



Masters' Thesis in Business Administration

**DETERMINANT FACTORS OF KNOWLEDGE SHARING BETWEEN MULTINATIONAL COMPANIES (MNCs) AND  
LOCAL TANZANIAN FIRMS**

By

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*This Master's Thesis is carried out as a part of the education at the University of Agder and is therefore approved as a part of this education. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.*

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## **Abstract**

Structural reforms of the late 1990's and early 2000's changed the condition of the political economy that had been previously dominated by the state to a more liberalized one characterized by privatization of companies and parastatals in Tanzania. The aftermath saw an increased influx of Foreign Direct Investments (FDIs) perpetuated by large Multinational Companies (MNCs) operating at the global scale. These companies are thought to exert an enormous influence in terms of fostering host country development, especially in its economic endeavors. However, much of the benefits to host countries are dependent on the domestic firms' ability to acquire and use new knowledge shared from MNCs. This knowledge is said to be embedded in both organizational routines/methods, principles and equipment, and within individual employees. We contribute to the literature by providing empirical evidences of inter-firm knowledge sharing between (MNCs) and host country firms operating in developing countries.

This study assessed two factors namely absorptive capacity and institutional distance as key determinants for acquisition of external knowledge by Tanzanian domestic firms. The theoretical review of this study is grounded mainly onto the Resource-Based View (RBV) of the firm, Knowledge-Based View (KBV) of the firm, and Transaction Cost Analysis (TCA) theory. We employed a descriptive (cross-sectional) design by sampling 80 domestic firms, each of which provided us with one respondent. To analyze the gathered data, we used multiple regression technique with SPSS for windows version 18.0.

Our findings indicate that both factors are good predictors of knowledge sharing between domestic firms and their business partners from developed countries. In other words, this study suggests that given the ability to deal with institutional differences and ensuring for the availability of absorptive capacities by the domestic firms, new external knowledge can easily be tapped and assimilated by domestic firms from MNCs. The two factors indicate about 65% possibility of acquiring knowledge should domestic firms be

effective in working for their potential. Other factors such as type of industry, age of the firm and type of business relationships firms forge to be in give no significant contributions to knowledge sharing capacity accounting for only about 5%. However, generalization to all industries is not guaranteed by this study. We anchor on these findings to discuss some implications to Tanzanian managers in particular and national policy-makers in general before we wind up our report by sorting out limitations of the study and suggest for areas worthy undertaking further studies.

## **Acknowledgement**

The completion of a noble task like this cannot be truly accomplished by one or two individuals alone. We feel indebted to several people who in one way or another extended their views, opinions, criticisms, support (both moral and material) and encouragement that gave us strength to stand by the challenges of academic writing. However, it is our heartfelt regret for those whose names do not appear in this text due to the fact that the list is too long to name everyone individually, but be assured that your contributions were valuable and cherished. We would like to appreciate, by names, the assistance from the following:

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a foreign land without them. They kept on encouraging us and uttering their prayers to our Almighty God that we accomplish the task successfully and ultimately be able to rejoin them, and as we write this acknowledgement, we feel so blessed that we have completed the task and we are rejoining them.

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Though a number of people feature into this work, we personally remain liable for all mistakes and shortcomings in the text.

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## **Dedication**

This work is dedicated to our beloved families as follows:

To my dearest wife Grace and our two lovely sons Baraka Samwel and Boniphace Cosmas  
*Edward Makoye*

To my lovely son Stanslaus Lemnge Utouh  
*Jasinta Msamula*

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# **CHAPTER ONE**

## **Study setting and Problem definition**

### **1.0 Introduction**

After the first and second world wars, globalization has compelled the world to converge in terms of different exchanges of products, goods, services and even more recently labour (Krugman et al, 1995). The existence of international trade and international business is therefore vital in facilitating these exchanges. These exchanges range from simple to complicated ones. They include tradable goods such as agricultural outputs, industrial manufactures and services such as banking and consulting. From marketing point of view, it can be argued that the imperative existence of trade across country's borders is due to saturation of domestic markets, increased global competition, the felt need for global co-operation and the revolution of Information and Communication Technology (ICT) such as the internet and mobile phones (Kotabe et al, 1996). International business takes place in different forms as internationalizing firms can serve their foreign markets in various ways. These forms range from arm's-length strategies such as exporting, various strategic arrangements such as franchising and licensing through to international production of goods and services, which normally takes the form of foreign direct investments (FDIs) (Peng, 2001).

### **1.2 Background of the study**

Soon after attaining its independence in 1961 Tanzania like many other African, Eastern Europe, Latin America and Eastern Asia countries chose to implement socialist policies that affected both its politics and economic affairs. But this development approach became undesirable among its people and the international community (especially the world financial institutions) towards the end of 1980s. This undesirability was observed in terms of increased burden on government finance resulting from inefficient state-owned

enterprises, inflated bureaucracies, low productivity, and foreign exchange shortages (Economic and Social Research Foundation (ESRF), 2003). This situation suggested that the state had not been able to deliver its most important promise of bringing sustained growth and development to its citizens. By the end of 1980s Tanzania had no choice but to accept economic and political conditionality reforms prescribed by the Multilateral Financial Institutions whose main objective was to restore macroeconomic balance and the structure of the economy. The exerted pressure to restructure the country's state of affairs were inclined in favour of a move towards more open economic and political systems in form of fostering participatory democracy. This was essentially the beginning of a reduced role of the state and increasing reliance on markets. Structural reforms carried out by the government have focused on realigning the incentive structure towards efficient use of scarce foreign exchange, liberalizing markets for goods and services, and reducing the involvement of the public sector in the economy. Before reforms, poor performance of Tanzania was blamed due to poor policies and the socialist ideologies adopted following its independence. Even after having adopted many strategies for reforming the economy, it still remains a fact that economic progress achieved so far has not been able to reduce poverty in the country (Economic report on Africa, 2010).

Among issues that have generated more rhetoric in recent years include the relations between MNCs and developing nations. Extensive debate has resulted in little agreement among the proponents and opponents of the MNCs in the developing world. While some view MNCs as one of the most effective engines of development (Portelli and Narula, 2004; Henry Kissinger, 1975; LaPalombara and Blank, 2001), others contend that MNCs are one of the most powerful impediments to third world development (Ronald Muller, 1975). Alvarez and Marin (2010) are in favour of the former group and they suggest that there are actually varieties of developmental effects of MNCs in the host countries. For example, according to them, apart from their effects on employment and value added creation, multinational companies can create and trade in intangible assets and their activities can contribute to the international generation and diffusion of knowledge. A similar argument has been put forward by Portelli and Narula (2004).

Exports, Joint Ventures (JVs) and foreign direct investments (FDIs) are some of the forms through which one or more companies

(private or state-owned) can operate in foreign markets (Mowery et al 1996). FDI is an investment made to acquire a long-term interest in a foreign market with the purpose of having an effective voice in its management (Bjorvatn, 2000 and Ngowi, 2002). FDIs are mostly done by multinational enterprises (MNEs), which are also referred to as Trans-national Corporations (TNCs) or simply Multinationals. Multinational Corporations (MNCs) is the term preferred in this thesis and therefore is used throughout the paper.

### **1.3 Study problem definition**

While investment in machinery, technological infrastructures and human capital are correlated with economic growth, it is the *ideas* of what to put those investments to use which matters the most (DeLong and Summers, 1991; Freeman, 1982). Some scholars have argued that knowledge is one of the intangible assets necessary to attain superior performance and a sustainable competitive advantage (Miller, et al, 2007). According to Liao, Fei and Chen (2007), knowledge is a very important resource for preserving valuable heritage, learning new techniques, solving problems, creating core competences, and initiating new situations. The firm organizes its knowledge through what has come to be known in both Organisational theory and Strategic Management as *Knowledge Management (KM)*.

According to Hasan (2009), the term knowledge has been defined as: (i) a body of understanding and skills that is constructed by people and is increased through interaction with information; (ii) knowledge is information with belief and that (iii) knowledge is created through a sense-making process and acts as an interpreting device that turn data into information. Further, Argote and Ingram (2000) and Sarala and Sumelius (2005) define knowledge as “that which is known” while defining knowledge sharing as “a process through which one unit is affected by the experience of another”. They suggest that this definition reflects the fact that knowledge lives and changes constantly and thus is not the same in all situations. Moreover, knowledge sharing entails a number of concepts that can be used in the context of inter-group activity. These concepts may include communication, collaboration, cooperation, coordination and information flows. In broader sense knowledge sharing is intended to cover the notion of two-way information

transfer which creates mutual understanding, common sense and insight providing the capability for collective decision-making and action. Some scholars (such as Schmidt and Sofka, 2009) have indicated that diffusion of knowledge across borders becomes a necessity for global growth. However, more empirical evidence is required regarding knowledge sharing between different firms, especially those from developed nations and those from the developing world. Some studies about globalization and development such as Ozawa (1992) suggest that in order for the developing countries to truly realize economic development, they should open up their economies to avail themselves of opportunities to trade, interact with and learn from the already advanced through Multinationals which are active players in the current world economy. “In fact, ever since the industrial revolution in England, industrialization in the rest of the world, wherever successful, has been a "derived" phenomenon. Continental Europe succeeded by following the United Kingdom's footsteps through commercial contracts and conscious efforts for learning and emulation”, says Landes (1969) as quoted by Ozawa. The World Bank insists that only activities focused on facilitating knowledge sharing rather than on transmitting Northern knowledge to the South are likely to prove more successful. In other words they say, while communication of knowledge is important, it is the processes through which knowledge is shared that determine whether organizational learning occurs and, therefore, whether a knowledge sharing process was a success.

In search of relevant knowledge to create value for the competitiveness of the firm in business, the market has not been useful enough to quench this thirsty (Miller, et al 2007). Innovation abilities and competitiveness of most firms have largely depended on their ability to acquire and share knowledge both within and outside their boundaries (Kogut and Zander, 1992; Araujo, et al, 2003). Many studies such as (Miller, et al, 2007; Liao, et al, 2007; Kapoor and Adner, undated; Hansen and Lovas, 2004; Kogut and Zander, 1992) have focused more on sharing knowledge within divisional boundaries and between subsidiaries of multinational firms integrated or operating in autonomy. Alvarez and Marin (2010) also note that internationalizing companies have varied motives for and use different entry modes which might affect international technology diffusion. The differences can also prevail between developed and developing economies. Bearing these facts in mind, there is a need to look for more empirical evidence about whether or not

knowledge sharing in the Southern hemisphere occurs successfully, and if it does occur, what determines it?

The suitability of integrating developing countries into the world economic system can hardly be justified by simply opening their borders for global business firms to operate if gains from this system cannot be established empirically. Dhanaraj et al (2004) noted that local firms in developing countries (host countries to MNCs) fall short of valuable information and know-how (collectively referred to as knowledge by Kogut and Zander, 1992) necessary for competitiveness in the global market and that they seek to access it from MNCs through established business relationships. It is, therefore, the intention of this thesis to make an assessment of factors determining knowledge sharing ability of Tanzanian local firms as they work collaboratively with MNCs operating in the country. In our study, we have tended to regard knowledge as an output that is obtained after some pieces of information have been successfully exchanged between parties (Barachini, 2009).

## **1.4 Research Objectives**

The main objective of this study is to assess determinant factors for Tanzanian business firms to share knowledge with their counterparts from the developed world, which are currently doing their business operations in the country. This objective is split into the following two minor or specific objectives:

- To assess the way institutional distance between MNCs and Tanzanian local firms can predict knowledge sharing.
- To assess how absorptive capacity determines knowledge sharing between MNCs and Tanzanian local firms.



## **1.5 Research Questions**

Consistent with the aforementioned objectives, this study is built on the following research questions:

- How do institutional differences affect knowledge sharing from multinational firms to local Tanzanian firms?
- To what extent does absorptive capacity determine knowledge sharing from MNCs to Tanzanian firms?

## **1.6 Contribution of the study**

Our study provides some insights into the body of literature with regard to knowledge sharing between Multinational firms from developed countries and local firms from developing ones. In this study, we choose our variables from factors frequently studied in knowledge transfer between divisional boundaries of large firms and use them as bridge heads to study firms' ability to acquire new knowledge from MNCs in Tanzania.

## **1.7 Organization of the thesis**

This thesis is organized into five chapters. The rest of the paper is organised as follows: First (Chapter Two), we review the literature and empirical evidence on the variables used in the study and deduce some hypotheses for empirical testing. We also present both the conceptual and the research models. Second (Chapter Three), we give a presentation of the methodological procedures used in carrying out the research process. Third (Chapter Four), we present our analysis and findings out of the data gathered during the study. Fourth (Chapter Five), we give a discussion of the findings and offer some important highlights of the study to managers of Tanzanian domestic firms as well as relevant implications to policy makers in the country in the conclusion before we finalize by giving out suggestions for areas worthy further scientific investigation.

## CHAPTER TWO

### Theoretical Review, Hypotheses and Conceptual Framework

#### 2.0 Introduction

In this section we introduce both theoretical and empirical work available in the area of study. We draw some tentative statements (hypotheses) which emanate from the literature in order to predict explanations for the study. A number of theories have been used to build the foundation for empirical arguments. We first present the Resource-Based View (RBV) which advocates for the importance of resources in creating firms' competitiveness. The choice of this theory is based on its relevance to the study for our central focus – knowledge – has attracted most scholars to agree on its potential in competitiveness of firms. Secondly, we present the knowledge-based view (KBV) to explain the meaning of knowledge itself and how it shapes firms in the current global economy in which leveraging on knowledge is the dominant feature. Finally, we present the transaction cost analysis (TCA) theory which is used in predicting and/or choosing governance structures in inter-firm collaborations. The choice of this theory is important because the study itself is based on firms that collaborate with MNCs and that the extent of knowledge sharing is anticipated to vary with different governance modes firms choose to pursue in their relationship. The chapter also presents a conceptual framework which relates some constructs that were applied in the course of studying the phenomenon.

#### 2.1 Theoretical perspectives

##### *2.1.1 The Resource-Based View (RBV) of the firm*

The business firm maintains its competitive edge sustainably only when it possesses and is able to organize valuable resources and capabilities as opposed to its rivals in the industry it operates (Barney et al 2001). Grant (2001) argues that: at the business strategy level, explorations of the relationships between resources, competition, and profitability include the analysis of competitive imitation,

the appropriability of returns to innovations, the role of imperfect information in creating profitability differences between competing firms, and the means by which the process of resource accumulation can sustain competitive advantage has been referred to as ‘the resource-based view of the firm’.

The resource-based theory (RBT) has been used in both explaining and predicting several market phenomena, such as (explaining) firm diversity, the scope of the firm, the growth pattern of firms, as well as predicting differences in strategic choices, and differences in performance (Grant 2001 and Barney 2001). The inclusion of the theory in this study has its support from Barney et al (ibid) who note that the use of Transaction Cost Analysis theory calls for the use of RBV for the two are complementary to one another in explaining firms’ characteristics.

Knowledge being one of the firm’s unique resources needs to be rare and difficult to imitate by rival firms. This becomes feasible especially when this knowledge resides in organizational individuals and that it has been acquired through specialization and accumulated experiences over a long period of time (Cabrera and Cabrera, 2005). Thus, a firm is likely to record superior performance against its rivalries not because of the respective industry structural characteristics but due to its possession of unique resources and capabilities (Barney, 2001). According to Grant (2001), Resources are inputs into a firm's production process, such as capital, equipment, skills of individual employees, patents, finance, and talented managers. These resources can be either tangible or intangible in nature. The narration that knowledge can also reside within individuals deserves a study of its own right. With the focus on firm level analysis, a thorough analysis of knowledge within individuals fell out of the scope of our study.

### ***2.1.2 The knowledge-based view of the firm***

Knowledge has been defined differently by different scholars depending on the context this construct is put into use. For example, Davenport and Prusak (1998:5) define knowledge as: *“a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in*

*the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms*". According to Nonaka and Takeuchi (1995), definitions for knowledge range from 'complex' accumulated expertise that resides in individuals and is partly or largely inexpressible to 'much' more structure and explicit content. In this thesis we have adopted Davenport and Prusak's definition because of its clarity and comprehensiveness as our study entails an investigation of knowledge sharing that can be viewed from both organizational and individual knowledge viewpoints. It has been argued that knowledge is the most strategically important of the firm's resources and that it is an outgrowth of the resource-based view (Grant, 1996). In understanding knowledge, researchers have embarked into various ways of knowledge processes which include knowledge creation (Chou and Tsai, 2004; Ichijo and Nonaka, 2006), knowledge Management (Botha, 2001; Drucker, 1998) and Knowledge sharing (OED, 2003; Liao et al, 2007; Weer, et al 2009). While both knowledge creation and knowledge management are equally worthy studying in developing countries context, they fall out of the scope for this thesis.

Some literature indicates that knowledge which resides either in individuals or organizations (through organizational principles) can be observed through personal expertise and social affiliations (Kogut and Zander, 1992; Hansen and Lovas, 2004; Chou and Tsai, 2004; Nonaka, Krogh and Voelpel, 2006; Felin and Hesterly, 2007; OED, 2003). In general, organizational knowledge sharing is the process of making available and amplifying knowledge created by individuals as well as strengthening and aligning it with the organizational learning system in place (Weer, et al 2009). Some authors such as Alvarez and Marin (2010) have argued that MNCs from developed countries can provide new production facilities, managerial practices and also technology transfer abroad but they also suggest that reverse flows from foreign subsidiaries is possible, since firms also look to tap into new knowledge in host locations which in turn suggests a possibility for dyadic knowledge sharing.

The knowledge-based view has attracted some discussions in the literature of strategic management due to increased global competition whose backbone is argued to reside in knowledge and learning (Lopez-Saez, et al, 2010; Aslesen and Isaksen, 2007;

Grant, 1996). Zboralski (2009:90) once has argued that “in today’s knowledge-based economy, an organization’s ability to strategically leverage knowledge has become a crucial factor for global competitiveness”.

Kohengkul et al, (undated)<sup>1</sup> and Dyer and Powell (2001) have indicated the possibility for success of knowledge sharing in the premises where firms had the same number of personnel, stability, prior relationships, located in a nearby area, and had sufficient trust in order to regularly continuously share knowledge and technology and be able to spend economically in the coordination in the invention of new products, new technology, and new network.

### ***2.1.3 Transaction Cost Analysis (TCA) Theory***

The state of inter-firm relationships has been studied by a number of scholars (Buvik, 2001; 2002; Buvik and Andersen, 2002; Barachini, 2009; Grant, 1996; Anderson and Gatignon, 1986). In their studies, the Transaction Costs Analysis/Economics theory has been used to find an optimal governance structure or mode that firms can use to minimize costs accruing from their business transactions. Firms are therefore exposed to making their choices from an established relationship continuum that ranges from arm’s length kind of relationship through to equity joint ventures. In this thesis, we include this theory due to the conviction we have that TCA aids in explaining the would-be variations in the extent to which knowledge sharing may differ from one business relationship to another such and such companies have chosen to be in.

Some scholars in the knowledge sharing field such as Lopez-Saez et al (2010), Weer, et al (2009) and Barachini (2009) have indicated that individuals don’t offer knowledge for free because it is quite often regarded as a business transaction process. Weer, et al (2009:450) contend that “learning and knowledge acquisition in interorganizational relationships is influenced by the way in which actors in these relationships construct mental and social boundaries between and around themselves and ‘the other’”. For example, in a

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<sup>1</sup> Found under “Research in Higher Education Journal in Google scholar search as accessed on 26<sup>th</sup> May 2011.

social research conducted by Barachini (2009), it is suggested that the business transaction theory might be the basis for knowledge sharing. After conducting a comprehensive company survey in Europe, the author found indicators supporting the TCA theory alongside the detection of moral hazards for knowledge sharing as well.

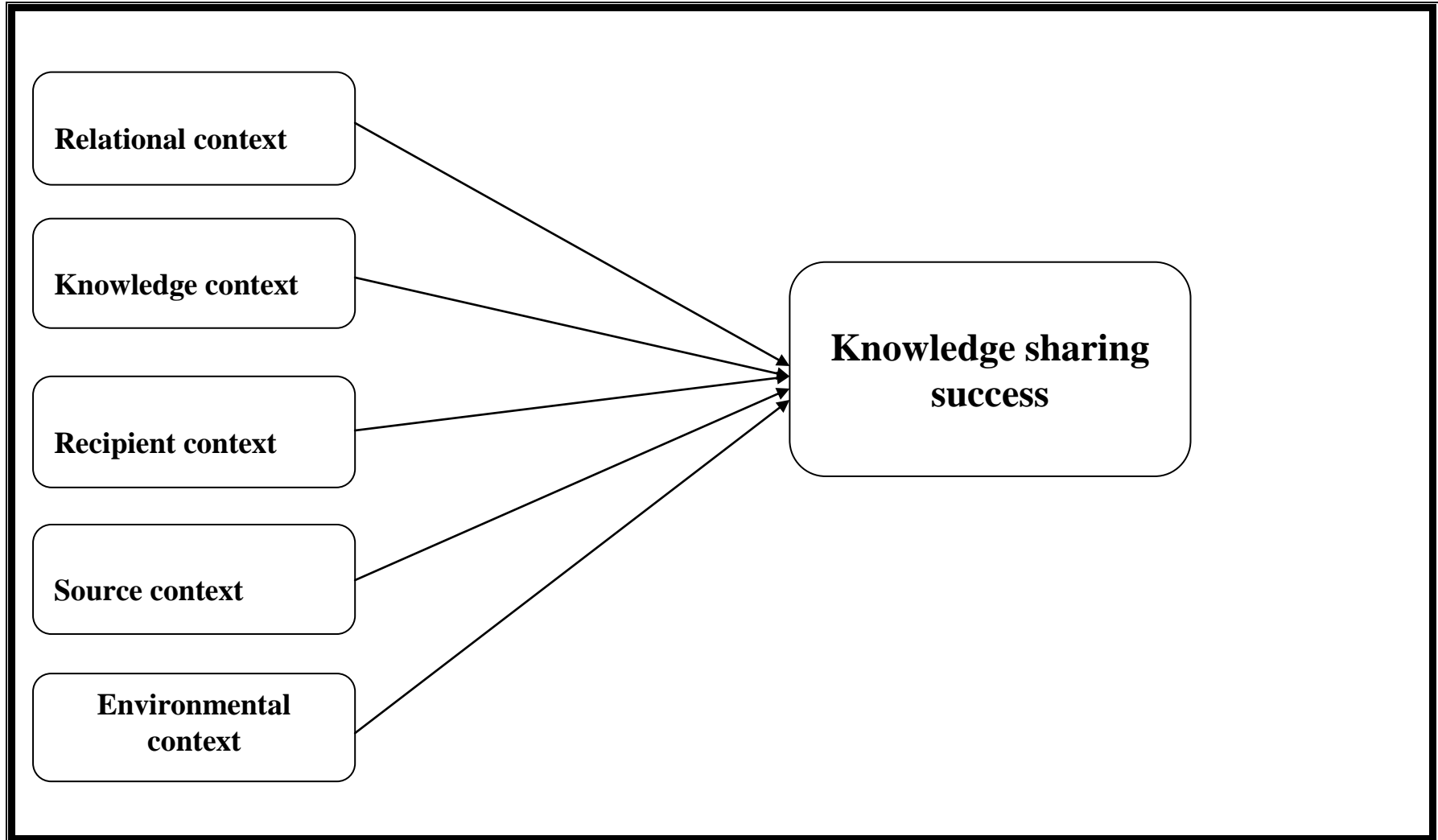
Authors in TCA have focused their studies to investigate some reasons as to why not all transactions take place in markets (Buvik, 2002; Heiman and Nickerson, 2002; Kogut and Zander, 1992), despite the fact that markets are supposed to be the most efficient way to carry out transactions. In response to this kind of question, there arose an argument that the market appears more efficient only when there is a minimum specific asset investment between firms working collaboratively. On contrast, if asset specificity is high, market transactions are no longer warranted and thus inefficient. Firms, therefore, exist in order to integrate and manage specialized knowledge possessed by individuals because such integration cannot be performed efficiently across markets (Grant, 1996; Kogut and Zander, 1992). They do this as they pursue their profit maximization by reducing transaction costs.

## **2.2 The empirical perspectives of knowledge sharing**

The performance of the firm is considered to be the function of, among other things, strategic management of inter-firm collaboration between actors in the value chain (Buvik, 2002). The business relationships between firms in the value chain are linked by value adding business processes. It is the strategic importance of the business process that determines the integration decision of the individual firms with other actors across the value chain. The key decisions, according to Lambert, et al (1998) are threefold: who are the key supply chain members with whom to link processes? What processes should be linked with each of these key supply chain members? And what level of integration and management should be applied for each process link?

Following the classification by the Global Supply Chain, Lambert et al, (1998) have indicated that the common business processes that firms seek to integrate across the value chain include product development, customer service management, order fulfilment, procurement, customer relationship management, manufacturing flow management and demand management. Product development has been considered to be one of the strategically important business processes firms collaborate in. Ideas for product development originate from different stakeholders such as customers and suppliers – which make the consideration of value chain relevant in this study. MNCs develop different strategies that facilitate product development ideas in foreign countries. These strategies provide the most favourable frameworks that facilitate sharing of product development knowledge from MNCs across their value chains (Kotabe, 2008).

Figure 1 Conceptual framework - the big picture



Source: Based on Operations Evaluation Department review of literature (OED, 2003)



While the foregoing conceptual framework is relevant in the wider perspective of knowledge sharing, it is also the basis of our choice of variables used in this study. A brief explanation of the variables making up the framework is presented below before we turn to discuss our variables of interest.

OED (2003) explains the relational context to consist of distance-creating factors that affect relations between the source and recipient in knowledge sharing processes. These factors are physical distance, organizational distance, institutional distance, relationship distance and knowledge distance between the source and recipient. Organizational distance refers to both structured and unstructured organizational arrangements that allow interaction between source and recipient. Such arrangements are vital in facilitating organizational learning (Argote, 1999). Knowledge sharing is therefore expected to be successful when sharing parties are in more committed business relationships both formally and informally (Kim & Hwang, 1992). According to (Wheeler, 2001; Athanassiou, 2000), physical distance refers to spatial distance that has impact on knowledge sharing success, such distance is examined via time, expenses and difficulties spent between the source and recipient. (Kostova, 1999) explains institutional distance to refer rules and regulations of the company that affect knowledge sharing success and company's culture that includes norms and values of the firm that are likely to impact the sharing success. She further present that knowledge sharing is successful if parties involved are able to exchange not only the knowledge but also the meaning and value attached to it. Hamel (1991) studied the determinants of learning between partners and described knowledge distance being the knowledge gap between the source and recipient of the knowledge in such a way that fewer gaps means high likelihood of sharing success.

Relationship distance refers to the distance created by perception of partners towards each other, which includes different perceptions such as perceived identity similarity that are likely to influence facilitation of knowledge sharing between parties. This relationship is explained in terms of the quality of experience parties establish by working together over time (Porac & Thomas 1990).

The knowledge context is explained in terms of type and anchorage of knowledge involved in the sharing process. Concern is on both its explicitness and embeddedness (OED, 2003). Knowledge explicitness refers to how the shared knowledge is expressed. Knowledge can be expressed in tacit and explicit form (Polanyi, 1966a). Similarly, Kogut and Zander (1992) classified knowledge as know-how and information. In terms of embeddedness, knowledge is embedded in people (Engstrom et al 1990), tools (Argote & Ingram, 2000; Zander & Kogut, 1995) and routines (Kostova, 1999) or combination (Teece, 2000) that are vital in knowledge sharing. Recipient context refers to the extent by which the recipient is ready, willing, and able to receive knowledge shared from the source. This includes recipient's motivation, absorptive and learning capacities, prior knowledge and collaborative experience, retentive capacity as well as learning culture and learning capability (Cohen & Levinthal, 1990; Szulanski, 1996; Davenport & Prusak, 1998). As viewed by Khanna (1998), the source context refers to the extent to which the source is capable and willing to impart knowledge into the recipient. Not only sources capability to transfer knowledge matters but the success of sharing is also influenced by the perceived source's characteristics by the recipient such as source's credibility, intent and power. Finally, environmental context refers to the broader environment in which knowledge is taking place that can affect knowledge sharing success which includes economic, social, cultural, political and institutional environment.

Based on the conceptual framework above, we limited our study by taking absorptive capacity as one of the constructs under the recipient context and institutional distance from the relational context. We did this by purposeful selection/judgement to suit our objective as well as basing on the frequency of their use in most literature we reviewed. The choice of these variables is based on the fact that in the past few years most researchers in interorganizational learning have developed interest in using them. Absorptive capacity, for example, has been used by Zahra and George (2002; 2005), Liao et al, 2007 and Lenox and King (2005), who have claimed that absorptive capacity is capable of being directly influenced by firm managers. On the other hand, some research work has acknowledged the important role of institutions in influencing international business operations by MNCs (Pogrebnyakov and Maitland, 2009). Others have argued over the increased attention to the study of institutions due to some academic advancement,

vested interest of researchers in not only absolute quality of institutions but their relative quality between contexts (Kostova, 1999). Moreover, these two variables capture other variables that different researchers have classified and reclassified for years now. Referring to figure 1, for example, the variable ‘absorptive capacity’ captures recipient motivation, collaborative experience and learning culture – which collectively fall under the ‘recipient context’ and knowledge distance under ‘relational context’. Similarly the variable ‘institutional distance’ captures cultural, political and social environment – which collectively fall under ‘environmental context’. Apart from the chosen institutional distance, relational context also encompasses relationship distance. Our interest, therefore, is to use these constructs in assessing their ability to predict knowledge sharing in new product development projects. The implication of our choice of variables, therefore, is that much of the variability in the dependent variable (knowledge sharing) is expected in the findings. We discuss the empirical perspectives of these variables next.

## **2.3 Knowledge content and the sharing process**

Consideration of whether the knowledge in question bears a significant explanation in the way knowledge is shared and even if this process is successful, depends on the nature and characteristics of knowledge itself. As noted earlier in this paper, knowledge is either tacit or explicit (Kogut and Zander, 1992). Knowledge explicitness refers to the extent to which knowledge is verbalized, written, drawn or otherwise articulated while tacit knowledge is hard to articulate, and is acquired through experience (Polanyi, 1966a; OED, 2003). It is the difference between explicit and tacit knowledge that takes care of what scholars have contended as “individuals know more than they can explain” due to tacit knowledge being hard to communicate and is deeply rooted in action, involvement and commitment within a specific context. Polanyi goes on to note that the two types of knowledge are actually complementary to each other in the sense that, “while tacit knowledge can be possessed by itself, explicit knowledge must rely on being tacitly understood and applied. Hence all knowledge is either tacit or rooted in tacit knowledge. ...a wholly explicit knowledge is unthinkable” (p.20). The embeddedness of knowledge makes its study complex (Dixon, 2000). For example, which knowledge elements and the related sub-networks such as people and tools need to be transferred, absorbed, adapted and adopted by the receiving firm. In this situation,

sharing of people-embedded knowledge would require only the movement of people between companies, since they would carry the knowledge with them. Knowledge is also embedded in products, tools or technology (OED, 2003; Argote and Ingram, 2000). Nonaka (1994) summarized the nature of knowledge and the way it can be shared among business actors as indicated in the table below:

**Table 1 How to create and share knowledge among business actors**

Tacit to Tacit (Socialization)	Tacit to Explicit (Externalization)
Interpersonal communication	Problem definition and clarification
Synchronous Information Retrieval System interface sharing	Annotation
Explicit to Tacit (internalization)	Explicit to Explicit (Combination)
Visualization of search history	Tagging, Query formulation, Metadata creation,
Consultation of search results	Classification

Source: Adapted from Nonaka (1994).

## 2.4 Institutional aspects of Knowledge Sharing

Knowledge sharing involves simultaneous and multiple exchanges among individuals who are sending and/or receiving knowledge. Original owners of knowledge do not surrender ownership of their knowledge but instead the outcome of sharing with a recipient is joint ownership of the knowledge (Michailova and Minbaeva, 2010). This means that, knowledge sharing is a relational act based on a sender–receiver relationship, which involves the voluntary communication of one’s knowledge to others as well as the receiving of others’ knowledge. Knowledge sharing is said to involve some processes through which knowledge passes between a source and the

recipient. The objective of any knowledge-sharing process is to transfer source knowledge successfully to a recipient (OED, 2003). Organizations represent social knowledge of coordination and learning. The knowledge of the firm is of value for the specific firm in which it is embedded and to other firms if shared. Through identification, procedural rules are learned, and coordination and communication are made possible across individuals and groups of various competences (Kogut and Zander, 1996).

In order for knowledge sharing to be successful, it is imperative that both the source and the recipient be related in some several dimensions. Pogrebnyakov and Maitland (2009) have identified cultural distance in general and institutional distance in specific being among chief factors affecting cross-border business. International transactions or exchanges are governed by a set of institutions such as laws, regulations, norms and values which differ from one country to another. Micro institutions are rules that govern interactions and that they originate from national cultures (Falkenberg and Falkenberg, 2009). According to Shankar and Luo (2010), researchers in global business have tended to shift away from viewing solely cultural interaction in terms of its differences. In their research work, they developed a cultural friction lens that captures the nature and magnitude of interaction between the cultural systems engaged in cross-border businesses. They suggest that (1) cultural distance may not transform into a clash, or yield any meaningful interaction effect, negative or positive, until organizations truly engage in interactions; (2) cultural friction is situation-specific, subject to the influence of “drag” parameters, such as entry mode (e.g., contract vs. equity; Greenfield vs. acquisition), workflow interdependence, breath of local stakeholders, speed and stage of international expansion, and depth of localization; and (3) cultural friction can be curtailed through a series of managerial mechanisms, or lubricants, around the points of cross-border contact.

Furthermore, Shankar and Luo (ibid) reported varied degrees of cultural mismatches which lead to frictions between companies depending on the modes of entry and operations MNCs choose to follow in the foreign country. As a way to address such frictions which can hamper their business success, Shankar and Luo have suggested that communication, acculturation, socialization and staffing serve as lubricants which should be collectively used if an MNC seeks to obtain a more effective and efficient remedy. For

example, they place a greater emphasis on communication and socialization where there appears to be a high interdependence between companies. Likewise, firms using a faster speed of entry or turnaround will need greater commitment to acculturation and staffing. Moreover, geographically diversified MNCs should globally plan, coordinate, develop and monitor an overall lubricant infrastructure that can be widely shared by numerous subunits in different countries. Barachini (2009) conducted a research about knowledge sharing and concluded that “To establish a successful knowledge-sharing culture, an organization must especially consider trading aspects of modern portfolio theory and refrain from being exclusively dependent on trust, attitude, leadership and group support” (P.107).

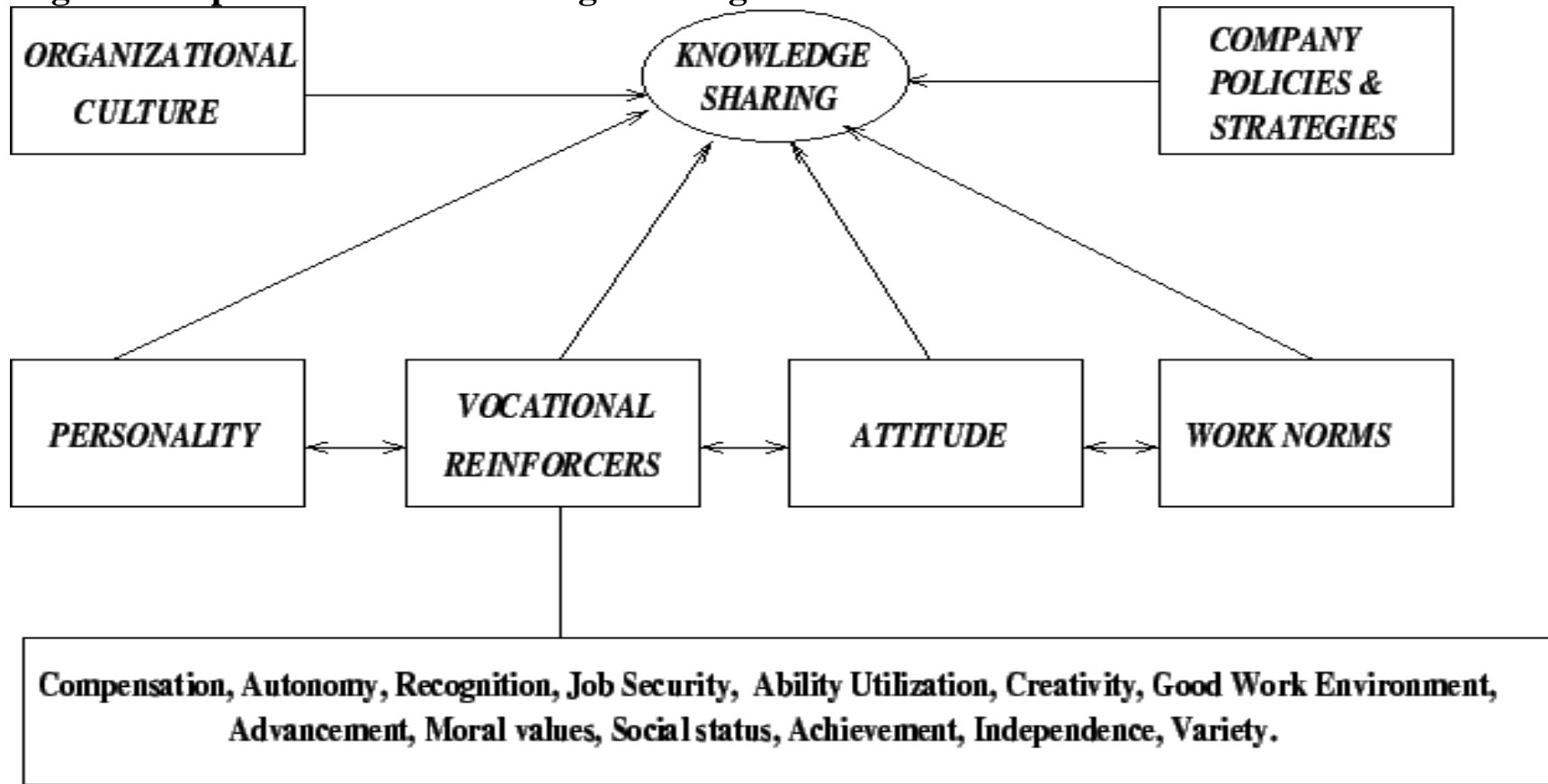
In their study, Noorderhaven and Harzing (2008) used social interaction and social learning to predict the content of knowledge that flows between MNC subsidiaries located across borders. They argued that social learning theory can help to explain the role of senders, receivers and channels in knowledge flows, but emphasized that the nature of knowledge shared between partners is likely to have a tacit dimension to it. Tacit knowledge, in its nature cannot be captured, converted or transferred but only displayed and manifested, in what people do. The flow of this knowledge (tacit) does not so much flow from one individual or unit to another, as it is shared in a social process of mutual engagement. For ease of learning, tacit knowledge should be disembedded, translated, interpreted and integrated. In their study in Germany about knowledge spillovers between foreign MNCs and German firms, Schmidt and Sofka (2009) reported that MNCs were not able to tap knowledge from host country firms because of the ‘liability of foreignness’ and mostly when their counterparts were in the lead in the industry.

On the other hand, learning culture has been emphasized in the literature (OED, 2003; and Yeung, et al, 2007). Organizations are likely to benefit more in the knowledge sharing process if they foster delegating responsibility, tolerate creative mistakes, and provide slack time to work on new ideas. However, a combination of negligence of the importance of learning, lack of slack time to enable people to think and discuss and the prevalence of the so-called “not-invented-here” syndrome may prevent successful knowledge

sharing from happening (OED, 2003). A learning culture favours much more with organizations having extensive sets of routines and competencies which are designed to retain and nurture the transferred knowledge (OED, *ibid*). To the contrary, lack of ability to invest significant time and other resources in new knowledge may also hamper knowledge internalization. Kogut and Zander (1996) narrate that learning can be inhibited by identity membership. They state that communication and coordination of individuals and group can flourish if individuals consider themselves as belonging to the same organization, division or social network. So, learning means becoming a different person with respect to the possibilities enabled by these systems of relations. Kogut and Zander (1993) have argued that while tacit knowledge is uncodifiable and thus unable to be captured at the firm level, explicit knowledge is codifiable and that can easily be tapped between firms and even across borders.

In figure 2 presented on the next page, Award and Ghaziri (2004) have drawn a conceptual presentation of some fundamental elements that should be taken on board should knowledge sharing within and between companies be a success if not properly accounted for. In other words, the factors indicated in this figure could badly hamper both the knowledge transfer and knowledge sharing processes. For the case of this thesis, however, these factors have been combined into ‘institutional settings’ construct alongside another construct ‘absorptive capacity’ to assess and determine knowledge sharing at a firm level.

**Figure 2 Impediments of Knowledge sharing**



Source: Adopted from Award and Ghaziri (2004).

Michailova and Minbaeva (2010) studied the relationship between organizational values (as integral part of organizational culture) and knowledge sharing between divisions of a Danish MNC (Danisco) operating across the globe in almost four continents. In particular, they studied how dialogue processes across sub-cultures influence knowledge sharing behaviour among employees. Their findings indicate that knowledge sharing behaviour is not influenced by organizational values per se but by the degree of their internalization



by organizational members.

As institutions govern interactions among people of a given jurisdiction, they can facilitate cooperation and convergence of people towards similar goal accomplishments (Falkenberg and Falkenberg, 2009). A study on buyer-supplier relationships in the Japanese automobile industry by Hagen and Choe (1998) indicated that trust is well versed among manufacturers, contractors, assemblers and sub-assemblers and that much of responsibilities are decentralized. It is argued further that bilateral product design and development together with price determination is not uncommon phenomenon. The low power distance among Japanese people aids for easy creation of trust among them, which has led to a more continuous trading relationship on average in Japan than it is in other countries and thus strong buyer-seller “problem-solving” spirit exists (Hagen and Choe, 1998). Hymer once noted the following:

*“National firms are likely to have advantages over foreigners...National firms have the general advantage of better information about their country: its economy, its language, its law, and its politics. To a foreigner, the cost of acquiring this information may be considerable. But note that it is a fixed cost...Of a more permanent nature is the barrier to international operations arising from discrimination by government, by consumers, and by suppliers. It is not the general treatment that is important: this affects the domestic firms as well as the foreign firms, but it does not give one firm an advantage over another. What is important is the fact that in given countries, foreigners and nationals may receive very different treatment (Hymer, 1960 in Eden and Miller, 2004:1)”*.

OED (2003) on its part, in addition to cultural distances, suggests other factors that can influence knowledge sharing between companies. The most important factors include: First, the organizational distance between units, basing on the governance modes through which the transfer is conducted and the distance between the source and the recipient. Second, physical distance between the source and recipient of the particular knowledge is also important. Third, the institutional settings are anticipated to differ between the source firm and the recipient firm. Forth, the knowledge competence between the parties may also contribute to sharing of knowledge, and the final aspect is the relationship existing between the two firms. These arguments led us to hypothesize for the following:

*H1: Product development knowledge sharing from MNCs to host country firms is negatively related with institutional differences.*

## **2.5 Absorptive capacity and knowledge sharing**

The successful sharing of knowledge has been associated with the recipient's motivation, absorptive and learning capacities, knowledge experience, learning culture, retentive capacity and collaborative experience (Dixon, 2000; Liao and Chen, 2007, Schmidt and Sofka, 2009; Faria and Sofka, 2010; OED, 2003). Knowledge sharing is a vital process in organizations since their success depends on intellectual capital which can only be useful when individual and group knowledge is translated into organizational knowledge and be able to use it effectively (Liao and Chen, 2007). Liao and Chen define absorptive capacity as "*the employees' ability and motivation to obtain external knowledge and the willingness to use this knowledge in the firm's innovation capability*". To them, there is a close relationship between knowledge and the level of absorptive capacity and they conclude that knowledge usage actually relates to knowledge sharing, absorptive capacity and innovation capacity. Furthermore, Cohen and Levinthal (1990) note that the absorptive capacity of a firm develops cumulatively and that it is path-dependent and therefore build on existing knowledge. Firm's ability to absorb and use knowledge inputs, to interpret and put knowledge into use depends solely on firm's internal knowledge bases and its absorptive capacities (Aslesen and Isaksen, 2007).

On the other hand, Faria and Sofka (2010) have found that MNCs involve in protection of their know-how through formal protection strategies (copy right, patents and trademarks) and other informal protection strategies such as secrecy, lead time and complex design depending on host county challenges and opportunities. They finally deduced that the results are due to a need for reciprocity in knowledge exchanges to benefit from promising host country knowledge flows. Moreover, some literature has mostly assumed that the recipient is always a weaker party with less resources and limited ability to assimilate and upgrade new knowledge. The emphasis has been on the capable source to assist the recipient with varied experience-based learning opportunities and avoid becoming too

constrained when new resources are introduced by the source (Teece, et al, 1997).

Other strategic management scholars have contended that both MNCs and domestic companies need to possess knowledge about their environment and state of their internal affairs in order to establish a repository of the existing knowledge and be able to maintain it (Liao, et al, 2010; Goll, et al, 2007). Understanding of the relationship between environmental uncertainty, knowledge management capability and organizational structures can increase decision quality and device a strategic fit for sharing knowledge in the contemporary environment. Kim and Nelson (2000), argue that entrepreneurial, learning and innovation environments in which knowledge sharing takes place has a great influence for its success. Just as the product may develop into successive stages through its lifetime, so does knowledge. The stage of knowledge within its life cycle has also been posited to affect knowledge sharing success. This suggests that new knowledge may be easily shared due to the fact that it might not be path-dependent as the same knowledge if it were in one of its subsequent stages (OED, 2003).

## **2.6 Product development**

As already discussed earlier, knowledge sharing is something that some scholars have equated to communication and information distribution (Hendriks, 1999). In order to capture this concept empirically, we chose new product development outcomes as a tangible measure by which our study anchors upon. Product development entails some elements of innovation thus creating a useful context that allows enough exploration of the consequences (positive or negative) of the path-dependent nature of acquiring knowledge-which we term absorptive capacity (Carlile, 2004). Development of new products does not only depend on the established trust and relationships that are associated with a series of similar social and cultural values and expectations among business partners but also is based on the ability of both the sender and the recipient to grasp, assimilate, upgrade and adapt the acquired knowledge to suit present needs and context (Joia and Lemos, 2010).

Innovation capability is used to refer to changes that a firm is able to make with regard to products and/or services it offers and the ways in which they are offered (Liao et al, 2007). Innovation can be exponentially enhanced when there is a successful knowledge sharing process between partners. Hong et al (2004) who studied knowledge sharing in integrated product development have indicated that knowledge sharing and new product development are positively related, which forms our basis to use product development in studying knowledge sharing. Moreover, it has been observed that the acquired knowledge from external sources can have a major influence to firm's innovation capability if it is well utilized (Zahra and George, 2002). Zahra and George (ibid) have articulated that firms can gain and assimilate knowledge but might not have the capacity to transform and exploit the knowledge to uplift the firm's performance in terms of profitability. The two authors have suggested for a mathematical representation of absorptive capacity as follows:

**Absorptive Capacity** = Employees' ability (education & skills) + Employees' motivation (individual drive to do tasks).

In search of benefits such as faster, better and cheaper processes and ways for new product development (NPD), companies form some teams to find out means for launching and ultimately delivering quality products at possible cost - effective ways. These teams have sometimes extended beyond focal firms' boundaries to include suppliers, customers and distributors (Ragatz et al, 1997; Hong et al, 2004). When Ragatz and colleagues (1997) studied on success factors for integrating suppliers into NPD, they indicated that there is presence of moderate use of shared education and training among team members. They further argued that cross-functional, inter-company communication and even direct communication are highly used techniques for supplier integration. Barriers to successful integration of suppliers into NPD were such as resistance to sharing proprietary information, and the not-invented-here syndrome. In order to overcome these barriers, Ragatz et al suggested for relationship restructuring which, among other things, should include shared education and training, formal trust development processes, formalized risk/reward sharing agreements, joint agreement on performance measurement, top management commitment from both companies and confidence in suppliers' capabilities.

NPD is considered to be a central process that new knowledge is created and that tacit knowledge is more vivid during this process but its transfer from one person to another highly depends on a long time of apprenticeship (Madhavan and Grover, 1998; Polanyi, 1967). Development of NPD teams requires that there is a sharing of resources which might be intellectual assets such as technology, information, customer requirements, or through human assets such as co-location, supplier participation on teams and could extend to sharing of physical assets such as common and linked information systems, and equipment (Ragatz et al, 1997). In conceptualizing these findings and their recommendations thereof, one can come to a conviction that among what makes suppliers or any other actors in the chain to be relied upon by the focal firm is actually their motivation and knowledge base (cumulatively called absorptive capacity) invested among its employees and organizational principles and routines. From this foregoing argument, therefore, we hypothesized the following to hold:

*H2: Product development knowledge sharing from MNCs is positively related with absorptive capacity of host country firms.*

## **2.7 Control variables**

### ***2.7.1 Modes of Entry, Operations of MNCs and business relationships***

MNCs have different choices at their disposal in deciding how to enter and serve their foreign markets. Knowledge sharing has been discussed in connection to strategic interdependence, technological linkage, and entry strategy (Hongxin and Yadong, 2005). They argue that “companies maintaining differing levels of strategic or technological linkage with peer companies or using differing entry modes in foreign markets are likely to vary in their needs for organizational knowledge sharing”.

Anderson and Gatignon (1986) indicate that varied modes of entry by MNCs can have future impact in terms of proprietary

knowledge. While some entry modes such as licensing, joint venture and franchising may allow more knowledge sharing others are reluctant to release their accumulated knowledge and thus devise strategies to protect it (Faria and Sofka, 2010). In joint ventures, two or more cross-national and cross-organizational partners have an accumulated knowledge pool which tends to complement the existing knowledge possessed by individual partners (Anderson and Gatignon, 1986). When one party acquires useful knowledge or practices from the other party, it is expected to share this with peer corporate members.

Sarala and Sumelius (2005) and Foss and Pedersen (2002) have suggested that entry mode decisions may have an impact on subsequent knowledge transfer both within and between units of the MNC. They have contended that some studies have used entry modes as a control variable when examining knowledge transfer in intra-organizational networks. Sarala and Sumelius, for example, have noted that there has been mixed results. In some studies regarding post-acquisition integration processes, a number of problems relating to knowledge transfer from acquired units have been observed whereas other studies have highlighted the value of acquired units as potential knowledge providers for the rest of the MNC (Gupta and Govindarajan, 2000).

### ***2.7.2 Company age***

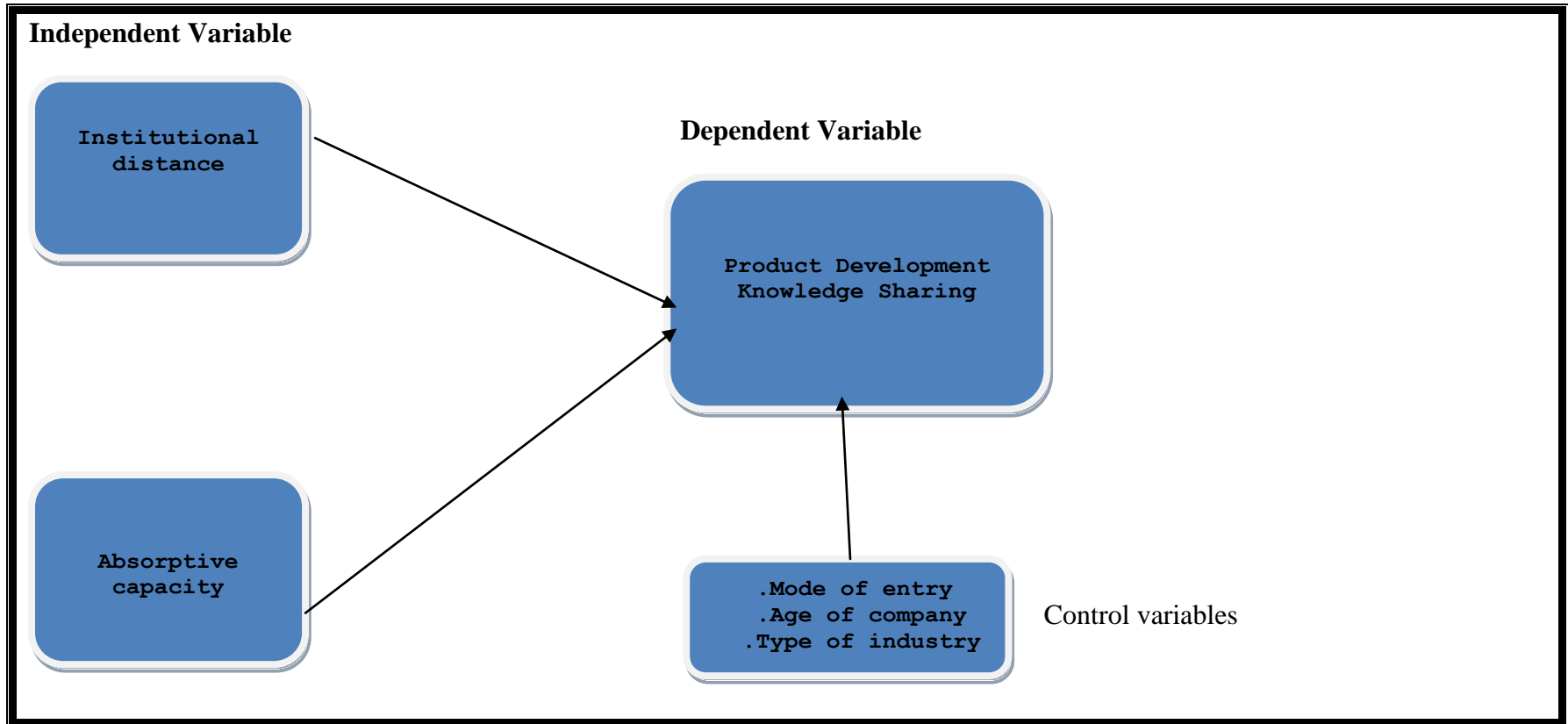
According to Hansen (1991), growth of the firm is defined by a number of innovations that are made by a particular firm. New product development is considered as one type of the innovation that can be made by a firm. Innovation capability of the firm can be explained by its age where the innovation level is expected to differ between older and younger firms. For that reason, we consider age of the firm as control variable because the number of new products developed by firms is predicted to differ significantly between relatively younger and older firms. One observation is that, in dynamic business environment older firms are expected to have less innovations and the vice versa is true (Sorensen & Stuart, 2000).

### ***2.7.3 Type of Industry***

Different industries offer different levels of innovation opportunities (Hansen, 1991). Knowledge sharing level in innovations such as NPD differs from one industry to another. In manufacturing industry knowledge sharing is predicted to be less than in service industry because of frequency of innovations and knowledge embeddedness (Dortmund, 2005). Less innovations are considered to be present in the manufacturing industries (food industry, textile industry, household appliances industry, wood and furniture industry, etc) because such industries are considered to have less technology intensity - about less than 1% spending of turnover on R&D (Smith, 2000). Therefore, with less frequency of innovations, knowledge sharing becomes lower/less in manufacturing industry.

In the manufacturing industry, knowledge is embedded in tools, people, routines or combination (Swart & Kinnie, 2003). Such embeddedness makes sharing of knowledge in manufacturing sector extensive (Argote & Ingram, 2000) because of technology life cycle and technology complexity (Zander & Kogut, 1995). This convolution makes relatively less knowledge to be shared in manufacturing industry. In the service industry, however, knowledge sharing is said to be relatively easier than in the manufacturing industry (Swart & Kinnie, 2003). One possible explanation is that the embeddedness of knowledge in service firms is in people and routines or both. Hence, sharing of knowledge would require establishment of activities that allow for mobility of people and exchange of routines (Engrom et al, 1990). Further, Smith (2000) presented that the intensity of knowledge sharing depends on the level of the firm's investment on social capital. He concluded by stressing on the establishment of both formal and informal exchange of people and organizational routines between firms as the main mechanism for sharing of knowledge in the service sector.

Figure 3 Research framework



Source: Authors' own construct from literature, 2011.



## **CHAPTER THREE**

### **Research design and methodology**

#### **3.0 Introduction**

This chapter is devoted to give a description on how the study was carried out in order to accomplish the desired goals. According to Bryman and Bell (2007), a research design provides a framework for the collection and analysis of data. A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process. The fundamental rationale of this research was to assess two factors as they determine the extent to which Tanzanian domestic firms acquire knowledge from multinational companies that operate in the country. Interests are vested in understanding the predictive ability of these determinant factors at the firm level. In the next sections we explain about the variables measurements, the research design, the unit of analysis, the sampling design, data collection methods, data analysis and we finally present measurements of validity and reliability.

#### **3.1 Operationalization and measurement of concepts**

Cozby (2005) defines an operational definition of a variable as “...techniques the researcher uses to measure or manipulate the variable”. He further insists that variables must be operationally defined so that they can be studied empirically. In order to be able to test the variables used in this study, we operationalized both the dependent and independent variables as follows;

##### ***3.1.1 Dependent variable***

Based on Liao et al (2007), knowledge sharing refers to the exchange of knowledge between the source and the recipient of the knowledge. It involves collecting and donating knowledge between two parties. However, our study is focused on the one half of a dyadic relationship between MNCs and domestic firms. The major theme is knowledge collection by domestic firms with regard to

new product development as a tangible assessment of knowledge sharing concept. As adapted from Liao (ibid), a 7 point-Likert scale (1= strongly disagree through to 7= strongly agree) was used in measuring the concept.

### **3.1.1.1 Variable measurement**

We agree with some scholars who have contended that knowledge sharing is not easy to measure; however, Liu and Liu (2008) measured knowledge sharing as knowledge transmission via training and publications such as membership in professional communities (networking). Williem et al (2005) also measured knowledge sharing in terms of established formal systems, lateral coordination and informal networking. Lee and MacMillan (2007) on the other hand, measured knowledge by rating changes made on organizational structures, changes in work process, and personnel exchange between organizations. Shapira et al (2007) measured “stocks of intellectual or knowledge capital and flows of changes in knowledge stocks and interorganizational relationships in terms of knowledge management in areas of leadership, knowledge capture, training, policies, communication, and incentives were measured”. Though (Liao et al 2007) provided us with categories of knowledge sharing dimensions, we used other authors in measuring our constructs. We measured knowledge sharing by asking whether domestic firms had established interorganizational collaborations such as joint research projects (Hagedoorn et al 2000; Belderbos et al 2004), joint training programmes (Cabrera & Cabrera, 2005) , established external networks (Lee 2000; Dyer and Nobeoka, 2002), collaborations in technical resources and joint NPD projects (Mowery et al, 1996) with MNCs operating in Tanzania (see items 1-5 of the questionnaire appendix 1 at the end of this report).

### **3.1.2 Independent variables**

#### **3.1.2.1 Absorptive capacity**

In examining knowledge sharing from MNCs to domestic companies, the construct of absorptive capacity is measured by relating it to knowledge base of the recipient and the motivation level of the recipient company (Liao et al, 2007). We adopted measurements of this variable from different research work. For example, Escribano, et al (2009) measured absorptive capacity at firm level by

examining R&D intensity that considers both its total annual expenditures and whether a firm houses a fully staffed R&D department. They have done this because of the fact that knowledge is mostly created, captured, processed, transformed and that it is accumulated through research and development activities. Investment in human capital has also been considered in the previous research to include the number of qualified and skilled staff and the number of training conducted by the focal firm in pursuit of stimulating acquisition of new knowledge (Noorderhaven and Harzing, 2008).

As per Liao et al's categorization of the construct: knowledge base and motivation level, we measured knowledge base by asking our respondents to rank the level of professionalism possessed, educational knowledge and prior experience at their firm level. Respondents were also asked to estimate the significance regarding their expenditures in R&D. To measure the motivation of the recipient consists of assessing the added gain and incentives obtained by individuals as a result of their willingness to share knowledge (Liao et al, 2007; Schimdt, 2005; Escribano et al, 2009; and Cabrera & Cabrera, 2005). A 7-point Likert scale (running from strongly disagree = 1 to strongly agree = 7) was used to measure both dimensions of absorptive capacity of the domestic - recipient firms.

### **3.1.2.2 Institutional distance**

Pogrebnyakov and Maitland (2009) operationalized institutional distance as the difference of the regulatory, cognitive and normative components of institutions between pair-firms from two countries. They worked out distances between pairs of countries by calculating from data for individual countries by subtracting the value of a variable for one country from the value for the other and taking the absolute value of the difference. Despite these measures, we adapted measurements by Kostova (1999). According to this author, institutional distance refers to the differences in institutional setting that shapes the behaviour of two interacting parties. Institutional distance as construct has two dimensions -which are differences in formal and informal institutions. According to (Peng and Pleggenkuhle-Miles, 2009), formal institutions consist of laws, regulations and rules governing the interaction between two parties. Informal institutions consist of norms and values that shape the interaction behaviour of individuals and companies. The level

of analysis is basically at the national level. One should not forget that companies operate by reflecting their values from the countries of origin before they are forced to imitate the new values and business strategies from host countries (Zaheer, 1995). Since a high level of similarity between the MNC's institutional set up and the host country's institutional environment would predict success in knowledge sharing (Perkins, 2008), we therefore, decided to measure these differences at the firm level because they are embedded within the firm's operations and procedures. A Likert scale was used to measure the perceived institutional differences between MNCs and the recipient firms by indicating how similar or dissimilar the pair is. Measures involved were company policies, quality standards, perceived identity differences, differences in corporate cultures, differences in rules and regulations, differences in intellectual property rights laws, differences in the level of tolerance for committed mistakes during learning processes as well as the differences in the level of commitment by the employees. The scale ranges from 1, which indicates non-existence of significant differences through to 7 indicating strong belief in the existence of the perceived institutional differences.

### ***3.1.3 Control variables***

#### **3.1.3.1 Entry modes/business relationships**

Studies have indicated a strong correlation between knowledge transfer and the mode of entry/operation companies choose or forced to choose in a particular context (Sarala and Sumelius, 2005). Companies entering or operating in a host country through mergers or acquisitions are likely to share more knowledge than companies operating independently as standalone subsidiaries. Based on Mowery et al (1996), the modes of entry of MNCs are categorised in terms of strategic alliances and non strategic alliance entry modes. In order to identify the relationships existing between MNCs and domestic companies, respondents were asked to indicate a specific relationship(s) that they have with their counterparts. Strategic alliance modes operations include joint ventures and contractual agreements. Contractual agreements can be franchising agreements, licensing agreements, CO- R&D agreements and CO-marketing agreements. This is considered a control variable because it is expected that the extent to which firms share knowledge should differ significantly between firms that work collaboratively than those which do not due to the assumed presence or lack of trust and

commitment between them.

### **3.1.3.2 Company age**

With a purpose of distinguishing younger and older firms, we operationalized age of the company by establishing different age groups of the companies. By age of the company we refer to a number of years the firm has been in operations since its establishment as used by Hansen (1991) Swart & Kinnie, (2003). Item 21 on the questionnaire (see appendix 1) was designed for respondents to indicate age of the firms they are engaged with.

### **3.1.3.3 Industry**

While other studies grouped industry in terms of high-tech, medium-tech and low tech industries (Smith, 2000), we operationalized industry to feature manufacturing and service industry. This is due to a reason that knowledge sharing in innovations such as new product development is expected to differ significantly between such sectors due to the embeddedness nature of knowledge (Swart and Kinnie 2003) or frequency of innovations (Dortmund, 2005). Item 20 in the questionnaire was designed for respondents to indicate the type of the industry their firms were operating in.

## **3.2 The research design**

This study employed a descriptive research (cross-sectional) design. The choice of this design is that it entails the collection of data on more than one case and at a single point in time in connection with many variables which are then examined to detect patterns of association (Bryman and Bell, 2007). Cozby (2005) further narrates that a descriptive research design provides a “snapshot” of how people think and behave at a given point in time as well as being a good method for studying relationships among variables.

### **3.3 Unit of analysis**

The unit of analysis for this study is Tanzanian domestic firms that have business relationships with MNCs. Respondents were asked to make reference to or select only one specific relationship with any one MNC that they considered important for knowledge sharing and were requested to answer all questions in the questionnaire basing on this relationship if the company had multiple relationships with MNCs (refer question 24 of the questionnaire) (Buvik and Andersen, 2002). Our respondents were individual officials who were involved in NPD projects. Titles assumed by these individuals differed across industries from product manufacturing engineers in the manufacturing industry to marketing managers in the banking industry. The main interest was to draw companies which are connected in their value-creation networks, either as tier suppliers or tier customers to MNCs across industries. The choice of our unit of analysis, especially the number of respondents, implied that the data provided would reflect the actual facts of knowledge sharing at the firm level.

### **3.4 Sampling design**

A variety of sampling procedures was used in carrying out this study. We first obtained a list of registered companies from the National Business Registration and Licensing Agency (BRELA). There is a long list of Tanzanian firms at the Business registration agency (more than 5000) including very small entities such as food vendors and petty traders. However, there is no separate list for companies with business relationships with MNCs as these are firm- level decisions that the agency need not be informed about. We used some indicators such as application of modern technologies such as ATM cards for the banking industry, publicly known partnerships in the telecom industry and reading various reports regarding privatisation of some firms where shareholding ratios are indicated. Moreover, before obtaining the sample size, we sent some emails and attempted telephone calls to domestic firms enquiring whether they had any business relationships with MNCs. In so doing, we were able to obtain about 1400 companies believed to have such relationships out of which 150 had to constitute our sample size.

We initially used systematic sampling technique to get this number by selecting every 9<sup>th</sup> company. We attempted to make some prior telephone calls to know their whereabouts as well as verifying their existence in business. Unfortunately some were non-existent while most of them were highly scattered across the country and hence difficult and costly to reach them all. We ultimately opted for stratified sampling technique for we could obtain a more efficient sample size (Zikmund et al, 2010). We still targeted 150 companies in our sample. These companies were suppliers, customers, distributors/agents or advertising agencies involved in the value chains. Most of these companies were highly concentrated in Dar es Salaam as this is the largest commercial city in the country. We could track companies by obtaining their names from MNCs such as brewing and soft drinks factories which are foreign-owned and they always maintain a list of their distributors, suppliers and customers. Eventually, Dar es Salaam and Morogoro regions became our focal areas in drawing our sample size.

### **3.5 Sample size and data collection methods**

The decision about sample size is not a straightforward one: it depends on a number of considerations and there is no one definitive figure (Bryman and Bell, 2007). Among important considerations include time and cost, non-response rate, heterogeneity of the population, kind of analysis intended, the magnitude of acceptable error and the confidence level (Zikmund, et al, 2010). Only a small sample is required if the population is homogeneous. It has been established that a larger sample size will reduce the size of the confidence interval. Hence larger samples are more likely to yield data that accurately reflect the true population value (Cozby, 2005).

In this study we had a sample size of 150 firms. We distributed all questionnaires by physical visits (by hand) either ourselves or through research assistants after we had asked for appointments through e-mails and phone calls. In some companies we simply decided to show up without appointments as there were no responses to our e-mails and still such companies were included in our sample. The research assistants were used not in filling questionnaires but for both distribution and collection of the questionnaires from respondents who had filled in their responses. This use of assistants was compelled by the fact that time was quite limited for us

to meet every company in the sample. We met our research assistants a day before they began to distribute questionnaires. In our meeting, we clarified areas that seemed technically difficult for them to explain should respondents ask for clarifications. We didn't have a serious quality control problem as questionnaires had simple close-ended questions (see appendix 1) that did not call for much involvement by research assistants besides our attempt to make some telephone calls to respondents for verification of questionnaire delivery in order to ensure that none of the assistants filled in a questionnaire they possessed. Out of 150 distributed questionnaires, we received a total of 80 fully filled ones as indicated in the table presented on the next page. The distribution was based on one questionnaire to each respondent company selected. The maximum response time was two weeks from the day of delivery before research assistants made follow-up trips for collection. As indicated in the table on the next page, the response rate was 53.3%.

### **3.5.1 Missing Data**

In spite of the relatively small percentage of the missing values (less than 2%) we had, we used the SPSS option of “exclude cases pairwise” when performing different analyses such as when examining correlation among variables in order to perform the analysis while avoiding their impact over the results. Such an option was able to exclude a case when missing data existed in certain analysis while including the same case if it appeared to contain required information when performing other analyses as suggested by Pallant, (2007:56-57).



**Table 2 A summary of distributed questionnaires and the sample size used**

Industry	Distributed questionnaire sets	Returned sets	% distributed	of Not returned sets	% distributed	of
Telecommunication	15	7	46.7	8	53.3	
Manufacturing	40	23	57.5	17	42.5	
Services	30	17	56.7	13	43.3	
Extraction	10	2	20.0	8	80.0	
Tourism	25	16	64.0	9	36.0	
Construction	10	6	60.0	4	40.0	
Media	10	4	40.0	6	60.0	
Transportation	10	5	50.0	5	50.0	
Total	150	80		70		
<b>Response rate</b>			<b>53.3</b>		<b>46.7</b>	

### 3.6 Data analysis

After the relevant data had been gathered, activities such as editing and coding were conducted in order to ensure for consistency and completeness of data prior to carrying out the analysis work. Testing of the hypotheses developed in the study was conducted using multiple regression analysis technique using Statistical Package for Social Sciences (SPSS 18.0) for windows. This technique is suitable due to the exploratory nature of the study- where the interest was to determine the predictive abilities of the chosen independent variables on the dependent variable (Zikmund, et al. 2010).

## **3.7 Validity and reliability**

### ***3.7.1 Validity***

Validity is the accuracy of a measure or the extent to which a score truthfully represents a concept (Zikmund, et al, 2010). Zikmund and others further contend that no author or researcher can claim validity to their work but can measure it through coverage of the already known indicators such as face validity (A scale`s content logically appears to reflect what was intended to be measured), content validity ( The degree that measure covers the breadth of the domain of interest) , criterion validity ( The ability of a measure to correlate with other standard measures of similar constructs or established criteria), convergent validity (Concepts that should be related to one another are in fact related, highly reliable scales contain convergent validity) and discriminant validity (Represent how unique or distinct is a measure; a scale should not correlate too high with a measure of different construct). In order to be sure of the accuracy of our measurement scales for the constructs used, we performed factor analysis with principal component analysis. The results indicated that the correlation coefficients ( $r$ ) among all items in each scale were greater than .3 which indicates convergent validity and that most of these coefficients were not greater than .7, thus indicating reasonable discriminant validity as explained earlier. We finally obtained factor loadings matrix which indicates how similar items in one scale actually load to the construct they are measuring, the results (see table 3) allowed us to retain all items in all three scales for further regression analysis except two items (similar quality standards and efforts used in inter-company negotiations) in institutional distance scale which had to be dropped due to their weaker correlations to would-be similar items as indicated by the table on the next page.

**Table 3 Rotated Component Matrix<sup>a</sup>**

	Factor loadings for three Components		
	Knowledge sharing	Institutional distance	Absorptive capacity
Joint NPD teams	.895		
Established external networks	.877		
MNC collaborate on technological resources	.903		
Joint research	.841		
Joint training	.796		
Significant R&D annual expenditure			.469
Knowledge gain from MNC			.401
External Knowledge appreciated by local companies			.435
Availability of professional knowledge to local companies			.789
Local companies' employees are trained			.894
Incentives for knowledge collection			.441
Effort on NPD agreement	.761		
Perceived similar corporate image		.468	

Perceived similar policies		.523	
Differences in quality standards	.818		
Differences in rules and regulations		.733	
Communication barrier hindrance		.657	
Weak property rights in Tanzania		.717	
Tolerance of failures		.420	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

### **3.7.2 Reliability**

Reliability as used in research refers fundamentally to consistency of measures which allows for replication of the same results when similar studies are carried out (Bryman and Bell, 2007). The internal reliability of this study was tested using a Cronbach alpha coefficient. This measurement ranges between 1 (denoting a perfect internal reliability) and 0 (denoting no internal reliability). However, a measure above .6 suggests a good reliability.

We carried out an initial test for reliability of the scales used during the survey and obtained the Cronbach alpha coefficient value of .946 for the scale used to measure knowledge sharing with all positive values in the inter-item correlation matrix. As a rule of thumb  $\alpha > .7$  is considered acceptable. We further calculated the reliability value for the scale of absorptive capacity with 6 items and obtained  $\alpha = .852$  – which also suggests a reliable measure. Finally, we found the reliability value for the institutional distance scale which turned out to be  $\alpha = 0.875$  but with negative values in the inter-item correlation matrix, thus not a reliable scale for the variable. We had to reverse our recoding of values in some of the negatively worded items in the questionnaire in order to deal with the negative inter-item correlations and recalculated afresh. We obtained the value of  $\alpha = 0.829$  without negative values in the inter-item correlation matrix thus being a reliable measure of the construct but two items (quality standards and effort of negotiations loaded to a different construct not intended to measure (see appendix 3). We dropped the two items in our subsequent analysis.

## **CHAPTER FOUR**

### **Analysis and Presentation of findings**

#### **4.0 Introduction**

This chapter presents the analysis and findings of the survey data collected during the study. We conducted different statistical tests to determine the extent to which absorptive capacity and institutional distance as independent variables predict knowledge sharing by taking into consideration the control variables used.

#### **4.1 Descriptive statistics**

In order to be able to interpret the mean statistic given in table 4, we divided each figure for the variables (in the mean column) by the number of items each variable consists. Knowledge sharing was measured by 5 items thus giving a mean standard measure of 4.977. Absorptive capacity was measured by 6 items whose mean standard measure is 4.250. We used 8 items in measuring institutional distance and obtained a mean standard measure of 3.395. These mean statistics indicate that absorptive capacity has the greater mean (4.250) thus suggesting that it is a major determinant of knowledge sharing. The findings are in support of the argument by (Gururajan and Fink, 2010) that absorptive capacity depicts the success of knowledge transfer between two parties. The mean for institutional distance (3.395) gives this variable the second chance in its contribution for knowledge sharing. Individual means for each item in the descriptive statistics is found in the appendix 2 attached at the end of this report. Standard deviations for both absorptive capacity and institutional distance do not differ much (around 7) which suggests that there is only small variability among responses given in the items used to study the variables.

## 4.1.1 Kurtosis and Skewness

### 4.1.1.1 Kurtosis

From the descriptive statistics results (table 4), kurtosis and skewness values are presented for assessing the distribution of the cases' validity of the study. According to Pallant (2007:56), kurtosis values are the indicators of peakedness of the distribution whereby the kurtosis value of 0 means that the distribution of studied cases is perfectly normally-distributed. Our kurtosis values for knowledge sharing, absorptive capacity and institutional distance appear to be all negative:  $X < 0$ , (assuming X stands for kurtosis value). The negative kurtosis values indicate that the distribution of cases is relatively flatter. This means that cases for our variables are not normally distributed. As described by (...) <sup>2</sup> we made further calculations to determine the significance of non-normal distribution of the cases. Using this formula,  **$-(2 \times \text{Standard error value}) \leq X \leq + (2 \times \text{Standard error value})$**  where: **X = kurtosis value**, we established whether non normal distribution of cases is significant or not. Non normal distribution is said to be significant when the kurtosis value is not found/ does not lie within the range of  $\pm (2 \times \text{standard error value of kurtosis})$ . From table 4 below, the kurtosis value is  $X = -.501$  for institutional distance,  $X = -.708$  for absorptive capacity and  $X = -.935$  for knowledge sharing. These values are found within the range of  $\pm (2 \times .532) = \pm 1.064$ . These results suggest that the non normal distribution indicated by kurtosis values is not significant for all variables thus allowing us to consider our distributions as approximately normally-distributed and proceed with the subsequent analyses.

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<sup>2</sup> University of New England (2000),  
[http://www.une.edu.au/WebStat/unit\\_materials/c4\\_descriptive\\_statistics/determine\\_skew\\_kurt.html](http://www.une.edu.au/WebStat/unit_materials/c4_descriptive_statistics/determine_skew_kurt.html)

### 4.1.1.2 Skewness

According to Pallant (2007:56), skewness is an indicator of evenness of distribution. Our skewness values for knowledge sharing, absorptive capacity and institutional distance are all negative:  $X < 0$ , (assuming X stands for skewness value). The negative skewness values indicate that clustering of the values lies to the right hand side of the graph. This means that the distribution of cases is not normal. As described by (...) <sup>3</sup> we made further calculations to determine the significance of the non-normal distribution for the cases. From this formula - **(2xStandard error value) ≤ X ≤+ (2xStandard error value of skewness) where: X = skewness value**, one can establish if the non normal distribution of cases is significant or not. When the skewness values of the variable is obtained within the range of  $\pm (2 \times \text{standard error value of skewness})$ , then the non-normal distribution is considered to be not significant. Table 4 indicates skewness values  $X = -.346$  for institutional distance and  $X = -.421$  for absorptive capacity and that they all lie within an obtained range of  $\pm (2 \times 0.269) = \pm 0.538$ . These results suggest that the non-normal distribution is not significant for these variables thus allowing us to consider the distributions as approximately normally distributed thus relevant for further analyses.

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<sup>3</sup> University of New England (2000),  
[http://www.une.edu.au/WebStat/unit\\_materials/c4\\_descriptive\\_statistics/determine\\_skew\\_kurt.html](http://www.une.edu.au/WebStat/unit_materials/c4_descriptive_statistics/determine_skew_kurt.html)



**Table 4 Descriptive statistics**

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Knowledge sharing	80	7.00	35.00	24.8875	8.78433	-.632	.269	-.935	.532
Absorptive capacity	80	8.00	40.00	25.5000	7.72305	-.346	.269	-.501	.532
Institutional differences	80	12.00	42.00	27.1625	7.46205	-.421	.269	-.708	.532
Valid N (listwise)	80								

Source: Survey data

## 4.2 Regression results

We conducted hierarchical multiple regression analysis to assess the predictive ability of the independent variables namely absorptive capacity and institutional distance to knowledge sharing after we controlled for: type of industry, age of the company and the business relationship between MNCs and host country firms. Some scholars such as Hair, et al (2010) have suggested that before the regression model is established, fundamental assumptions should be observed. These assumptions include multicollinearity and normality. However, normality has already been discussed under 4.1.1 above. In the next section we discuss the multicollinearity assumption.

## 4.3 Multicollinearity

The term refers to a high correlation that may exist between independent variables and that they (independent variables) should indicate some relationship with the dependent variable (Pallant, 2007). To test for multicollinearity, we used two ways: first, we

checked for correlations between each independent variable and the dependent variable as well as between independent variables themselves. Second, we checked for collinearity diagnostics (Tolerance value and VIF values). Appendix 5 indicates that with the value of .699, the variable ‘absorptive capacity’ shows some relationship with knowledge sharing. This value is above the required value of (above .3 preferably) showing that such independent variable is well related to the dependent variable. Likewise the relationship between the independent variable ‘institutional distance’ and knowledge sharing is evidenced by the value of .701. Therefore, we can reliably conclude that absorptive capacity and institutional distance are related to knowledge sharing. When measured independent variables one against the other, absorptive capacity and institutional distance give a correlation coefficient of ( $r = .554$ ). This correlation value indicates that we have not violated the assumption of using multiple regression analysis since such correlation value is less than .7. For this reason, both variables are suitable for the regression model.

Included in table 7 are values of Variance Inflation Factor (VIF) and Tolerance. The table indicates the tolerance values of .655 for absorptive capacity and .677 for institutional distance. VIF values further support such results by indicating that both VIF values of absorptive capacity (VIF=1.526) and institutional distance (VIF=1.476) are less than the required value of 10. As a rule of thumb, when VIF values are above 10 and those of Tolerance are less than .10 they give a suggestion that multicollinearity exists. However, the results indicated here suggest no multicollinearity.

#### **4.4 Evaluating the models**

In order to understand the predictive ability of the model, adjusted  $R^2$  is used as a measure of how much of the variance in the dependent variable (Knowledge sharing) is explained by this model. This value is obtained from the table labelled model summary in the SPSS regression output (table 5). Model 2 is composed of independent and control variables in predicting the variance in the dependent variable as follows:

$$Y = \alpha + \beta_1 (\text{Absorptive Capacity}) + \beta_2 (\text{Institutional distance}) + \beta_3 (\text{Business relationship}) + \beta_4 (\text{Age of the company}) + \beta_5 (\text{Type of industry}) + \varepsilon$$

Where:  $\alpha$  is the constant figure estimated in the regression model

$\beta_1, \beta_2, \beta_3, \beta_4$  and  $\beta_5$  are coefficients for the variables as estimated in the model

$\varepsilon$  is the estimated error in the model.

Y is the dependent variable- knowledge sharing

**Table 5 Model summary<sup>c</sup>**

Model dimension	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
Model 1	.219a	.048	.010	8.73856	.048	1.277	3	76	.288
Model 2	.799b	.638	.614	5.45998	.590	60.338	2	74	.000

a. Predictors: (Constant), Business relationship, Type of industry, Age of the company

b. Predictors: (Constant), Business relationship, Type of industry, Age of the company, Adjusted total institutional distance, Total absorptive capacity

c. Dependent Variable: TKNOWSHAR

Both predictor variables (Institutional distance and Absorptive capacity) and the control variables produce the value of adjusted  $R^2 = .614$  which equals 61.4% of the total variance in knowledge sharing. The statistical significance of these results can be assessed by looking at outputs given in table 6 where the regression model is significant at  $p < .001$ . The two variables have indicated a high  $R^2$

value due to the fact that these variables capture much characteristics of some other variables which have been used in previous researches (refer item 2.2 in Chapter Two).

The same table also displays model 1 which consists of only control variables in order to assess their predictive ability in knowledge sharing. This model has an  $R^2 = .010$  which represents only 1% of total variance in knowledge sharing and not significant at  $p > .005$ .

**Table 6 ANOVA<sup>c</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	292.446	3	97.482	1.277	.288a
Residual	5803.542	76	76.362		
Total	6095.987	79			
2 Regression	3889.948	5	777.990	26.097	.000b
Residual	2206.039	74	29.811		
Total	6095.987	79			

a. Predictors: (Constant), Business relationship, Type of industry, Age of the company

b. Predictors: (Constant), Business relationship, Type of industry, Age of the company, Adjusted total institutional distance, Total absorptive capacity

c. Dependent Variable: TKNOWSHAR

## 4.5 Evaluation of each independent variable

To assess the unique contribution of each independent variable in predicting the variance in the dependent variable, results are presented in the SPSS output labelled *Coefficients (table 7)* in which standardized beta values are depicted. By looking for the largest beta value helps to locate for the variable that has more power in its prediction ability. Ignoring any negative signs the beta value of absorptive capacity is .443 and that of institutional distance is also .443 both significant at  $p < .001$ . In other words none of the two variables exerts more influence to knowledge sharing than the other. The implication of these results is that both variables have positive contributions to the regression model as well as to knowledge sharing accounting for about 61.4% of variability.

Moreover, table 7 indicates that both absorptive capacity and institutional distance make a strong unique contribution to explain the variance in knowledge sharing when the variance explained for other variables in the model is controlled. This argument is supported by comparing the contribution of each independent variable (in model 2) whereby the .443 is the only statistically significant Beta coefficient among the standardized coefficients in both models. All control variables in model 2 are not statistically significant ( $p > .005$ ). The positive beta coefficients of absorptive capacity and institutional distance on the other hand provide a means to test for the hypotheses developed in this study as will be discussed in the next chapter.

Furthermore, absorptive capacity has part correlation coefficient of .359 while institutional distance has part correlation coefficient of .365. By squaring each of these values we obtain a value 13% for absorptive capacity and value 13% for institutional distance both indicating an individual percentage of the variance of each variable in knowledge sharing. These results provide a further meaning that, R square values would fall at approximately 13% if institutional distance and absorptive capacity variables were not included.

**Table 7 Variables Correlation Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized	t	Sig.	Correlations			Collinearity Statistics		
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	-2.586	2.480		-1.043	.300					
	Total absorptive capacity	.511	.095	.449	5.398	.000	.699	.524	.374	.693	1.443
	Total Institutional Differences	.532	.098	.452	5.432	.000	.701	.526	.376	.693	1.443
2	(Constant)	-2.327	3.696		-.630	.531					
	Total absorptive capacity	.504	.098	.443	5.133	.000	.699	.512	.359	.655	1.526
	Total Institutional Differences	.522	.100	.443	5.216	.000	.701	.519	.365	.677	1.476
	Age of the company	-.537	.672	-.057	-.799	.427	-.127	-.092	-.056	.965	1.036
	Type of industry	.172	.334	.037	.513	.609	.034	.060	.036	.951	1.052
	Business relationship	.271	.352	.055	.769	.444	.163	.089	.054	.949	1.054

a. Dependent Variable: TKNOWSHAR

## CHAPTER FIVE

### Discussion, Conclusion and Implications

#### 5.0 Introduction

This study intended to examine some determinant factors necessary for knowledge sharing to happen between multinational companies and Tanzanian domestic firms. In so doing, some hypotheses were put forward in order to predict the association between variables used. The findings are considered important in contributing to the literature about knowledge sharing between the west-developed countries and the developing south. The implications of these findings can also aid policy makers in Tanzania to devise means on how local companies can be enabled to reap knowledge from their counterparts. In the next section, we present a discussion on the hypotheses and the control variables used, followed by the concluding remarks before implications and recommendations for further research are presented finally.

#### 5.1 Hypotheses testing using the regression results

In order to test some hypotheses, the researcher(s) should assess the estimated regression coefficients, or beta coefficients because they both represent the type of relationship (positive and negative) and the impact of the relationship between independent and dependent variables in the model (Hair et al 2010). This means that the hypothesis is supported by the data if the coefficient for the corresponding beta term is statistically significant and possesses the predicted sign.

The first hypothesis in this study was; H1: *Product development knowledge sharing from MNCs to host country firms is negatively related with institutional differences*. In order to test this hypothesis, the variable ‘institutional distance’ was regressed in the model. The results of this test indicate that the variable has a .701 correlation coefficient with knowledge sharing and that its beta value is .443 and significant at  $p < .001$ . These results *do not support* the hypothesis. They indicate that knowledge sharing between Tanzanian

firms and their foreign business partners is not dependent on whether there is low or high level of perceived institutional differences with regard to organizational regulations and rules, communication channels especially language, enhanced laws on intellectual property rights in the country and that Tanzanian firms adopt a culture of tolerance for innovative mistakes that their employees may commit in the course of learning. In other words the results suggest that institutional distance between firms does not dictate the extent to which knowledge is shared. The results are in consistence with that of Barachini (2009), who by applying the business transaction approach concluded that knowledge is regarded as human property independent of cultural differences (p.105). These results are, however, inconsistent with a number of past researches such as that of Moller and Svahn (2004) whose work focused on crossing East-West boundaries and its implications on multicultural knowledge sharing. They note that “cultures are highly complex and that cultural patterns are deeply ingrained to the extent of affecting individual sense making, situation framing, knowledge preferences, and knowledge processing and sharing ( p.225). Furthermore, Faria and Sofka (2010) indicated similar conflicting results when studying about knowledge protection strategies of MNCs. They reported that MNCs employ a number of strategies to protect their knowledge base from host country firms depending on country-specific conditions such as regulatory framework in a given industry, and the availability of opportunities. Examples of such strategies could be secrecy, complex designs and patents. Another study is by Lane and Lubatkin (1998) whose findings indicated a strong stand on similarities of firms’ (1) knowledge bases, (2) organizational structures and compensation policies, and (3) dominant logics.

The controversy arising from our results may be explained by the fact that most MNCs in Tanzania hardly employ exclusively foreign employees but comply with country laws which require them to import only a handful of top executives. This legal compliance makes MNCs adapt to local environment in which knowledge sharing takes place and thus eliminating the negative association as was predicted in the hypothesis. Another possible explanation for the ‘not-supported’ result of the hypothesis could be based on the measures used in the study which were mainly meant to capture perceptions about differences in institutions. This could further suggest the presence of more or less perceptions than their actual status.



The second hypothesis tested in this study stated: H2: *Product development knowledge sharing from MNCs is positively related with absorptive capacity of the host country firms.* This hypothesis was tested by taking absorptive capacity as an independent variable and was regressed into the model. The correlation coefficient between absorptive capacity and knowledge sharing was .699 with absorptive capacity recording a beta value of .443 being significant at  $p < .001$ . In due course of these results, the hypothesis is *supported*. This means that the more employees in the local companies are motivated in sharing knowledge and that the knowledge base is strengthened through more and more training opportunities, having some adequately staffed R&D departments and be willing to spend a significant proportion of their annual budgets in R&D activities, the more these companies enhance their possibility for the acquisition of knowledge inflows from MNCs and vice versa. A study by Liao et al, (2007) supports these results although in their study, absorptive capacity was used as an intervening variable. They also went beyond and reported that knowledge sharing has a positive effect on absorptive capacity but this was beyond our study. Similarly, Lane and Lubatkin (1998) studied relative absorptive capacity and interorganizational learning also reported absorptive capacity being of great importance, among other things, for effective and efficient learning in the dyadic relationships.

## **5.2 Control variables**

In order to control for extraneous variables, we employed some control variables which have indicated some influence over the concept of knowledge sharing. These variables were operation modes/business relationships, the number of years the company has been in operation and type of the industry local firms operate in. By using hierarchical multiple regression analysis two models (1 & 2) were generated in which model 2 included both the control variables and the independent variables to determine the total variability in knowledge sharing whereas model 1 consisted of only control variables (refer table 5 in chapter four). Individual results for the control variables are presented next.

### ***5.2.1 Business relationships***

Contrary to other studies such as Hongxin and Yadong (2005) and Anderson and Gatignon (1986) which indicated strong influence on knowledge sharing, this study has indicated less influence of this variable. In the model summary (table 5), business relationship though bears a positive sign, it is not significant at all. This is a surprising result as all companies sampled were involved in different types of business relationships with MNCs. It was expected that different companies would experience varied levels of knowledge sharing based on their business ties with MNCs. However, similar contradictory results were also noted by Sarala and Sumelius (2005) as well as Lane and Lubatkin (1998). While Sarala and Sumelius noted that there have always been mixed results on this, Lane and Lubatkin on the other hand supported their findings by stating "...it is dangerous to regard strategic alliances as a panacea for staying in touch with rapidly changing technological environment because the benefits of strategic alliances are not automatic" (p. 463).

### ***5.2.2 Age of the company***

In measuring the influence of our independent variables (institutional distance and absorptive capacity), we applied age of the company (number of years a particular firm has been in operation) as another control variable. Some literature such as Sorensen and Stuart (2000) who studied the relationship between company age and innovation rate have suggested that relatively younger companies possess the ability to frequent launch new products than older firms. This is due to the fact that younger firms are able to fit their capabilities with the changing consumer preferences more easily due to their flexibility. This tendency suggests further that knowledge sharing can be easily absorbed by these than it is with older firms.

However, our study indicated no statistical significant differences exist between companies in business beyond 10 years and those below 10 years. There is a negative association (-.057) between age of the firm and knowledge sharing. The mean company age was

3.09 years. The possible explanation for this result could be attributed to the fact that multinational companies began to enter in Tanzania in the late 1990's and early 2000's in the wake of encouraging foreign direct investments (FDI) in the country. This may further indicate that collaborations with MNCs is a recent phenomenon that has not shown great benefits to domestic firms so far just like young firms that were established during this time and have no business relationships with MNCs.

### ***5.2.3 Type of industry***

We used 'type of industry' as another control variable because this study made a survey across several industries. Respondents filled in the industries their firms are operating in. Though results indicate type of industry to have a positive impact (.037) on knowledge sharing, it is not significant with  $p > .05$ . This result contradicts that of Dortmund (2005) and Swart and Kinnie (2003) who suggested that knowledge sharing is the least in manufacturing but relatively higher in the service industry due to knowledge-embeddedness nature of services.

Generally speaking, the control variables used in this study do not indicate significant impact on the variability of the dependent variable studied. While independent variables explain about 62% of variability in the dependent variable, control variables combined explain only about 5%. This sheds light on the independent variables being better determinants of knowledge sharing among Tanzanian local firms.

## **5.3 Study implications**

This study bears some implications to both managers of the domestic companies on one hand and the country's policy makers on the other. At the level of managers, the study depicts that domestic companies need to have professional employees in the relevant positions and dedicate more efforts in making sure that there are joint teams in place for them to tap innovative knowledge from multinational companies. It has been clearly stated earlier that being in collaboration with a multinational company alone does not

guarantee enough knowledge but having a team of professionals who are motivated and ready to absorb new knowledge is paramount.

On the other hand, the study has shed light on the weak laws and regulations with regard to intellectual property rights. It has been suggested that sometimes domestic companies miss their opportunity to share innovative knowledge with MNCs just because the latter have to devise their own means to protect their knowledge base. This issue has an implication to the national policy makers - that besides attracting more investments by multinational companies in the country, it is the duty of the government to put in place a strong regulatory framework that will guide and protect intellectual property rights which in turn will guarantee a smooth knowledge sharing environment free from unfair competition. It is until then MNCs will be more willing to share significant knowledge with domestic firms.

## **5.4 Conclusion**

We intended to assess “the determinant factors for knowledge sharing between multinational companies and domestic firms in Tanzania” which is the main focus of our research. A number of domestic firms across various industries was sampled and asked to respond to items in the questionnaire. The findings have indicated that absorptive capacity and institutional distance are correct determinant factors that can facilitate the flow of external knowledge from multinationals to Tanzanian local firms. Though institutional distance indicated a slightly higher power of determining knowledge sharing, absorptive capacity remains a central challenge to be addressed by domestic companies. They need to invest significantly in R&D activities for it is the major way to collect, create, process and disseminate new knowledge in order to enhance their knowledge base.

## **5.5 Limitations and areas for further study**

A study like this can rarely go without its own limitations. Knowledge sharing is a concept that is based on two parties namely the knowledge source and the recipient of this knowledge. Quite often, the source and recipient roles are not static in the sense that each of the parties may play any role at different times depending on the knowledge exchanged. For example, domestic firms are in good position to assume the source role when knowledge about domestic markets is exchanged. Similarly, when knowledge sharing concerns sophisticated technologies multinational firms become the source and domestic firms only receive it. Bearing this in mind, this study was only limited to domestic firms as receivers of knowledge while excluding multinational companies being sources of knowledge and this might have created some biases in the conclusion reached. Further studies are worthy undertaking to study the dyadic relationships in order to tap viewpoints from both sides. Moreover, since our study employed a survey design in which we chose one respondent from each sampled firm, the findings presented here might be biased in favour of the respondents if they entirely based on their own perceptions rather than the facts about their firms as Barachini (2009:108) has noted: “the quality of provided information on content is dependent on willingness to share”. Other studies employing different research designs with the use of more respondents from each sampled firm can contribute to a broader perspective about the phenomenon.

Another limitation for this study is embedded in the methodological procedure used. As this study was limited within four- month duration, it might have failed to capture some important processes as knowledge is said to be path-dependent and it grows with time. We recommend that studies employing time series methodology would suit some similar studies in order to establish the sharing process for a relatively long period of time. Furthermore, our measurements of institutional distance were confined on ‘perceptions’ about different items used to measure this construct. We recommend for further studies employing different measures capable of capturing ‘facts’ than perceptions which may arrive at different results than we have obtained here.

We also acknowledge the limitation that this study did not make an in-depth study for a single industry but rather explored across several industries. Some preliminary results have indicated the existence of significant differences in knowledge sharing between, for example, knowledge-intensive industries, and mere manufacturing and other industries. We therefore recommend for further studies to probe into an in-depth study of individual industries which might help us to widen up our understanding more thoroughly.

Knowledge is either tacit or explicit and that it can reside in individuals or organizational routines, tools and principles (Engstrom et al 1990; Argote & Ingram, 2000). This study takes a holistic view in studying knowledge sharing without intending to concentrate on either one alone. The results presented here are more generalized to both knowledge types which might behave differently when studied separately. We recommend for future researchers to study one type of knowledge at a time in developing countries.

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## **Appendix 1: A QUESTIONNAIRE SET USED IN THE COLLECTION OF SURVEY DATA**

### **A: Cover letter**

We are master students at the University of Agder in Norway. Towards the end of our study, it is important that each student carries out a research work and writes a report for submission to the University for the Award of the degree. In order to meet this requirement, we, **Edward Makoye** and **Jasinta Msamula** are conducting a research on **How Multinational Companies (MNCs) share some knowledge with Tanzanian local firms** in whatever business operations they undertake in the country. Due to time constraints, we, therefore, intend to ask some Tanzanian local firms only to provide us with relevant answers to the questions and/or statements given in this set of questionnaire. The answers provided here will be treated with high confidentiality and that it will be used for this desired research work only. We hope to receive an extended hand of cooperation from you.

With regards;

Edward and Jasinta

Tick in one of the boxes provided on the *right hand side* of the statements given in the left that describes the extent to which you either **agree** or **disagree** with the statement given with regard to your company's relationship with Multinational companies that it collaborates with.

**NB:** MNCs means Multinational Companies

**NPD** means new product development

**R&D** means Research and Development



		Strongly Disagree 1	Disagree 2	Somewh at Disagree 3	Neutral 4	Somewh at Agree 5	Agree 6	Strongly Agree 7
1	Our company has established external networks through working with multinational companies							
2	Our company often makes joint research on NPD projects with our foreign firm partners							
3	Our company often collaborates with MNCs on technical resources required to develop new products							
4	Our company forms							

	joint teams with MNCs when developing new products							
5	Our company often has joint training programmes with MNC necessary for knowledge sharing							
6	Our company often spends a significant proportion of its annual budget on R&D							
7	Our employees have relevant professional knowledge necessary for NPD knowledge acquisition from MNCs							
8	Our company often offers learning and							

	training opportunities for our employees necessary for NPD projects							
9	Our company is motivated to work with MNCs due to gains in technology							
10	Our company often appreciates professional knowledge sharing from MNCs							
11	Our company rewards employees for updating our common methodologies and procedures							
12	Our company shares knowledge with MNCs whose							

	policies are similar to ours							
13	We often fail to get a lot of new knowledge from MNCs due to differences in rules and regulations between our company and theirs							
14	MNCs do not share knowledge with our company due to weak property rights laws							
15	Our company often has similar level of tolerance of mistakes committed in NPD projects as MNCs							
16	It is difficult to gain any knowledge from							

	MNCs because of communication barriers							
17	There are often less differences in quality standards between our company and MNCs we work with in NPD projects							
18	Our company often makes joint NPD projects with MNCs whom we have a perceived similar corporate image							
19	NPD agreements are often reached with less effort when our company engages in NPD projects with MNCs							

Tick the appropriate answer provided under each statement or question given below;

20. What is the industry your company is engaged in?

Manufacturing

Service

Telecommunication

Banking

Transportation

Construction

Other (Please specify).....

21. For how long has your company been in operation?

5 years or less

6-10 years

11-15 years

16-20 years

More than 20 years

22. Does your company have a permanent R&D department?

Yes

No

23. What are the main sources of acquiring new knowledge in your company? Please tick in spaces provided below. (More than one

answer is acceptable)

Own divisions

Research and Development (R&D) department

From local business partners

From foreign Multinational Companies (MNCs) that we work together

From research centres and universities

Other sources (please specify).....

24. What is the kind of the business relationship that exists between your company and a multinational company? (Please refer to one relationship with one multinational company only)

Joint venture

Franchising

Licensing

Joint R&D Agreement

Joint Marketing Agreement

Buyer-supplier relationship only

Other, (please specify).....

**Thank you for your cooperation!**

## Appendix 2: A summary of statistics for all items used in the survey

### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Established external networks	80	1.00	7.00	4.3750	2.14874	-.260	.269	-1.323	.532
MNC influence on local companies	80	1	7	4.76	2.100	-.526	.269	-1.140	.532
MNC collaborate on technological resources	80	1	7	4.86	1.927	-.747	.269	-.601	.532
Joint research	80	1	7	5.56	1.645	-.928	.269	-.093	.532
Significant R&D annual expenditure	80	1	7	4.53	1.638	-.666	.269	-.517	.532
Knowledge gain from MNC	80	1	7	4.63	1.951	-.628	.269	-.903	.532
External Knowledge appreciated by local companies	80	1	7	4.35	1.527	-.659	.269	-.227	.532
Availability of professional knowledge to local companies	80	1	7	3.24	1.577	.569	.269	-.347	.532



Local companies' employees are trained	80	1	7	2.81	1.468	.506	.269	-.217	.532
Joint training	80	1	7	5.32	1.826	-.945	.269	-.235	.532
Incentives for knowledge collection	80	1	7	4.36	1.715	-.092	.269	-1.089	.532
Effort on NPD agreement	80	1	7	5.02	1.706	-.573	.269	-.778	.532
Perceived similar corporate image	80	1	7	5.20	1.702	-.621	.269	-.783	.532
Perceived similar policies	80	1	7	4.89	1.706	-.652	.269	-.769	.532
Differences in quality standards	80	1	7	5.65	1.829	-1.094	.269	-.122	.532
Differences in rules and regulations	80	1	7	4.09	1.608	-.052	.269	-.870	.532
Communication barrier hindrance	80	1	7	5.01	1.838	-.508	.269	-1.105	.532
Weak property rights in Tanzania	80	-1	7	2.69	1.548	.731	.269	.708	.532
Tolerance of failures	80	1	7	5.29	1.670	-.605	.269	-.789	.532
Valid N (listwise)	80								

### Appendix 3 (a) i: Scale: KNOWLEDGE SHARING

Inter-Item Correlation Matrix

	Established external networks	MNC influence on local companies	MNC collaborate on technological resources	Joint research	Joint training
Established external networks	1.000	.904	.838	.742	.691
MNC influence on local companies	.904	1.000	.864	.798	.717
MNC collaborate on technological resources	.838	.864	1.000	.751	.696
Joint research	.742	.798	.751	1.000	.823
Joint training	.691	.717	.696	.823	1.000

**Appendix 3 (a) ii  
Reliability Statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.946	.947	5

**Appendix 3 ( b) i Scale: ABSORPTIVE CAPACITY**

Inter-Item Correlation Matrix

	Significant R&D annual expenditure	Knowledge gain from MNC	External Knowledge appreciated by local companies	Availability of professional knowledge to local companies	Local companies' employees are trained	Incentives for knowledge collection
Significant R&D annual expenditure	1.000	.668	.639	.407	.378	.540
Knowledge gain from MNC	.668	1.000	.758	.453	.307	.552

External Knowledge appreciated by local companies	.639	.758	1.000	.506	.346	.579
Availability of professional knowledge to local companies	.407	.453	.506	1.000	.605	.286
Local companies' employees are trained	.378	.307	.346	.605	1.000	.334
Incentives for knowledge collection	.540	.552	.579	.286	.334	1.000

**Appendix 3) b ii**  
**Reliability Statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.852	.852	6

### Appendix 3 (c) i: Scale of Institutional Distance

Inter-Item Correlation Matrix

	Perceived similar corporate image	Perceived similar policies	Differences in rules and regulations	Communication barrier hindrance	Weak property rights in Tanzania	Tolerance of failures
Perceived similar corporate image	1.000	.797	.498	.594	.062	.563
Perceived similar policies	.797	1.000	.534	.642	.116	.558
Differences in rules and regulations	.498	.534	1.000	.817	.270	.452
Communication barrier hindrance	.594	.642	.817	1.000	.215	.535
Weak property rights in Tanzania	.062	.116	.270	.215	1.000	.050
Tolerance of failures	.563	.558	.452	.535	.050	1.000

### Appendix 3 (c) ii Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.835	.829	6

### Appendix 4: Factor Analysis

Correlation Matrix-Institutional distance items

	Perceived similar corporate image	Perceived similar policies	Differences in rules and regulations	Communication barrier hindrance	Weak property rights in Tanzania	Tolerance of failures	Differences in quality standards	Effort on NPD agreement
Perceived similar corporate image	1.000	.797	.498	.594	.062	.563	.739	.600
Perceived similar policies	.797	1.000	.534	.642	.116	.558	.721	.588
Differences in rules and regulations	.498	.534	1.000	.817	.270	.452	.441	.442
Communication barrier hindrance	.594	.642	.817	1.000	.215	.535	.608	.561

Weak property rights in Tanzania	.062	.116	.270	.215	1.000	.050	-.106	-.064
Tolerance of failures	.563	.558	.452	.535	.050	1.000	.659	.548
Differences in quality standards	.739	.721	.441	.608	-.106	.659	1.000	.644
Effort on NPD agreement	.600	.588	.442	.561	-.064	.548	.644	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.855
Bartlett's Test of Sphericity Approx. Chi-Square	392.115
df	28
Sig.	.000

Correlation Matrix-Absorptive capacity items

			External Knowledge appreciated by local companies	Availability of professional knowledge to local companies	Local companies' employees are trained	Incentives for knowledge collection
	Significant R&D annual expenditure	Knowledge gain from MNC				

Correlation	Significant R&D annual expenditure	1.000	.668	.639	.407	.378	.540
	Knowledge gain from MNC	.668	1.000	.758	.453	.307	.552
	External Knowledge appreciated by local companies	.639	.758	1.000	.506	.346	.579
	Availability of professional knowledge to local companies	.407	.453	.506	1.000	.605	.286
	Local companies' employees are trained	.378	.307	.346	.605	1.000	.334
	Incentives for knowledge collection	.540	.552	.579	.286	.334	1.000



KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.807
Bartlett's Test of Approx. Chi-Square	219.133
Sphericity df	15
Sig.	.000

Correlation Matrix-Knowledge -sharing items

	Established external networks	MNC influence on local companies	MNC collaborate on technological resources	Joint research	Joint training
Correlation Established external networks	1.000	.904	.838	.742	.691
MNC influence on local companies	.904	1.000	.864	.798	.717
MNC collaborate on technological resources	.838	.864	1.000	.751	.696
Joint research	.742	.798	.751	1.000	.823
Joint training	.691	.717	.696	.823	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.861
Bartlett's Test of Approx. Chi-Square Sphericity	411.860
df	10
Sig.	.000

**Appendix 5: Correlations**

		TKNOWSHAR	Type of industry	Age of the company	Business relationship	Adjusted total institutional distance
Pearson Correlation	TKNOWSHAR	1.000	.034	-.127	.163	.701
	Type of industry	.034	1.000	-.067	.086	.070
	Age of the company	-.127	-.067	1.000	.111	-.066
	Business relationship	.163	.086	.111	1.000	.100
	Adjusted total institutional distance	.701	.070	-.066	.100	1.000
	Total absorptive capacity	.699	-.097	-.101	.150	.554
Sig. (1-tailed)	TKNOWSHAR	.	.384	.130	.075	.000
	Type of industry	.384	.	.276	.224	.268
	Age of the company	.130	.276	.	.163	.281

	Business relationship	.075	.224	.163	.	.189
	Adjusted total institutional distance	.000	.268	.281	.189	.
	Total absorptive capacity	.000	.196	.186	.092	.000
N	TKNOWSHAR	80	80	80	80	80
	Type of industry	80	80	80	80	80
	Age of the company	80	80	80	80	80
	Business relationship	80	80	80	80	80
	Adjusted total institutional distance	80	80	80	80	80
	Total absorptive capacity	80	80	80	80	80

## Appendix 6: A summary of variables

Variable (Construct)	Dimensions of the construct and measurement instrument	Source
<p><b>Dependent variable</b></p> <p>Sharing NPD knowledge</p>	<p>Collecting NPD knowledge</p> <p>Established external networks</p> <p>Joint R&amp;D</p> <p>Technical resources collaboration</p> <p>Joint teams in NPD</p> <p>Joint training</p>	<p>Adapted from ( Liao et al, 2007), (Lee, 2000), (Reagans &amp; McEvily 2003), (Marques et al 2008), ( Dyer &amp; Nobeoka, 2002), (Hagedoorn et al 2000), (Mowery et al 1996), (Belderbos et al 2004), (Cabrera &amp; Cabrera, 2005)</p>

<p><b>Independent variables</b></p> <p>Absorptive capacity</p>	<p>Knowledge base of recipient  R&amp;D expenditures  Proportion of professional knowledge possessed by a company  Availability of training opportunities  Existence of permanent R&amp;D department</p>	<p>Adapted from (Liao et al, 2007), (Schimdt 2005), (Escribano, et al. 2009)</p>
	<p>Level of motivation of recipient  Technology gain Item  Appreciation of professional knowledge  Rewarding of employees for innovation</p>	<p>Adapted from (Liao et al, 2007) Schimdt 2005), (Escribano, et al. 2009), and (Cabrera &amp; Cabrera 2005)</p>
<p>Institutional distance</p>	<p>Differences in formal institutions  Differences in company policies  Differences in rules and regulations</p>	<p>Adapted from (Kostova, 1999) and (Eden and Miller, 2004)</p>

	Differences in intellectual property rights laws Differences in quality standards	
	Differences in informal institutions Differences in tolerance of failures Communication barrier Differences in corporate image Effort level used to reach agreement	Adapted from (Kostova, 1999) and (Eden and Miller 2004)
<b>Control variables</b>	Strategic alliance form of governance Non-strategic alliance form of governance	(Mowery et al, 1996)
Business relationship		
Industry		Adapted from (Smith,2000), (Dortmund,2005) and Swart & Kinnie, (2003)
Age of the company		Adapted from (Hansen 1991) and (Sorensen & Stuart (2000)