lin, and Mei-Ling-Tsai (2005), employee training had the strongest correlation with a successful KM implementation. Training ensures employees understand a new software system and processes associated with it. Moreover, the culture of learning organizations is very much concerned with developing and sharing the knowledge that is critical to their strategic success. According to Wenger and Snyder (2000), learning organization encourage the development of 'communities of practice' in which people with similar concerns exchange ideas and knowledge and discuss shared problems. Further, formal orientations and the choice of training method can have an effect on socialization outcomes for employees (Lockwood & Tai, 2006).

According to Choi (2004) studies from various disciplines have identified several key HR variables for the success of KM. Training should provide employees and managers the skills and information to fulfill their responsibilities. One of the reasons for the failure in effective work behaviors would be insufficient training to support KM principles. Well-engineered training initiatives help to retain knowledge within the

organization (Acton and Golden, 2003; Cohen and Backer, 1999). Finally, it is imperative also to mention that the pressure to produce financial justifications for any organizational activity, especially in areas such as learning and development, has increased the interest in Return on Investment (ROI). According to Armstrong (1996), the problem is that while it is easy to record the costs it is much harder to produce convincing financial assessments of the benefits.

**2.2.7.5 Mentoring, Role Modeling and Transfer of Tacit Knowledge**

The core capabilities of an organization include critical skills of employees, management systems, and norms and values. Core capabilities may be transferred formally and explicitly. However, much knowledge, particularly knowledge with rich tacit dimensions, is transferred informally through processes of socialization and internalization. According to Walter, Dorothy, Lisa and Mimi (2001), mentoring and storytelling can leverage the knowledge of an organization, particularly its tacit knowledge, to build core capabilities.

Nonepistle tacit knowledge is implicitly learned and in articulable and hence cannot be surfaced and transferred in an explicit manner. However, novices can acquire the tacit knowledge and skills of experts without language, by methods of apprenticing, observation and mentoring (Leornard and Sensiper, 1998, Nonaka 1994). Mentoring has received more attention in the management field as a mechanism for transfer and retention of the managerial knowledge (Swap, Leonard, Shields, and Abrams, 2001). Mentoring has much in common with apprenticeship, but tends to be more informal with

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mentors providing guidance and advise rather than specific on-the-job training. While there is a little evidence that mentoring increases a pool of organizational knowledge, empirical studies have shown a relationship between mentoring and job performance and job satisfaction (Bryant 2005, Swap *et al.,* 2001). Indeed it seems much of the knowledge transfer between mentor and protégé relates to embedded tacit knowledge about organizational routine and political system (Swap, *et al.* 2001).

However, recent research into peer-to-peer mentoring suggest that peer-mentoring relationships between new and established employees at the same levels may provide an important avenue for job related nonepistle knowledge transfer (Bryant 2005). The key benefit of mentoring programs is to provide the opportunity to transfer critical knowledge to the next generation of workers. Much of the knowledge these workers possess is tacit knowledge and the students who gain this tacit knowledge will have an advantage in the workplace of tomorrow.

Mentoring is the method used to transfer this tacit knowledge. According to Walter *et. al.* (2001) mentoring does play a role in building up the core capabilities of an organization and transfer of skills, managerial systems, and values-including their tacit dimensions. A mentor can serve two functions for a protégé: career-related and psychosocial. The career-related function includes providing sponsorship, exposure, visibility, coaching, protection, and challenging assignments that directly relate to the career development of the protégé. The psychosocial function includes providing role modeling, acceptance, confirmation, counseling, and friendship, socialization activities

that influence the protégé's self-image (Chao, Walz and Gardner, 1992). Tacit knowledge is transferred from mentor to protégé, which can be done in several ways. According to Mayfield (2010) mentoring programs offer more individually tailored knowledge sharing, and allow senior workers to directly transmit their experience, hence is a techniques for increasing worker tacit knowledge sharing.

### 2.2.7.6 Tacit Knowledge and Social Environment

The concept of social capital has recently been researched in the context of KM (Cohen and Prusak, 2001; Lesser and Prusak, 1999; Lesser, 2000; Nahapiet and Ghoshal, 1998). The idea of social capital – physical capital, financial capital, and human capital – can be applied to create value-added for firms. Social capital emphasizes on collectivism and co-operation rather than individualism, hence distributed community members will be more inclined to connect and use electronic networks when they are motivated to share knowledge (Huysman and Wulf, 2006). In terms of socio-technical design, KM tools to support social capital are aimed to bridge various social communities. The tools may foster social capital by offering virtual spaces for interaction, providing the context and history of interaction, and offering a motivational element to encourage people to share knowledge with each other (Huysman and Wulf, 2006). Tsai and Ghoshal's research reveals an association between social capital and firms' value creation (Tsai and Ghoshal, 1998).

This relationship is supported by related research (Nahapiet and Ghoshal, 1998). Moreover, in terms of organizational structure, social capital helps people develop trust,

respect, and understanding of others, especially in the context of a strong organizational bureaucratic culture. This contributes indirectly to value creation. According to social context theory, HR practices shape employee attitudes and behaviour mainly through their impact on employees' interpretations of the organizational climate. This refers to the 'more temporary and changeable interpretation of an environment by participants operating within that context' (Ferris, Arthur, Berkson, Kaplan, Harrell-Cook and Frink, 1998). A core premise of the social context approach is that the extent to which HR practices affect one or more of the dimensions of the organizational climate depends on the extent to which these practices are internally consistent and reflective of the wider organizational culture.

On the other hand, Allen (2003) suggests that organizational learning should be dynamic and that intangible assets and social prosperity are anticipated to create major impacts on KM. For example, the concept of Community of Practice (CoP) (Wenger, McDermott and Snyder, 2002) is introduced as an effective social activity to share tacit knowledge in Xerox. This had the effect of promoting human networks and motivating people to share and create knowledge. Further, according to Osterloh and Frey (2000) tacit knowledge sharing can be facilitated by intrinsic motivation, such as sociability and friendship.

Moreover, an individual can acquire tacit knowledge and personal experience only through tacit-oriented manner that emphasizes social interaction (Choi and Lee, 2003). While concurring with this notion, Nonaka (1994) also suggested that tacit knowledge is

of personal quality and can be shared through sharing metaphors or experiences during social interaction without substantial knowledge loss. Accordingly, social relationship may be the most important factor that facilitates intra-firm transference of tacit.

## 2.3 Empirical Studies

According to a study by Joia and Lemos (2010) on relevant factors for tacit knowledge transfer within organizations, the willingness to transfer tacit knowledge is influenced by three factors named as idiosyncratic factors, knowledge management and organizational structure. In terms of the second factor revealed in the factorial analysis – ''Knowledge Management Strategy'' was noted that it is aligned with the personalization strategy, as defined by Hansen, Nohria and Tierney, (1999). In other words, all the factor loading was high and positive, demonstrating the importance of training based on mentoring or coaching (Leonard and Sensiper, 1998), a system of rewards for sharing tacit knowledge (Glazer, 1998; Disterer, 2003; Szulanski, 1996; Joia, 2006) and knowledge transfer through personal contact rather than through information technology (Joia, 2007; Hansen *et al.,* 1999; Leonard and Sensiper, 1998; Nonaka and Takeuchi, 1997).

The study by the researchers (Hansen, Nohria, and Tierney, 1999; Newell, Robertson, Scarbrough, and Swan, 2002) argued that knowledge transfer in firms is more about managing knowledge workers and cultivating relationships among them than about developing information and communication technologies for extracting and capturing their knowledge, especially tacit knowledge. However, on an additional perspective, the empirical study by Kase, Paauwe, and Zupan (2009) adopted the social network

perspective to develop a conceptual model and examined the relationship among human resource (HR) practices, interpersonal relations, and intra-firm knowledge transfer in knowledge-intensive firms.

The findings indicated that work design, along with training and development HR practices, can shape the structural relation. At the same time, both also exhibit potential for shaping affective and cognitive relations within a firm's social network. While the effects of work design along with training and development HR practices on intra-firm knowledge transfer are primarily mediated by interpersonal relations, the study found some evidence for arguing that incentives and motivation HR practices directly affect intra-firm knowledge transfer.

A study by Sigala and Chalkiti (2007) on improving performance through tacit knowledge externalization and utilization which focused on preliminary findings from Greek hotels, found out that personal contact was the most influential mode of communication and sharing of tacit knowledge. Other study was by Tsai (2001) that highlighted on the performance impact of knowledge externalization within business networks which found out that better performance can be achieved if organizations occupy central network positions, as the latter provides them access to knowledge created by other firms. In investigating stocks and flows of organizational knowledge within the biotechnology industry, Decarolis and Deeds (1999) in their study concluded that a firm's geographical location can reliably predict its performance, as geographical

location can either hinder or foster knowledge diffusion and the ability of the firm to capture knowledge.

Studies (Johannessen, Olaisen, and Olsen, (2001); Saint-Onge, 1998) reported the impact of tacit knowledge utilization in facilitating and enhancing the effectiveness of daily decision-making in specific business operations, such as investment in information technologies and customer service and in multidisciplinary problem-solving skills. Studies (Salomann, Dous, Kolbe and Brenner, 2005; Sigala, 2005) have also established the role of tacit knowledge management for enabling and enhancing the effectiveness and efficiency of processes, such as: building customer relations management process; enhancing the performance of supply chains (Hult, Ketchen, Cavusgil and Calantone, 2006; Sigala, 2004); enabling organizational learning (Senge, 1990); and supporting new service development processes (Sigala and Chalkiti, 2007; Cavusgil *et al.,* 2003) also provided practical evidence of the positive relation between knowledge, use of knowledge management systems and cost reduction, service and product quality improvements.

The findings by Evardsson (2008) on the study HRM and knowledge management found out two set of strategies important to the management of knowledge. These are exploitative strategy which put greater emphasis on knowledge storage, technical skills, as well as distributing explicit knowledge via IT solutions and explorative strategy places greater weight on knowledge creation, as well as on human interaction to transfer tacit knowledge and use knowledge to increase innovation and new learning. However,

empirical evidence derived from the findings by Bhardwaj and Monin (2006) found out that tacit knowledge seemed to be a major concern for the human resource professionals in knowledge-intensive growing organizations. It plays a significant role in shaping the knowledge base of an organization by interacting with the important subsystems of organization.

Research findings by Zupan and Kase (2007) also show that the more operational (instrumental) the information or knowledge flow is, the denser the knowledge network, this therefore means that a more devolved HRM practices promotes socialization process which is seen as a vital infrastructure for tacit. Recently, a study by Alexopoulos and Monks (2008) found that reciprocal task interdependence, feedback from others, selective staffing and socialization, relationship-oriented training and development, and line management support for knowledge sharing were the main factors associated positively with employee perceptions of a social climate that encourages cooperation and teamwork orientation.

Empirically, there have been a lot of researches conducted on why people share their knowledge. Reagans and McEvily (2003) have done a research about how different features of informal networks affect knowledge transfer. The research focused on how network structure influences the knowledge transfer process. The results indicated that both social cohesion and network range ease knowledge transfer, over and above the effect for the strength of the tie between two people, but all the effects were significantly positive. The exploratory research by Cabrera, Collins, and Salgado (2006) "investigated

some of the psychological, organizational and system-related variables that may determine engagements of individuals in intra-organizational sharing of knowledge." Results from a survey of 372 workers from a large multinational company revealed that self efficacy, openness to experience, perceived support from colleagues and supervisors has a significant influence on the participation in knowledge exchange.

Researchers Bock and Kim (2002) carried out a study to develop an understanding of the factors affecting the individual's knowledge sharing behavior in the organizational context. The study model included various constructs based on social exchange theory, self-efficacy, and theory of reasoned action. The study results from the field survey of 467 employees of four large, public organizations revealed that the expected associations and contribution were the major determinants of the individual's attitude toward knowledge sharing. Expected rewards, which was believed by many as the most important motivating factor for knowledge sharing, was not significantly related to the attitude toward knowledge sharing. Positive knowledge sharing was found to lead to positive intention to share knowledge and to actual knowledge sharing behaviors.

Finally, the study by Kankanhalli, Tan, and Wei (2005) formulated and tested a theoretical model to explain electronic knowledge repositories (EKS) usage by knowledge contributors. The model employed social exchange theory to identify cost and benefit factors affecting EKR usage, and social capital theory to account for the moderating influence of contextual factors. The model was validated through a large-

scale survey of public sector organizations. Table 2.3 illustrates the summary of the highlights of some of the prominent and latest empirical studies used.

**Table 2.3 Summary of Empirical Studies**

| | Author/Journal/Year | Title | Findings | Critique |
|---|---|---|---|---|
| 1 | Joia, L. & Lemos, B. (2010) *Journal of Knowledge Management*, Vol.14(3): pp410-427 | Relevant factors for tacit knowledge transfer within organizations | The findings categorized factors that facilitate transfer of tacit knowledge within the organization as: Idiosyncratic Traits of Professionals, Management of time ,Common language , Mutual trust , Type of valued knowledge , Knowledge Management Strategy, Reward ,Type of training ,Organizational Structure, Relationship network and Power | It is seen that idiosyncratic factors, the KM strategy: training based on mentoring or coaching, reward system for sharing tacit knowledge and transfer through personal contact than information technology( IT) adopted by the company, and its organizational structure are relevant elements for the success of tacit knowledge transfer within the organization. There is a good level of trust among the employees, which can be explained by the internal regime of a state-owned company, with a standard of HRM. Adequate level of common language (specific institutionalized jargon), a *sine qua non* condition for tacit knowledge transfer |
| 2 | Kase, R, Paauwe, J. & Zupan ,N (2009) *Journal of Human Resource Management*, Vol.48(4): pp615-639 | HR Practices, Interpersonal Relations, and Intra-firm Knowledge Transfer in Knowledge-Intensive Firms: A Social Network Perspective | The results indicate that work design, along with training and development HR practices, can shape the structural relation. At the same time, both also exhibit potential for shaping affective and cognitive relations within a firm's social network. While the effects of work design along with training and development HR practices on intra-firm knowledge transfer are | The study revealed direct effects of HR practices on interpersonal relations within a firm's social network. It confirmed interpersonal relations as a mediator between HR practices and internal knowledge transfer. It also introduced several methodological novelties to the HRM field. In particular, it developed a new relational measure for (pooled) experience of HR practices that is based on dyadic indices, designed a new Web-based survey instrument for |

| | | | primarily mediated by interpersonal relations, there was evidence for arguing that incentives and motivation HR practices directly affect intra-firm knowledge transfer. | collecting sociometric and individual data, and performed a hierarchical confirmatory network analysis with Multiple Regression Quadratic Assignment Procedure (MRQAP). |
|---|---|---|---|---|
| 3 | Sigala,M. & Chalkiti, K. (2007) *International Journal of Productivity and Performance Management*, Vol.56(5/6): pp456-483 | Improving performance through tacit knowledge externalizatio n and utilization : Preliminary findings from Greek hotels | Heavy use of ad hoc processes creates and gathers social networks practically anywhere within a firm. Personal contact is the most influential in sharing of tacit knowledge. Respondents' awareness of the existence and externalization process was attributed to the personal interest and motivation of the staff. Respondents related the tacit knowledge externalization assessments to: employees' experience; firms' competitive positioning; service quality and guest loyalty surveys conducted to both employees and guests; reports and various other annually conducted performance related activities. Overall, metrics that were reported to be used for assessing TKE are: Organizational culture, Staff empowerment, Communication, Spatial proximity, technological infrastructure, hierarchy, Informal organizational layout, Staff and management | Majority of respondents' equated and referred tacit knowledge solely to experience Respondents also attributed great emphasis to the power and role of social relationships for externalizing tacit knowledge as the trust and sympathy that characterizes such encounters facilitates the TKE processes. Informal locations and procedures were also more preferred than formal organizational procedures and meetings for conducting TKE. Respondents' unfamiliarity with the concept of tacit knowledge may have biased their perceptions regarding the factors inhibiting the TKE processes. Respondents tend to heavily focus the assessment of tacit knowledge externalization processes by measuring hard performance metrics and so, ignoring the soft issues and factors that can significantly affect the tacit knowledge externalization processes. It was suggested that in order to address tacit knowledge utilization, policy makers and hotel professionals should first focus on rising industry's |

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|---|---|---|---|---|
| | | | commitment, Change adaptation, Trust, Risk tolerance, Social relationships. Organizational factor were not important for externalization of tacit knowledge. Staff rotation increase staff knowledge, awareness of peers' activities and expertise, Others are financial incentives, KM department. | awareness of the concept and then, focus on building tacit knowledge sharing networks, enabling infrastructure and providing organizational incentives for utilizing tacit knowledge. Preliminary findings provide an overall support of the existence and importance of the two stage process transformation of tacit knowledge to business performance, i.e. first knowledge externalization and then its utilization. |
| 4 | Evardsson, I, R.(2007) *Journal of Employee Relations*, Vol.30(5): pp553-561 | HRM and Knowledge Management | The HRM and general strategies of a firm make up the general KM strategies: exploitative strategy and explorative strategy. Both strategies have behaviour effects, which have some impact on the KM process. Thus, the exploitative strategy will put greater emphasis on knowledge storage, technical skills, as well as distributing explicit knowledge via IT solutions. This increases the risk that firms adopting such strategy will be unable to reach for future applications. Explorative strategy places greater weight on knowledge creation, and human interaction to transfer tacit knowledge and use knowledge to increase innovation and new learning. | It was therefore hypothesized that the exploitative strategy would put greater emphasis on knowledge storage, that is (capturing and packaging knowledge), as well as distributing explicit knowledge via IT solutions. Explorative strategy, on the other hand, places greater weight on knowledge creation, as well as on human interaction to transfer tacit knowledge and use existing knowledge to create new knowledge, that is, further increased innovation and new working practices. |
| 5 | Bhardwaj, M. & Monin, J. (2006) | Tacit to explicit: an interplay | The tacit dimension of organization knowledge seemed to be a major | The study identified critical dimension that may operationalize tacit |

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|---|---|---|---|
| | *Journal of knowledge Management*, Vol.10 (3): pp72-85 | shaping organization knowledge | concern for knowledge intensive growing organizations. Tacit knowledge interacts with six important organizational subsystems: psychological, intellectual, knowledge, functional, social and cultural thus shaping its knowledge base. Management of tacit knowledge can be seriously hampered by narcissism and self-aggrandizement deeply rooted in individuals and institutions they build. The attitude of top management plays a key role in the mobilizing of tacit knowledge Sensitivity to invisible processes and listening to oneself can lead to multidimensional enrichment of an organization. | knowledge. The six areas identified in the findings are all related to the human resources of the organization. This therefore indicates that management of the firms employees can influence the shape of the tacit knowledge resource of an organization whether in terms of generation, conversion or its use for competitive advantage of the organization. |
| 6 | Zupan ,N. & Kase, R.(2007) *International Journal of Manpower,* Vol.28(3/4): pp243-259 | The role of HR actors in knowledge networks | Line managers who are HR actors are centrally positioned within examined knowledge networks, while the HR specialist is not. This implies that the decentralized approach to HRM in KIF can be effective. Results show the more operational (instrumental) the information or knowledge flow is, the denser the knowledge network, this therefore means that a more devolved HRM practices | Social network analysis as a tool appears to be an effective tool for mapping relationships in an organization. Centrally positioned HR actors (especially line managers involved in HRM) in knowledge networks are advantageous for HRM effectiveness only if obstacles to their effectiveness are properly managed. HR specialists should relate strongly to these actors to enable successful design and implementation of HR practices. |

| | | | promotes socialization process which is seen as a vital infrastructure for tacit knowledge transfer. | |
|---|---|---|---|---|
| 7 | Alexopoulos, A. & Monks, K.(2008) *The Learning, Innovation and Knowledge Management (LINK) Research Centre Working Papers Series*, WP 01-08 | HR Practices, Social Climate, and Knowledge Flows: Towards Social Resources Management | Both job design variables were found to be positive predictors of employee perceptions of teamwork and cooperation climate. Selection practices are particularly important in shaping employee perceptions of teamwork and cooperation climate Relational-oriented training and development, such as mentoring, on-the-job Training, cross-functional training and team-building, also emerged as positively linked to employee perceptions of teamwork and cooperative climate. Rewards emphasizing team/organizational performance and knowledge sharing were positively and significantly correlated with employee perceptions of teamwork and cooperation climate. | The role of line managers lies at the heart of the HRM-KM relationship since it is mainly line managers' behaviour that serves as a core basis on which employees develop shared understandings of a social climate where teamwork and cooperation are desired and valued by the organization. Effective management of social relations may require a process-based HR approach that goes beyond explicit motivation mechanisms, such as pay incentives for sharing knowledge, and directs attention to core structural aspects of knowledge work as well as to softer incentives for supporting pro social behaviours and value-creating social relations. |

## 2.4 Summary of the Literature

Presently, increasing changes in human resource structures and workforce demands, in the light of new trends in knowledge processes and learning concepts, suggests that the human resource management function must play a critical role in creating, applying,

sharing and preserving the organizational knowledge required to ensure a competitive position. There has been a growing interest in viewing organizations as places of knowledge creation (Nonaka, 1994).

Organizational knowledge is created by a continuous dialogue between employees (Bradley, Paul and Seeman, 2005). It is evident that in the new economy, knowledge assets are grounded in the experience and expertise of those individuals working in a company and firm has to therefore provide the right structures to shape knowledge into competencies (Smedlund, 2008). Knowledge could be broadly grouped into explicit knowledge and tacit knowledge (Nonaka, 1991). Bradley *et al.* (2005), convey the ideas of researchers that tacit knowledge exists in the mind and governs the use of explicit knowledge. If not captured, tacit knowledge may be lost during employee turnover as it is personal and context dependent (Bradley *et al.,* 2005).

Even though human resource practices are important, they have little potential for being a source of sustained competitive advantage (Wright, McMahan and McWilliams, 1994), if not linked to tacit knowledge (Jayne, 2006). If in the past industrial societies produced goods as distinct from post-industrial societies, which are required produce knowledge as a major source of wealth, then organizations will need to rely on their people as a resource to transform information into knowledge, providing core competences on which to base competitive advantage.

Knowledge resources become even superior strategic assets, because by being mainly tacit and so, intangible, they cannot be easily copied and substituted. Indeed, according

to the resource-based view, tacit knowledge is very crucial in enhancing business performance, as it creates business value in a unique, inimitable and non-transferable way. Similarly, research does not only advocate the strategic role of knowledge assets but also their operational benefits. For example, many studies have focused on investigating and demonstrating the role and impact of knowledge management in supporting different business processes and functions, such as: developing management processes that aim to build and maintain good quality customer relations and so, enhance customer lifetime value (Salomann, Dous, Kolbe and Brenner (2005); enhancing the performance of supply chains (Hult *et al.,* 2006; Sigala, 2004); and fostering organizational learning and continuous improvement (Senge, 1990).

## 2.5 Research Gaps

While the concept of tacit knowing and the ambiguity of knowledge to competitive advantage is important and has been deserving of its influence on recent management thought, the mechanisms by which tacit knowing is possible have been neglected. Despite this plethora of research advocating the performance impact of knowledge management, there are much fewer studies aiming to investigate and explain how these intangible knowledge resources (that are located within people's minds) are exploited for enhancing business performance.

Moreover, there is a growing consensus that HR systems are the primary means by which firms can manage value-creating social relations (Lado & Wilson, 1994; Leana & Van Buren, 1999; Jackson, Hitt, and DeNisi, 2003; Kang, Morris, and Snell, 2007) there

have been few empirical studies examining whether and how HR practices impact on knowledge flows. A review of the literature identified only a small number of quantitative (Youndt & Snell, 2004; Minbaeva, 2005; Collins & Smith, 2006) and qualitative studies (Hunter *et al.,* 2002; Currie & Kerrin, 2003; Swart & Kinnie, 2003; Willem & Scarbrough, 2006) that have focused explicitly on this area.

The first group, which comprises mainly large-scale, survey-based studies (Youndt & Snell, 2004), examines the relationship between systems of HR practices, social relations and knowledge sharing by seeking to identify 'strong situations' (Mischel, 1977), such as social capital, that both influence and are influenced by the impact of HR systems on knowledge exchange and, consequently, on organizational performance. This is also surprising given that knowledge creation represent a valuable source of core competence for organizations. This study therefore bridges this gap by examining the role of Human resource management in operationalization of tacit knowledge by focusing on the role of HR practices on social relations within an organization.

## CHAPTER THREE

## 3.0 RESEARCH DESIGN AND METHODOLOGY

### 3.1 Introduction

This chapter outlines the methodology used to carry out this study. It comprises of the design, population, sampling techniques, instrumentation, pilot study and the data analysis, model test and fitness criteria.

### 3.2 Research Design

Research design is a series of advance decisions that taken together, form a specific master plan or model for the conduct of the investigation (Shajahan, 2004). It is therefore a master plan specifying methods and procedures for collection and analysis of the required information. According to Yin (2003) research design is the logical sequence that links the empirical data to a study's initial research questions; that is, the design discourages the situation in which the evidence is disconnected from the initial research questions.

More so, the study of knowledge in organizations has included studies on the nature of knowledge and on the process of knowledge sharing (Ipe, 2003). Knowledge itself is defined as "a fluid mix of framed experience, values, contextual information, and expert insights" (Davenport & Prusak, 1998). This description further complicates the studies on knowledge by creating different dimensions of focus hence making every study in this area as virtually new.

Despite the rich literature on knowledge management (KM) which mainly focuses on the philosophical dimensions of tacit knowledge, there was not much on the role of human resource (HR) practices in sharing and transfer of this knowledge and particularly in the context of developing economies like Kenya. Similar studies (Kourik & Mahel, 2008; Ngcamu & Sanjana, 2011; Lam and Chua, 2005) that deal with the broader context of knowledge management issues all adopted an exploratory approach. Therefore, this study also adopted an exploratory approach to ascertain the understanding of the insights about the study problem. According to Cooper & Schindler (2006), when the area of investigation may be so new or so vague, a researcher needs to do an exploration just to learn something about the dilemma facing the manager.

More so, with the complex nature of tacit knowledge and considering human resource management (HRM) which is itself a socially complex process, the perception on the sharing of tacit knowledge is abstract and hence viewed differently by different organizations, this made the study highly phenomenological and hence, a cross-sectional exploratory study was employed. According to Yin (2005) this method was not only suited to analysis of contemporary events that cannot be controlled by the researcher but it is also used to generate propositions to be tested in future research in an explanatory way about very recent knowledge areas, as the case under scrutiny. This permits an in-depth study.

## 3.3 Population

The population of this study focused on the state-owned corporations in Kenya. According to the list obtained from the Inspectorate of State Corporations (2009) under the office of the Prime Minister, there are a total of 128 state corporations. These state enterprises are further subdivided into categories which included financial (15), regulatory (26) commercial/manufacturing (31), tertiary education and training (7), public universities (7), training and research (10), regional development authority (6) and service corporations (25).

The interest of this population was driven by the fact that State Corporations, due to their weak governance structures, were vulnerable to loss through people leaving. In today's workforce that is characteristically mobile with high worker turnover, organizational memory can be lost unless knowledge is dispersed among multiple workers through sharing (Mayfield, Mayfield and Lunce, 2008; Thomas and Allen, 2006).

Most studies, Luiz and Bernardo (2009), Kase, Paauwe and Zupan (2009), Sigala and Chalkiti (2007) which focuses on knowledge management research targets Knowledge Intensive Firms (KIFs). This is because according to Lei, Slocum and Pitts (1999) KIFs are important for innovation, initiative and confidence building and therefore tacit knowledge is the prime driver for value creations in these firms. Alvesson (2001) defines a KIF as a company where the majority of employees are well qualified while (Alvesson, 1995, Robertson & Swan, 1998, Starbuck, 1992) refers to KIFs as firms

where most of the work is said to be of an intellectual nature and where well-educated, qualified employees form the major part of the work force (Alvesson, 2000). Based on these definitions, state corporations characteristically fit this description well hence building a homogeneous population for this study. A list which was sourced from the inspectorate of state corporations was used as the sampling frame.

## 3.4 Sample Size and Sampling Technique

Due to the homogeneity of the population as described earlier, the study adopted a simple random sampling approach. Simple random sampling allows generalizability to a larger population with statistically determinable margin of error and allows use of inferential statistics Mugenda and Mugenda (2003) hence regarded as a powerful technique. Thus each corporation is assigned a unique number in the sampling frame and a table of random numbers was used to assist in selecting 38 corporations. Thirty eight Corporations form 30% of the target population. This have sufficiently surpassed the minimum threshold sample size suggested by Gay (2005) that a sample size of 20% of the target population is regarded as adequate for small population (N<1000). This also corroborates the suggestions by Mugenda and Mugenda (1999) who proposed a sample size of 30 as statistically significant for a small population.

However, since the nature of variables such as the nature of tacit knowledge is ambiguous and intertwined functions within HRM which is also a socially complex process, the state corporations was regarded as the unit of analysis. Moreover, since the study focused on the role of HRM, for the purpose of this study, the HR manager,

specialist or any person in charge of managing employee was considered to be best placed to give information on the significance and the role of HRM. Therefore HR managers or any other designate employees' manager was considered as a unit of observation for the study. This resulted to a total of 38 respondents for the study.

## 3.5 Instruments

The study collected both the primary and secondary data. Primary data was collected using a structured questionnaire which was interviewer-administered since the concept of tacit knowledge can be viewed in different perspective. This type of questionnaire usually involves interviewer physically meeting the respondents and ask question face to face. Interviewer-administered questionnaire will usually have a higher response rate than a self administered questionnaire (Saunders, Lewis & Thornhill, 2003).

The preference for the questionnaire is based on the premise that it gives respondents freedom to express their views or opinions more objectively. According to Krishnaswamy, Sivakumar and Mathirajan (2006) questionnaire is good because standardized and impersonal formats of a questionnaire has uniformity and help in getting data objectively; information on facts, attitudes, motivation and knowledge can be obtained easily. Investigative questions were used so as to deeply probe the relationship between the variables under study. Cooper & Schindler (2006) note that investigative question addresses satisfactorily each research question and to meet each objective.

Secondary data was collected from various sources such as library, government publications and the Internet. It included multi-source data that can be based on documentary or on survey data, or can be an amalgam of the two that reviews the literatures on HRM functions, learning, socialization, and motivation strategies. The data focused on performance and reward, training and development, mentoring and role modelling and infrastructure for knowledge management as the constructs that enables social environment which is expected to influence sharing of tacit knowledge.

## 3.6 Pilot Study

Prior to actual collection of data, a pilot testing was conducted to obtain some assessment of the questions' validity and the likely reliability of the data that was collected. It is during the pre-test of the instrument that the researcher is able to assess the clarity of the instrument and the ease of use of the instrument (Mugenda & Mugenda, 1999). Since this is an interviewer-administered questionnaire, further inquiry on the length, clarity and ambiguity of the questions was also sought. The information collected during the pilot study was used to undertake a preliminary analysis to enable the research questions to be answered.

In order to minimize the possible instrumentation error and hence increase the reliability of the data collected, the reliability of the pre-test observation schedule was tested using internal consistency technique. This was determined using scores obtained from a single test administered to individuals within the sampling frame and hence saves time (Mitchell, 1996). Cronbach's Coefficient Alpha was then computed using statistical

packages for social sciences (SPSS) to determine how items correlate among themselves. Cronbach's Alpha is a general form of the Kunder-Richardson (K-R) 20 formulas used to assess internal consistency of an instrument based on split-half reliabilities of data from all possible halves of the instrument. It reduces time required to compute a reliability coefficient in other methods (Mugenda & Mugenda, 1999). The Kunder-Richardson (K-R) 20 is based on the following formula presented as equation 1.

$$KR_{20} = \frac{(K)\ (S^2 - \sum s^2)}{(S^2)(K-1)}$$

……………………………………Equation 1

Where        $KR_{20}$   *Reliability Coefficient of internal Consistency*
                 $K$     *Number of items used to measure the concept*
                 $S^2$    *Variance of all scores*
                 $s^2$    *Variance of individual items*

The homogeneity of the data which implies the consistency among the items in measuring the concept of interest will be denoted by a high coefficient which will translate to high correlation of items among themselves. A reliability coefficient of 0.6 and above was considered adequate for this case (Abouserie, 1992). Further, besides ensuring the reliability of the data, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Hair, Anderson, Tatham and Black, 2005), was conducted to ensure that the data matrix had sufficient correlations to justify the application of the Factorial Analysis.

**3.7 Data Processing and Analysis**

**3.7.1 Data Analysis and Interpretation**

The study generated both qualitative and quantitative data since investigative type of questions are used to collect data. There are three main objectives of analyzing data. These are getting a feel of the data, testing the goodness of data and testing the hypothesis developed for the research (Sekaran, 2006). The feel of the data will give preliminary ideas of how good the scales are, how well the coding and entering of data have been done. Testing of the goodness of data can be accomplished by submitting the data for factor analysis, obtaining the Cronbach's alpha reliability of the measure as stated earlier.

Miles and Huberman's (1994) framework for qualitative data analysis comprising of data reduction, data display and conclusion drawing and verification, was adopted in describing the qualitative data. This, according to Miles and Huberman (1994) assists researchers design which data to single out for description while involving some combination of deductive and inductive analysis. Nevertheless, while initial categorizations are shaped by pre-established study questions, the qualitative analysis is expected to induce new meanings from the available data.

Qualitative data was operationalized by arranging the data according to emerging themes or patterns. The resultant themes and patterns were assigned numbers to make them measurable. Factor analysis formed the main basis of analysis in this study.

Quantitative data analysis on the other hand took a two-step analysis. The first step involved a series of activities which included: use of the descriptive statistics generated by SPSS to give the expected summary statistic of variables being studied; Skewness values of each variable were analyzed to establish whether the variables were normally distributed. Skewness statistics less than 1.0 as recommended by Miles and Shelvin (2001) was considered the threshold for normalty; Then, a first order confirmatory factor analysis (CFA) was performed to examine the measurement model. Under this, all the variables in the model except for moderating and mediating effect were tested by performing structural equation modeling (SEM) analyses using linear structural relation (LISREL) 8.8.

According to Jöreskog & Sörbom (2004), SEM has become a widely used methodology for specifying, estimating and testing hypothesized relationships among substantively meaningful variables in the behavioral and social sciences for the last two decades. Finally, a second and subsequently third order CFA was performed to ascertain the convergence of independent variable dimensions, and further into one single construct of HRM.

The second step comprised a multiple regression analyses (MRA) to test moderating effect of knowledge management infrastructure on the relationship between human resource management variables and the social environment. This identifies the moderating effects without information loss resulting from the artificial transformation

of a continuous variable into a qualitative one in the subgroup analyses (Szymanski, Troy, and Bharadwaj, 1995).

The third step involved a multiple regression analysis. This was used to test the mediating effect of social environment between the human resource management and the dependent variable (sharing of tacit knowledge). The test examined the product of coefficient generated from the coefficient paths for loci from independent variable to dependent variable through the mediating variable.

### 3.7.2 Model Estimation and Fit Criteria

All constructs are measured using multiple-item scales, drawn from pre-validated measures in previous related studies. In measuring the model, a confirmatory factor analysis was used. In fact, CFA is a special case of the structural equation model (SEM), also known as the covariance structure (McDonald, 1978) or the linear structural relationship (LISREL) model (Jöreskog & Sörbom, 2004) that investigates the linkages between a set of observed variable to usually smaller set of latent variables. CFA corresponds to the measurement model of SEM.

According to Jöreskog & Sörbom (2004) SEM consists of two components: a measurement model linking a set of observed variables to a usually smaller set of latent variables and a structural model linking the latent variables through a series of recursive and non-recursive relationships. The suitability of a single-group measurement model is usually assessed using a SEM procedure known as confirmatory factor analysis (CFA).

Factor analysis is used as a data reduction technique, which takes a large set of variables, and reduces or summarizes the data using a smaller set of components (Pallant, 2001).

From a structural equation modeling (SEM) point of view, it is a modeling approach for studying latent constructs by using several observable and directly measurable indicators (Raykov & Marcoulides, 2006). A model is considered suitable if the covariance structure implied by the model is similar to the covariance structure of the sample data, as indicated by an acceptable value of goodness-of-fit index (GFI), and the most commonly used GFI of SEM is the $\chi2$ statistic (Cheung & Rensvold, 2009).

However, for this study, use of chi- square was opted because the $\chi2$ test may be invalid when distributional assumptions are violated, leading to the rejection of good models or the retention of bad ones. According to Maruyama (1997) and Tanaka (1993) chi-square is not a very good fit index in practice under many situations because it is affected by several factors and a problem arises because of the statistic's functional dependence on N. Therefore, $\chi2$ statistic provides a highly sensitive statistical test, but not a practical test, of model fit. Owing to this and other considerations, many goodness-of-fit indices (GFIs) have been proposed as alternatives to $\chi2$. Some in common use include the comparative fit index (CFI) Bentler (1990), Normed Fit Index (NFI) and Non-normed fit Index (NNFI) Bentler & Bonett (1980), and root mean squared error of approximation (RMSEA; Steiger, 1989). RMSEA "incorporates a penalty function for poor model parsimony" and thus becomes sensitive to the number of parameters estimated and relatively insensitive to sample size (Brown, 2006).

Due to the fact that most of the "practical" GFIs do not have known sampling distributions, the common practice proposed many criterion values indicative of satisfactory model fit; examples include .90 or above for GFIs and RMSEA with the accepted good model of conventional cutoff value of < .06. It is common practice to use multiple GFIs when evaluating and reporting overall model fit.

According to Hox & Bechger (2001), a relative modern approach to model fit is to accept that models are only approximations and that the perfect fit may be too much to ask for. Hu and Bentler (1999) empirically examined various cutoffs for many of these measures and their data suggested that, to minimize Type I and Type II errors under various conditions, one should use a combination of the GFIs and RMSEA.

## CHAPTER FOUR

## 4.0 DATA ANALYSIS, RESULTS AND DISCUSSION

## 4.1 Introduction

The study adopted different statistical approaches to examine the role of human resource management (HRM) in intra-firm transfer of tacit knowledge. Perceptual measures were used to gauge the dimensions of human resource management functions used. All constructs were adopted from pre-existing scales found in the literatures. In addition to descriptive statistics, the reliability among the multiple measures of the variables that comprise this study was measured using Cronbach's alpha coefficient generated by statistical packages for social sciences (SPSS). Cronbach's alpha is a measure of consistency and checks if the questions of the questionnaire were understood and if the data are minimally reliable (Hair, Anderson, Tatham, and Black, 2005; Cronbach, 1987).

The Model was tested using confirmatory analysis (1st, 2nd and 3rd. orders) to determine the structure of the relevant HRM factors for tacit knowledge sharing, through factor loading of measured variables to confirm the pre-established model. This was done by applying maximum likelihood estimates in linear structural relation (LISREL) 8.8 and using goodness-of-fit tests that generated various fit indices which were used to assess the statistical significance and fitness of *a priori* measurement model of the theoretical construct with the observed variables.

## 4.2 Background Information

### 4.2.1 Response Rate

The data was collected from the state corporations in Kenya which are registered under the inspector of state corporations. The sample of the study consisted of 38 corporations out of the total 128 corporations which formed the target population. A total of 38 corporations responded to the study which translated to 100 percent response rate.

### 4.2.2 Demographic Profile of Respondents

### 4.2.2.1 Gender Distribution

The gender of the respondents was sought. A simple majority (52.6%) of the respondents were male while the rest (47.4%) of the respondents were female as shown in table 4.1. This is a good distribution which depicts a fair balance of gender. Since majority of the responses for this study relies on the perceptual measures of the respondents, this gender distribution is expected to accommodate the opinions and views from both sides of the gender divide. Nevertheless, the balance in gender in public service may also be an evidence of successful efforts of various gender mainstreaming campaigns.

**Table 4.1 Distribution of Respondents by Gender**

| Gender | Percentage |
|--------|------------|
| Male | 52.6 |
| Female | 47.4 |
| **Total** | **100** |

**4.2.2.2 Job Titles of Respondents**

Although the unit of observation for this study was the human resource/employee managers as already indicated in the methodology, this question sought to establish the job titles of the respondents. An overwhelming (92%) of the respondents were senior HR management designate with a paltry (4 %) indicating administration managers and communication and publicity managers designate respectively as shown in table 4.2. This was very important profile distribution for this study since the respondents were the right people with adequate information relevant to this study hence best placed.

**Table 4.2 Job Titles of Respondents**

| Designation | Percentage |
|---|---|
| HR Managers | 92 |
| Administration Manager | 4 |
| Communication and Publicity Manager | 4 |
| **Total** | **100** |

**4.2.2.3 Working Experience of Respondents**

This question sought to investigate the number of years each respondent have worked with the corporation. Majority (48%) of the respondents have a working experience between 2 to 10 years, 32% have 11 to 20 years, 16% have over 20 years and a few (4%) have less than 2 year experience as shown in table 4.3. This means that the respondents have adequate working experience with the corporations and therefore posses the necessary knowledge and information which was considered useful for this study.

**Table 4.3 Working Experience of Respondents**

| Experience in years | Percentage |
| --- | --- |
| Less than 2 years | 4 |
| 2 to 10 years | 48 |
| 11 to 20 years | 32 |
| Over 20 years | 16 |
| **Total** | **100** |

### 4.2.2.4 Level of Education of Respondents

Respondent's level of education was sought and majority (76%) of the respondents indicated that they have at least a degree level of education while sizeable (34%) posses a higher degree at postgraduate level (table 4.4). This is highly expected since the respondents are at a senior management level where the skills knowledge and competencies is supposed to be high. Nevertheless, the well educated respondents mean that they were well informed and furnished this study with better information which added value.

**Table 4.4 Level of Education of Respondents**

| Education Level | Percentage |
| --- | --- |
| Bachelors Degree | 76 |
| Post graduate | 34 |
| **Total** | **100** |

**4.2.3 Background of the Corporations**

**4.2.3.1 Corporations' Year of Establishment**

For each corporation sampled, the year of establishment was also sought. A range of years were given which were categorized to come up with various range for easy presentation. A simple majority (26.3%) of the respondents gave their corporation established over 50 years ago, 25.7% indicated between 31 to 40 years, 24% 21 to 30 years and another 24% gave less than 20 years as shown in table 4.5.

While some corporations are relatively old on average, majority (26.3%) of the corporations have existed for over 50 years and were formed around the time when Kenya attained independence. This was important since 50 years is a reasonably long duration which can allow the corporation to build adequate memory and knowledge database and therefore offer a good profile for tacit knowledge sharing study. The size of the corporation's workforce also ranged from 70 to 6,000 employees. This is a workforce size that can provide a rich, adequate and diverse pool of tacit knowledge among the employees which is the critical construct focused in this study.

**Table 4.5 Corporations Year of Establishment**

| Education Level | Percentage |
|---|---|
| Less than 20 years | 24 |
| 21 to 30 years | 24 |
| 31 to 40 years | 25.7 |
| Over 50 years | 26.3 |
| **Total** | **100** |

**4.2.3.2 Category of the State Corporations**

Respondents were asked to indicate the categories in which their Corporations belonged. A simple majority (23%) of the Corporations belong to the service category, 18% training and research, 17% commercial/ manufacturing, 16% tertiary education and training, 15% regulatory, 8% financial and 3% public universities as presented in table 4.6. This was a very good distribution based on the various categories used to classify the State Corporations. This is because the study sourced data from across all the available categories of the Corporations making it a more representative sample that eased the generalizability of the research findings.

**Table 4.6 Category of State Corporations**

| Categories | Percentage |
| --- | --- |
| Service | 23 |
| Training and Research | 18 |
| Commercial/Manufacturing | 17 |
| Tertiary Education and Training | 16 |
| Regulatory | 15 |
| Financial | 8 |
| Public Universities | 3 |
| **Total** | **100** |

**4.3 Descriptive Analysis**

**4.3.1 Establishment of Whether Knowledge Management Infrastructure Facilitates Sharing of Tacit Knowledge in State Corporations**

**4.3.1.1 Knowledge Management in State Corporations**

This question sought to establish whether the state corporations manage the knowledge of its workers. An overwhelming majority (92.1%) of the respondents indicated that their Corporation managed the knowledge of its workforce while a paltry (7.9%) felt otherwise (table 4.7). Upon further probing on how they paid attention to tacit knowledge, majority (78%) of the respondents who indicated that their corporation manages the knowledge of its workforce further revealed that they paid attention to tacit knowledge through working freely together as a team while the rest (22%) indicated training as a way of paying attention to the tacit knowledge of their employees.

This corroborates the findings by Edvardsson (2006) that knowledge management has been widely been used recently by firms and organizations in order to improve decision making, product innovation, productivity and profits. Further, the findings on how the organizations paid attention to its tacit knowledge also agreed with the findings by Petersen and Poulfelt (2002) that knowledge management is about developing, sharing and applying knowledge within the firm.

Therefore, these findings were expected since in the current knowledge-based economy, high performing organizations must acknowledge people as their most important source of competitive advantage and therefore are conscious about the importance of

knowledge. Nevertheless, employees' working together freely has a lot of undertones of informal networks. This was pivotal because the productivity of knowledge-based entities depends on employees' capabilities, commitments, motivations and relationships that thrive best in such environment.

**Table 4.7 Whether Corporations Manage Knowledge of Its Workforce**

| Responses | Percentage |
|-----------|------------|
| Yes | 92.1 |
| No | 7.9 |
| **Total** | **100** |

**4.3.1.2 Organizational Infrastructure for Tacit Knowledge**

Respondents' opinion was sought on whether organizational structure supports sharing of tacit knowledge from one form to the other. The result indicated that majority (60.5%) of the respondents disagreed that organizational structure support sharing of tacit knowledge, 23.7% strongly disagreed while an equal 7.9% of the respondents agreed and took a neutral stand respectively. Further, on the opinion about whether government regulations and policies are major impediments to the Corporation's autonomy, there was an equal (31.6%) divide in opinion for those who agreed and disagreed respectively. However, a simple majority (21.1%) of the respondents strongly agreed, 10.5% strongly disagreed while a paltry (5.3%) did not take any position.

As to whether the corporations have adequate capacity to continuously experiment new ideas and approaches about work method, most (39.5%) of the respondents were in disagreement with the opinion while another 28.9% expressed a strong disagreement. Only 18.4% agreed with the sentiment and a few (2.6%) strongly agreed while 10.5% took a neutral position. Finally, respondents were asked whether their corporation regards its employees as intrinsically creative and capable of thinking and learning if given a chance. The results indicated that majority (44.7%) of the respondents also disagreed with this opinion with another 23.7% strongly disagreed. While 15.8% remained neutral, 10.5% and 5.3% of the respondents respectively agreed and strongly disagreed with this opinion. This is shown in table 4.8.

The results disagree with the findings by (Becerra-Fernandez, Gonzales and Sabherwa, 2004; Gold, Malhotra and Segars, 2001) which assumes knowledge management infrastructure as a precondition, on which knowledge management resides. However, the contradiction of these results with the existing empirical findings can be based on the literature by Choi (2000) which explained that the term knowledge management has multiple definitions, meanings and interpretations.

Therefore, based on the pattern of the responses, it is clear that most organizational structural elements which are envisaged to be the critical infrastructure for the sharing of tacit knowledge in an organization have not been adequately supported. Given the present proliferation of technology, there is an increasing realization that knowledge management infrastructure has effectively captured explicit knowledge by making an

effective use of information technology. However, as to whether the same technologies would be able to reach the innermost recesses of human mind where tacit knowledge resides may require more efforts in advancing these technologies to a greater level that will create infrastructure for tacit knowledge sharing.

**Table 4.8 Respondents' Opinion on organizational Infrastructure**

| Respondents Opinion | Percentage Response (%) | | | | | |
|---|---|---|---|---|---|---|
| | Strongly Disagree | Disagree | Neutral | Strongly Agree | Agree | Total |
| The organizational structure supports Sharing of knowledge from one form to the other. | 23.7 | 60.5 | 7.9 | 7.9 | 0 | **100** |
| The government regulations and policies are major impediments to corporations' autonomy. | 10.5 | 31.6 | 5.3 | 31.6 | 21.0 | **100** |
| The corporation has adequate capacity to continuously experiment new ideas and approaches about work methods. | 28.9 | 39.5 | 10.5 | 18.4 | 2.6 | **100** |
| The corporation regards employees as intrinsically creative and capable of thinking and learning if given a chance. | 23.7 | 44.7 | 15.8 | 10.5 | 5.3 | **100** |

**4.3.2 Whether Employee Training and Development Contribute to Sharing of Firm's Tacit Knowledge in State Corporations**

**4.3.2.1 Functional Training Department**

This question sought to establish whether the corporations have an established functional training department. An overwhelming (78.9%) of the respondents revealed the existence of a training department while the remaining (21.1%) indicated that their Corporations do not have a functional training department as shown in table 4.9. This result corroborates the findings by Joia (2007) that training nowadays is regarded as a strategic activity in an organization.

Underpinning the literature, organizations in 21st. century increasingly emphasize on increasing the competencies of its professionals in order to transform them in to knowledge workers. This will enable employees to stay at the forefront of their professional fields and be constantly aware of developments within their specific disciplines and professions. Thus, state corporations are expected to place a premium on employee training as part of embracing trends in contemporary human resource management philosophies.

**Table 4.9 Whether Corporations have Established Functional training Department**

| Responses | Percentage |
| --- | --- |
| Yes | 78.9 |
| No | 21.1 |
| **Total** | **100** |

**4.3.2.2 Whether Training Departments Organize for Training**

Respondents whose corporation has a training department were further probed on whether their training department organizes for training activities. An overwhelming, (96.7%) of the respondents indicated that their departments organize for employee trainings while a small (3.3%) revealed that their training department does not organize for training activities as shown in table 4.10.

The result agrees with the findings by Armstrong (1996) that a training department is a centre that controls all learning and development activities in an organization. As part of the strategic human resource development, one of the primary objectives of HRM is the creation of conditions that facilitate capacity to acquire and utilize new skills and knowledge and tap the wealth of ideas about how the organization's operations might be better ordered. This therefore requires a centralized system that organizes and delivers training activities which is an important role of a training department.

**Table 4.10 Whether Training Departments Organize for Training**

| Responses | Percentage |
|-----------|------------|
| Yes | 96.7 |
| No | 3.3 |
| **Total** | **100** |

**4.3.2.3 Frequency of Corporate Trainings**

This question sought to examine how frequent the HR Managers organize trainings for their employees. Majority (43.3%) of the respondents felt that they train their employees continuously, 30% thought they train their employees often while 26.7% train very often as indicated in table 4.11. The result corroborates the findings by Disterer (2003); Leonard and Sensiper (1998) that training which demands more time is appropriate for transmission of tacit knowledge. This is further evidence that training is regarded as an important activity and continuous training is a characteristic of contemporary management approach which emphasis in philosophy of learning organization as indicated by Wenger and Snyder (2000). The frequent corporate training thus becomes an essential ingredient for the survival of an organization; that learning at operational, policy and strategic levels needs to be conscious, continuous and integrated; and that management is responsible for creating an emotional climate in which all staff can learn continuously.

**Table 4.11 Frequency of Corporate Trainings**

| Responses | Percentage |
| --- | --- |
| Continuous | 43.3 |
| Often | 30 |
| Very often | 26.7 |
| **Total** | **100** |

**4.3.2.4 Training Approach Used**

Respondents were asked to identify the approach of training used by the Corporation. A simple majority (58.3%) of the respondents used formal training approach while 44.8% identified other approaches which included encouraging older workers to train the young ones, workshops and team building exercises; only a small (6.9%) however, used informal training method  as shown in table 4.12. Based on the premise that formal training largely facilitates the exchange of explicit knowledge (Nonaka and Takeuchi, 1997; Murray and Peyrefitte, 2007), the Corporations have little effort in facilitating the sharing of tacit knowledge. It is important to note that the type of training used by an organization depicts an important employee development implication for the sharing of tacit knowledge. Therefore, this shows that employee development elements as a factor for tacit knowledge sharing is not supported. This is expected since most of the organizations do not have clear employee development programs; most of the times, there is also tendencies of people using the word training interchangeably with development.

**Table 4.12 Training Approaches Used by the Corporations**

| Approaches | Percentage |
|---|---|
| Formal Training | 58.3 |
| Informal Training | 6.9 |
| Other Approaches | 34.8 |
| **Total** | **100** |

**4.3.2.5 Trainees Interaction During Informal Training**

This question was a further probe to the respondents who trained their employees informally. It sought to investigate whether they allowed the trainees and technical experts to freely interact and discuss ideas amongst themselves. An overwhelming majority (97.4%) of the respondents revealed that they allow the trainees and technical experts to freely interact while a paltry (2.6%) felt otherwise (table 4.13). The findings corroborate the literature by Walter, Dorothy, Lisa, and Mimi (2001) that knowledge with rich tacit dimensions is transferred informally. Free interactions of trainees and expert are an element of employee development that promotes sharing of tacit knowledge. It is largely expected that informal interactions creates social atmosphere which will build trust between the individuals who will in turn exchange ideas that promote sharing of tacit knowledge. Social environment is antecedent to sharing of tacit knowledge as earlier presented in the conceptual framework of this study.

**Table 4.13 Whether Trainees are Allowed to Interact During Informal Trainings**

| Responses | Percentage |
| --- | --- |
| Allowed | 97.4 |
| Not Allowed | 2.6 |
| **Total** | **100** |

**4.3.2.6 Retraining of Experts**

As part of another employee development perspective, respondents were asked whether their corporations training efforts considers retraining of experts. Most (83.3%) of the

respondents revealed that they do not consider retraining of the experts while a few (16.7%) only consider retraining of their experts as shown in table 4.14. This result agreed well with the findings by Stewart (1998) that most companies make a common mistake by establishing a direct correlation between learning and training. Training is the use of systematic and planned instruction activities to promote learning. It involves the use of formal processes to impart knowledge and help people to acquire the skills necessary for them to perform their jobs satisfactorily. It is described as one of several responses an organization can undertake to promote learning. This implies that, while retraining experts consolidates the transfer of tacit knowledge in an organization, perhaps most of the organizations may see this as wastage of resource since the experts already have enough skills and know-how and therefore do not merit retraining.

**Table 4.14 Whether Corporations Consider Retraining Experts**

| Responses | Percentage |
|-----------|-----------|
| Not Considered | 83.3 |
| Considered | 16.7 |
| **Total** | **100** |

### 4.3.2.7 Training Needs Assessment

The respondents whose organizations do not have a functional training department were asked to explain how their corporations assess and meet its training needs. Most (97.4%) of the respondents revealed that they either outsource training while a few (2.6%) indicated that their employees are expected to have some natural skills such as

preservation. The findings are shown in table 4.15. These findings are in agreement with the literature by Armstrong (1996) that while it is easy to record the costs of training, it is much harder to produce convincing financial assessments of the benefits. However, it is normal for many organizations to be conscious of enormous cost implications of training hence seeking other alternatives such as outsourcing. Nevertheless, the outstanding response on "skill preservation" was by a respondent from National Museum of Kenya who seems to be so specific to the core mandate of the Corporation which is preservation of natural heritage.

**Table 4.15 How Corporations without Training Departments Handle their Training Needs**

| Responses | Percentage |
|---|---|
| Outsource | 97.4 |
| Assume Employees are Skilled | 2.6 |
| **Total** | **100** |

**4.3.2.8 Other Ways of Retention and Transfer of Tacit Knowledge**

Respondents were asked to give suggestions on other possible ways the Corporations may support retention and transfer of tacit knowledge within their corporations. Several suggestions were advanced which was categorized into various thematic areas that included workers training each other, role modeling, picnics and parties, social welfare groups, and teams building among others. These suggestions corroborate the findings by Allen (2003) that organizational learning should be dynamic and that intangible assets

and social prosperity are anticipated to create major impacts on knowledge management. The suggestions echo important elements of organizational socialization activities which is crucial for the transfer of tacit knowledge.

### 4.3.3 Investigation of Whether Performance and Reward Strategies Contribute to Sharing of Tacit Knowledge in State Corporation

#### 4.3.3.1 Corporations performance management

The intention of this question was to establish whether the Corporations manage the performance of its workforce. Majority (97.4%) of the respondents agreed that their corporation manage the performance of its workforce whereas a trifling (2.6%) felt their corporations do not carry out employee performance management. The massive response is a pointer to the fact that performance management in public organizations is a requirement and therefore corporations were required to embrace the performance rating requirement in public service. This confirms Armstrong (2006) that performance management processes have become prominent in recent years as means of providing a more integrated and continuous approach to the management.

#### 4.3.3.2 Objectives of Performance Management

Further investigation of the likely objectives of performance management exercise revealed that a significant (35.3%) of the respondent thought the exercise as a compliance with the government regulations, 29.4% felt the exercise was to increase capabilities and potential of individuals to perform more effectively, 15.3% believed the

exercise developed transferable skill to enhance career and succession prospects whilst 10.6% indicated the exercise helped in conversion of tacit knowledge to explicit. A paltry (9.4%) indicated the exercise as an appreciation of new management theory and practices (table 4.16). While there is a fair distribution over most of the objectives that target sharing of tacit knowledge, majority of the managers have a perception of the practice as a compliance exercise. This could perhaps be the rigidity of the performance management system which contradicts the guiding principles proposed by Egan (1995) that performance management system should be a control system only by exception and the solution is to make it a collaborative development system.

**Table 4.16 Objective of Performance Management Exercise**

| Responses | Percentage |
|---|---|
| To comply with the government regulations | 35.3 |
| Appreciation of new management theory and practices | 9.4 |
| Increase capabilities and potential of individuals to perform more effectively | 29.4 |
| Develop transferable skill to enhance career and succession prospects in the corporation | 15.3 |
| Conversion of tacit knowledge to explicit | 10.6 |
| **Total** | **100** |

### 4.3.3.3 Employee Performance Management Practices

This question sought to investigate whether employee performance contributes to the sharing of tacit knowledge. On whether the performance management integrates the goals of individuals with that of the organization, majority (76.9%) of the respondents

strongly agreed while 17.8 % disagreed with the statement and a paltry (5.3%) of the respondents did not responded. As to whether performance management is a continuous and integrated part of the employee line managers, majority (86.8%) of the respondents were in agreement while a few (13.%) disagreed. On a different note, most (60.5%) believed the objective of performance management was to motivate individuals while 39.5% thought otherwise. However, majority (70.2%) of the respondents did not believe performance management distract people from more important activities as compare to the few (23.7%) who agreed with this sentiment while 5.3% did not give any opinion.

Respondents were also asked whether it is essential that performance management be accompanied by extensive communication to ensure its aims are fully understood. Majority (89.8%) agreed while a few (5.3%) each disagreed and did not respond respectively. Separately, an overwhelming (92.1%) of the respondents thought the focus of performance management should be the transfer and sharing of tacit knowledge while a paltry (7.9%) were opposed to this opinion. Finally, on whether performance management should strategically convert depository of tacit knowledge for the Corporation, a considerable (89.5%) of the respondents agreed to this statement, 7.9% refuted while a smaller (2.6%) did not respond all together. These findings are summarized in the table 4.17. The results agreed with the findings by Carlos and Niclas (2007), that the degree to which the system was used as an instrument of intra-organizational knowledge flows had a significant impact on the selection of managerial performance management system. The findings also supported the literature by Joia

(2006) which indicated that some performance appraisals were important in knowledge sharing.

This means that performance management in state Corporations meets the various thresholds that facilitate the sharing of tacit knowledge and enabling of the social environment antecedents to transference of tacit knowledge. The overall aim of performance management is to establish a high performance culture in which individuals and teams take responsibility for the continuous improvement of business processes and for their own skills and contributions within a framework provided by effective leadership. Performance management therefore develops the capacity of people to meet and exceed expectations and to achieve their full potential to the benefit of themselves and the organization thus motivating them to share knowledge which is embedded in their minds.

**Table 4.17 Respondents' Position on Employee Performance Management**

| Respondents Position on Performance Management | Percentage Response | | | |
|---|---|---|---|---|
| | **Disagree** | **No Opinion** | **Agree** | **Total** |
| PM integrates the goals of the individuals with that of the organization | 17.8 | 5.3 | 76.9 | **100** |
| PM is a continuous and integrated part of the employee-line managers' relationship | 13.2 | 0 | 86.8 | **100** |
| The main objective of PM should be to motivate individuals | 39.5 | 0 | 60.5 | **100** |
| PM distracts people from more important core activities | 70.2 | 5.3 | 23.7 | **100** |
| It is essential that PM be accompanied by extensive communication to ensure its aims are fully understood | 5.3 | 5.3 | 89.8 | **100** |
| The focus of PM should be the transfer and sharing of knowledge | 7.9 | 0 | 92.1 | **100** |
| PM should strategically convert depository of tacit knowledge for the corporation | 7.9 | 2.6 | 89.5 | **100** |

## 4.3.3.4 Employee Reward Strategies

This question aimed to establish whether the reward strategies of the Corporations contribute to the sharing of tacit knowledge. Respondents' opinions on various employees' behaviors' were sought. Majority (84.2%) of the respondents indicated that their employees do not wait for their managers to tell them what to do while 15.8% felt otherwise. However, 76.3% agreed that their employees help each other on their work

whenever necessary unlike 23.7% who refuted. Separately, another 52.6% of the respondents believed the workers volunteer for extra work whilst 42.1% felt opposite.

On whether their employees work hardest when a supervisor is watching them closely, a simple majority (52.6%) agreed and 47.7% disagreed. Most (65.8%) of the respondents also believed that their employees always come up with lots of ways to improve their work while 34.2% did not subscribe to concur. Nevertheless, a sizeable (86.8%) of the respondents had not received frequent complaints from their employees about their work although a few (13.2%) indicated to have received such complaints regularly. Similarly, 84.2% of the respondents do not believe their employees view them as different group unlike 15.8% who reported to have been viewed as different because of being in the management group.

In a separate inquiry, majority (55.3%) of the respondents believed their employees do not "feel bad when they make mistakes" while 44.7% believed otherwise. A simple majority (52.6%) of the respondents also revealed that their employees often ask for new challenges in their work unlike 47.4% of the respondents who thought otherwise. Nevertheless, majority (78.9%) of the respondents agreed that employees work harder with special rewards unlike 21.1% of the respondents who disagreed. Finally, most (84.2%) of the respondents also reported that their employees often encourage each other on work related issues unlike a trivial (15.8%) who are opposed to this statement. These findings are shown in the table 4.18.

These results corroborate the findings by Disterer (2003) and Szulanski (1996) that in order to encourage people to share their knowledge, they need to be adequately rewarded. This implies that most elements of reward practices which is related to sharing of tacit knowledge or its antecedents are significantly supported underpinning the role of reward management in sharing of tacit knowledge in these corporations. For example, one of the tremendous onus on HR and reward specialists is to develop line management capability, to initiate processes that can readily be implemented by line managers, to promote understanding by communicating what is happening, why it is happening and how it will affect everyone, to provide guidance and help where required and to provide formal training as necessary. These are all fundamental infrastructure for sharing of tacit knowledge.

**Table 4.18 Reward Strategies for Transfer of Tacit Knowledge**

| | Percentage Response | | |
| --- | --- | --- | --- |
| **Respondents Opinion on Employees Behaviors** | **Yes** | **No** | **Total** |
| Wait for their manager to tell them what to do | 15.8 | 84.2 | **100** |
| Help each other on their work whenever necessary | 76.3 | 23.7 | **100** |
| Often volunteer for extra work | 57.9 | 42.1 | **100** |
| Work hardest when supervisor is watching them closely | 52.6 | 47.7 | **100** |
| Come up with lots of ways to improve their work | 65.8 | 34.2 | **100** |
| Complain frequently about their work | 13.2 | 86.8 | **100** |
| Act like it's "us against them' | 15.8 | 84.2 | **100** |
| Feel badly if they make mistakes | 44.7 | 55.3 | **100** |
| Often ask for new challenges in their work | 52.6 | 47.4 | **100** |
| Work hardest when they are offered special rewards | 78.9 | 21.1 | **100** |
| Often encourage each other on work related issues | 84.2 | 15.8 | **100** |

### 4.3.4 Whether Mentoring and Role Modeling Practices Enhance Operationalization of Tacit Knowledge in State Corporations

#### 4.3.4.1 Mentoring Practices

A Likert scale was used to seek the satisfaction levels of the respondents on different scenarios of mentoring practices relevant to the transfer of tacit knowledge. A simple majority (47.7%) of the respondents were not satisfied that job rotation exercise was frequent while 44.7% were satisfied and the rest (7.9%) took a neutral stand. As to whether their corporation is keen in career and succession planning, majority (52.6%) expressed satisfaction unlike a sizeable (39.5%) who felt dissatisfied while a paltry (7.9%) took a neutral position again.

Respondent's feelings about whether their Corporations facilitate matching mentor-protégé relationship among their workers were sought. Most (65.8%) were satisfied that their Corporation facilitates while 23.7% were not and another 10.5% remained neutral. Consequently, 47.4% of the respondents were not satisfied with the statement that their Corporation practice phased retirement with part-time work; however, 24.3% were still satisfied with the statement that their Corporation practices phased retirement while 28.3% took a neutral stand as shown in table 4.19.

The results agree with the findings by Walter, Dorothy, Lisa and Mimi (2001) that mentoring can leverage the knowledge of an organization, particularly its tacit knowledge, to build core capabilities. It also corroborates the finding by Swap, Leonard, Shields and Abrams (2001) that mentoring has an important role in knowledge sharing

activities. These findings indicate that the mentoring practices of the corporations portray the characteristics relevant to the role of mentorship in intra-firm transfer of tacit knowledge on an overage scale. Nonetheless, this is a positive gauge indicative of the role of mentoring in sharing of tacit knowledge within these corporations. Mentoring is thus regarded as an off-line help from one person to another in making significant transitions in knowledge, work or thinking.

**Table 4.19 Mentoring Practices**

| | Percentage Response | | | |
|---|---|---|---|---|
| **Respondents Opinion** | **Dissatisfied** | **Neutral** | **Satisfied** | **Total** |
| There is frequent job rotation exercise | 47.7 | 7.9 | 44.7 | **100** |
| The corporation is very keen in career and succession planning | 39.5 | 7.9 | 52.6 | **100** |
| The corporation facilitates a matching mentor-protégé relationship among workers | 23.7 | 10.5 | 65.8 | **100** |
| The corporation practice phased retirement with part-time work | 47.4 | 24.3 | 28.3 | **100** |

### 4.3.4.2 Role Modeling Practices

This question sought to investigate whether role modeling practices influences the sharing of tacit knowledge. An overwhelming majority (84.3%) of the respondents believed that their Corporation strongly promotes individuals capability for realistic assessment of current realities in organization while the rest (15.7%) were dissatisfied with this view. Most (60.5%) of the respondents were also satisfied with the view that their corporation also promotes practices that uncover tacit and hidden assumptions as

opposed to 15.8% who do not agree with this statement. However, a sizeable (23.7%) did not express any view.

In addition, the respondent's opinions on the existence of an atmosphere where people expose their own thoughts and make it open to influence others were sought; most (55.3%) of the respondents agreed to this view while the rest (44.7%) disagreed. Finally, a substantial (73.7%) of the respondents believe their corporation foster openness, distribute responsibility far more widely to help workers unearth internal pictures of their mind, a fact refuted by a paltry (10.5%) while 15.8% assumed a neutral position about this statement. These findings are summarized in table 4.20. The findings corroborate well with the literature by (Chao, Walz, and Gardner, 1992) that role modeling is a psychological function of mentoring that influence the protégé's self-image.

Unlike mentoring, the role modeling practices have been supported more satisfactorily in its relevance in promoting sharing of tacit knowledge. This could perhaps be due to the fact that role modeling is a decision which lies with individual's conscience which is stronger than mentoring which may require consent from both parties.

**Table 4.20 Role Modeling Practices**

| | Percentage Response | | | |
|---|---|---|---|---|
| Respondents Opinion | Dissatisfied | Neutral | Satisfied | Total |
| The corporation strongly promotes individuals capability for realistic assessment of current reality | 15.7 | 0 | 84.3 | **100** |
| The corporation promotes practices that uncover tacit and hidden assumptions | 15.8 | 23.7 | 60.5 | **100** |
| There is an atmosphere where people expose their own thoughts and make it open to the influence of others | 44.7 | 0 | 55.3 | **100** |
| Corporation foster openness, distribute responsibility far more widely to help workers unearth internal pictures of their minds | 10.5 | 15.8 | 73.7 | **100** |

## 4.4 Requisites for the Factorability of the Data

### 4.4.1 Distribution of Variables

An initial analysis of the data was done to evaluate the normal distribution of the variables. Table 4.21 illustrates the summary of variables distribution based on means, standard deviations, skewness, correlation and internal reliability statistics. To test the normality of each item, skewness values for each variable was analyzed. All values were below 1.0 meaning that the variables were normally distributed. This is in agreement with the literatures by Miles and Shelvin (2001) which states that Skewness statistics less than 1.0 suggests that the variables were relatively normally distributed. According to Bollen (1989), Gold, Malhotra, & Segars (2001), establishing univariate normality among a collection of variables can help gain multivariate normality. Therefore, based on the strong underlying assumption of multivariate normality associated with

confirmatory factor modeling, which is one of the critical techniques for testing models adopted by this study, the sample statistics therefore bear significantly on the interpretability of the findings.

**Table 4.21 Summary of Distribution of Variables**

| Variables | Mean | (SD) | Skew | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| **1. Mentoring and Role Modeling** | 3.36 | (1.10) | .95 | (.82) | | | | |
| **2. Training and Development** | 1.55 | (.56) | -.45 | .12 | (.81) | | | |
| **3. KM Infrastructure** | 3.21 | (.88) | .34 | .21* | .37** | (.70) | | |
| **4. Performance. & Reward** | 2.59 | (.69) | .06 | .08 | .22* | .20* | (.84) | |
| **5. Social Environment** | 3.72 | (.96) | -.33 | .24** | 36** | .40* | .43** | (.68) |

*N=128; \*\*p<.01; \*p<.05; Internal reliabilities are shown along the diagonal in parentheses.*

## 4.4.2 Reliability and Validity Analyses

Prior to the analysis through structural equation modeling (SEM) for the purpose of testing the model, a series of tests were run on the variables to improve the reliability of the various constructs. Using the SPSS program, the data on each of the eight dimensions were separately analyzed based on the values of coefficient of reliability and item total correlation as shown in table 4.22. For the purpose of analysis, each variable was abbreviated as follows: performance (Perf.); reward (Rew.); training (Tran.); development (Dev.); mentoring (Ment.) and role modeling (RMod.). The items under

each variable were numbered accordingly. Therefore, since the coefficient alpha of individual scales indicated that the reliability estimate of items Rew.1, Rew.4, Rew.6, Rew.7, Rew.10, Perf.3, Perf.4, Tran.2, Ment.4 and RMod.4 were marginal, a secondary analysis was conducted by dropping these items.

It was found that the reliability estimates and item-total correlations of the remaining six items under the reward dimension, two under training and three each under mentoring and role modeling respectively were improved after dropping these items (coefficient alpha = .735, range of item-total correlations = .569 to .686). Thus, the researchers decided to delete items Rew.1, Rew.4, Rew.6, Rew.7, Rew.10, Perf.3, Perf.4, Tran.2, Ment.4 and RMod.4 to enhance Cronbach's coefficients. All other item-total correlations were reasonably high, giving support for the validity of respondent ratings. Similarly, all the Cronbach's alphas are well above 0.60 (ranging from 0.704 to 0.811). This is in agreement with Abouserie's (1992) minimum criterion for internal consistency set at Cronbach's alpha cut-off value of 0.6.

**Table 4.22 Summary of Reliability Estimates and Item-Total Correlations**

| Variable dimension/Items | Item Means | Std. Dev. | Coefficient Alpha Reliability Estimates of Scales (Standardized) | Item - Total Correlations |
|---|---|---|---|---|
| **Perf.** | | | .712 | |
| Perf.1 | 4.11 | 1.16 | | .651** |
| Perf.2 | 4.18 | 1.14 | | .617** |
| Perf.3 | 3.24 | 1.42 | | .713** |
| Perf.4 | 2.24 | 1.21 | | .723** |
| Perf.5 | 4.39 | .82 | | .662** |
| Perf.6 | 4.34 | .85 | | .541** |
| Perf.7 | 4.26 | .95 | | .604** |
| **Rew.** | | | .735 | |
| Rew.2 | 1.24 | .43 | | .686** |
| Rew.3 | 1.42 | .50 | | .569** |
| Rew.5 | 1.34 | .48 | | .559** |
| Rew.8 | 1.55 | .50 | | .684** |
| Rew.9 | 1.47 | .50 | | .663** |
| Rew.11 | 1.16 | .37 | | |
| **Tran.** | | | .801 | |
| Tran.1 | 1.21 | .41 | | .755** |
| Tran.3 | 1.87 | .86 | | .652** |
| **Dev.** | | | .792 | |
| Dev.1 | 1.97 | .98 | | .824** |
| Dev.2 | 1.17 | .38 | | .831** |
| **Ment.** | | | .811 | |
| Ment.1 | 2.95 | 1.47 | | .640* |
| Ment.2 | 3.16 | 1.41 | | .755** |
| Ment.3 | 3.47 | 1.22 | | .773** |
| Ment.4 | 2.74 | 1.22 | | .652** |
| **RMod.** | | | .767 | |
| RMod.1 | 3.89 | .73 | | .650** |
| RMod.2 | 3.53 | .95 | | .619** |
| RMod.3 | 3.37 | .97 | | .609** |
| RMod.4 | 3.79 | .84 | | .682** |
| **KMInfra.** | | | .704 | |
| KMInfra.1 | 1.08 | .27 | | .765** |
| KMInfra.2 | 4.00 | .81 | | .649** |
| KMInfra.3 | 3.21 | 1.38 | | .642** |
| KMInfra.4 | 3.74 | 1.16 | | .679** |
| KMInfra.5 | 4.03 | .79 | | .707** |
| **SocEnv.** | | | .683 | |
| SocEnv.1 | 4.05 | .92 | | .681** |
| SocEnv.2 | 4.42 | .59 | | .647** |
| SocEnv.3 | 2.37 | 1.10 | | .612** |
| SocEnv.4 | 4.05 | 1.10 | | .610** |
| SocEnv.5 | 3.71 | 1.11 | | .599** |

*Note, ** item-total correlation is significant at the p<0.05 level (2-tailed).*

**Key**
**Perf:**  Performance          **Dev:**  Development          **KMInfra:** KM Infrastructure
**Rew:**  Reward               **Ment:** Mentoring            **SocEnv:**  Social Environment
**Tran:** Training             **RMod:** Role modeling

## 4.4.3 Test for Sampling Adequacy

There is inevitably a concern when using arbitrarily chosen variables for analysis where the correlation matrices that result may not be appropriate for factor analysis. A study by Dzuiban and Shirkey (1974) has shown, for instance, that random variates may give rise to seemingly acceptable pattern and structure matrices. Therefore, besides ensuring the reliability of the data, it must be ascertained, via Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Hair *et al.,* 2005), that the data matrix has sufficient correlations to justify the application of the Factorial Analysis.

While KMO compared the magnitude of coefficients of the correlations observed with the magnitude of coefficients of partial correlation, the Bartlett test according to Dzuiban and Shirkey (1974) forms a bottom line test for very large samples and is less reliable for small samples, hence only KMO was considered for this test. The test generated a KMO value of .734 (table 4.23). Since this test is a pretest to determine the factorability of the data, the finding thus implies that the data is adequate for factorial analysis. According to Kaiser, (1974), the value of .70 is regarded as 'middling' which is statistically significant.

**Table 4.23 Test of Sampling Adequacy**

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | .734 |
|---|---|
| Df | 36 |
| Sig. | .000 |

## 4.5 Estimation and Model Fit Analysis

### 4.5.1 Confirmatory Factor Analysis for Independent Variables (1st. Order Model)

This test sought to investigate the fitness of the data collected with a section of the proposed model, which are the six dimensions of the independent variables. A first-order confirmatory factor analysis was carried out with 21 items and the threshold employed for judging the significance of factor loadings was 0.50 (Sharma, 1996). The resultant factor loadings of all measurement items (except for Dev.1 and Dev.2) range from 0.500 to 0.997, indicating acceptable convergent validity. Table 4.24 illustrates the LISREL output of this confirmatory factor model. Consequently, the item Dev.1 and Dev.2 which represent the development dimension of the independent variable training and development was removed completely. The values on other goodness of fit indexes also reached the expected threshold levels signifying a relatively good fit between measurement model and data (RMSEA = 0.059; CFI = 0.97; NFI = 0.96; NNFI = 0.97).

Further supplementary analysis based on initial output on reliability and validity analyses (table 4.22) have already indicated that all item-total correlations as reasonably high (ranging from 0.541 to 0.831), giving support for the validity of respondent ratings.

Additionally, all the coefficients between the items and factors are positive and significant. This corroborates the findings by Anderson & Gerbing (1988) which indicate this as a strong condition of convergent validity. Similarly, all the Cronbach's alphas range from 0.704 to 0.811 satisfying Abouserie's (1992) minimum criterion for internal consistency of Cronbach's alpha 0.6.

Thus, going by the definitions of reliability and validity as measures of "relevance" and "correctness" respectively as given by Mugenda and Mugenda (1999), the measurement items and data for this study does not only have a satisfactory level of accuracy and precision but also a true reflection of the variables contributing to a more clear-cut and meaningful inferences (Cooper and Schindler, 2006). This further show that the theoretical and empirical literatures used as well identified the correct items that yielded the three specific human resource management constructs used as independent variables for this study. Therefore, the independent variables proposed in this study are significant in establishing the role of HRM in sharing of tacit knowledge within the firm while verifying the literature reviewed to build the *priori* model as relevant and sufficient.

**Table 4.24 Model for Independent Variable**

| Independent Variable | Item | Factor Loadings |
|---|---|---|
| **Performance Management and Reward** | | |
| *Performance* | Perf.1 | .812 |
| | Perf.2 | .620 |
| | Perf.5 | .683 |
| | Perf.6 | .810 |
| | Perf.7 | .641 |
| *Reward* | Rew.2 | .528 |
| | Rew.3 | .997 |
| | Rew.5 | .621 |
| | Rew.8 | .500 |
| | Rew.9 | .793 |
| | Rew.11 | .506 |
| **Employee Training and Development** | | |
| *Training* | Tran.1 | .997 |
| | Tran.3 | .670 |
| *Development* | Dev.1 | .199 |
| | Dev.2 | .201 |
| **Mentoring and Role Modeling Practices** | | |
| *Mentoring* | Ment.1 | .773 |
| | Ment.2 | .867 |
| | Ment.3 | .510 |
| *Role Modeling* | RMod.1 | .710 |
| | RMod.2 | .860 |
| | RMod.3 | .580 |

*Goodness of Fit Indices*
*NFI= 0.96,     NNFI= 0.97,    CFI= 0.97,    RMSEA= 0.059*


**Key**

| | | | | | |
|---|---|---|---|---|---|
| ***Perf:*** | Performance | ***Dev:*** | Development | ***KMInfra:*** | KM Infrastructure |
| ***Rew:*** | Reward | ***Ment:*** | Mentoring | ***SocEnv:*** | Social Environment |
| ***Tran:*** | Training | ***RMod:*** | Rolemodeling | | |

## 4.5.2 Confirmatory Factor Analysis (2nd. Order Model)

A second order confirmatory factor analysis was run to establish whether each dimension of the HRM practice considered assort into one cluster that together define each independent variable. The variable training and development was not part of this test since the development dimension has already failed to reach the desired factor loading and henceforth dropped leaving the training component only.

As shown in table 4.25, the factor loadings for the dimensions tested were 0.712 and 0.656 for performance and reward, 0.716 and 0.673 for mentoring and role modeling respectively. This surpasses the expected threshold value of 0.6 hence highly correlated. This implies that the independent variables (high-order dimension of HRM) arise from the respective dimensions and that these distinct dimensions form a single cluster that describes the independent variable. Moreover, all other test indices also reached an acceptable level (RMSEA = 0.051; CFI = 0.99; NFI = 0.92; NNFI = 0.96) which is a designate of a good fit.

**Table 4.25 Model for Independent Variable (Second Order)**

| Variable | Dimension | Factor Loadings |
|---|---|---|
| Performance & Reward | Perf. | .712 |
| | Rew. | .656 |
| Mentoring & Role Modeling | Ment. | .716 |
| | RMod. | .673 |

*Goodness of Fit Indices*
*NFI= 0.92,    NNFI= 0.96,    CFI= 0.99,    RMSEA= 0.051*

### 4.5.3 Confirmatory Factor Analysis (3<sup>rd</sup>. Order Model)

In addition to establishing the integration of various dimensions to describe the proposed independent variable model, a third order CFA was run to find out whether all the proposed independent variables do underlie a single construct "human resource management" This is important since HRM is a socially complex process and is regarded as a set of distinct but interrelated practices, which indeed occur simultaneously but still in a certain order (Miner and Crane, 1995). Table 4.26 shows the result of the estimation and the fit indices of the model.

All the factor loading are well above 0.6 threshold value suggesting the variable training and development (training dimension), performance and reward, and mentoring and role modeling are set of distinct but interrelated practices underlying a single construct "human resource management" This is further supported by the goodness of fit indices (RMSEA = 0.054; CFI = 0.10; NFI = 0.94; NNFI = 0.97) that the proposed third order model fits the data satisfactorily. Therefore, the independent variables proposed in this study are significant in establishing the role of HRM in sharing of tacit knowledge within the firm while verifying the literatures reviewed to build the *priori* model as relevant and sufficient.

**Table 4.26 Model for Independent Variable (Third Order)**

| Main Construct | Independent Variable | Dimension Item | | Factor Loading |
|---|---|---|---|---|
| Human Resource Management | Performance & Reward | *Perf.* | Perf.1 Perf.2 Perf.5 Perf.6 Perf.7 | .713 |
| | | *Rew.* | Rew.2 Rew.3 Rew.5 Rew.8 Rew.9 Rew.11 | .657 |
| | Training & Development | *Tran.* | Tran.1 Tran.3 | .833 |
| | Mentoring & Role Mod. | *Ment.* | Ment.1 Ment.2 Ment.3 | .717 |
| | | *RMod.* | RMod. RMod.2 RMod.3 | .711 |

*Goodness of Fit Indices*
*NFI= 0.94,      NNFI= 0.97,     CFI= 0.10,      RMSEA= 0.054*

## 4.6 Test of Moderating Variable - Knowledge Management Infrastructure

This test sought to determine the moderating effect of knowledge management (KM) infrastructure on relationship between independent variables and social environment. Using SPSS, social environment was assigned as the dependent variable in three models of the multiple regression analysis. Since the results of higher order CFA has already positively converged independent variables into related pairs and further all the pairs into one construct HRM (table 4.25/6), one independent variable dimensions comprising

performance, training and mentoring were first specified as three independent variables in Model 1. That is, these independent variable dimensions entered as the first block into the regression equation. Against model 1, the moderator (KM infrastructure) was added as the forth independent variable in model 2. In this step, KM Infrastructure entered as the second block in the regression equation. The cross-product of performance management (the only independent variable dimension considered) and KM infrastructure was then added as the fifth independent variable in Model 3. This means that there were three blocks in the regression equation which translated into the following three multiple regression analysis (MRA) models for moderating effect of KM infrastructure presented as equation 2.

$$\text{1. SocEnv} = \beta_0 + \beta_1\text{Perf} + \beta_2\text{Tran} + \beta_3\text{Ment}$$

$$\text{2. SocEnv} = \beta_0 + \beta_1\text{Perf} + \beta_2\text{Tran} + \beta_3\text{Ment} + \beta_4\text{KMInfra}$$

$$\text{3. SocEnv} = \beta_0 + \beta_1\text{Perf} + \beta_2\text{Tran} + \beta_3\text{Ment} + \beta_4\text{KMInfra} \times \text{Perf}$$

.…...Equation 2

**KEY**

| | |
|---|---|
| **SocEnv.** | Social Environment |
| **Perf.** | Performance management |
| **Rew.** | Employee Reward |
| **Tran.** | Employee Training |
| **Dev.** | Employee Development |
| **Ment.** | Mentoring |
| **Rmod.** | Role Modeling |
| **KMInfra.** | Knowledge Management Infrastructure |

The results for the Multiple Regression Analysis are illustrated in the table 4.27. The results show that the change in R square value between Model 2 and Model 3 is not

significant. This implied that the moderating effect of KM infrastructure is insignificant. The relationship between Performance management and Social environment was not any stronger under KM infrastructure. Thus, research question 1 is adequately answered.

This study also found that the change in R squared from Model 1 to Model 2 was not any significant; hence KM infrastructure was thus regarded as a poor moderator. Meanwhile, the factor load (0.70) and the fitness indices (RMSEA = 0.037; CFI = 0.99; NFI = 0.99; NNFI = 0.93) all reached the anticipated levels suggesting a good fit of the model with the data. The result therefore was in line with the earlier finding presented by the descriptive analyses.

As such, the disagreement of the results with the earlier findings by (Becerra- Fernandez *et al*., 2004, Gold *et al*., 2001) that assumes knowledge management infrastructure as a precondition, on which Knowledge management resides remains. As explained by Choi (2000), this could perhaps be due to multiple definitions, meanings and interpretations of knowledge management by different people. This means that the role of knowledge management infrastructure as a moderator on the effect of the performance and reward, training and development and mentoring and role modeling on the social environment in facilitating sharing of tacit knowledge is not supported.

**Table 4.27 MRA for Moderating Effect of Social Environment on Dependant Variable**

| Models | Standardized Coefficients | $R^2$ |
|---|:---:|:---:|
| **SocEnv = $\beta_0$+ $\beta_1$Perf +$\beta_2$Tran + $\beta_3$Ment** | | **0.492** |
| Perf | -0.17 | |
| Tran | 0.703*** | |
| Ment | -0.011 | |
| **SocEnv = $\beta_0$+ $\beta_1$Perf +$\beta_2$Tran + $\beta_3$Ment + $\beta_4$KMInfra** | | **0.491** |
| Perf | -0.015 | |
| Tran | 0.0701*** | |
| Ment | -0.010 | |
| KMInfra | 0.041 | |
| **SocEnv = $\beta_0$+ $\beta_1$Perf +$\beta_2$Tran + $\beta_3$Ment + $\beta_4$KMInfra $\times$ Perf** | | **0.492** |
| Perf | 0.018 | |
| Tran | 0.703*** | |
| Ment | -0.016 | |
| KMInfra | 0.011 | |
| KMInfra $\times$ Perf | 0.33** | |

*Goodness of Fit Indices: NFI= 0.99,     NNFI= 0.93,     CFI= 0.99,     RMSEA= 0.037*
*Note 1.*p<0.05; **p<0.01; ***p<0.001.*

## 4.7 Test of Mediating Variable (Social Environment)

This test sought to establish the effect of the social environment as a mediator between the independent variables (performance and reward; training and development and mentoring and role modeling) and the dependent variable (sharing of tacit knowledge). This mediating effect testing was performed using a method adopted in a similar study by Ajzen and Fishbein (1980), which examined the product of coefficients. According to MacKinnon, Lockwood, Hoffman, West and Sheets (2002), one can use this method to compute a coefficient for the "indirect effect" of independent variable abbreviated as (X) on dependent variable (Y) through mediator (M) by multiplying the coefficient for path

XM by the coefficient for path MY. The coefficient for path XM is the zero-order $r$ between X and M. The coefficient for path MY, is the Beta weight for M from the multiple regression predicting Y from X and M. This is illustrated in the following figure 4.1.
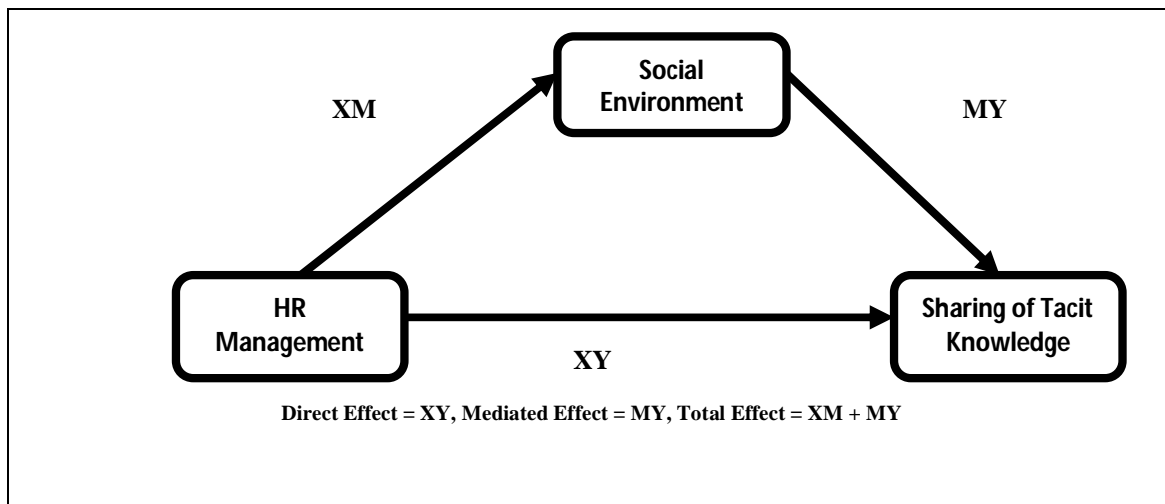


**Figure 4.1 Mediation Model for Social Environment**

The test statistic (*TS*) is computed by dividing the indirect effect coefficient by its standard error presented as equation 3.

$$TS = \frac{\alpha\beta}{\sigma_{\alpha\beta}}$$

**…………..…………………**.**Equation 3**

This test statistic is usually evaluated by comparing it to the standard normal distribution. The most commonly employed standard error is Sobel's (1982) first-order approximation, which is computed using the formulae in equation 4.

$$\sqrt{\alpha^2\sigma_\beta^2 + \beta^2\sigma_\alpha^2}$$

.........................Equation 4

where $\alpha$ is the zero-order correlation or unstandardized regression coefficient for predicting M from X, $\sigma_\alpha^2$ is the standard error for that coefficient, $\beta$ is the standardized or unstandardized partial regression coefficient for predicting Y from M controlling for X, and $\sigma_\beta^2$ is the standard error for that coefficient. Except the development dimension which failed to reach threshold factor loading, all the other independent variable's product of coefficient were examined through regression analysis.

Table 4.28 shows a summary of the coefficients for predicting the mediation level for each variable dimension. The indirect effect of independent variables on the dependent variable (sharing of tacit knowledge) is as follows; Performance (.767) × (.932) = .715, and its direct effect is .337, yielding a total effect coefficient of 1.052 as shown in the figure 4.1. Accordingly, (0.715 ÷ 1.052) % = 67.97% of the effect of performance on sharing of tacit knowledge is mediated through social environment and (.337 ÷ 1.052) % = 32.03% is direct. Similarly, the mediated effect of reward on sharing of tacit knowledge is 61.01%, while 38.99% of the effect is direct. Training exerts a paltry (29.01%) influence on the sharing of tacit knowledge directly while most (70.99%) of the influence is mediated through the social environment. Mentoring influences the sharing of tacit knowledge through the mediator by 65.84% while 34.16% is directly

influenced. Finally, the effect of role modeling dimension is influenced 42.59% directly and 57.41% indirectly through the mediator social environment.

This implies that social environment accounts for an average 64.64% of the mediation. The average mediation is also supported by the higher order confirmatory factor analysis that supports the convergence all the independent variable dimensions into one construct, human resource management. All other indices; reliability (.68), Cronbach's alpha (.683) and fitness indices (RMSEA = 0.06; CFI = 0.95; NFI = 0.96; NNFI = 0.92) supports this finding. The direct may include the effects of mediators that may have not been included in the model.

This findings show that social environment mediates the action of HRM in sharing of tacit knowledge within the firm. Thus, the variables act as the enabler of the social environment which is presumed to facilitate the mechanisms of tacit knowledge sharing. The findings also indicate that social environment mediates the effect of training more than any other variable. This translates that training plays a more active role in sharing of tacit knowledge. This is due to the fact that training permits active interaction among trainees and with other stakeholders hence promoting interaction which is a precursor of socialization process. This is in line with a report by Lockwood & Tai (2006) that formal orientations and the choice of training method can have an effect on socialization outcomes for employees.

Generally, the results corroborate the findings of the studies by (Käser and Miles 2002; Nonaka, 1994; Osterloh and Frey, 2000), that tacit knowledge sharing is subject to social

interaction. Indeed, most people often rely very heavily on their network of relationships to find information and solve problems which reflect one of the most consistent thought that who you know often has a great deal to do with what you come to know.

**Table 4.28 Summary of the Mediation Effect of Social Environment**

| Variable | *XM* | *MY* | *XY* | *(XM × MY)* | *[XY+ (XM × MY])* | *%DE* | *%IE* |
|---|---|---|---|---|---|---|---|
| **Perf.** | .767 | .932 | .337 | .715 | 1.052 | 32.03 | 67.97 |
| **Rew.** | .843 | .831 | .448 | .701 | 1.149 | 38.99 | 61.01 |
| **Tran.** | .972 | .941 | .374 | .915 | 1.289 | 29.01 | 70.99 |
| **Ment**. | .801 | .732 | .304 | .586 | .890 | 34.16 | 65.84 |
| **RMod.** | .831 | .900 | .555 | .748 | 1.303 | 42.59 | 57.41 |

*Goodness of Fit Indices*
*RMSEA = 0.06; CFI = 0.95; NFI = 0.96; NNFI = 0.92*

**Key**
*X*            Independent Variable
*Y*            Dependent Variable
*M*           Mediating Variable
*XM*         Zero order r between X and M
*MY*         Beta weight of M from multiple regressions predicting Y from X and M
*XY*          Direct effect from independent to dependent variable
*(XM × MY)*    Indirect Effect (mediated effect)
*[XY+ (XM × MY)]*    Total Effect
*% DE*       Percentage Direct Effect
*% IE*        Percentage Indirect Effect (mediated effect)

**4.8 Test of Dependent Variable (Sharing of Tacit Knowledge)**

The actual and complete mechanism of transfer of tacit knowledge is a complex phenomenon which is not clearly understood. The transfer of tacit knowledge is a function of the extent to which the organizational social environment is enabled. An important landmark finding by Nonaka (1994) revealed that tacit knowledge can be shared through sharing experiences during social interaction without substantial knowledge loss and hence social environment may be the most important factor to facilitate tacit knowledge sharing among employees within an organization. This formed the direction for future research on sharing of tacit knowledge which further verified the critical position of social environment in the mechanism of tacit knowledge transfer. For example Osterloh and Frey (2000) concluded that tacit knowledge sharing can only be facilitated by intrinsic motivation such as sociability and friendship. This echo further the findings by Choi and Lee (2003) which suggest that an individual can acquire tacit knowledge and personal experience only through tacit-oriented manner that emphasizes social interaction. This also concurs with the most recent study by Joia and Lemos (2010) that identified the need for greater level of openness among employees to each other positively relating to a stronger willingness to transfer tacit knowledge.

The dependent variable of this study (sharing of tacit knowledge) was therefore built on the premise of moderating function of social environment. It was considered as a proportional function of the level of social environment enabled through the role played by human resource management. Accordingly, the factor loading (0.683) and the fitness

indices (RMSEA = 0.039; CFI = 0.10; NFI = 0.97; NNFI = 0.91) all reached the desired

levels indicating a good fit.

**CHAPTER FIVE**

**5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

**5.1 Introduction**

This chapter presents the summary of the major findings of the study, relevant discussions, conclusions and the necessary recommendations. The study sought to examine the role of human resource management in intra-firm operationalization of tacit knowledge in state corporations in Kenya. It focused on the sharing of tacit knowledge within the organization as the distinctive dimension of the operationalization of tacit knowledge. The following are the specific breakdown of the summaries of the major findings based on the output of the descriptive and inferential statistical analyses guided to answer the five research questions of the study.

**5.2 Summary of the Major Findings**

**5.2.1 Do the Employee Training and Development Contribute to Sharing of Tacit Knowledge in State Corporation?**

The findings indicated that training was a critical factor that facilitated sharing of tacit knowledge based on the estimate and fit analyses. The dimension training had a relatively higher factor loading and the estimate of scale while all the fit indices reached the desired levels. This result corroborates the findings reported in a study by Collins and Smith (2006) that highlights an important role of relational-oriented training practices in providing a mechanisms for building social connections among employees as well as for helping employees from different functions internalize common

Organizational values and goals. This implies that the role of training and in particular, informal training facilitates tacit knowledge transference by encouraging experienced employees to share their tacit knowledge with the newer employees.

On the other hand, employee development was found not to be the key factor that contributed to the sharing of tacit knowledge within the state Corporations. Both the estimation and fit indices failed to reach the expected threshold. The results disagreed with findings by Leonard and Sensiper (1998), Cohen and Backer (1999), Acton and Golden (2003) and Disterer (2003) which emphasized the importance of employee development in sharing of tacit knowledge. This means that the perceived role of training and retraining of experts as an instrument that facilitates sharing of tacit knowledge was not supported.

However, it is important to note that none of the literature separated training distinctly from development as the case was in this study. Nevertheless, this finding was still expected owing to the history of state Corporations in Kenya marred by incidences of politicization and poor corporate governance, weak supervisory mechanism, poor management and office abuse as cited by Petiffor (2001). This is likely to greatly impede any momentous employee development efforts that may warrant its perfect role in sharing of tacit knowledge within the Corporations.

### 5.2.2. Do the Employee Performance and Reward Strategies of the Firms Contribute to Sharing of Tacit Knowledge in State Corporations?

The study found that performance management was a relevant human resource management factor that contributed to the sharing of tacit knowledge in State Corporations. All the indices have attained the expected threshold factor loading with the standardized estimate of scale. The model also fitted the data well as indicated by the goodness-of-fit indices. The result agreed with the findings by Joia (2006) which described performance appraisal as systems that take knowledge sharing into consideration.

Therefore, since performance management identifies who or what delivers the critical performance with respect to the business strategy and objectives, and ensures that performance is successfully carried out; performance management systems supports tacit knowledge sharing by promoting consensus between different functions arising from convergent objectives set out for employees in the performance agreements integrated with that of an organization. In addition, performance management activities, particularly those that focus on praise and recognition, extensive communication or goals that are motivating stimulate the employee's tacit knowledge sharing behaviours. This is because employees strive to be easily recognized. Thus performance helps in strategically converting the depository of tacit knowledge for the Corporation.

The study also found out that the reward strategies of the firm contributes to the sharing of tacit knowledge in State Corporations. Similarly, reward dimension fulfilled all the

required measurements and likewise the fitness indices all reached the desired stature. This finding corroborate the literature by Leonard and Sensiper (1998) who noted that the role of organizational reward is to reinforce a positive behaviour and in particular discourage penalization of employees who make work-related mistakes which is the basis for the generation and transfer of tacit knowledge.

The results also agrees with the findings by Hedlund (1994); Nonaka (1991) and Nonaka (1994) who recognized the importance of inter-personal trust in teams and organizations for creating an atmosphere in which people shared knowledge. Further, the results of this study were consistent with the findings by Greenberg (1990) that fair rewarding conveys a signal to employees that the organization values them and thus may prompt them to respond with organizational citizenship behaviors that could include sharing tacit knowledge with co-workers so as to help them.

This means that reward contingent on knowledge sharing are likely to be appropriate in several ways. For example, since employee sharing of tacit knowledge in informal interactions is based on the premise of social exchange, the sense that the perceived fairness of reward systems will assist in the development of trust between an individual and the organization will facilitate in the sharing of tacit knowledge within the firm. However, tacit knowledge sharing was also influenced by incentives based on group performance. Team-based rewards foster cooperation among team members and also the individuals involved are likely to consider their knowledge sharing behaviors as instrumental in achieving the team-based rewards.

### 5.2.3 Do Mentoring and Role Modeling Practices Enhance Operationalization of Tacit Knowledge in State Corporations?

The study found that mentoring and role modeling enhances the operationalization of tacit knowledge in state corporations. The measurement model for the variable mentoring and role modeling also reached the desired factor loading and fitness indices. Both indicated a satisfactory mark that translates the significance of mentoring in sharing of tacit knowledge in an organization. The result agreed with the findings by Leornard and Sensiper (1998) and Nonaka (1994) that novices can acquire the tacit knowledge and skills of experts without language, by methods of apprenticing, observation and mentoring. The mentors thus serve as informal teachers teaching norms of behavior and convey knowledge about the values of an organization by displaying themselves to the protégé as an embodied symbol which is a common rubric associated with tacit knowledge.

Likewise, role modeling was extracted satisfactorily and the corresponding fitness indices were all significant. These results corroborated the findings by Chao, Walz, and Gardner (1992) who suggested the two functions of a mentor as career-related and psychological (role modeling). This denotes the imperatives of role modeling in sharing of tacit knowledge within an organization which is regarded as a psychological function of a mentor. The role modeling therefore, facilitated sharing of tacit knowledge by way acceptance, confirmation, counseling, and friendship and socialization activities that influenced the protégé's self-image.

### 5.2.4 Does the Knowledge Management Infrastructure Moderate Sharing of Tacit Knowledge in State Corporations?

The study found out that knowledge management infrastructure does not facilitate sharing of tacit knowledge in State Corporations. The results of the multiple regression equation indicated that the R square value between model 2 and 3 and between model 1 and 2 were found to be equally insignificant. This shows that the moderating action of knowledge management infrastructure was not significant. This was also well supported by other parameters such as factor loading and the fitness indices as well.  Thus, the result disagrees with the findings by Becerra-Fernandez, Gonzales and Sabherwa (2004); Gold, Malhotra and Segars (2001) which served as the basis on which the premise of knowledge management infrastructure as a moderator for knowledge sharing was initially built.

This literature assumes knowledge management infrastructure as a preconditions, on which Knowledge management resides. This further corroborates the literatures by Acton and Golden (2003); Cohen and Backer (1999) that a well-engineered training initiative is a HR-related parameter that can act as a knowledge management infrastructure within an organization. This has already been ascertained since training affects tacit knowledge sharing, but in the model of this study as an independent variable.

Therefore, this means that knowledge management infrastructure does not moderate the effect of independent variables on the social environment which is expected to mediate

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the sharing of tacit knowledge. However, knowledge management being a general term incorporating diverse knowledge resource, the sharing of tacit knowledge as a specific aspect within the broader perspective of knowledge management may be insignificant. Thus, knowledge management infrastructure does not have any clear role of moderating human resource management practices in an enabling social environment that mediate the knowledge sharing.

**5.2.5 The Role of Social Environment in Operationalization of Tacit Knowledge**

The findings of this study supported the proposed mediating role of the social environment in operationalization of tacit knowledge in State Corporations. The result of mediating effect testing by way of examining products of coefficients revealed that social environment accounted for an overwhelming percentage of the relationship between independent variable; performance and reward and dependent variable sharing of tacit knowledge. Other indices; factor loading and fit indices all supported the model.

Additionally, the study also found out that training was the highest enabler of the social environment. This means that training was the most crucial factor that facilitates the sharing of tacit knowledge. This supports the findings by Huysman and Wulf (2006) that emphasized the importance of social environment as a valuable social-capital resource which facilitate the flow of tacit knowledge by; offering virtual spaces for interaction, providing the context and history of interaction, and offering a motivational element to encourage people to share tacit knowledge with each other.

The result also supported the findings by Collins and Smith (2006) which suggested social networks as a possible mediator within the relationship between human resource practices and knowledge exchange. Based on this suggestion and acknowledging that interpersonal relations are the basic infrastructure for transferring tacit knowledge within a firm's social network (Cross, Parker, Prusak, & Borgatti, 2001; Levin & Cross, 2004), an explicit leap forward for this study was that social environment mediate the relationship between experienced HR practices and intra-firm transfer of tacit knowledge. Therefore, social environment was found to exert a mediating effect between the independent variables (performance and reward, training, mentoring and role modeling and the dependent variable (sharing of tacit knowledge).

### 5.2.6 Re-Examination of the *Priori Model*

As shown in figure 5.1 which illustrates the revised *priori* model, one out of five hypothetical casual paths cannot gain full support. In first order confirmatory factor analysis, the path representing the development dimension of model training and development also failed to gain support. However, all other paths were significantly supported. This implied that training, performance and reward, mentoring and role modeling were found to be significant factors for operationalization of tacit knowledge within the firm. The results corroborates the findings of studies by Osterloh and Frey (2000); Choi and Lee (2003); Joia and Lemos (2010) for the supported casual paths and disagrees with the findings by (Becerra- Fernandez et al., 2004, Gold *et al.*, 2001) for the casual path which was not supported respectively.

This implied that the transfer of tacit knowledge was facilitated by enabling the social environment within the Corporation. This means that performance and reward, training, mentoring and role modeling will thus enable the socialization process for it to have an impact on the sharing of tacit knowledge in an organization. Finally, the failure of the result to support the theoretical framework surrounding the moderating effect of knowledge management infrastructure in the model was an indication that knowledge management infrastructure does not play any fundamental role in moderating the effect of HRM on enabling social environment for onward facilitation of sharing of tacit knowledge.
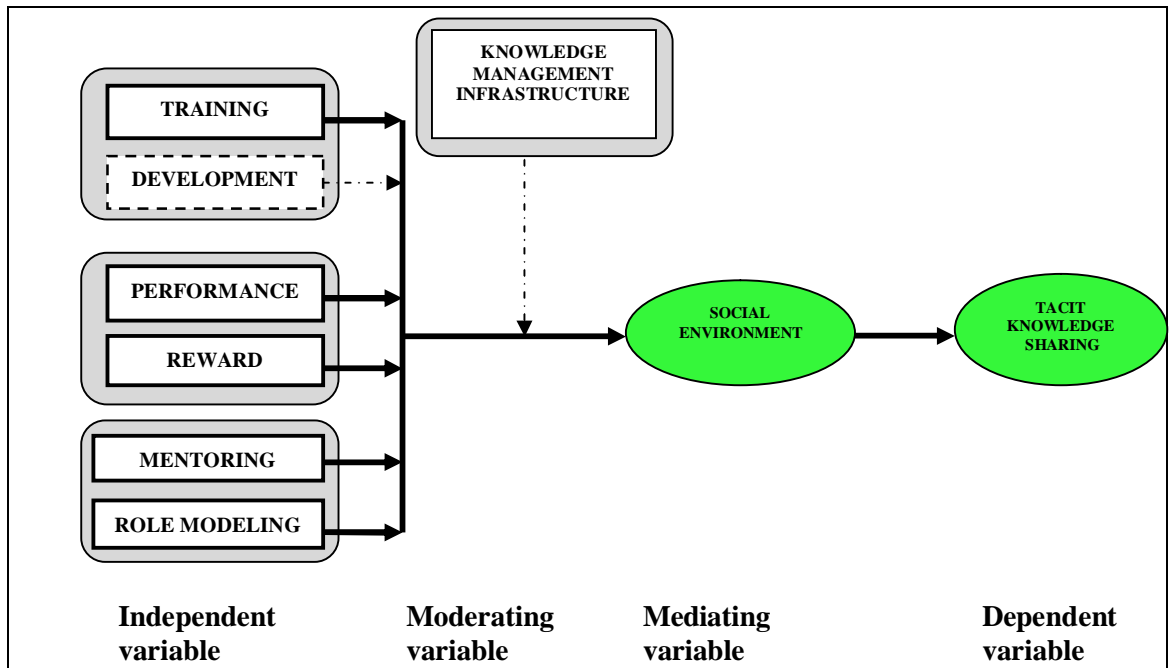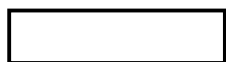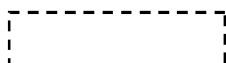
**Figure 5.1 Revised Model of the role of HRM in Tacit Knowledge Sharing**

**KEY**

| | |
|---|---|
| [box solid] | Independent variable dimension supported |
| [box dashed] | Independent variable dimension not supported |
| [solid arrow] | Path supported |
| [dotted arrow] | Path not supported |

**5.3 Conclusion**

Based on the findings, it can be concluded that HRM facilitates the operationalization of tacit knowledge by activating the intra-firm's social environment. The study found out that for the tacit knowledge to be shared, there is need for enabling the organizational

social environment which facilitate the flow of tacit knowledge and in particular, the relational social environment which was a strong mediating mechanisms through which HRM affect employees' motivation and ability to share knowledge.

Specifically, employee performance was viewed to be more collaborative development system and performance appraisal was associated with motivation to freely share expertise; this may be increased respect and reputation as an 'expert' which impacts on the way employees project themselves to others and interact with each other. This affects social environment which is a precursor to sharing of tacit knowledge. Likewise, reward gives flexibility over working times. Many strategies of applying reward were people centered and focus on supporting rather than undermining intrinsic motivation. This further enabled the relational social environment which mediates the sharing of tacit knowledge within an organization.

The study further concluded that training frequency equates the propensity of the organization towards prioritizing the dissemination of tacit knowledge, in particular, informal training promotes relational social environment and encouraged development of communities of practice (CoP) where people exchange ideas. Training creates a culture of learning organization that highly influence social environment which mediates sharing of tacit knowledge. However, the study found out that training had the biggest impact as a driver of enabling organizational social environment that operationalize the tacit knowledge transference.

Nevertheless, it was interesting to note that despite theoretical support suggesting a linkage between employee development and transfer of knowledge, the findings of this study have contradicted those theoretical evidences on the relative contribution of employee development in facilitating intra-firm flows of tacit knowledge.

Likewise inferential evidences based on moderating effects testing, estimation and model fitness demonstrated the moderating role of knowledge management infrastructure between HRM and social environment as insignificant. Moreover, mentoring, and role modeling which was often seen as a psychological functional dimension of mentoring influenced the sharing of tacit knowledge by promoting interaction among the employees. This was due to the fact that the two were characterized as highly informal event of guidance by mentors which promote socialization activities that influence the protégé's self image.

Therefore, in a nutshell, it can be concluded that collectively, the role of HRM was to transmit the core cultural values of an organization, facilitate the creation of organizational capabilities such as the ability to locate and share knowledge rapidly and respond to market changes. The role of HRM in this context was not to force people interact and establish relationships but to create the conditions where those interactions were more likely to emerge. Thus, HRM enables and facilitates the organizational social environments which in turn trigger a cascading chain of mechanisms that elicit the process of transference of tacit knowledge within an organization.

## 5.4 Recommendations

Based on the findings, the following recommendations can be drawn:

1. Since the result showed that HRM played a critical role in sharing of tacit knowledge by enabling the organizational social environment, HR managers of the State Corporations and other knowledge intensive firms need to foster the formation of an intensive social network among employees. This will assist them in promoting intra-firm sharing of tacit knowledge in the Corporation. The State Corporations in Kenya, through their respective mother Ministries thus needs to lobby for the HR procurement policies for the public service commision that emphasizes selection practices which are important in shaping employee perceptions of teamwork and corporation climate.

2. Currently, the human resource development (HRD) philosophy and Policy statements in the public sector gives the Government commitment to continuous upgrading of Public Servants' core competencies, knowledge, skills and attitudes including their ability to assimilate technology to enable them create and set opportunities for social advancement, economic development, growth and individual fulfillment. Thus, it is critical for the government and even the private sector organizations to invest extensively in employee training by emphasizing and promoting the culture of learning organization in an informal setting unlike the current trend where there are massive practice of organizational learning by way of seminars and workshops. This will flourish the atmosphere of sharing

tacit knowledge and thus will help retaining the institutional memory of the State Corporations.

3. In the past, Kenyan Public Service had paid scanty attention to Performance Management. As part of the Reform initiatives undertaken by the Government, Performance Management has taken centre stage as a priority area for the Government in its efforts to respond to the needs of the Public in terms of service delivery. In order to tie this entire process to knowledge management, it is recommended that the employee performance and reward management strategies be linked to the socialization process. This can be achieved by putting in place performance development dialogue process which includes a participative process between an employee and line management. The target setting can be tied to the annual bonus or gain sharing policies to integrate performance and reward and collectively promote social environment that facilitate free sharing of tacit knowledge among the employees.

4. The focus of the mentoring is usually selected by the protégés and the process provides opportunities for reflection and problem solving for both mentor and protégé. Thus, the Kenyan State Corporations and other knowledge intensive firms within the private sector need to focus on professional dialogue designed to aid the mentors in developing specific professional skills to enhance their teaching repertoire. There is need to develop a relational-oriented training and development policies that can serve as mechanisms for building social

connections. Such policies will also help employees from different functions internalize organizational values and goals. This is central to the propositions on the role of mentoring and role modeling, which turns tacit knowledge explicit and engage staff in open and honest debate.

## 5.5 Proposed Area for Further Study

This study posed a theoretical challenge to the knowledge sharing literatures since it employed perspective of social environment to investigate the sharing of tacit knowledge within an organization. While several literature (Osterloh and Frey, 2000; Choi and Lee, 2003; Joia and Lemos, 2010) claimed that tacit knowledge sharing among employees is social driven, extant empirical studies about antecedents of employees' tacit knowledge sharing mechanisms are not abundantly available. Therefore, this study provides a compelling theoretical framework for conducting an empirical study for this line of research. A potentially useful area of future research is to utilize the integrated perspective for establishing empirical thresholds of transference of tacit knowledge within an organization. Since HRM practices are broad, the study also recommends the need for examining the role other HR practices not covered in this study, on the sharing and transference of tacit knowledge both intra and inter-organizationally.

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**APPENDIX I**

**QUESTIONNAIRE**

**INSTRUCTION:** *Please answer all the questions honestly and exhaustively by putting a tick (√) or numbers in the appropriate box that closely matches your view or alternatively writing in the spaces provided where necessary.*

**NB: This information will be used strictly for academic purposes only and will be treated with utmost confidence.**

**PART A: Background Information**

1.  Name………………………………………………………………………….(o ptional)

2.  Gender:        Male        ☐                Female        ☐

3.  Job Title………………………………….

4.  Number of years you have worked for the corporation

    Less than 2 years        ☐
    2 to 10 years            ☐
    11 to 20 years           ☐
    More than 20 years       ☐
5.  Level of Education

    KCSE                     ☐
    Certificate/Diploma      ☐
    Degree                   ☐

    Others (Please specify)………………………………………………………….

**PART B: Corporation's Background**
1.  Name of the corporation……………………………………………………

2.  Year of establishment…………………………………………………………

3.  Category of the Corporation        ☐
    Financial                          ☐

Commercial/manufacturing ☐
Regulatory ☐
Tertiary Education and Training ☐
Public Universities ☐
Training and research ☐
Service Corporation ☐
Regional development Authorities ☐
Others (Please Specify)………………………………………………………………….

4.  What is the total number of employees in this corporation?   .................................

5.  What was the position of the corporation in the previous performance rating of the public institutions?......................................................................................................

**PART C**: **Examination of the Organizational Infrastructure for KM**

1.  Does this corporation manage the knowledge of its workforce?
    Yes ☐          No ☐          I don't know ☐

2.  If yes, please explain how the corporation pays attention to the tacit knowledge of its employees…………………………………………………………………………
    ……………………………………………………………………………………..
    …………………………………………………………………………………………

3.  Using the following scale, please tick your opinion on the following statements which best describe your corporation.

**(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)**

|  | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| **a)** The organizational structure supports conversion of knowledge from one form to the other. | ☐ | ☐ | ☐ | ☐ | ☐ |
| **b)** The government regulations and policies are major impediments to the corporations' autonomy. | ☐ | ☐ | ☐ | ☐ | ☐ |
| **c)** The corporation has adequate capacity to continuously experiment new ideas and approaches about work methods. | ☐ | ☐ | ☐ | ☐ | ☐ |

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**d)** The corporation encourages its workforce to join formal/informal networks made up of people from outside the organization.

☐  ☐  ☐  ☐  ☐

**e)** The corporation is in regular contact with its internal professional experts and technologists.

☐  ☐  ☐  ☐  ☐

**f)** The corporation has no formal mechanisms to guarantee the sharing of best practices among the different departments.

☐  ☐  ☐  ☐  ☐

**g)** The corporation encourages its workforce to regularly interact with each other in order to share knowledge and experiences.

☐  ☐  ☐  ☐  ☐

**h)** There is an atmosphere of trust and a culture that accommodates change.

☐  ☐  ☐  ☐  ☐

**i)** The corporation regards employees as intrinsically creative and capable of thinking and learning if given a chance.

☐  ☐  ☐  ☐  ☐

## PART D: Level of Training and Development Support Environments

1. Do you have a functional Training department in your corporation?

   Yes ☐          No ☐

   If yes, answer question 14-18, if No answer question 19

2. Does the department organize for training sessions for the corporation's employees?
   Yes ☐          No ☐

3. How frequent do you train?

   Continuous ☐   Very often ☐      Often ☐   Rare ☐      Very rare ☐

4. What is the approach of training used by the corporation?

   Formal ☐          Informal ☐

5.  If the approach is informal, do you allow the trainees and technical experts to freely interact and discuss issues?

    Yes     ☐              No      ☐


6.  Does the corporation's training program consider retraining of experts?

    Yes     ☐              No      ☐

7.  How does the corporation assess and meets its training needs
    ………………………………………………………………………………………
    ………………………………………………………………………………………

8.  In what other ways do you think this corporation support retention and transfer of tacit knowledge? (Please explain)
    ………………………………………………………………………………………
    ………………………………………………………………………………………
    ………………………………………………………………………………………
    ………

**PART E: Performance Management and Intra-firm Knowledge Transfer**

1.  Does this corporation manage the performance of its workforce?

    Yes     ☐              No      ☐

2.  If yes, what is/are the main likely objective of this exercise in your corporation?
    o  To comply with the government regulations                              ☐

    o  Appreciation of new management theory and practices                    ☐

    o  Increase capabilities and potential of individuals to perform more effectively   ☐

    o  Develop transferable skill to enhance career and succession prospects in the ☐
       corporation

    o  Conversion    of    tacit    knowledge    to    explicit    (please
       explain)………………………………………………………………………
       ………………………………………………………………………………………
       ………………………………………………………………………………………
       …………………………………………………………………………………..

3. Please indicate the extent to which you agree/disagree with the following statement about performance management (PM) practices of this corporation.

| | Strongly disagree | Slightly disagree | No opinion | Slightly agree | Strongly agree |
|---|---|---|---|---|---|
| PM integrates the goals of the individuals with that of the organization | | | | | |
| PM is a continuous and integrated part of the employee-line managers' relationship. | | | | | |
| The main objective of PM should be to motivate individuals | | | | | |
| PM distracts people from more important core activities | | | | | |
| It is essential that PM be accompanied be extensive communication to ensure its aims are fully understood | | | | | |
| The focus of PM should be the transfer and sharing of knowledge. | | | | | |
| PM should strategically convert depository of tacit knowledge for the corporation. | | | | | |

**PART F: HR-based reward strategies and Tacit Knowledge.**

Being part of corporation's Human Resource Management team, please tick the appropriate response for each of the statements depending on which answer you think is most accurate.

| *The employees of this corporation:-* | YES | NO |
|---|---|---|
| 1. Wait for their manager to tell them what to do | | |
| 2. Help each other on their work whenever necessary | | |
| 3. Often volunteer for extra work | | |

| | | |
|---|---|---|
| 4.  Work hardest when a supervisor is watching them closely | | |
| 5.  Come up with lots of ways to improve their work | | |
| 6.  Complain frequently about their work | | |
| 7.  Act like its "us against them' | | |
| 8.  Feel badly if they make mistakes | | |
| 9.  Often ask for new challenges in their work | | |
| 10. Work hardest when they are offered special rewards | | |
| 11. Often encourage each other on work related issues | | |

## PART G: Mentoring and Role Modeling Practices of the Corporation

Overall, how satisfied are you with the following aspect of your corporation? (Please put the appropriate response number in the corresponding box)

**(1=completely dissatisfied, 2= dissatisfied, 3=Neutral, 4=satisfied, 5=completely satisfied)**

**a)** There is frequent job rotation exercise

**b)** The corporation is very keen in career and succession planning

**c)** The corporation facilitates a matching mentor-protégé relationship among workers

**d)** The corporation practice phased retirement with part-time work

**e)** The corporation strongly promotes individuals capability for realistic assessment of current reality

**f)** The corporation promotes practices that uncover tacit and hidden assumptions

**g)** There is an atmosphere where people expose their own thoughts and make it open to the influence of others

**h)** Corporation foster openness, distribute responsibility far more widely to help workers unearth internal pictures of their minds

**Multiple Regression Analysis (Mediation test)**

## Performance

**Coefficients<sup>a</sup>**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 3.390 | 1.519 | | 2.231 | .030 |
| | Perf. | .423 | .046 | .767 | 9.108 | .000 |

a. Dependent Variable: SocEnv.

**Coefficients<sup>a</sup>**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | .075 | 9.056 | | .008 | .993 |
| | Perf. | .807 | .414 | .337 | 1.950 | .056 |
| | SocEnv. | 1.065 | .751 | .932 | 9.418 | .002 |

a. Dependent Variable: STK

## Reward

**Coefficients<sup>a</sup>**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 3.224 | 2.113 | | 3.122 | .049 |
| | Rew. | .413 | .044 | .843 | 8.170 | .050 |

a. Dependent Variable: Rew.

**Coefficients<sup>a</sup>**

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | .061 | 8.001 | | .009 | .904 |
| | Rew. | .914 | .513 | .448 | 2.161 | .167 |
| | SocEnv. | 1.001 | .862 | .831 | 1.536 | .273 |

a. Dependent Variable: STK

## Training

**Coefficients<sup>a</sup>**

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | 3.931 | 1.691 | | 23.121 | .041 |
| | Tran. | .532 | .071 | .972 | 8.030 | .061 |

a. Dependent Variable: SocEnv.

**Coefficients<sup>a</sup>**

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | .186 | 9.022 | | 1.001 | .933 |
| | Tran. | .909 | .331 | .374 | 1.321 | .072 |
| | SocEnv. | 2.056 | .952 | .941 | 1.788 | .223 |

a. Dependent Variable: STK

## Mentoring

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 3.107 | 1.222 | | 2.931 | .140 |
| | Ment. | .411 | .073 | .801 | 8.099 | .500 |

a. Dependent Variable: SocEnv.

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | .093 | 9.136 | | .019 | .801 |
| | Ment. | .877 | .334 | .304 | 1.001 | .094 |
| | SocEnv. | 2.101 | .642 | .732 | 1.730 | .616 |

a. Dependent Variable:  STK

## Rolmodeling

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 3.004 | 1.319 | | 2.003 | .099 |
| | RMod. | .534 | .147 | .831 | 8.441 | .012 |

a. Dependent Variable: SocEnv.

**Coefficients<sup>a</sup>**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .142 | 6.092 | | .930 | .991 |
| | RMod. | .613 | .616 | .555 | 1.777 | .105 |
| | SocEnv. | 1.042 | .731 | .900 | 1.936 | .237 |

a. Dependent Variable: STK

# Appendix III

## Multiple Regression Analysis (Moderation test)

| Models | Standardized Coefficients | $R^2$ |
|---|:---:|:---:|
| **SocEnv = $\beta_0$+ $\beta_1$Perf +$\beta_2$Tran + $\beta_3$Ment** | | **0.492** |
| Perf | -0.17 | |
| Tran | 0.703*** | |
| Ment | -0.011 | |
| **SocEnv = $\beta_0$+ $\beta_1$Perf +$\beta_2$Tran + $\beta_3$Ment + $\beta_4$KMInfra** | | **0.491** |
| Perf | -0.015 | |
| Tran | 0.0701*** | |
| Ment | -0.010 | |
| KMInfra | 0.041 | |
| **SocEnv = $\beta_0$+ $\beta_1$Perf +$\beta_2$Tran + $\beta_3$Ment + $\beta_4$KMInfra × Perf** | | **0.492** |
| Perf | 0.018 | |
| Tran | 0.703*** | |
| Ment | -0.016 | |
| KMInfra | 0.011 | |
| KMInfra × Perf | 0.33** | |

*Note 1.*p<0.05; **p<0.01; ***p<0.001*

**Appendix IV**

**Summary of Model Fit Indices**

| Index | 1st Order | 2nd Order | 3rd order | Mediation | Moderation | Dep. Var. |
|-------|-----------|-----------|-----------|-----------|------------|-----------|
| NFI   | 0.96      | 0.92      | 0.94      | 0.99      | 0.96       | 0.97      |
| NNFI  | 0.97      | 0.96      | 0.97      | 0.93      | 0.92       | 0.91      |
| CFI   | 0.97      | 0.99      | 0.10      | 0.99      | 0.95       | 0.10      |
| RMSEA | 0.059     | 0.051     | 0.054     | 0.037     | 0.060      | 0.039     |

**Appendix V**

**List of State Corporations**

1. Agricultural Development Corporation
2. Agricultural Finance Corporation
3. Agro-Chemical & Food Company Ltd
4. Athi Water Services Board
5. Bomas of Kenya Ltd
6. Brand Kenya Board
7. Capital Markets Authority
8. Catchment Area Advisory Committee
9. Catering Tourism and Training Development Levy Trustees
10. Central Water Services Board
11. Chemilil Sugar Company Limited
12. Coast Development Authority
13. Coast Water Services Board
14. Coffee Board Of Kenya
15. Coffee Research Foundation
16. Commision for Higher Education
17. Communication Commission of Kenya
18. Consolidated Bank of Kenya
19. Cooperative College of Kenya
20. Council for Legal Education
21. Deposit Protection Fund Board
22. East African Portland Cement Co.
23. Egerton University
24. Ewaso Ng'iro South Development Authority
25. Export Processing Zone Authority
26. Export Promotion Council
27. Gilgil Telecommunications industries
28. Higher Education Loans Board
29. Horticultural Crops Development Authority
30. Horticulture Crops Development Authority
31. Industrial and Commercial Development Corporation
32. Industrial Development Bank
33. Investment Promotion Centre
34. Jomo Kenyatta University of Agriculture and Technology

35. KASNEB
36. Kenya Agricultural Research Institute
37. Kenya Airports Authority
38. Kenya Anti-Corruption Commission
39. Kenya Broadcasting Corporation
40. Kenya Bureau of Standards
41. Kenya Bureau of Standards (KEBS)
42. Kenya Civil Aviation Authority
43. Kenya College of Communication & Technology
44. Kenya College of Communications Technology
45. Kenya Dairy Board
46. Kenya Electricity Generating Company
47. Kenya Ferry Services Limited
48. Kenya Forestry Research Institute
49. Kenya Industrial Estates
50. Kenya Industrial Property Institute
51. Kenya Industrial Research & Development Institute
52. Kenya Institute Of Administration
53. Kenya Institute of Public Policy Research and Analysis
54. Kenya Literature Bureau
55. Kenya Marine & Fisheries Research Institute
56. Kenya Maritime Authority
57. Kenya Meat Commission
58. Kenya National Assurance Company
59. Kenya National Examination Council
60. Kenya National Library Service
61. Kenya National Shipping Line
62. Kenya National Trading Corporation Limited
63. Kenya Ordinance Factories Corporation
64. Kenya Pipeline Company Ltd
65. Kenya Plant Health Inspectorate Services
66. Kenya Ports Authority
67. Kenya Post Office Savings Bank
68. Kenya Railways Corporation
69. Kenya Re-insurance Corporation
70. Kenya Revenue Authority
71. Kenya Roads Board
72. Kenya Safari Lodges & Hotels

73. Kenya Seed Company Ltd
74. Kenya Sisal Board
75. Kenya Sugar Board
76. Kenya Sugar Research Foundation
77. Kenya Tourist Board
78. Kenya Tourist Development Corporation
79. Kenya Utalii College
80. Kenya Water Institute
81. Kenya Wildlife Service
82. Kenya Wine Agencies Limited
83. Kenyatta International Conference Centre
84. Kenyatta University
85. Kerio Valley Development Authority
86. Lake Basin Development Authority
87. Lake Victoria South Water Service Board
88. Lake Victoria South Water Service Board
89. Local Authority Provident Fund
90. Maseno university
91. Masinde Muliro University of Science and Technology
92. Moi University
93. National Aids Control Council
94. National Bank of Kenya
95. National Cereals and Produce Board
96. National Council for Law Reporting
97. National Environmental Management Authority
98. National Hospital Insurance Fund
99. National Housing Corporation
100. National Irrigation Board
101. National Museums of Kenya
102. National Oil Corporation of Kenya Ltd
103. National Social Security Fund(NSSF)
104. National Water Conservation and Pipeline Corporation
105. Natonal Co-ordinating Agency for Population and Development
106. New K.C.C
107. NGO's Co-ordination Bureau
108. Numerical Machining Complex
109. Numerical Machining Complex
110. Nyayo Tea Zones Development Corporation

111. Nzoia Sugar Company
112. Pest Control Products Board
113. Postal Corporation of Kenya
114. Prethrum Board of Kenya
115. Retirement Benefits Authority
116. Rift Valley Water Services Board
117. School Equipment Production Unit
118. South Nyanza Sugar Company
119. Sports Stadia Management Board
120. Tana and Athi Rivers Development Authority
121. Tea Board Of Kenya
122. Tea Research Fountation Of Kenya
123. Teachers Service Commission
124. Telkom (k) Ltd
125. University of Nairobi
126. University of Nairobi Enterprises & Services Ltd
127. Water Resources Management Authority
128. Water Services Regulatory Board

**Source:** http://www.isc.go.ke/

# Appendix VI

Jomo Kenyatta University of Agriculture and Technology
## ENTREPRENEURSHIP & PROCUREMENT

Telegrams "Thika"
Telephone: 067 52711
Fax: 067 52364

Office of the Chairperson
P.O. Box 62000
NAIROBI

Date: 30/09/2010

Ref: JKU/SHRD/PhD -THESIS/10

## To Whom It May Concern:

Dear Sir or Madam,

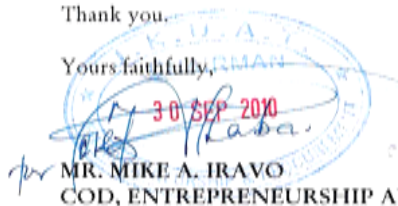### RE: RESEARCH PROJECT FOR WARIO GUYO (H41-0321/2007)

This is to introduce to you Mr Wario who is a student pursuing a PhD in Human Resource Management in this University.

The student is currently undertaking a research thesis entitled: **The Role of HRM in Intrafirm Operationalization of Tacit Knowledge in Kenyan State Corporations**, in partial fulfilment of the requirement for the degree programme.

The purpose of this letter is to request you to give the student the necessary support and assistance to enable him obtain the necessary data for the project. Please note that the information given is purely for academic purposes and will be treated with strict confidence.

Thank you.

Yours faithfully,

30 SEP 2010

**MR. MIKE A. IRAVO**
COD, ENTREPRENEURSHIP AND PROCUREMENT

JKUAT is ISO 9001:2008 Certified

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