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# PROCESSES OF KNOWLEDGE TRANSFER IN MULTINATIONAL ENTERPRISES

Intra-firm and Inter-firm Perspectives

**KSP BOOKS**



# Processes of Knowledge Transfer in Multinational Enterprises

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*Processes of Knowledge Transfer in Multinational Enterprises: Intra-firm and Inter-firm Perspectives*

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# Preface

This book aims to explore one of the most important aspects of knowledge management, knowledge transfer in multinational enterprises (MNEs). It examines this knowledge transfer process from two distinct perspectives: intra-firm and inter-firm. Intra-firm transfer of knowledge refers to the knowledge flow between headquarters and subsidiaries and inter-firm transfer is defined as the knowledge transfer between partners in international joint-ventures (IJV). Specifically, it attempts to investigate the factors that influence the intra-firm knowledge transfer process and the willingness to share knowledge between partners in IJVs, in order to improve the performance of MNEs. Since willingness to share knowledge between partners is more complex than that between parent and subsidiary due to the difference in ownership structure, if MNEs can manage the willingness to share knowledge in IJVs, then dealing with it between parent and subsidiary should be much easier.

To examine intra-firm knowledge transfer, system dynamics (SD) modeling is adopted and simulations demonstrate that both the transmission willingness and capacity, and absorptive



willingness and capacity are important for MNEs to enhance its performance, since knowledge transfer is a two-way communication process. In order to reach a win-win situation, both headquarters and subsidiaries should be willing to share knowledge and learn from each other. To improve the effectiveness of knowledge transfer, ways to enhance transmission willingness and absorptive capacity, and cultural factors that influence cross-border communication are explored and discussed.

In inter-firm knowledge transfer, most of the research literature examines the absorptive capacity of recipients of knowledge but does not examine the willingness to share knowledge. In fact, knowledge will not be effectively and efficiently transferred between partners if only capacity is involved. Therefore, the willingness to share knowledge is equally important in the knowledge transfer process. After a survey of literature, several factors that may influence willingness to share knowledge between partners in IJVs are identified. Then questionnaire was sent out, and based on the responses of the survey, three case studies are employed to verify those factors that determine the willingness to share knowledge in IJVs in China.

This study attempts to get a better understanding of the intra-firm and inter-firm knowledge transfer in academia and provide some useful insights to practitioners in order to effectively and efficiently manage knowledge in MNEs and enhance firms' performance, since knowledge is the most important strategic asset that firms possess and is closely related to their sustainable competitive advantage.

**L. Wang, A. Ficici, & B. Fan**

New Hampshire,  
2nd November, 2019



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# Introduction

Being influenced by globalization, the intensified competition in both domestic and foreign markets encouraged many companies to explore overseas markets (Elango & Pattnaik, 2007; Kauser & Shaw, 2004; Teegen & Doh, 2002). Rapid technological advancement, geographical diversification, and changing political, economic, and social environments are generating new challenges and opportunities for businesses (Culpan, 2002). In order to meet these challenges, companies are required to expand their resources and capabilities, among which, knowledge resources are the most critical.

In recent years, an upsurge of research based on knowledge-related aspects of firms' operations has accelerated. It is widely acknowledged that knowledge creation, knowledge storage, knowledge transfer, and application are the essential components in knowledge management processes. Knowledge transfer has been getting particular attention (Argote, Ingram, Levine, & Moreland, 2000), because of its importance for the survival and success (Wathne, Roos, & von Krogh, 1996) of firms. Knowledge is one of the most important elements of core competence, and firms try to transfer and absorb it in each interaction with their

environment. There are two sources of knowledge, internal and external. The internal sources of knowledge refer to the existing knowledge residing within firms, either in headquarters or subsidiaries, by contrast, the external sources of knowledge exist outside of firms, firms' partners in their cooperative actions. Researchers in this area have been focusing on the "knowledge-based view" of the firm from various angles ranging from knowledge absorption to impact of knowledge transfer on performance. The acceleration of research in this area led way to new theories and applications. Almost all previous research stated the importance of knowledge sharing and transfer in all aspects of firms' processes.

Firms differ in their activities, based on their objectives and changing forces in the internal and external environments, which often requires different types of ideas, skills, and experiences within firms and from external sources. Learning and implementing knowledge from others for organizational benefits necessitate the importance of knowledge transfer. Knowledge transfer affects outcomes, including financial performance, new products introduced, and innovativeness (Katila & Ahuja, 2002).

In addition, organizational knowledge transfer is positively associated with performance and innovation (Lane, Salk, & Lyles, 2001). Prior research supports a positive relationship between organizational knowledge transfer and performance (Lyles & Salk, 1996; Steensma & Lyles, 2000). Transferring knowledge contributes to the development of organizational capabilities that are difficult to imitate, and subsequently leads to enhanced performance (Szulanski, 1996). Organizational knowledge transfer enables an organization to generate new ideas for new product development (Powell, Koput, & Smith-Doerr, 1996; Tsai, 2001), as it stimulates the combination of existing and newly acquired knowledge and augments a unit's capacity for making novel linkages and associations (Jansen, Van Den Bosch, & Volberda, 2005). New knowledge may encourage organizational learning and innovations in new approaches and practices, which may be absorbed into routines and culture as well (Darr & Kurtzberg, 2000). In addition, new knowledge assists in improving customer satisfaction (Goh, 2002). Successful knowledge transfer between



organizations enhances trust and ties, which in turn, ensures upcoming knowledge flows from the recipients of the knowledge, as Mu, Peng, & Love (2008) claimed. Furthermore, knowledge transfer reduces losses in productivity (Argote & Ingram, 2000) and increases organizational performance, because knowledge transfer aids to create force (Hall, 2001) and value (Högberg & Edvinsson, 1998) to the current knowledge of firms.

However, effective knowledge transfer within and between companies is difficult to realize, due to the complex and dynamic nature of the processes and challenges (Easterby-Smith, Lyles, & Tsang, 2008). Cross-border knowledge transfers are particularly challenging from the perspective of organizations, due to the many differences that may be present between organizations, such as technological, spatial, institutional, cultural, linguistic, and others (Javidan, Stahl, Brodbeck, & Wilderom, 2005; Pérez-Nordtvedt, Kedia, Datta, & Rasheed, 2008). As a result, knowledge transfer is not only difficult but also costly in terms of time and effort, and it is not correct to take its effectiveness for granted (Reagans & McEvily, 2003; Szulanski, 1996). Researchers in international business posit that one of the barriers to effective knowledge transfer is that much of the specialized knowledge of a firm resides in a tacit, non-tradable form (Gupta & Govindarajan, 2000). Due to the nature, this type of knowledge is particularly important for creating competitive advantage, however, it is more difficult to transfer and absorb as well (Grant, 1996). Moreover, its transfer to another organization is inherently risky since it may result in involuntary expropriation and the creation of new competitors (Gupta & Govindarajan, 2000).

Traditionally, headquarters have been viewed as the principal sources of new knowledge and technology (Johanson & Vahlne, 1977; Porter, 1990; Sölvell & Zander, 1998). In the attainment of firm-specific capabilities in a foreign environment, knowledge transfer from parent firms to subsidiaries is essential (Kuemmerle, 1999). However, in recent years, it is found that subsidiaries hold the same position as their headquarters in terms of competence and importance (Forsgren, 1990; Foss & Pedersen, 2002). However, intra-firm transfer of knowledge is not easy to be achieved, and barriers exist to hinder this process.

In order to understand how companies organize and benefit from internal knowledge transfer, knowledge transfer between parent and subsidiary have been studied intensively. Previous research examined antecedents and consequences of knowledge transfer (Van Wijk, Jansen, & Lyles, 2008); other studies investigated determinant factors that affect intra-firm knowledge transfer (Argote, 1999; Gupta & Govindarajan, 2000). However, after years of various studies, a systematic overview of the underlying mechanisms and outcomes of intra-firm knowledge transfer is not necessarily well-developed. This research seeks to fill this gap by examining the dynamics of “intra-firm knowledge transfer” and by analyzing how knowledge transfers between MNEs and their subsidiaries through a view of a system, since the process of knowledge transfer is a system with flows of knowledge in two-way.

Transfer of knowledge within and across firms seems to be a root of strategy formulation and research (Van Wijk *et al.*, 2008). Strategically, firms do not share valuable and rare knowledge with their rivals, although they are interested in sharing them with non-competitive firms (Bell, Giordano, & Putz, 2002). In fact, inter-firm knowledge transfer decisions are made based on the anticipated costs and benefits (Appleyard, 1996). There are much research and many studies that present and consider different factors that affect knowledge transfer in joint-ventures separately and also in-depth. However, few studies have tried to examine the willingness to share knowledge between international partners. In fact, knowledge will not be effectively and efficiently transferred between partners if only capacity is involved. Therefore, the willingness to share knowledge is equally important in the knowledge transfer process. This study attempts to bring clarity and enhance understanding of how the willingness to share knowledge affects knowledge transfer in international joint-ventures and what are the factors that determine this process in academia and providing some useful insights for practitioners to effectively manage knowledge transfer with partners in IJV and enhance firms’ performance, since knowledge is the most critical strategic asset that firms possess and closely related to their sustainable competitive advantage.

Inter-firm knowledge transfer is more complicated than intra-firm knowledge transfer. Especially, the willingness to share knowledge between partners in IJVs is more challenging to manage than that within MNEs between parent and subsidiary due to the difference in the ownership structure. For example, the concern of knowledge leakage is much higher in the cooperation between partners than within MNEs. Therefore, in order to transfer knowledge from one partner to the other, high level of trust and commitment is required; conflict is more detrimental in IJVs and may lead to the dissolution of the collaborative agreement; high competitive overlap is more likely to make partner more protective for its knowledge and be reluctant to share with counterpart. In addition, coordination and control between partners are more challenging to manage than those within firms. This research attempts to tackle this difficulty by examining factors influencing willingness to share knowledge in inter-firm knowledge transfer.

As the reasons mentioned above, this study attempts to improve our understanding of both intra-firm and inter-firm transfer of knowledge. Specifically, the conditions under which knowledge transfers are likely to occur in MNEs, between parent and subsidiary and between MNEs and their partners IJVs, and their influence on the performance of IJVs. More specifically, it focuses on the transmission willingness and capacity, absorptive willingness, and capacity in the intra-firm knowledge transfer process and examines the interaction of these factors in the flows of knowledge within MNEs. Furthermore, it focuses on the willingness to share knowledge as an essential antecedent of inter-firm knowledge transfers. This study explores factors that may influence the knowledge flows between parent and subsidiary and examine factors that may impact the willingness to share between international partners. These factors are identified as trust, commitment, conflict, competitive overlap, and the tacitness of knowledge. How these factors interact with each other is investigated and how they imply the knowledge transfer processes and firm's performance.

To explore intra-firm knowledge flows, a basic knowledge transfer model is formulated, and simulations are done based on

the model. Moreover, ways to improve the effectiveness of knowledge transfer are explored by identifying obstacles that exist in knowledge transfer within MNEs and cultural factors that influence cross-border communications. To examine the inter-firm knowledge flows in IJVs, a theoretical framework that integrates the components of knowledge transfer is proposed. Factors mentioned above on the willingness to share knowledge in the knowledge transfer processes in IJVs are identified through the survey and case studies. In addition, the relationship between the willingness of knowledge transfer and the behavior and performance of the firm is examined.

Specifically, the following research questions are raised: (1) How does knowledge flow between parent and subsidiary within MNEs? (2) What are the ways to improve knowledge transfer within MNEs? (3) What are the determinants contributing to the willingness to share knowledge in IJVs? A theoretical framework about the important role of willingness and capacity in the intra-firm knowledge transfer processes is tested through SD simulations. Moreover, a framework of ways to improve willingness to share knowledge and absorptive capacity is discussed. In addition, the essence of the role of willingness to share knowledge in cross-border knowledge transfers from the foreign parent and how it relates to the success of IJV is examined through case studies, with survey data collected from a sample of IJVs in China.

This book makes four important contributions to the literature on knowledge transfers in MNEs. Components of the knowledge transfer process are investigated. An integrative framework of knowledge transfer will be introduced to understand the way organizational knowledge transfer between parent and subsidiary, and between MNEs and IJVs. The factors influence effective knowledge transfer, and the way these factors interact with each other have on the outcome of knowledge transfer.

Second, it explores the obstacles in knowledge transfer between parent and subsidiary within MNEs, finds ways to improve the willingness and absorptive capacity of knowledge transfer in each specific knowledge area and offers a conceptual framework to

improve transmission willingness and absorptive capacity in the process of knowledge transfer within MNEs.

Third, factors that may affect the knowledge transfer between parent and subsidiary, and that may influence willingness to share knowledge in IJVs are explored. In the intra-firm knowledge transfer process, it is found that the flow of knowledge runs in two directions. Transmission willingness and absorptive willingness are identified as the most important factors to ensure the effectiveness of the process of knowledge transfer. In the inter-firm knowledge transfer process, most of the previous research has examined the absorptive capacity and its determinant factors, but little has investigated the role of trust in this process. In fact, the willingness to share is as critical as the capacity to transfer or to absorb knowledge in this partnership. However, the willingness to share knowledge is not well examined, and its influencing factors are not very clear. Therefore, this study attempts to fill this gap in the literature by examining the willingness to share knowledge in IJVs, and identifying influencing factors to this important element that is closely associated with the effective transfer of knowledge and IJVs success. Accordingly, this research contributes to the literature on cross-border knowledge management by demonstrating that, more than trust, other factors play important role in determining the willingness to share knowledge between foreign partners in IJVs.

Fourth, empirical evidence on the knowledge transfer in IJVs in a new context is conducted by comparing the differences of perceptions between foreign and Chinese managers. This study investigates IJVs located in China. Due to differences in locational advantages across countries (Dunning, 1980), it is probable that the type of knowledge transferred to IJVs by multinational parents, as well as its performance implications, may differ systematically across markets with different characteristics. In this sense, the empirical evidence on knowledge transfers in IJVs in China complements existing research from studies in countries with very different economic and institutional contexts, like Hungary (Lane *et al.*, 2001) and Vietnam (Anh, Baughn, Hang, & Neupert, 2006; Tsang, Nguyen, & Erramilli, 2004).

Finally, and most importantly, it constructs a guideline for business to follow for successful knowledge transfer. When the businesses follow the proposed model, the exchange of knowledge will take place across all involved units, adding more value to business operations and firms' performance.

To sum up, this study explores factors that may affect knowledge transfer between parent and subsidiary, and factors that may influence the willingness to share knowledge between foreign partners in IJVs. These factors provide a better understanding of how knowledge is transferred within MNEs and in IJVs, and their relative effects on IJV performance. The identification of these influencing factors and the interaction of them in determining the knowledge transfers between parent and subsidiary and between MNEs and their foreign partners in IJVs are likely to be of interest for both researchers in the field of international business and managers in MNEs who take charge of their operations.

This book follows a format of the collection of various independent manuscripts and is structured as follows: In chapter 1, intra-firm knowledge transfer is examined. Specifically, factors that affect the knowledge transfer between parent and subsidiary are identified, and through System Dynamics (SD) modeling, the interaction of these factors is simulated. Results and findings are discussed, and managerial implications and suggestions are presented. In chapter 2, obstacles in knowledge transfer are identified, and ways to improve knowledge transfer within MNEs are discussed. In chapter 3, inter-firm knowledge transfer is explored. Specifically, factors that may affect the willingness to share knowledge in IJVs are tested through case study. Findings are analyzed and discussed, and managerial implications are suggested. Finally, the overall conclusion is presented in chapter 4.

# 1 Accumulation of knowledge in MNEs through intra-firm transfer

## Introduction

A Multinational Enterprise (MNE) is viewed as a globally distributed innovation network, whose success is associated with the capability to absorb, create and combine knowledge on a global basis (Bartlett & Ghoshal, 1989; Hedlund, 1994). In other words, an MNE is a knowledge-sharing system whose success rests on its capability to learn, transfer, and integrate knowledge more effectively than its competitors (Kogut & Zander, 1992). Since knowledge is a valuable, rare, and difficult to imitate resource that a firm possesses, the capability of transferring and exploiting knowledge across national borders has been considered a crucial factor in winning and sustaining MNEs' competitive advantages and market share in the increasing global competition (Peng & York, 2001). Subsequently, MNEs have increasingly been integrating knowledge transfer into their business processes. Owing to these

rapid developments, academic researchers began to focus more on this issue, especially in the fields of strategy and international business.

Previous research illustrates that in the past, headquarters have been seen as the principal sources of new knowledge and technology (Johanson & Vahlne, 1977; Porter, 1990; Sölvell & Zander, 1998). In the attainment of firm-specific capabilities in a foreign environment, knowledge transfer from parent firms to subsidiaries is essential (Kuemmerle, 1999). In recent years, more and more evidence shows that subsidiaries embrace an equal position with their headquarters in terms of competence and importance (Forsgren, 1990; Foss & Pedersen, 2002). Their traditional tasks involved implementing the headquarters' assignments locally, adapting parent company technology to local market needs, and delivery of technical support to local factories and customers (Håkanson & Nobel, 2001). However, their new tasks are related to activities in knowledge exploration (Kuemmerle, 1999). Similarly, Nohria & Ghoshal (1997) propose that innovation is no longer the responsibility of the corporate center of MNEs. This may very well be due to the fact that starting in the early 1980s, MNEs have carried out research and development (R&D) activities in different subsidiaries (Cantwell, 1989). Accordingly, these subsidiaries have become sources of innovation due to their ability to gain knowledge from doing business in host countries during their process of technological development (Frost, 1998). Therefore, the flow of knowledge is not a one-way process originating from the headquarters and later arriving at the subsidiaries (Peng & Wang, 2000).

Nevertheless, knowledge transfer is difficult to achieve, and barriers to knowledge transfer from subsidiary to parent may create competition within units of MNEs (Kogut & Zander, 1992; Szulanski, 1996). It is demonstrated that internal knowledge transfer is hindered when there is intra - and inter-functional rivalry (Maltz & Kohli, 1996). This may also be the case if there is a problematic relationship between the source and the recipient (Szulanski, 1996). Units compete with each other to acquire scarce resources within the firm. They may also be unwilling to share information to avoid a competing unit to gain knowledge, and to



obtain information so that an increase in the value of a competing unit's knowledge does not take place (Gupta & Govindarajan, 2000). In addition, a subsidiary may be reluctant to transfer knowledge to other units for fear of losing a position of superiority, or because it is insufficiently compensated for the efforts and costs involved in the process of knowledge transfer (Forsgren, Johanson, & Sharma, 2000; Szulanski, 1996). When there is asymmetric-information flow between MNE top management and the specific subsidiary, it may be in the subsidiary's self-interest not to transfer knowledge to other MNE units. Unfortunately, this type of action would undermine the enhancement of overall MNE performance.

Often, subsidiaries tend to have different goals and limited incentives to transfer know-how to other units, particularly if it takes the precious time of their best people and the danger of proprietary technology leaking out (Porter, 1985; Szulanski, 1996). By diffusing knowledge to other MNE units, the focal subsidiary may also lose some of its uniqueness, thus losing bargaining power within the MNE (Forsgren, 1997; Levitt & March, 1988). Overall, although acquiring knowledge is an advantage that can be gained from intra-firm communication, studies have shown that the transfer of knowledge has not been successful due to impediments to this process.

In order to understand the ways in which companies organize and benefit from internal knowledge transfer, knowledge transfer between parent and subsidiary have been studied intensively. Previous research examined antecedents and consequences of knowledge transfer (Van Wijk *et al.*, 2008), other studies investigated the determinant factors that affect intra-firm knowledge transfer (Argote, 1999; Gupta & Govindarajan, 2000). Yet, after years of various studies, a systematic overview of the underlying mechanisms and outcomes of intra-firm knowledge transfer is not necessarily well-developed.

This paper contributes to the literature by examining the way organizational knowledge transfer operates between parent and subsidiary; the factors that influence effective knowledge transfer; and the way these factors interact with each other on the outcome of knowledge transfer. Hence, this paper examines the dynamics of

“intra-firm knowledge transfer” by analyzing how knowledge transfers between MNEs and their subsidiaries. The examination considers interaction as a system. Management implications are also provided based upon the findings. The paper utilizes the System Dynamics (SD) method as it is particularly appropriate when the knowledge transfer is viewed as a system where two-way transfer and the interaction of several variables in knowledge transfer can be examined simultaneously.

This paper is structured as follows: section II, literature is reviewed. Section III, the methodology is presented. Section IV results are discussed. Section V conclusions are given.

## Literature review

Previous literature illustrates various issues that are related to knowledge; however, the process of knowledge transfer and the related factors have not necessarily been studied by employing an SD model. Hence, this paper attempts to bring light to the concern. Yet, before continuing with this, it may make sense to explore what current knowledge is and the implications of knowledge.

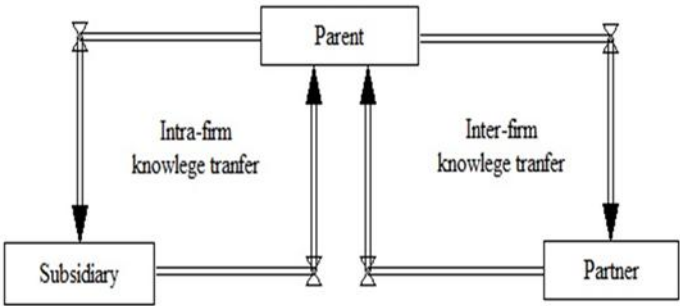
### Knowledge

In considering knowledge, the previous literature defines knowledge in various business-oriented factors. Most research in this area focuses on knowledge-based view and states that knowledge has been viewed as the most important source of corporate competitive advantage (Grant, 1996). Knowledge-based activities are the foundation of sustainable competitive advantage for firms in the current global economy.

Resource-based and knowledge-based theorists stated that companies should concentrate on creating and accumulating knowledge-based competencies to achieve long-term survival (Barney, 1991; Grant, 1996; Teece, 2000). The knowledge-based view of the firm is built upon a resource-based view (Barney, 1991) and evolutionary economics (Nelson & Winter, 1982). The knowledge-based view is focused on knowledge as a principal resource (Grant, 1996), declaring that the growth of a firm primarily rests on its ability to create and apply the knowledge in its knowledge base (Kogut & Zander, 1992) and the reason for the

existence of a firm is that it offers efficiency advantages to use, create and commercialize knowledge compared to markets (Kogut & Zander, 1996) and that the knowledge-creation process impact firms' scale and scope (Nickerson & Zenger, 2004).

A firm's knowledge repository is composed of various knowledge, such as technological knowledge, knowledge about how to deal with local laws and regulations, how to work with global markets, how to cooperate with partners. This stock of knowledge is essential for the firm to develop and maintain a competitive advantage by creating value for the firm's stakeholders. Therefore, MNEs are organizations whose competitive advantage is built upon their ability to obtain and apply knowledge across national borders (Almeida, Song, & Grant, 2002; Gupta & Govindarajan, 2000; Kogut & Zander, 1993; Mudambi, 2002) and are better than other organizational forms to transfer knowledge (Feinberg & Gupta, 2004; Hansen & Løvås, 2004; Kogut & Zander, 1992, 1993).



**Figure 1.** *Intra-firm Knowledge Transfer within MNEs*

Since no organization possesses all the skills and capabilities necessary to gain competitive advantage, MNEs not only need to create knowledge internally, within their own organizations, either

in the parent or subsidiary, which are the internal sources of knowledge but also acquire some knowledge from external sources, such as one or more partners. As the figure above shows, knowledge transfer within MNEs takes place in two categories, intra-firm and inter-firm. Intra-firm knowledge transfer refers to the flow of knowledge between parent and subsidiary, and inter-firm knowledge transfer is defined as the flow of knowledge between parent and partner.

## Definition of knowledge

There is no generally accepted definition of knowledge (Hofer-Alfeis & van der Spek, 2002) in literature because it is not easy to define knowledge (Gamble & Blackwell, 2001), and philosophers have been debating its definition for many centuries (Hislop, 2005; Jashapara, 2004). Over thousandsof years, knowledge has been recognized as a “justified true belief,” defined by Aristotle. In 1963, this notion was overturnedby Gettier, who argued that one more ingredient should be added to the “justified true belief” to become knowledge. Later on, Glazer (1998) and Roberts (2000) maintain that knowledge is built on information, the same way as information is built on data. Nevertheless, it is the human being who transforms information into knowledge, and this transformation process comprises understanding gained through experience, awareness, and learning (Grover & Davenport, 2001; Leonard & Sensiper, 1998; Roberts, 2000). According to Nonaka (1994), knowledge is derived from the flow of information, attached to the beliefs and commitments of its carriers. This notion emphasizes that knowledge is fundamentally associated with human action. Furtherly, Ancori, Bureth, & Cohendet (2000) propose that knowledge rests on a person’s vision of the world that is related to his/her framework of common sense and includes values, beliefs, and judgments.

According to the organizational knowledge creation theory, knowledge is composed of three parts, with complementary properties. Firstly, knowledge is justified true belief (Nonaka, 1994; Nonaka, Von Krogh, & Voelpel, 2006). Secondly, knowledge is the fact of practiced action as people gained knowledge via the performance of a task and/or the potentiality of identifying a

condition and permit skillful action (Stehr, 1992, 1994). Thirdly, knowledge is explicit and tacit along a continuum (Nonaka, 1994, 1991). Explicit knowledge is articulated, conveyed in sentences, and expressed in writing and drawing. By contrast, tacit knowledge is tied to tactile experiences, the senses, intuition, movement skills, rules of thumb, or implicit mental models (Nonaka, Toyama, & Konno, 2000; Nonaka, Toyama, & Nagata, 2000; Nonaka, Takeuchi, & Umemoto, 1996). The concept of "continuum" is referred to knowledge extending from tacit to explicit and vice versa. With the incorporation of tacit knowledge, organizational knowledge creation theory differentiates itself from the conventional theory that attempts to equate knowledge with information.

Davenport & Prusak (1998) defined knowledge as

"Fluid mix of framed experience, values, contextual information, expert insight and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of the knowers. In organizations, it often becomes embedded not only in the documents or repositories but also organizational routines, processes, practices, and norms." (p.5).

This definition is comprehensive; however, in this study, the knowledge under our examination is confined to knowledge in technology.

## **Knowledge in organizations**

Knowledge in MNEs is composed of the information and capabilities possessed by individuals, groups, and organizations, in terms of documents, processes, routines, norms, and structures in the organization. Knowledge is contrasted as 'knowing what' and 'knowing how'. The former is a 'declarative' type of knowledge, and the latter specifies the procedural type of knowledge (Gupta & Govindarajan, 2000; Kogut & Zander, 1993). It is found that knowledge that is tacit, complex, and specific is difficult to diffuse and imitate, which in turn makes a firm's performance sustainable (McEvily & Chakravarthy, 2002). The knowledge that can be codified can be easily transferred because it is easy to define. In contrast, it is difficult to transfer tacit and

complex knowledge due to its dependence on individuals' perceptions and experiences (Cantwell & Santangelo, 1999; Johanson & Vahlne, 1977; Zander & Kogut, 1995).

Furthermore, knowledge is also distinguished among the different levels of domains: individual, group, and organization (Hedlund, 1994). Individual knowledge is defined as individual expertise or experiences, which constitutes the basis of organizational knowledge. This study focuses on organizational knowledge, which is embedded, including systems, structure, values and beliefs, and practices. Because of the embeddedness of knowledge in the specific circumstances of time and space (Hayek, 1945), the fact that one unit of MNEs possesses valuable knowledge does not imply that other units of MNEs can benefit from that knowledge (Szulanski, 1996). Therefore, it is important for an organization to facilitate knowledge transfer within social networks to maintain their performance.

## Properties of knowledge

To study knowledge transfer, it is important to begin with an examination of the attributes of the knowledge, since they are one of the significant antecedents that relate to its following transfer consequences (Birkinshaw, Nobel, & Ridderstråle, 2002; Zander & Kogut, 1995). Previous literature has investigated several knowledge properties, such as ambiguity and tacitness in determining knowledge transfer. The following surveys the literature.

### *Ambiguity*

Knowledge ambiguity is viewed as one of the most essential factors that determine organizational knowledge transfer (Levin & Cross, 2004; Simonin, 1999; Szulanski, Cappetta, & Jensen, 2004). Knowledge ambiguity defined as the innate and complex uncertainty compared to the specific underlying knowledge components and sources and the interaction of them. It derives from the concurrent effects of tacitness, specificity, and complexity of the knowledge to be transferred (Reed & DeFillippi, 1990). Although knowledge ambiguity prevents knowledge from being

copied by competitors, it impedes knowledge transfer within and between firms (Coff, Coff, & Eastvold, 2006).

### *Stickiness*

Almeida *et al.*, (2002) highlighted that despite the inherent advantages that some firms possess in the generation and application of knowledge, knowledge attempts to be “sticky” within firms, tacit knowledge in particular (Szulanski, 1996). The costs of transferring such “sticky” knowledge cross-borders are significant (Teece, 1977).

### *Tacitness*

Based on the organizational knowledge creation theory, knowledge is explicit and tacit along a continuum (Nonaka, 1994, 1991). Tacit knowledge is tied to tactile experiences, the senses, intuition, movement skills, rules of thumb, or implicit mental models. Tacit knowledge is ingrained in procedures, action, routines, commitment, ideals, emotions, and values (Ikujiro Nonaka, Toyama, & Konno, 2000; Ikujiro Nonaka, Toyama, & Nagata, 2000; Ikujiro Nonaka *et al.*, 1996). In addition, it is consciously accessible when it inclines to the explicit side of the continuum. Nevertheless, most of the details about people’s skills are not consciously accessible because of their embodiment (Ambrosini & Bowman, 2001; Anderson, 1983; Sun, 1997). Knowledge is ranged from tacit to explicit and vice versa.

### *Knowledge transfer*

Communities in the management area around the globe become aware and value knowledge management (Scarbrough, Robertson, & Swan, 2005) Knowledge management is moving into a new era (Takeuchi, 2001) with its branches. It has become very popular, and especially since 1995, it has turned into an elementary theme of both management philosophy and management tools (Edvardsson, 2006), with multi-dimensional and advanced approaches (Chae & Bloodgood, 2006).

Knowledge transfer is attracting wide attention (Argote *et al.*, 2000) because it is critical for the survival and prosperity (Wathne *et al.*, 1996) of companies. Nevertheless, firms differ in their

activities, based on their nature and objectives, and the challenges they encounter in the dynamic environments where they operate. To respond to these changes, firms usually need to use different types of ideas, skills, past and present, and experiences inside and outside of the firms. Learning from others and implementations of others' experiences for the benefit of the organization and society require the importance of the notion of knowledge transfer. Successful transfer between various firms enhances trust and ties. Such trust facilitates future knowledge transfer from the recipients of the knowledge. Through knowledge transfer, new knowledge is created, and created new knowledge may stimulate organizational learning and innovations in new methods and practices, which may be absorbed into culture and routines as well (Darr & Kurtzberg, 2000). New knowledge assists in improving customer satisfaction (Goh, 2002). Moreover, knowledge transfer diminishes losses in productivity (Argote & Ingram, 2000) and enhances organizational performance. In addition, knowledge transfer is helpful to add force (Hall, 2001) and value (Höglberg & Edvinsson, 1998) to the existing knowledge base of firms.

With the increasing advances of technology and development, the notion of knowledge transfer became the focus of academic researchers in strategy and international business due to the concept that MNEs are knowledge-sharing systems whose success rest on their capability to learn, transfer and integrate knowledge more effectively than their competitors (Kogut & Zander, 1992, 1993, 2003). Thus, the capability of transferring and exploiting knowledge across national borders has been considered as a crucial factor of sustaining MNEs' competitive advantages, since this ability is useful to overcome the liability of foreignness in overseas markets (Gupta & Govindarajan, 2000; Zaheer, 1995) and knowledge is a valuable, rare, and difficult to imitate resource that a firm possesses to win in the increasing global competition (Peng & York, 2001). It is evidenced that firms increase to establish strategic alliances and mergers and acquisitions to acquire knowledge (Bresman, Birkinshaw, & Nobel, 1999). Knowledge transfer from external sources has become critical for firms' success (Van Wijk *et al.*, 2008).



Knowledge transfer is a process of communication. It takes place between a source and a target through a transferring channel (Gupta & Govindarajan, 2000). Knowledge transfer requires integrating differentiated knowledge and is manifested through changes in the knowledge bases or performance of the recipient (Argote & Ingram, 2000). Knowledge transfer has been labeled as “knowledge sharing” (Hansen, 1999), “knowledge flows” (Gupta & Govindarajan, 2000), and “knowledge acquisition” (Darr, Argote, & Eppele, 1995).

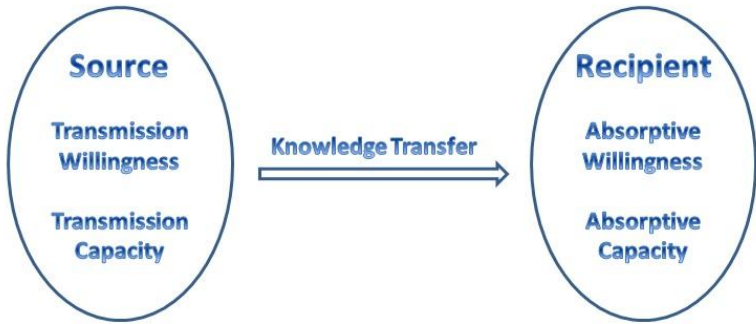
Generally, the knowledge transfer in MNEs is classified into external and internal transfers. The external transfer is defined as knowledge sharing activities between MNEs units with outsiders, for instance, customers, suppliers, other firms, and governments. Internal transfer refers to the knowledge exchange activities within the MNEs. In addition, this internal transfer can be considered to be hierarchical or lateral. The former is undertaken between parent and subsidiary, the latter between subsidiaries. This study focuses on internal knowledge transfer within MNEs. Specifically, knowledge transfer between MNE headquarters and subsidiaries. Based on the directions of knowledge transfers within MNEs, four types of transfer contexts are classified: knowledge outflow from headquarters to subsidiary; knowledge inflow from headquarters to subsidiary; knowledge inflow from subsidiary to headquarters; and knowledge outflow from subsidiary to headquarters.

Based on communication theory, four sets of factors that likely affect the success of knowledge transfer are determined: the characteristics of transferred knowledge, the characteristics of the knowledge source, the characteristics of the knowledge recipient, and the characteristics of the context in which the transfer occurs (Teece, 1977). Gupta & Govindarajan (2000) posit that multiple factors, for instance, affect the knowledge flows in MNEs. These factors are the value of the source’s knowledge stock, the motivational disposition of the source unit, the motivational disposition of the target unit, and the absorptive capacity of the target unit. They also suggest that the value of a subsidiary’s knowledge stock and transmission channels are positively associated with the subsidiary’s knowledge outflows. Moreover, the transmission channels, absorptive capacity and motivation

disposition to acquire knowledge are positively associated with its knowledge inflows.

From the perspective of the characteristics of knowledge source and recipient and the relationship between them, it is argued that the recipient's absorptive capacity and the relationship between source and recipient influence on the stickiness of internal knowledge transfer (Szulanski, 1996). Powerful absorptive capacity and arduous relationships will be beneficial to knowledge transfer. Foss & Pedersen (2002) suggest that the sources of knowledge are important since they define the characteristics of knowledge that are going to be transferred and as a result, also affect knowledge transfer mechanisms. Szulanski (2003) indicates that effective knowledge transfer depends on the disposition and ability of the source and recipient, the relationship between them, and the characteristics of the object that is being generated. Similarly, (Minbaeva, 2007) specifies the basic elements of a transfer as source, message, recipient and context and name the barriers related to each elements as the characteristics of knowledge, characteristics of knowledge receiver (absorptive capacity), characteristics of knowledge senders (disseminative capacity) and characteristics of the relationship between source and recipient. Further, Argote & Miron-Spektor (2011) suggest that the factors that influence knowledge transfer include characteristics of knowledge, for example, tacitness (Szulanski, 1996), characteristics of the units involved in the transfer, for instance, absorptive capacity (Cohen & Levinthal, 1990) and expertise, and characteristics of the relationships among the units, such as the quality of the relationships (Szulanski, 1996; Zollo & Reuer, 2010). Based on the above, we identified and named the basic elements of knowledge transfer as transmission willingness, transmission capacity, absorptive willingness, absorptive capacity and transmission channel between them.

Based on the factors that have an impact on the knowledge transfer process above discussed, the following graph is drawn.



**Figure 2.** *Knowledge Transfer between Source and Recipient*

Knowledge transfer does not occur randomly, as firms establish various policies, structures, and procedures, and ease of learning is gradually generated (Inkpen, 1998). People craft strategy and construct decisions based their mental models of firms and industries. The full implications of a strategic decision that is influenced by organizational experiments are obscure at the beginning; later they examine the occurrence in the real world. Nevertheless, the learning cycles aren't accomplished until people adjust their mental models according to the feedback, and then make a comparison between the outcome and the expectation. The learning by modeling process is explained by Morecroft (2007) as follows: modeling assists people in sharing, clarifying and improving their mental models, as well as allowing them to verify and polish strategic modeling. Knowledge is acquired and accumulated through experiments and will influence future performance of the firm by the strategic decision made based on the knowledge.

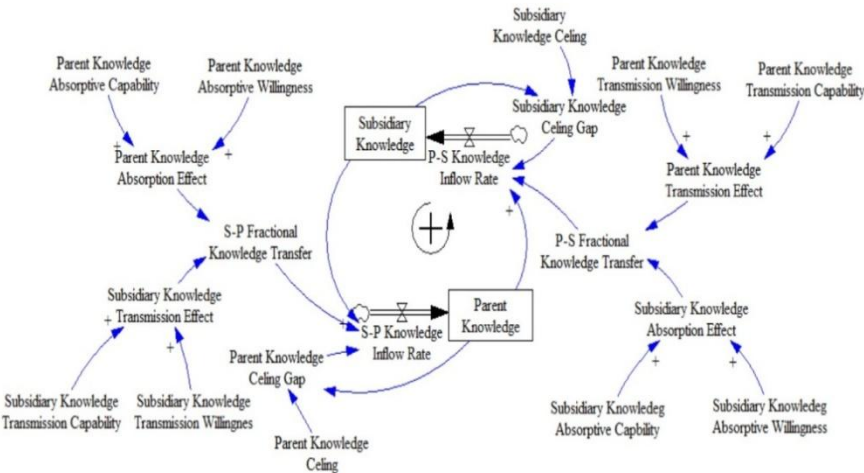
## Methodology

The model that underlies this paper is the System Dynamics (SD) model. The SD model is an instrument that provides important possibilities in research analysis. First, it allows us to model the dynamic changes that take place in the internal knowledge flows between parent and subsidiary, particularly on the willingness and capability of source and recipient. Second, it allows us to examine the interaction of several variables in

knowledge transfer, in contrast to the unidirectional impact of exogenous variables on a dependent variable. Finally, SD methodology has been adopted in policy studies since it can demonstrate the effect of the policy.

A firm accomplishes competitive advantage by creating a set of assets that are valuable, rare, inimitable, and organizational. To make the competitive advantage of the firm sustainable, the firm should accumulate or reconfigure such assets. Morecroft (2007) found that the dynamic view of firm performance could be built up by linking SD with the resource-basedview (RBV). Therefore, it is appropriate to study knowledge by SD, since it is one of the most valuable intangible assets that a firm possesses and dramatically contributes to the competitive advantage of the firm.

Based on the factors that determine knowledge transfer within MNEs discussed previously, figure 2 is elaborated to illustrate this dynamic system of our model, which addresses the research question of what factors influence the transfer of knowledge between MNEs and their subsidiaries.



**Figure 3.** Intra-firm Knowledge Transfer

In this model, it is assumed that the knowledge base  $K_{i,0}$  and the knowledge ceiling  $\bar{K}_i$  of each organization are fixed, that knowledge of technology is transferred within MNE, between parent and overseas subsidiary, without knowledge leakage and

inter-firm knowledge inflow. The mathematical equations and assumptions that describe the proposed knowledge transfer model are presented below. We use  $C_{i,t}$  to represent a firm type  $i$  at time  $t$ , specifically, the parent and its subsidiary are represented by 1 and 2 respectively. The time  $t$  is not included in the equations where it is assumed to be constant over the simulation period.

The model begins by calculating the mutual general knowledge of the parent and its subsidiary. For demonstration purposes, knowledge transfer from subsidiary to parent is illustrated as follows. The knowledge of parent in the next time period  $K_{1,t+1}$  is calculated by adding the quantity of knowledge it already has in the current period  $K_{1,t}$  to the quantity of knowledge  $I_{21,t}$  gained from subsidiary via mutual cooperation. Knowledge gain  $I_{21,t}$  from subsidiary to parent is affected by knowledge transfer coefficient  $E_{21,t}$ . As along the increase of the coefficient, current knowledge inflow per unit time will also be increased. The knowledge gain is also affected by the accumulated size of the associated knowledge pool  $K_{2,t}$ , which means the bigger size of the pool, the faster current of knowledge inflow per unit time. Finally, the knowledge remaining gap  $G_{1,t}$  to the inherent knowledge ceiling  $\bar{K}_1$  of parent itself limits the knowledge gain, in other words, it is impossible that the accumulated size of knowledge pool keeps growing at an increasing rate during a specific time period, meaning that there is a knowledge ceiling determined by associated organizational nature characteristics, such as size of capital, size of professional personnel, and productive efficiency, etc. Therefore, the growth of the knowledge of parent and subsidiary follows the typical S-curve with a knowledge ceiling. The S-curve model of the knowledge transfer is represented as the following:

$$\begin{aligned} K_{1,t+1} &= K_{1,t} + I_{21,t} \\ I_{21,t} &= K_{2,t} * E_{21,t} * G_{1,t} \\ G_{1,t} &= \max(1 - \frac{K_{1,t}}{\bar{K}_1}, 0) \end{aligned}$$

Knowledge transfer coefficient  $E_{21,t}$  is the multiplication of the knowledge transmission effect  $T_{2,t}$  of the source subsidiary and the knowledge absorption effect  $A_{1,t}$  of the recipient parent. The

subsidiary knowledge transmission effect is the multiplication of subsidiary knowledge transmission willingness  $TW_{2,t}$  and subsidiary knowledge transmission capacity  $TC_{2,t}$ . The parent knowledge absorption effect is the multiplication of parent knowledge absorptive willingness  $AW_{1,t}$  and parent knowledge absorptive capacity  $AC_{1,t}$ .

$$\begin{aligned}E_{21,t} &= T_{2,t} * A_{1,t} \\T_{2,t} &= TW_{2,t} * TC_{2,t} \\A_{1,t} &= AW_{1,t} * AC_{1,t}\end{aligned}$$

Where:

$A_{1,t}$  Absorption effect of the parent at time  $t$

$AC_{1,t}$  Absorptive capacity of the parent at time  $t$

$AW_{1,t}$  Absorptive willingness of the parent at time  $t$

$E_{21,t}$  Knowledge transfer coefficient from the subsidiary to the parent at time  $t$

$I_{21,t}$  Knowledge gain from the subsidiary to the parent at time  $t$

$G_{1,t}$  Knowledge remaining gap of the parent at time  $t$

$K_{1,t}$  Knowledge of the parent at time  $t$

$K_{1,t+1}$  Knowledge of the parent at time  $t+1$

$\bar{K}_1$  Knowledge ceiling of the parent

$T_{2,t}$  Transmission effect of the subsidiary at time  $t$

$TC_{2,t}$  Transmission capacity of the subsidiary at time  $t$

$TW_{2,t}$  Transmission willingness of the subsidiary at time  $t$

Generally, within an MNE, the parent possesses a bigger knowledge base. In this study, it is assumed that parent has a knowledge base,  $K_{1,0} = 250$ ,  $\bar{K}_1 = 3000$ ,  $K_{2,0} = 200$ ,  $\bar{K}_2 = 1500$ . Transmission willingness (TW) and absorptive capacity (AC) are more critical in this learning process as it is demonstrated in the knowledge transfer literature that absorptive capacity is the most important determinant in the internal knowledge transfer in MNE (Gupta & Govindarajan, 2000). The willingness of transfer also is a significant factor that determines the success of knowledge transfer because of the issue of trust between parent and subsidiary. Therefore, this study is focused on the relationship between TW,

AC, and knowledge base and the impact of change of TW and AC on the knowledge transfer.

Five scenarios are presented in this study. In the first scenario, The value of the eight inputs  $TW_{1,t}$ ,  $TC_{1,t}$ ,  $AW_{1,t}$ ,  $AC_{1,t}$ ,  $TW_{2,t}$ ,  $TC_{2,t}$ ,  $AW_{2,t}$ ,  $AC_{2,t}$  are 55%, 65%, 75%, 65%, 45%, 45%, 65% and 55% respectively and these values are the initial values, 35% of increase is assumed for demonstration purpose. In the second scenario,  $TW_{1,t}$  is 74%, increased 35%, from the initial value, keeping other inputs as the initial value. In the third scenario,  $TW_{1,t}$ , and  $AC_{1,t}$ , are 75% and 88%, increased 30% from the initial value, keeping other inputs as the initial value. In the fourth scenario,  $TW_{1,t}$ , and  $AC_{1,t}$ , and  $TW_{2,t}$  are 74%, 88%, and 61%, increased 35% from the initial value, keeping other inputs as the initial value. In the fifth scenario,  $TW_{1,t}$ , and  $AC_{1,t}$ , and  $TW_{2,t}$  and  $AC_{2,t}$  are 74%, 88%, and 61% and 74%, increased 35% from the initial value, keeping other inputs as the initial value. The five scenarios are labeled with number 5, 4, 3, 2, and 1 respectively in the following table:

**Table 1.** *Summary of Parameters for Simulation*

	5	4	3	2	1
$TW_{1,t}$	55%	74%	74%	74%	74%
$TC_{1,t}$	65%	65%	65%	65%	65%
$AW_{1,t}$	75%	75%	75%	75%	75%
$AC_{1,t}$	65%	65%	88%	88%	88%
$TW_{2,t}$	45%	45%	45%	61%	61%
$TC_{2,t}$	45%	45%	45%	45%	45%
$AW_{2,t}$	65%	65%	65%	65%	65%
$AC_{2,t}$	55%	55%	55%	55%	74%

## Results and discussion

In order to discern the effects of the changes in the variables described above on the knowledge transfer, the model was simulated. The effects of the variable changes can be observed in the graphs as “if-then” type scenarios. Figure 1 shows the impact of changes in transmission willingness and absorptive capacity on knowledge transfer to MNE in the five scenarios. Figure 2 illustrates the impact of changes in transmission willingness and absorptive capacity knowledge transfer to subsidiary in the five

scenarios. The five scenarios are labeled with numbers 5, 4, 3, 2, and 1 respectively by line markers in Figures 3 and 4.

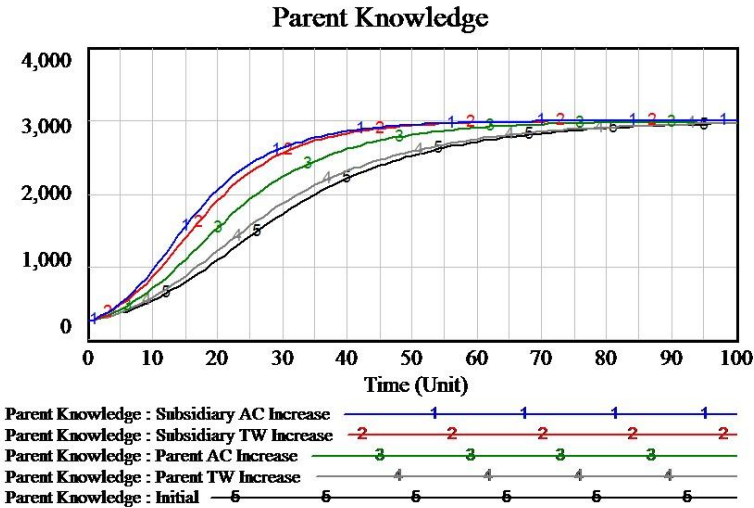


Figure 4. *Parent Knowledge*

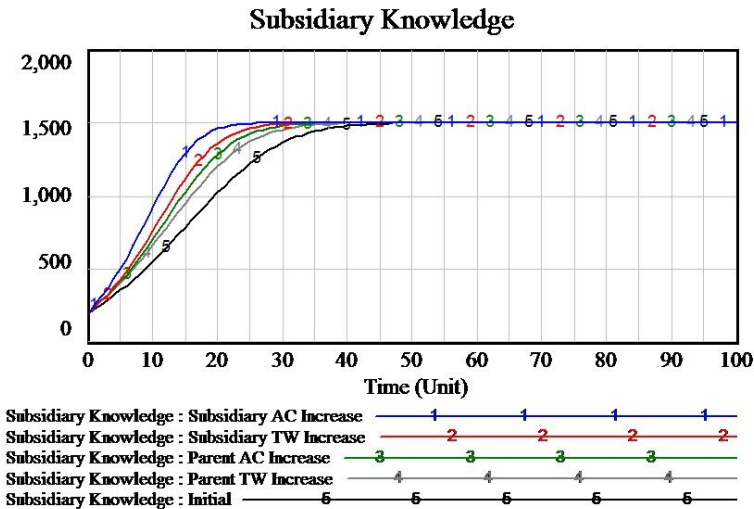


Figure 5. *Subsidiary Knowledge*

It is observed from the figures 4 and 5 that when  $TW_{1,t}$  increases, as the line 4 shows, the rate of knowledge transfer increases and the accumulated knowledge reaches the ceiling



faster than line 5, where all the inputs have initial value. When  $TW_{1,t}$ ,  $AC_{1,t}$  increase, as line 3 demonstrates, the rate of knowledge transfer increases, and the accumulated knowledge reaches the ceiling faster than line 4. When  $TW_{1,t}$ ,  $AC_{1,t}$ ,  $TW_{2,t}$  increase as line 2 indicates, the rate of knowledge transfer increases and the accumulated knowledge reaches the ceiling faster than line 3. When  $TW_{1,t}$ ,  $AC_{1,t}$ ,  $TW_{2,t}$ ,  $AC_{2,t}$  increase as line 1 illustrated, the rate of knowledge transfer increases, and the accumulated knowledge reaches the ceiling faster than line 2.

The results suggest that “transmission willingness” and “absorptive capacity” factors seem to be the factors that stand out most because the model treated them as the focal points.

## Conclusion

This paper, employing System Dynamics, model demonstrates the factors that influence the transfer of knowledge between MNEs and their subsidiaries. As stated previously, the paper suggests that the factors are “transmission willingness” and “absorptive capacity” and that two-way flow of knowledge transfer will help improve the cumulative knowledge-base of an MNE and its subsidiary overtime. The factors of “transmission willingness” and “absorptive capacity” are important in their effects on both the amount and the speed of transmission. Specifically, higher transmission willingness leads to a faster and higher level of transmission. In addition, higher capacity to absorb knowledge results in faster and higher level of knowledge transmission.

Therefore, the suggestion is that effort should be made within MNEs and between the parent and subsidiary to include knowledge transfer as one of the strategic objectives along with financial factors. In the implementation process, efforts should be made to improve willingness to share information with subsidiaries and to eliminate any institutional barriers that may exist in this regard. At the same time, efforts should also be made in convincing parent and subsidiary that they can learn from each other. One-way directional learning will result in limited knowledge transfer while two-way transfer will lead to accumulation of knowledge pool of parent and subsidiary, which in turn, may turn into the firm’s competitive advantage.



# 2 Knowledge transfer within MNEs: Ways to improve transmission willingness and absorptive capacity

## Introduction

MNE is a knowledge-sharing system whose success depends on their capability to learn, transfer, and integrate knowledge more effectively than their competitors (Kogut & Zander, 1992, 1993). The capability of transferring and exploiting knowledge across national borders has been viewed as crucial factors in winning and sustaining MNEs' competitive advantages and market share in the increasing global competition because knowledge is a valuable,

rare, and difficult to imitate resource that a firm possesses (Peng & York, 2001). Subsequently, MNEs have increasingly been integrating knowledge transfer into their business processes, and academic researchers began to focus more on the issue, especially in the fields of strategy and international business.

In order to understand how companies organize and benefit from internal knowledge transfer, knowledge transfer between parent and subsidiary, have been studied intensively. Previous research examined antecedents and consequences of knowledge transfer (Van Wijk *et al.*, 2008), other studies investigated the determinant factors that affect intra-firm knowledge transfer (Argote, 1999; Gupta & Govindarajan, 2000). Samii, Wang, & Fan (2013) examined the knowledge transfer between headquarters and subsidiary through system dynamics modeling and suggested that transmission willingness and absorptive capability are important factors influencing knowledge accumulation within MNEs, and that two-way flow of knowledge transfer will help improve the cumulative knowledge-base of MNE and its subsidiary overtime. In addition, findings also suggested that efforts should be made to improve willingness and capability of knowledge transfer in order to achieve a win-win situation for both the parent company and its subsidiary.

However, the obstacles and advantages for parent and subsidiary in the process of knowledge transfer have not been so far identified. Furthermore, the ways to improve willingness and capability of knowledge transfer between parent and subsidiary have also not been discussed. Therefore, this paper intends to expand on the previous research and attempts to find answers to these questions.

## Literature review

Previous studies suggest that in the process of knowledge “absorptive capacity” is a necessary factor. Absorptive capacity is defined as the 'ability to recognize the value of new external information, assimilate it, and apply it to commercial ends' (Cohen & Levinthal, 1990). In this paper, we will utilize this definition.

However, subsidiaries vary in the degree of their absorptive capacity, which affects the level of internal knowledge transfer

from the parent to the subsidiary (Gupta & Govindarajan, 2000). As stated by researchers, organizational structures are also related to absorptive capacity (Lane & Lubatkin, 1998). In addition, research indicates that capacity to learn depends on the flexibility, and creativity of both the parent and the subsidiary (Lyles & Salk, 1996).

The previous literature has focused on the source of knowledge and not on the receiving unit, meaning the subsidiary. Making it the most important factor of internal knowledge transfer most previous studies have mostly explored the types of organizational mechanisms in dealing with absorptive capacity. However, some studies did treat absorptive capacity as an endogenous factor (Foss & Pedersen, 2002; Minbaeva, Pedersen, Björkman, Fey, & Park, 2003). In this book, we examine absorptive capacity as both an exogenous and endogenous factor as both the source – the parent and the receiver – the subsidiary shares the responsibility equally. In order to do so we see the necessity of including transfer willingness as a factor to make better sense of all the dyads that affect knowledge transfer.

## **Obstacles in the knowledge transfer process**

Knowledge transfer does not occur randomly, as firms establish various policies, structures, and procedures, the ease of learning is gradually generated (Inkpen, 1998). Knowledge transfer is difficult to achieve, and barriers to knowledge transfer from subsidiary to parent may create competition within units of MNEs (Kogut & Zander, 1992; Szulanski, 1996). It is demonstrated that internal knowledge transfer is hindered when there is intra - and inter-functional rivalry (Maltz & Kohli, 1996). This may also be the case if there is a problematic relationship between the source and the recipient (Szulanski, 1996). Units compete with each other to acquire scarce resources of the firm. They may also be unwilling to share information to prevent a competing unit to gain knowledge and to obtain information so that an increase in the value of a competing unit's knowledge does not take place (Gupta & Govindarajan, 2000). Furthermore, a subsidiary may be reluctant to transfer knowledge to other units for fear of losing a position of superiority, or because it is insufficiently compensated for the

efforts and costs involved in the process of knowledge transfer (Forsgren *et al.*, 2000; Szulanski, 1996). When there is asymmetric-information flow between MNE top management and the specific subsidiary, it may be in the subsidiary's self-interest not to transfer knowledge to other MNE units. Unfortunately, this type of action would undermine the enhancement of overall MNE performance.

Usually, subsidiaries tend to have different goals and limited incentives to transfer know-how to other units, particularly if it takes the precious time of their best people and/or the danger of proprietary technology leaking out (Porter, 1985; Szulanski, 1996). By diffusing knowledge to other MNE units, the focal subsidiary may also lose some of its uniqueness, thus losing bargaining power within the MNE (Forsgren, 1997; Levitt & March, 1988). Overall, although acquiring knowledge is an advantage that can be gained from intra-firm communication, studies have shown that the transfer of knowledge has not been successful due to impediments of this process. Based on the impediments in knowledge transfer mentioned above, the following figure is used to better illustrate the issue.



**Figure 6.** *Obstacles of Knowledge Transfer within MNEs*

## Knowledge areas for improvement

To better understand the process of knowledge transfer within MNE and to enhance the overall performance of MNEs and help them to obtain competitive advantages in increasingly intensive competitive business world, we identified the above-mentioned obstacles for both parent and subsidiary in this learning process. Furthermore, we attempt to explore the ways to improve knowledge transfer willingness and absorptive capacity in knowledge areas that are substantial for value chain activities. Important knowledge areas that comprise the value chain and elements that influence value-adding activities are technology, regulation, business culture, market structure, market operation, competition, competitive behavior, risk, and relationships.

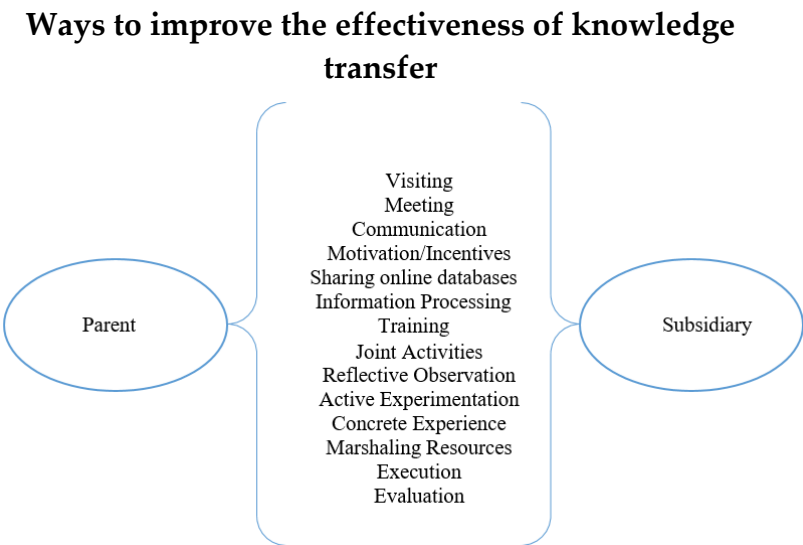
Knowledge is classified into two types: explicit or tacit. Explicit knowledge can be codified and expressed clearly; by contrast, tacit knowledge is difficult to articulate (Polanyi, 1966) due to its embeddedness in individuals. According to this definition, the important knowledge area above mentioned is categorized (see table 2). The tacit knowledge is difficult to diffuse and imitate, making a firm's performance sustainable (McEvily & Chakravarthy, 2002). Therefore, MNEs should pay more attention to tacit knowledge in order to obtain competitive advantage and keep it sustainable.

**Table 2.** *Important Knowledge Area for Value Creation*

Knowledge Area	Types of Knowledge
Product	Explicit
Technology	Explicit
Regulation	Explicit
Business Culture	Explicit and Tacit
Market Structure	Explicit
Market Operation	Tacit
Competition	Explicit
Competitive Behavior	Tacit
Risks	Tacit
Relationships	Tacit

As stated above, in this paper, we examine absorptive capacity as both an exogenous and endogenous factor. We also include

transfer willingness as a factor to offer a conceptual framework that will enhance firm competitiveness and market share and to sustain its competitive advantage.



**Figure 7.** *Ways to improve Transmission Willingness and Absorptive Capacity*

As the figure above illustrates, the variables above in the bracket of the circles of the parent and the subsidiary, which are necessary to implement in order to improve both the Transmission Willingness and the Absorptive Capacity.

*Visiting:* The parent makes frequent visits to the subsidiary and allows it to visit the parent in order to enhance the understanding between them, to learn the systems, and to proactively shape and craft the process of knowledge transfer.

*Meeting:* Regular meetings between the parent and the subsidiary are essential in the process of knowledge transfer.

*Communication:* The parent and the subsidiary often communicate outside of face-to-face meetings. The communication processes may be electronic or other media.

*Motivation/Incentives:* The parent empowers the subsidiary so that the subsidiary can have the authority to deliver quality products and/or better service. A proper incentive should be set for knowledge sharing.



*Sharing online databases:* Using online systems to provide all relevant parties with the latest best practices and actual experiences with them.

*Information Processing:* The parent installs information and operating systems that enable the subsidiary to carry out its strategic role proficiently.

*Training:* The parent provides quality training for the subsidiary's employees, especially cross-cultural and language training to employees to help them understand and deal with cross-cultural communication within MNEs.

*Joint Activities:* The parent conducts joint activities in order to diffuse learning by the subsidiary so that the subsidiary can adopt best practices. This could help to break down knowledge silos.

*Reflective Observation:* The Subsidiary is enabled to view experiences impartially or from different perspectives.

*Active Experimentation:* The subsidiary utilizes the information offered by the parent to make decisions and solve problems as well as testing when necessary.

*Concrete Experience:* Subsidiary becomes fully involved in the new activities.

*Marshaling Resources:* The subsidiary gets support from the parent firm to marshal the resources needed to conduct new strategic initiatives within its responsibility zone.

*Execution:* The execution of the knowledge transfer cannot be accomplished well without working with the subsidiary's internal systems. The parent uses the necessary apparatuses to accurately implement cognitive and technological tools in order to achieve accurate execution.

*Evaluation:* Once the execution is performed, both the parent and the subsidiary jointly need to test the competencies and capabilities.

## **Cultural factors influencing knowledge transfer**

Since MNEs are a network distributed worldwide, cross-cultural communication cannot be disregarded during their daily operation between parent and subsidiaries. Cultural dynamics from both the external environment (national culture) and the internal environment (organizational and professional culture)

should be considered in order to improve the willingness to share knowledge.

It is evident that national culture, expressed as values and beliefs, has a direct influence on organizational culture (Hofstede, 2001). Different national cultures have their own favored ways of structuring firms and have different patterns of motivating employees and solutions to resolving problems. In addition, management theories and concepts are culture-bounded and are difficult to adopt in another culture. Therefore, this research only focuses on national culture, which refers to a set of shared values and beliefs within people of a sovereign nation.

The previous literature has detected some cultural factors that hinder knowledge transfer. Communication difficulties can become dependent on cultural differences, such as language difficulties, different ways of thinking and logic, and different perceived credibility of voluntarily shared knowledge (Li, 2010). Wei, Stankosky, Calabrese, & Lu (2008) described a conceptual framework without empirical data for studying the impact of national culture on knowledge sharing motivation in virtual teams. When the similarity in the culture of source and recipient may lead to more effective knowledge transfer (Bhagat, Kedia, Harveston, & Triandis, 2002; Gonzalez, Gasco, & Llopis, 2006; Lucas, 2006). A shared language between source and recipient of knowledge is critical to generate effective knowledge flows (Davenport & Prusak, 2000). Otherwise people neither understand nor trust one another without a common language.

Among the five dimensions proposed in Hofstede's national culture framework, this study only focuses on two dimensions: power distance (PD) and individualism/collectivism (IC). In his original research (1980), Hofstede proposed the terms individualism vs. collectivism. This dimension has become very popular among researchers, particularly those from Asian countries (Hofstede, 2001, p.215). Individualism/collectivism and power distance are acknowledged to be the most important characteristics to distinguish how different societies process and deal with information (Bhagat *et al.*, 2002; Earley & Gibson, 1998; Hofstede, 1980, 1991, 1994; Triandis, 1995, 1998) and hence are discussed in this research of knowledge sharing.

### *Individualism/collectivism*

Individualism/collectivism (IC) is defined as the extent to which a person sees himself or herself as an individual rather than part of a group. In individualistic societies, ties among individuals are very loose. Everyone is expected to look after himself or herself or family members only, whereas, in collectivist cultures, the notion of group is reinforced. Collectivist cultures are usually driven by group interest rather than by self-interest.

An additional differentiation between individualism and collectivism was built upon the definition of self (Triandis, 1995). People of individualistic societies view themselves as independent of others, whereas, in collectivist cultures, people view themselves as interdependent with others, in many cases with members of a specific in-group. People in collectivist cultures feel a moral duty towards their in-group and a lack of interest in those considered as out-group. Collectivist societies have distinctive and salient boundary between the individuals' in-group and out-groups (Iyengar, Lepper, & Ross, 1999), people feel strong trust in in-group members but weaker, or even lack of, trust in out-group members (Chen, Peng, & Saporito, 2002).

The implication of the distinction between in-group versus out-group is that in collectivist cultures, people attempt to share knowledge with their in-group members, therefore pursuing the interest of the group rather than self-interest. On the other hand, in individualist cultures, people without strong affiliations with in-group members might not be willing to share knowledge with their immediate workmates. In the meantime, because strong in-group orientation is usually associated with negative feelings towards out-group members (Ashwin, 1996), knowledge sharing on organizational or inter-organizational level might be significantly hindered by this group orientation (Hutchings & Michailova, 2004). Empirically, Chow, Deng, & Ho (2000) found that Chinese managers were less willing to share with out-group members than Americans, after comparing factors impacting knowledge sharing behaviors between them. Similarly, Hutchings & Michailova (2004) confirmed the same phenomenon observed in Russia.

Bhagat *et al.*, (2002) suggest that people of collectivistic and individualistic cultures have different ways of processing

information and constructing knowledge. For example, in individualistic societies (e.g. USA and UK), individuals attempt to treat each piece of information independent of its context, emphasizing information in writing and codified format and are less likely to disregard such information. By contrast, people of collectivistic cultures (e.g., China, Russia, and Brazil) look for contextual hints in information and attempt to ignore information in writing (Bhagat *et al.*, 2002).

Bhagat *et al.*, (2002) claim is consistent with Hall's (1976) distinction between high- and low-context styles of communication. In high-context cultures, such as China, Brazil, and Russia, people depend more on the context of non-verbal signals to convey a message and thus prefer communication media with high media-richness, for example face-to-face communication or phone calls. On the other hand, in low context cultures, for instance in the USA and UK, a message is not available from the environmental setting since people do not learn how to receive and perceive information from the environment. Therefore, low-context cultures emphasize the written word, communication media low in media-richness; for instance, e-mail messages, or online discussion boards are more likely to be accepted.

### *Power distance*

Another important dimension influencing knowledge transfer is power distance, measuring the importance of status. Power distance (PD) is defined as the extent to which members of a society accept that power is not equally distributed in an organization. It reflects the asymmetrical nature of the relationships that might be present between knowledge source and recipient.

Triandis's (1995) distinction between vertical and horizontal cultures is very similar to Hofstede's (2001) power distance (PD) dimension. People in vertical cultures do not value equality and see themselves different from others in terms of social status. Actually, differences in status are not only accepted but also expected in high power distance cultures (Hofstede, 2001). In horizontal cultures, where power distance is low, differences in status are less evident.

Bhagat *et al.*, (2002) posit that these differences lead to different preferences in processing and transferring certain types of knowledge. Due to these differences, knowledge transfers between cultures on the extremes of the continuum (e.g. from a vertical collectivistic country, for instance, China and Brazil and China, to a horizontal individualistic country, for example, the USA and UK) are less likely to be effective. Nevertheless, when there is a match between the cultural patterns of the recipient and the source of knowledge, knowledge transferred is more likely to be understood and incorporated smoothly.

In addition, Bhagat *et al.*, (2002) suggest that the differentiation between horizontal and vertical cultures assists in explaining cross-border knowledge transfer, since information in vertical cultures often flows from top to bottom, whereas information flows in both directions in horizontal cultures. Similarly, Hofstede (2001) suggests that in cultures with high power distance, information flows are generally controlled by hierarchy, which may cause exclusion of lower-level employees from access to certain types of information. These practices might generate obstacles for knowledge transfer within MNEs with different status. Even though not specifically addressing cross-cultural issues, reviewing knowledge management literature, Ipe (2003) concludes that power and status determine people's motivation to share and the direction of knowledge flows.

### *Language*

Besides the two dimensions mentioned above, language plays an important role in knowledge transfer because of its role in communication between the source and recipient. Without a common language, it is difficult to share knowledge. The capability of speaking a common language is crucial in communications-intensive knowledge transfer (Davenport & Prusak, 2000; Simonin, 1999). Davenport & Prusak (2000) claim that a shared language is critical to productive knowledge transfer because people neither understand nor trust one another without a shared language. By the same token, Grant (1996) finds that the lack of a shared language among employees in MNEs is an important barrier to knowledge transfer.

Since national culture influences willingness to share knowledge in general, individualism/collectivism, power distance, and language in particular, in order to improve the effectiveness of intra-firm knowledge transfer, MNEs should be aware of cross-cultural differences between employees from various nationalities, provide cross-cultural training to employees to help them understand and deal with the different ways to processing and interpreting information between knowledge source and recipient, and require a common language as the working language within MNEs.

## Conclusion

By applying this framework, both Transmission Willingness and the Absorptive Capacity will be enhanced and create a better fit between the parent and the subsidiary. The rapport and bonding created during the process of knowledge transfer will establish reliability and altruism between the parent and the subsidiary. In this way, company performance and competitiveness will be greatly improved. As emphasized by previous research, transfer of knowledge between the organizations is not a gradual process of dissemination, but a process of dyadic exchanges of knowledge between the source and recipient (Szulanski, 1996).

The framework that this paper offers is in line with the findings of Cohen & Levinthal (1990), who state that firm's absorptive capacity tends to develop incrementally and build on existing knowledge. It has to be closely related to its current knowledge as it is maintained as a spin-off of routine activity. Hence, the suggested framework will serve as a remedy for improving transmission willingness and absorptive capacity.



# 3 Knowledge transfer in international joint-ventures: Comparative analysis from foreign and Chinese partners

## Introduction

A strategic management researchers are concerned with explaining a firm's performance through the study of competitive advantages. For a social entity to achieve superior performance, recent research has indicated that knowledge generation and its successful transfer must take place (Alavi, 2000). Moreover, growth theories consider knowledge, the stimulus for technological progress that impacts productivity (Mueller, 2006). In a similar sense, Cross, Parker, Prusak, & Borgatti (2001) have stated that knowledge sharing in today's



economy is essential for the achievement of organizational effectiveness through collaboration and innovation.

With globalization, important knowledge that is associated with competitive advantage can be generated from and transferred to overseas markets. In addition, as a business is gradually being conducted internationally, the significance of effective and efficient knowledge transfer across borders has consequently augmented (Pérez-Nordtvedt *et al.*, 2008). The ability to internalize and transform external knowledge into new products, services, markets, or growth is considered the main source of competitive advantage (Grant, 1996). More specifically, knowledge acquisition, assimilation, transformation, and exploitation capabilities, which comprise a firm's absorptive capacity (Zahra & George, 2002), collectively enhance firm performance and confer a competitive advantage (Flatten, Engelen, Zahra, & Brettel, 2011).

When business is progressively being conducted across borders, the importance of effective and efficient cross-border knowledge transfer has enhanced (Pérez-Nordtvedt *et al.*, 2008). Very few companies possess all the necessary information and know-how to deal with the varied and complex business environments of global markets effectively, and usually establish cross-border partnerships to obtain knowledge resources from their foreign partners (Kale, Singh, & Perlmutter, 2000). Accordingly, the transfer of knowledge from external sources has become an effective knowledge transfer within and between firms. Therefore, transfers of knowledge from external organizations have become crucial to the success of MNEs (Easterby-Smith *et al.*, 2008).

It is, however, not easy to achieve due to the complicated nature of the process and challenges involved (Easterby-Smith *et al.*, 2008). Particularly, cross-border knowledge transfers are challenging from an organizational perspective due to the many differences that may be present between firms, including spatial, cultural, linguistic, technological, institutional, etc. (Javidan *et al.*, 2005; Pérez-Nordtvedt *et al.*, 2008). Therefore, knowledge transfer is not only difficult but also costly in terms of time and effort, and its effectiveness should not be neglected (Reagans & McEvily, 2003; Szulanski, 1996). In addition, cross-border collaboration and

cooperation between firms is not only risky but also difficult to manage. As a result, only less than half of those alliances accomplish their goals (Bamford, Ernst, & Fubini, 2004). Therefore, it is extremely important for the international business arena to get a better understanding of the factors that may impact knowledge transfers in international joint-ventures, and their influences on firms' performance (Kogut, 1988; Suseno & Ratten, 2007).

The previous literature on cross-border knowledge transfers is focused primarily on transfers within MNEs. This literature provides the foundation for studies on cross-border knowledge transfers between firms. Companies are commonly recognized as social communities, in which social, individual, and collective know-how can be converted into economically valuable products and services (Kogut & Zander, 1992). Among all the resources and capabilities possessed by companies, a critical resource in obtaining competitive advantages is knowledge (Grant, 1996), and innovative capability development may result in further competitive advantages (Inkpen, 1998; Teece, Pisano, & Shuen, 1997). Knowledge-based theories of the firm are built upon the notion that knowledge is essential for value creation and appropriation when knowledge is valuable, rare, and not easily imitated, serving as a strategic resource (Barney, 1991; Grant, 1996). The transfer of such knowledge is predominantly important in international business because MNEs function to internalize within its boundaries the transfer of such knowledge internationally (Kogut & Zander, 1993).

Scholars in international business propose that the tacit form of specialized knowledge of a company constitutes one of the barriers to transfer knowledge effectively (Gupta & Govindarajan, 2000). Due to its nature, tacit knowledge is particularly critical for creating a competitive advantage. However, this type of knowledge also is more difficult to be transferred and absorbed (Grant, 1996). Moreover, transfer of this type of knowledge to other organization involves inherent risk, because this activity is likely to lead to involuntary expropriation, as well as the creation of new rivals (Gupta & Govindarajan, 2000).

In knowledge, flows cross national borders, the modes of governance for the partnership impact significantly on the

behavior of these partners and the effectiveness of outcomes of knowledge transferred (Gulati & Singh, 1998). IJVs are established when partners of different nationalities contribute resources to build a new entity (Pak, Ra, & Park, 2009). They are usually viewed as an efficient mechanism to create and transfer knowledge across national borders with the purpose of minimizing the transaction costs related to the exchange of resources and information (Kogut, 1988). Knowledge gained from foreign parents increases the IJV's organizational capability to understand and respond to its environment, most probably resulting in enhanced performance for the IJV (Lane *et al.*, 2001).

Because of the importance of knowledge transfer, a large body of literature in the international business field has investigated the factors that may influence the effectiveness and consequences of knowledge transfer, including characteristics of the knowledge transferred (Birkinshaw *et al.*, 2002), motivation (Gupta & Govindarajan, 2000; Szulanski, 1996), disseminative capacity (Minbaeva & Michailova, 2004), knowledge absorptive capacity (Lane *et al.*, 2001; Lyles & Salk, 1996), transfer capacity (Park, 2011), investment mode (Park, 2012), organizational context (Evangelista & Hau, 2009), and social factors, for instance exchange climate (Park, Vertinsky, & Lee, 2012), relationship capital (Kale *et al.*, 2000), interpersonal similarity (Mäkelä, Andersson, & Seppälä, 2012), and relationship development capability (Choi & Johanson, 2012). However, factors that may affect the willingness to share knowledge are not well studied. Therefore, this paper attempts to address this as an important component as capacity in knowledge transfer processes and factors that may influence the willingness to share knowledge between partners in IJVs are identified and tested.

This book is structured as follows: section II, literature is reviewed. Section III, the methodology is presented. Section IV results are discussed. Section V presents managerial implications and conclusions.

## Literature review

### International joint-ventures

An International Joint Venture (IJV) is defined as a cross-border collaboration with equity involved between two or more different organizations headquartered in distinct countries (Geringer & Hebert, 1989). Companies can tap into new markets, exploit current resources, diminish risks, and obtain new resources and capabilities through this cross-border, equity-based collaboration (Bleeke & Ernst, 1993; Harrigan, 1988). Due to the increasingly globalized business environment, IJVs have become a new and preferred organizational form for companies to expand geographical markets. The IJV as an entry mode of internationalization of firms has gained significance in the last decades (Duan & Juma, 2007; Dunning, 1995), showing the importance of cooperative strategies for MNEs (Buckley & Casson, 1988; Dunning, 1993). In the meantime, studies on IJVs are increasing and extensive.

### *Internationalization and transaction cost economics*

Both theories of internationalization and transaction cost elucidate the IJVs' foundation and survival as a difference of benefits over costs related to it. According to Buckley & Casson (1988), IJVs are a form of the international expansion of MNEs in the international business area. They claim that companies attempt to use internal markets for intermediate products when imperfect markets exist and internalize their operations through cross-border investment, in order to maximize profit. Compared to wholly-owned subsidiaries, IJVs are a preferred entry mode. The reason is that the cost of establishment of a cooperative arrangement is lower than that of a wholly-owned subsidiary because of high level of uncertainty and legal, social, and institutional requirements.

Transaction cost economics views joint-ventures (JVs) as a hybrid form of organization. It is between the market and the wholly-owned subsidiary (Williamson, 1991). This hybrid option is selected since it counters several market failures, and offers protection against uncertainty and opportunism. In addition, it is a cost-efficient alternative in case of transaction with high asset specificity and frequency. IJVs are established because of high

uncertainty, among other reasons. Because JVs are set up as an individual entity for continuous operation, the activities are both specific and ongoing, therefore it can be argued as a transaction with high asset specificity and frequency. IJVs pose high transaction cost in terms of asset specificity, behavior uncertainty, and environmental uncertainty (Beckman, Haunschild, & Phillips, 2004; Ghosh & John, 2005; Poppo & Zenger, 2002; Reuer & Ariño, 2007). From the transaction cost lens, minimizing transaction costs is the ultimate driver for companies to adopt different control mechanisms in inter-firm exchanges (Poppo & Zenger, 2002).

The argument of the contract-centered approach is built upon the opportunistic or self-interested nature of human beings (Williamson, 1975, 1985). Opportunism is intrinsic in IJVs, and it increases their partners' transaction costs (Owens & Quinn, 2007). Based on (Beamish & Banks, 1987), both mutual trust and commitment to the JV's success in the long term can restrain opportunism. In order to test opportunism and preferred control, Parkhe (1993) establishes that perceived opportunism impacts the extent of commitment and the extent of safeguards. Park & Russo (1996) formulate the concept of JVs as intermediate governance structures with the benefits and disadvantages of both hierarchy and market. Thus, JVs are sustainable only when both partners can create fair value out of them. When this balance is not held, one partner or both of them may engage in opportunism. Because either or both of the partners in this cooperative arrangement may behave opportunistically, it is important for JVs to safeguards against opportunism appropriately in order to be an efficient alternative. In addition, because IJV's have to handle asymmetric bargaining, political influence, and control, their capability to function as independent entities and manage their decisions effectively turns into less than ideal (Pearce, 1997). The likelihood of such IJVs' survival is low.

### *Resource-based view*

Although TCE views IJVs from the perspective of cost, the benefit perspective is better explicated by the Resource-based view (RBV). RBV is complementary to TCE by stating that companies can increase their competitive advantage through JVs by

exploitation of current resources and exploration of new resources (Das & Teng, 2000; Madhok, 1995; Madhok & Tallman, 1998). Companies establish JVs in order to gain access to complementary resources and learning from the partner to develop new capabilities, which often constitutes the primary motive for both parents. Companies possess specific resource endowments (Barney, 1991). However, they may require additional resources in order to become competitive in certain markets (Hitt, Dacin, Levitas, Arregle, & Borza, 2000). Such a requirement is a key reason for strategic alliances and the selection of partners in the alliances (Hitt *et al.*, 2000). Therefore, access to strategic resources is one of primary drivers of cooperative arrangements (Das & Teng, 2000; Eisenhardt & Schoonhoven, 1996).

In addition to a search for local market knowledge and access, companies from a developed market with a large number of resource endowments attempt to leverage their resources by choosing alliance partners with complementary resources and capabilities, and unique competencies. Local firms in transition economies set up cross-border JVs to obtain advanced organizational capabilities and skills from overseas partners (Child, 2001). Companies with fewer resource endowments may want to learn new managerial and technical skills and capabilities, whereas companies with more resource endowments desire to acquire knowledge of markets and establish relationships to gain access to local markets (Khanna, Gulati, & Nohria, 1998).

### *Knowledge and learning theories*

To understand learning in IJVs, learning theories and knowledge-based view have been most broadly used. Companies form JVs to obtain access to complementary resources and learn from the partners to develop new skills and capabilities (Hamel, 1991; Khanna *et al.*, 1998; Kogut, 1988). Notions of learning theories, for instance, experiential learning (Huber, 1991), socialization (March, 1991), tacit and explicit knowledge (Nonaka & Takeuchi, 1995), and absorptive capacity (Cohen & Levinthal, 1990) have been used in the prior literature to explain both antecedents and effectiveness of learning.

Contrary to the transaction-based cost-minimizing view of IJVs, the knowledge and learning based view claim that IJVs are greater and efficient forms of inter-organizational learning and the integrational nature of this new entity make them an attractive mode of entry. IJVs are usually adopted to gain access new knowledge or to generate profit from current knowledge (Crossan & Inkpen, 1995a; Shenkar & Li, 1999). Knowledge is likely to flow more freely, and capabilities and skills are developed more easily in IJVs than in wholly-owned subsidiaries (WOSs) (Luo, 2002). IJVs allow a rapid acquisition of unique competencies from other companies (Blodgett, 1991; Hamel, 1991; Hennart, 1988; Kogut, 1988), since they offer a set of sharing that facilitates transfers of knowledge that are embedded in diverse international contexts, and the cultural and institutional aspects (Makhija & Ganesh, 1997). For IJVs, access to local knowledge enhances their performance (Beamish & Banks, 1987; Crossan & Inkpen, 1995a; Lyles & Salk, 1996; Makino & Delios, 1996), and learning improves a firm's competitive advantage in the long term (Inkpen & Dinur, 1998).

Kogut's work on learning in IJV (Kogut, 1988) was one of the early research that brought learning into the forefront of IJV studies. Kogut contends that the success of the IJV is determined by the transfers of knowledge between partners. Further, Hamel (1991) advances this concept and idea by claiming for a competitive learning viewpoint and how rapid learning from one part of the partnership can lead to the termination of the cooperative arrangement. Steensma & Lyles (2000) argue that learning dynamics impact IJV survival: on the one hand, since the IJV learns effectively from its parents, it reaches competitive advantages and enjoys a higher level of survival, on the other hand, the fact that learning by both parents if it goes as they expect, and conflict between them decreases, makes the IJV survive for a long time.

Barkema, Shenkar, Vermeulen, & Bell (1997) adopt the organizational learning theories and posit that companies learn from their experience with WOSs overseas, with domestic JVs, and with prior IJVs. This knowledge is used to design and manage the subsequent IJVs that the companies established and affects their

survival. By entering into an IJV, a company encounters the dual challenges of working with a partner and operating in a foreign environment. While experience with the domestic JVs prepares the company for the prior challenge, experience with WOS overseas assists the company in acquiring cross-border operating proficiency.

### *Social exchange and social control*

Although theories of organizational economics are built upon marginal cost concerns and competitive advantage through developing capabilities, the behavioral perspective underscores the presence of goodwill generated by the commitment of the joining parties to the IJV and each other to circumvent such conflict; therefore, social exchange, trust, and commitment complement the economic view of IJVs.

Social exchange is defined as “voluntary actions of individuals that are motivated by the returns they are expected to bring and typically, in fact, bring from others” (Blau, 1964, p.91) According to Das & Teng (2002), social exchange is voluntary, less formal, and more flexible than economic exchange. It is built upon trust, reciprocity, and power dependence. The reason why social exchange is a useful lens to study IJVs is that IJV contracts are incomplete, and the relationship is ongoing. In IJVs, there exist reinforcements of behavior of cooperation and opportunism. Thus, using the social exchange lens can offer additional explanations over TCE. Social exchange has been adopted to illuminate how usage of social control can affect IJV survival (Steensma & Lyles, 2000). As a relational aspect, trust is generally claimed to improve learning and operate through social control.

IJVs can be governed by two types of control mechanisms, formal and social control (Schaan, 1983; Uzzi, 1997). Formal control mechanisms can be implemented through the equity route, for instance, the board of directors and key personnel on board in JV, through formal agreements, contracts, and reporting relationships. Social control mechanisms are applied through informal means and operate through trust. Trust is defined as 'the belief that an exchange partner would not act in self-interest at another's expense' (Uzzi, 1997). Trust is very important in JVs since it is not



practically possible to cover all the circumstances and conditions that can take place. Trust shows a commitment made by the partners not to take advantage of the other party's weaknesses (Steensma & Lyles, 2000). Trust functions as a constant social control mechanism (Lane *et al.*, 2001). It results in a shared understanding between the parent firm and the IJV managers. Social control mechanisms typically take the form of participatory decision making, joint problem solving, accomplishment of promises and comprehensive information Exchange (Fryxell, Dooley, & Vryza, 2002).

### **Knowledge transfer in alliances**

Alliances are commonly acknowledged as conduits for knowledge generation, transfer, and utilization between organizations (Crossan & Inkpen, 1995b; Kale *et al.*, 2000; Khanna *et al.*, 1998; Lane & Lubatkin, 1998; Lane *et al.*, 2001; Larsson, Bengtsson, Henriksson, & Sparks, 1998; Lyles & Salk, 1996; Mowery, Oxley, & Silverman, 1996; Simonin, 1997, 1999). Larsson *et al.* (1998) and Grant & Baden-Fuller (2004) find the reasons why firms form alliances based on several research streams. Grant & Baden-Fuller (2004) distinguish between the purposes of accessing or acquiring knowledge from the partner, Larsson *et al.*, (1998) differentiate between the joint creation of totally new knowledge and the transfer of existing knowledge among partners. Therefore, companies are likely to be motivated either by the desire to create new knowledge together, transfer current knowledge between partners, or combine current complementary knowledge through knowledge application jointly.

Firms are commonly recognized as social communities where individual, collective, and social expertise can be transformed into commercially valuable products and services (Kogut & Zander, 1992). Among the valuable resources controlled by firms, a critical resource in gaining competitive advantages is knowledge (Grant, 1996), and the development of new ability and skills may create further competitive advantages (Inkpen, 1998; Teece *et al.*, 1997). Knowledge-based theories of the firm build upon the idea that knowledge is essential for value creation. When knowledge is indeed unique, for instance, valuable, rare, and difficult to imitate,

it is a strategic resource (Barney, 1991; Grant, 1996). The transfer of knowledge is predominantly important in international business since MNEs serve to internalize the transfer of such knowledge within the firm (Kogut & Zander, 1993).

The knowledge-based theory states that companies should concentrate on creating and accumulating knowledge-based competencies to achieve long-term survival (Barney, 1991; Grant, 1996; Teece, 2000). This view is focused on knowledge as a principal resource (Grant, 1996), declaring that the growth of a firm primarily rests on its ability to create and apply knowledge in its knowledge base (Kogut & Zander, 1992) and the reason of existence of a firm is that it offers efficiency advantages to use, create and commercialize knowledge compared to markets (Kogut & Zander, 1996) and that the knowledge-creation process impacts firms' scale and scope (Nickerson & Zenger, 2004). A firm's knowledge repository is composed of various knowledge, and this stock of knowledge is essential for the firm to develop and maintain a competitive advantage via creating value for the firm's stakeholders. Therefore, MNEs' competitive advantage is built upon their ability to obtain and apply knowledge across national borders (Almeida *et al.*, 2002; Gupta & Govindarajan, 2000; Kogut & Zander, 1993; Mudambi, 2002).

Globalization and the intensified domestic competition have caused many firms to explore foreign markets (Elango & Pattnaik, 2007; Kauser & Shaw, 2004; Teegeen & Doh, 2002). Rapid technological advances, changing economic, political, and social environments, and geographical diversification are generating new challenges for businesses (Culpan, 2002). In order to meet these challenges, firms are obligated to expand their knowledge resources. Few firms enjoy all the information and know-how required to deal effectively with the dynamics of business environments of global markets and usually establish foreign partnerships to gain knowledge resources from their overseas partners (Kale *et al.*, 2000). Cross-border cooperation and collaboration between firms is not only risky but also difficult to manage, which leads to more than half of such arrangements fail to achieve their goals (Bamford *et al.*, 2004). Therefore, it is critical for the field of international business to advance understanding of the

factors affecting knowledge transfers in joint ventures, and their effects on firm performance (Kogut, 1988; Suseno & Ratten, 2007). Although knowledge transfer is apparently not the only challenge and motivation for all international joint ventures (IJVs), a number of research studies have illustrated that effective knowledge transfer is a key factor for alliances' survival and performance (Lane *et al.*, 2001; Lyles & Salk, 1996; Pak *et al.*, 2009; Suseno & Ratten, 2007).

Knowledge transfer is a process of interaction between two entities, either inside or outside companies. Therefore, partner selection is important for both parties during the establishment of the agreement in order to achieve the greatest benefits of collaborative alliances (Narteh, 2008). Furthermore, within the learning alliances, companies can speed capability development and reduce their exposure to technological uncertainties through acquisition and exploitation of third-party knowledge (Lane & Lubatkin, 1998). According to Narteh (2008), if a partner is not appropriately selected, knowledge is not effectively transferred from one to another, because the partner selected may lack the complementary knowledge required by a firm, and conflicts and instability in the alliance could affect the effectiveness of the knowledge transfer process.

Knowledge transfer requires a minimum level of interaction between the transferor entity and the recipient (Narteh, 2008). Information sharing through both informal and formal channels is critical, dictating the importance of the relationship and respect between each party. Cavusgil, Calantone, & Zhao (2003) propose that frequent interactions, an extended history, and intimacy or mutual confidence characterize such close inter-firm relationships. Moreover, Kotabe, Martin, & Domoto (2003) refer to relation-specific skills or assets such as distinctive routines developed over time that increases the effectiveness of collaboration.

Hamel (1991) describes openness as a strong determinant of knowledge management outcomes in alliances. By definition, openness refers to the interaction of alliance partners. It represents the willingness and ability of partners to communicate freely, share knowledge, and risk unintended knowledge transfers (Inkpen, 2000; Lane *et al.*, 2001; Steensma & Lyles, 2000). According

to Inkpen (2000), relationship openness is determined by the level of competitive overlap and trust among alliance partners, which is influenced in particular by the level of conflict in the relationship (Lyles & Salk, 1996).

According to Narteh (2008), trust is assumed to strengthen relationship ties and enhance the learning process. In the absence of trust, the transferor may engage in defense mechanisms to protect knowledge from unauthorized leakage. As suggested by Cavusgil *et al.*, (2003), firms with long-established relationships or a history of previous collaborations can assure trustworthiness in a relationship. Although organizations may monitor a partner's behavior in a relationship, established interaction patterns help to create bonds, facilitating the transfer of knowledge (Narteh, 2008). Moreover, according to Cavusgil *et al.* (2003), the transfer of tacit knowledge is not accomplished in a single step but requires feedback. Thus, the exchange of information must be frank and accurate for the recipient firm to understand the knowledge.

Factors that may influence the willingness to share knowledge within IJVs are identified as follows, and the proposition is established in order to test the relationship between those impacting factors and the willingness to share knowledge.

### *Trust*

Trust is one of the most important factors in the formation of inter-firm relationships, which is context-dependent and requires an investment of time (Inkpen & Currall, 2004). Trust is defined as a willingness to be vulnerable (Jack & Anderson, 2002). It also is expressed in relational terms when parties are assertive that none of them will defraud or exploit each other (Barney & Hansen, 1994) or that none will engage in opportunistic behavior (Bradach & Eccles, 1989). Trust is critical for coordination and control in organizations (Shapiro, 1987) and since it increases people's willingness to perform in an approach that is favorable to the institution (Tyler, 2001). Crossman & Lee-Kelley (2004, p.380) posit, "without trust, no social, political or economic exchange is possible". Trust can be understood as an expectation of a partner's competence as well (Das & Teng, 2002).

However, trust is established and strengthened in specific ways, and the common ground of shared knowledge is the initial point from where the JV develops (Doz, 1996; Inkpen & Currall, 2004). Trust necessitates a series of acceptable interactions, repetitive over time (Ariño, de la Torre, & Ring, 2001, 2005; Gulati, 1995) so that the partners can perceive that the levels of reciprocity and equality are being retained (Ring & Van de Ven, 1992). Trust impacts the performance of the JV in different ways. During cooperation, it decreases the need to continually supervise and monitor, and implement control measures (Dyer & Chu, 2003; Gulati, 1995; Gulati & Singh, 1998; Uzzi, 1997); it reduces the number of conflicts (Ring & Van de Ven, 1992) and makes solving them easier should they rise (Ariño *et al.*, 2001). In addition, trust lessens the costs of coordination, since the partners know each other and are familiar with the way to work together (Doz, 1996) and it makes the exchange of information, and communication, specifically, the capability to take on board knowledge provided and shared by the partner much easier (Inkpen & Currall, 2004).

Researchers have shown the importance of inter-partner trust for efficient knowledge transfer (Doz & Hamel, 1998). Similarly, Das & Teng (1998) propose that the level of trust that one firm grants to its partner and, meanwhile, the level of control it imposes on its partner, both determine the level of confidence, for instance, the anticipated intensity of collaborative behavior. Trust is a reflection of the belief that a partner's word or promise is reliable and that a partner will accomplish its duties in the relationship (Inkpen, 1998).

The level to which a partner's knowledge base is available to another relies on the trust between partners (Yan & Luo, 2001). Partners usually hesitate to share knowledge with unfamiliar parties who have no previous history of cooperation and collaboration. If the JV can live through the period of honeymoon, stronger ties between partners are more likely to develop. In a JV of only two parties, accessibility to each other's knowledge base depends upon their level of trust and openness. In the same vein, a reciprocal necessity for each other's patented knowledge enhances information exchange between partners and ensures the availability of resources and capabilities. Specifically, when mutual

trust rises, and inter-partner understanding develops, access to each other's knowledge will be easier (Pavlovich & Corner, 2006).

Several studies reported a positive relationship between trust and partners' cooperative behaviors in the form of self-disclosures, information exchange, and collaborative problem-solving (Lazaric & Lorenz, 1998; Zand, 1972). For example, Zaheer & Venkatraman (1995) reveal that trust enhanced the scope of collective planning and action by partners in SAs. Through relational processes, partners learn about each other's competence and develop confidence in one another. Dore (1987) find that trust between partners in the Japanese textiles industry increased the security of the partnership and resulted in further growth in investments, risk-sharing, and exchange of knowledge. Thus, we formulate our first proposition as follows:

*Proposition 1: The greater the reciprocal trust that exists between the alliance partners, the greater will be the willingness to share knowledge.*

### **Commitment**

Commitment in a relationship between organizations can be expressed as the extent to which the companies that are involved actually engage (Anderson & Weitz, 1992). Kogut (1988) suggests that in a JV, the level of commitment needs to be high. The reason of this is a high level of commitment lessens the risk of opportunistic behavior and encourages the partners to make the greatest possible efforts to resolve any problems that arise during the cooperation and collaboration process which, at the same time, enhances the likelihood that their objectives can be accomplished (Mohr & Spekman, 1994). Commitment guarantees that the partners uphold their high expectations (Doz, 1996), which, in turn, creates even greater commitment (Kumar & Nti, 1998) and ensures the accomplishment of their objectives and the success of the collaboration and cooperation (Borys & Jemison, 1989). Nevertheless, a deficiency of commitment makes the relationship between partners deteriorate and puts the ongoing collaboration in doubt (Ariño & de la Torre, 1998). Thus, commitment is required to conquer the natural resistance to the postulation of risk and guarantee that the partners can offer the resources necessary to ensure the success of the collaboration and cooperation (Ariño &

Doz, 2000; Barnes, Pashby, & Gibbons, 2002; Fuentes, Arroyo, Bojica, & Pérez, 2010; Fuller-Love, 2009; Tihula & Huovinen, 2010; Ullah, Abbas, & Akbar, 2010; Wakkee, Elfring, & Monaghan, 2010).

Reciprocal commitment is viewed as a sense of duty to the new venture and the other party; it serves as the base upon which problems and issues are addressed and resolved. Mutuality of commitment decreases the uncertainty for the partners, and increases the scope for mutual adjustments in the relationship, therefore offering a basis for communication between parties and joint decision-making. The reciprocal commitment of resources by the partner will increase the necessity for joint planning and actions, and lead to a high degree of information exchange. When both partners commit their resources, they learn about each other and develop new skills, capabilities, and competencies, due to the complementary resources and information shared by the partners. Reciprocal commitments have a self-augmenting effect on contributions made by individual parties to the cooperation because they set up and fortify the norms that need the other party to participate.

Cullen, Johnson, & Sakano (1995) find that to be successful, an IJV must have various kinds of commitment: a commitment to support the partner, a financial commitment, a commitment to the IJV, and a commitment to understanding the political, economic, and cultural environments of the counterpart's country. Lane & Beamish (1990) show that, if each partner exhibits these aspects of commitment, the IJV will grow based upon the principle of fair exchange. From a resource-based view, the relationship between the local partner and the foreign partner is essentially designed to allow each one to get benefits from the resources of each other. An IJV with higher levels of commitment implies that both partners can work together more efficiently to achieve the objectives of the IJV. In fact, various forms of resources are important to build commitment, human capital and social capital, together with networks, which are fundamental for the commitment building (Ainuddin, Beamish, Hulland, & Rouse, 2007). The capability to build and exhibit commitment allows both parties to access more easily each other's knowledge-based resources. Committing resources, time, personnel and physical assets can nurture more

active participation between managers at different levels of the firm and their counterparts in the alliance and lead to more learning. Reciprocal commitments in terms of personnel and assets boost the knowledge linkages between partners. These knowledge linkages assist the communicating and sharing of the firm-specific knowledge with partners to create new knowledge in the alliance (Inkpen, 1998). This leads to the following proposition:

*Proposition 2: The greater the reciprocal commitment that exists between the alliance partners, the greater will be the willingness to share knowledge.*

### **Conflict**

The conflict between partners is detrimental to an alliance. It does not only contribute to the failure of the partnership (Steensma & Lyles, 2000) but also decreases the level of trust between partners and ultimately obstructs knowledge transfer (Tsang *et al.*, 2004). Tsang *et al.*, (2004) confirm empirically that a rise in the level of conflict diminishes knowledge transfer. It is a critical question for partners to determine the way they manage conflict in the alliance. Kale *et al.*, (2000) examine joint conflict management processes and reveal evidence of a positive relationship between the transfer of knowledge and the level of trust between partners in an alliance. Therefore, joint conflict management is likely to serve as a practice to facilitate knowledge transfer and as a mechanism to build trust. In the same line, Berdrow & Lane (2003); Chen (2004); Collins & Hitt (2006) reconfirm the findings that those firms that often are engaged in active interaction with partners, which in turn is described as a high degree of communication quality and observed fairness in the conflict resolution, are found to experience more transfer of knowledge in alliances. In other words, when the level conflict intensifies, the level of trust between partners in alliances reduces, which leads to the decrease of willingness to share knowledge by partners.

Conflict can also result in instability of the relationship and poor performance of the alliance (Lane & Beamish, 1990). Lyles & Salk (1996) report that conflicts between parent firms can hinder the flow of knowledge between the parental firms and the IJV, and can send conflicting or negative signals to employees of the IJV



about utilizing either of the parents as a knowledge reference. Steensma & Lyles (2000) claim that it is distracting for the organization to persistently resolve conflicts, and it also necessitates the firm to allocate fewer resources in organizational learning. Tsang (2001) reveals that conflicts between local and foreign managers in IJVs in China had a detrimental effect on strategic learning and that the transfer of local knowledge was hampered under such circumstances. From a resource-based view, conflict forces the company to allocate less valuable resources in value adding activities, and more importantly it inhibits the capability of the company to learn and the willingness of the counterpart to share. This leads to the following proposition:

*Proposition 3: The greater the conflict that exists between the alliance partners, the less will be the willingness to share knowledge.*

### ***Protection***

Regular contact between employees of partners aids in the sharing of information, which enhances the probabilities that knowledge will be disseminated. Although restrictions on sharing might prevent a partner from obtaining knowledge from a company, these restrictions can be self-defeating since they impede the capability of the company to transfer knowledge and to learn as well. Partners usually react to each other's restraining of information sharing by further decreasing their own sharing, an act that impedes knowledge transfer by the focal company. Thus, enhancing knowledge protection will reduce knowledge transfer. This element is significant in alliances between rivals and is argued in some other studies regarding Transparency – degree of openness to the partner (Joy Jiang, 2002). Some prior mentioned elements also could impact the level of knowledge protection in the company. For instance, the element regarding resource overlap: although some overlap in knowledge is necessary to guarantee that partners can understand and effectively integrate their knowledge, a company will probably restrict the learning opportunities of a partner who possess a high level of capability to take advantage of these opportunities since such a partner is riskier than one with lower capability (Norman, 2005).

Knowledge transfer involves partners' incentives to share knowledge and avoid knowledge leakage (Yan & Luo, 2001). Obviously, companies might be unwilling to share knowledge, and each one desires to protect their knowledge against uncompensated leakage to any other third party. Hence even a company that has abundant resources and can spend them might be reluctant to commit resources for knowledge-sharing. The willingness to transfer knowledge is defined as the tendency to deliver knowledge to the recipient (Faems, Janssens, & Van Looy, 2007). In the IJVs, when knowledge flows across national boundaries, the distances and foreignness with local environments challenge the management of knowledge in terms of monitor and control. By nature, companies are concerned with the protection of their proprietary knowledge. This concern may have negative impact on the level of knowledge flows (Simonin, 2004). Therefore, when partners are competitors or potential competitors, it is reasonable to predict that they will endeavor to prevent knowledge from leaking to partners because knowledge is under the risk of spillover (Hamel, 1991; Inkpen, 1998). Partner protectiveness is reduced when an alliance is established with the objective of both parties to transfer knowledge.

To many companies, the protection of proprietary knowledge from partners is a critical issue in strategic alliances (Baughn, Denekamp, Stevens, & Osborn, 1997; Inkpen, 2002; Simonin, 1999). Transferring partners must have an incentive to palliate the cost typically associated with the transfer (Dyer & Singh, 1998). Otherwise, they may use explicit measures, adopt shielding mechanisms, and take defensive actions to protect their resources and competencies, especially when the knowledge is explicit and held by a small number of experts (Hamel, 1991; Inkpen & Beamish, 1997). Therefore, protection of technological know-how is probably predominant and managed actively, and against-partner protection is expected to result in greater knowledge ambiguity and directly hinders knowledge transfer, and this leads to the following proposition:

*Proposition 4: The greater the protection that exists between the alliance partners, the less will be the willingness to share knowledge.*

### *Competitive overlap*

The competitive overlap between partners in alliances generates negative inducements concerning the willingness and ability to transfer knowledge. A high level of competitive overlap commonly encourages firms to become more defensive about their knowledge, since the involuntary transfer of knowledge to the partner may jeopardize their own competitive advantage (Khanna *et al.*, 1998), while positive motivation is built based on the notion of absorptive capacity. The knowledge bases of rivals are more likely to bear a resemblance to each other, and the possibly negative inducement may be offset by an improved capability to recognize and capture the partner's knowledge (Inkpen, 2000; Kale *et al.*, 2000). In order to empirically assess these assumptions, scholars adopt control variables such as SIC codes to examine market or industry affiliation (Chen, 2004; Dhanaraj, Lyles, Steensma, & Tihanyi, 2004; Mowery *et al.*, 1996; Muthusamy & White, 2005). Mowery *et al.* (1996) reveal that firms in alliances with the purpose of learning from the partnership undergo lower level of knowledge transfer if they are rivals on their end-product markets. Being consistent with the idea of increased absorptive capacity, Schoenmakers & Duysters (2006) discovery that firms experience higher level of knowledge transfer if they are from the same industry. However, Chen (2004) and Muthusamy & White (2005) do not support this finding, because their results show that the industry affiliation does not impact knowledge creation and knowledge transfer.

These contradictory results may be explained by the following. On the other hand, the level of competitive overlap is likely to be important. The competitive overlap varies in alliances with the same industry background compared to alliances with partners actively engaged in a common market. Park & Russo (1996) illustrate that alliances between direct rivals are less likely to succeed compared to alliances among partners who have a common industry background but compete indirectly (Faems *et al.*, 2007). This kind of alliances appear to benefit from an appropriate level of absorptive capacity, at the same time, facing less competitive pressure leading to a lower level of knowledge

protection. This lower level of knowledge protection, in turn, results in more knowledge transfer (Nielsen, 2007).

To sum up, when firms share a similar industry background in alliances, the level of competitive overlap is higher than firms from different industries. If firms compete with each other in end-product markets in alliances, they face higher level of competitive overlap. The level of competitive overlap is highest when firms are from the same industry and compete against each other in a similar end-product markets. There is a negative correlation between the competitive overlap and willingness to share knowledge. Partners in alliances may not be willing to share knowledge due to the competitive pressure that they face if the competitive overlap is high. They may be more protective of their knowledge and unwilling to share knowledge with partners. As discussed above, we can formulate the following proposition:

*Proposition 5: The greater the competitive overlap that exists between the alliance partners, the less will be the willingness to share knowledge.*

### *Tacitness*

Compared to other entry modes, JVs are relatively more efficient in transferring tacit knowledge between partners when there is no restriction imposed to prevent the flow of such knowledge (Child, 2001). Nevertheless, some fundamental obstacles exist to inhibit learning and knowledge transfer between partners. The first obstacle stems from the nature of knowledge. IJVs offer opportunities for effective knowledge transfer since they consist of not only tangible resources, but also carriers of knowledge, individuals, the tacit knowledge that employees carry is not easy to be acquired, compared to codified, explicit knowledge, which is usually more accessible, and therefore innately diffusible, most knowledge transferred between partners in alliances is tacit knowledge and they are context-specific, and socially or organizationally embedded (Yan & Luo, 2001).

Transferring tacit knowledge necessitates active cooperation between alliances partners, such as coordinated actions between firms to achieve same objective (Anderson & Narus, 1990). In order to accomplish mutual goals, coordination involves flexibility and optimal allocation resources between partners through temporary

and mutual sacrifices (Anderson & Narus, 1990; Luo, 2002). Poor and limited cooperation hinders tacit knowledge transfer from foreign parent companies. In addition, conflict and mistrust may decrease the transfer of tacit knowledge in particular because tacit knowledge needs repetitive observation between source and target and more intensive interactions between teachers and students over a long time (Nonaka & Takeuchi, 1995; Polanyi, 1966). The decline of relationships between partners probably decreases interactions and therefore reduces opportunities for observation and learning (Dhanaraj *et al.*, 2004). Moreover, because of the fact that tacit knowledge is more valuable for companies to create value, parent companies may not be willing to share knowledge with partners in the alliance, if they are afraid of knowledge leakage. Therefore, it leads to the following proposition:

*Proposition 6: The greater the tacitness of the knowledge, the less will be the willingness to share knowledge.*

### **Cultural factors**

Previous studies on knowledge transfer between units of organizations as and within joint ventures address several elements in international knowledge sharing (Gupta & Govindarajan, 1994, 2000; Inkpen & Dinur, 1998; Kogut & Zander, 1993; Mowery *et al.*, 1996; Simonin, 1999). Nevertheless only a limited amount of recent research has explicitly focused on the discussion of cultural factors that influence knowledge management and transfer (Chow *et al.*, 2000; Ford & Chan, 2003; Holden, 2001; Hutchings & Michailova, 2004). Among all the factors, the differences between individualism and collectivism are definitely the most commonly adopted criterion in cross-cultural research. Individualism is defined as the tendency of people to put personal goals ahead of those of a larger collective or group, for instance, the organization. By contrast, individuals in collectivist society attempt to place priority on the goals of the larger social group they are affiliated with (Hofstede, 2001), which usually leads to actions of individuals that serve the community or society (Trompenaars, 1994).

In previous research, national culture is used as the proxy to model contextual differences between MNC units (Adler, 1986;

Johanson & Vahlne, 1977). Since national culture incorporates the values, beliefs, and assumptions of a group of people, it serves to interpret the reality and messages as well (Hofstede, 2001). Through communication, as it is assumed that knowledge can be “translated” across cultures (Kim, 1998), however, when two cultures do not share sufficient commonality, knowledge transfer may not be as effective as when there exist consistency in symbolic cultural foundation (Griffith & Harvey, 2001; Kedia & Bhagat, 1988). A deep and common ground of understanding between the source and recipient of knowledge is needed to transfer knowledge. The cultural dissimilarity between partners is progressively viewed as a factor that necessitates appropriate precautions to decrease potential issues and conflicts (Parkhe, 1991).

Lyles & Salk (1996) reveal that cultural conflicts and misunderstandings inhibit knowledge transfer considerably in joint ventures with 50/50 stakes Parkhe (1991, 1993) finds negative evidence between cultural differences and the success of international alliances in learning as well. These empirical findings propose that cultural factors are important elements that affect knowledge sharing and IJV’s learning. As discussed above, we formulate the proposition as follows:

*Proposition 7: Cultural factors influence the willingness to share knowledge negatively, the more dissimilarity exist between cultures, there is less willingness to share knowledge between partners in IJVs.*

### Success

IJVs are often used to access new knowledge or to profit from existing knowledge (Crossan & Inkpen, 1995a; Shenkar & Li, 1999). In Kogut’s work on learning in IJV (Kogut, 1988), he argued that the success of the IJV is determined by knowledge transfer between the partners. While Hamel (1991) develops this further by arguing for a competitive learning perspective, Lane & Lubatkin (1998) emphasized the importance of social interaction of members of partner firms in learning. Knowledge tends to flow more freely, and capabilities are developed more easily in IJVs than in wholly-owned subsidiaries (WOSs) (Luo, 2002). IJVs make possible the rapid acquisition of unique competencies of other firms (Blodgett,

1991; Hamel, 1991; Hennart, 1988; Kogut, 1988) as they provide a participatory setting that makes transfer of knowledge embedded in different international contexts, the institutional and cultural aspects (Makhija & Ganesh, 1997). For IJVs, access to local knowledge improves JV performance (Beamish & Banks, 1987; Crossan & Inkpen, 1995a; Lyles & Salk, 1996; Makino & Delios, 1996), and in the long run, learning enhances a firm's competitive advantage (Inkpen & Dinur, 1998). As Learning from joint ventures affect the fate of the IJV as well as the possible strategic alternatives the parent firms themselves face over time (Demirbag & Mirza, 2000). When parent firms are willing to share knowledge to the IJV, they will transfer knowledge to the IJV, and such flow of knowledge will enhance the success of the alliance. Therefore, it leads to the following proposition:

*Proposition 8: The greater the willingness to share knowledge, the greater will be the likelihood of success in IJV.*

Therefore, the model is formulated as follows:

$$y = f(x) = f(x_1, x_2, \dots x_n)$$

$$z = f(y) = f(y, OF)$$

Where:

$y$  = willingness to share knowledge

$z$  = success of IJV

$x_1$  = trust

$x_2$  = commitment

$x_3$  = conflict

$x_4$  = protection

$x_5$  = competitive overlap

$x_6$  = tacitness

$x_7$  = cultural factor

$OF$  = other factor than  $y$  impacting success of IJV

We argue that although there are several factors that influence the success of IJV, willingness to share knowledge is one of the factors that lead to the success of IJV.

The expected results are as follows:

$$\begin{aligned}\frac{\Delta z}{\Delta y} &> 0 \\ \frac{\Delta y}{\Delta x_1} &> 0 \\ \frac{\Delta y}{\Delta x_2} &> 0 \\ \frac{\Delta y}{\Delta x_3} &< 0 \\ \frac{\Delta y}{\Delta x_4} &< 0 \\ \frac{\Delta y}{\Delta x_5} &< 0 \\ \frac{\Delta y}{\Delta x_6} &< 0 \\ \frac{\Delta y}{\Delta x_7} &< 0\end{aligned}$$

Among the factors listed above, conflict, protection, competitive overlap, tacitness, and cultural factors affect the willingness to share knowledge between partners in IJVs negatively. Trust and commitment affect willingness to share knowledge between partners in IJVs positively. There is a positive correlation between willingness to share knowledge and success of IJVs.

## Methodology

Our research aims to understand the relationship between willingness to share knowledge in IJVs and several factors that may affect the willingness to share knowledge between partners in IJVs. We start with some theory on knowledge management and knowledge transfer; however, since willingness to share knowledge has not been well studied, a qualitative and exploratory case study is proposed. With access to the individuals involved in one or more IJVs where exists evidence of knowledge sharing, then based on the data collected, an analysis is conducted to gain a holistic picture of the willingness to share knowledge in IJVs, focusing on specific constructs.



## Theoretical sampling of cases of IJVs

Accessing data from cases where IJV's managers and employees share knowledge would be important. Based upon respondent's perspectives, theoretical generalizations could be drawn (Eisenhardt & Graebner, 2007; Kvale, 1996; Yin, 2009). The cases provide an in-depth description of a phenomenon (Eisenhardt, 1989; Miles & Huberman, 1994; Siggelkow, 2007), and access to secondary data such as company background, reports, and financial data.

In this research, three cases are used to offer broad and deep study access with specific individuals with the IJVs that could illustrate the knowledge transfer process in general and willingness to share knowledge in particular and explain factors that lead to willingness to share knowledge and the success of IJVs. Moreover, the cases provide theoretical understandings that describe and extend the links between and logic among constructs (Yin, 2009), which meet all the requirements suggested by Ghauri & Grønhaug (2010, p.114) to "confirm, challenge or extend the theory".

## Data collection

A pilot test, consisting of a preliminary questionnaire, was conducted with two companies. A questionnaire was constructed using the feedback from the pilot. The questionnaire was sent out through the website of wenjuan.com on January 18th, 2016. By March 7th, more than 170 respondents have responded to the survey. The response rate was 7%.

Among the 12 surveys completed, 3 of them are not valid because of the fact that they are not international joint-ventures, and 3 surveys come from the same IJV. Among the 7 IJVs, 3 companies were chosen for the case studies. The three companies are LCFC Electronics Technology Co., Ltd, Xi'an Qinhua Natural Gas Co., Ltd, and GAC Toyota Motor Co., Ltd.

## Case studies

### Introduction to company background

#### *Case 1: LCFC Electronics Technology Co., Ltd*

Lenovo Group Limited, incorporated in October 1993 in Beijing, is a leading provider of technology products and services. Its product line is composed of Think-branded commercial, personal computers, and Idea-branded consumer personal computers, servers, workstations, and mobile Internet devices, such as tablets and smartphones. Its operations cover China, Asia Pacific, Europe, Middle East, Africa, and the Americas.

Compal Electronics, Inc. incorporated in June 1984 in Taiwan, a leading manufacturer primarily engaged in the production of notebook computers, monitors, and televisions. Its products are distributed mainly in Asia, America, and Europe.

Lenovo Group Ltd. agreed to establish a joint venture with Compal Electronics Inc. to manufacture notebook computers and related parts in China in September 2011. This new entity is not a usual alliance between a major brand and a contract manufacturer that Lenovo hopes will help move it up the global personal-computer ranks. Lenovo and Compal invested a total amount of \$300 million in two stages in LCFC, 51% of issued share capital is owned by Lenovo and the rest of 49% is owned by Compal (Fletcher & Mozur, 2011; [Lenovo Group Limited, 2011](#)).

According to the agreement, Lenovo purchases quantities of notebook computers and parts from LCFC and facilitates the business and operations of LCFC. In addition, both Lenovo and Compal provide LCFC with certain transition services and technical knowledge assistance. LCFC is expected to become a cost-competitive, global manufacturer solely for Lenovo's products under the leadership of Compal in operations.

The formation of LCFC is projected to offer Lenovo additional manufacturing capacity required to support its planned growth in the global PC market and to expand its existing global manufacturing network, leveraging a combination of in-house facilities and outsourcing partners to supply its total product volume globally. In addition, LCFC enables Lenovo to serve a portion of its expected future growth, since both current in-house factory and original design manufacturer relationships facilitate

expansion. Furthermore, the establishment of LCFC is viewed as an important move to further improve its capability to manufacture innovative products that are faster to market, more attuned to consumers' tastes and needs, and competitively priced.

LCFC manufactured 17 million units of laptops in 2014, which was an increase of more than 400 percent from the previous year and assisted Lenovo to become the world's bestselling PC brand. With the industrial output value amounted to 43.3 billion yuan, LCFC became the largest industrial firm in Hefei city and the largest importer and exporter in Anhui province. The foreign trade of LCFC accounts for 20 percent of Hefei city and 9 percent of the province ([China Business News, 2015](#)).

### ***Case 2: Xi'an Qinhua Natural Gas Co., Ltd***

Hong Kong & China Gas Co., incorporated in 1862 in Hong Kong, is the largest city-gas distributor in Asia in terms of market value and sales. It distributes gas in Hong Kong and China. Since Hong Kong is a mature market, its management focuses on the expansion of business in the Chinese market. Its operations include city gas, storage, fuels for transportation, and water supply and treatment. It is also engaged in the development of other energy sources such as methanol and biofuels. In Hong Kong, its revenues are derived from landfill gas, broadband Internet, data centers and real estate.

Xi'an Urban Infrastructure Construction Investment Group Co., Ltd. was established in July 2000. It is a state-owned enterprise approved by the municipal government. It takes charge of urban infrastructure construction in the public sector, including distribution systems for water, gas, heating, public transport, sewage treatment, and urban toll roads. The Group owns registered capital of 8.5 billion yuan, with the total assets of 100.6 billion yuan and affiliation of 14 firms with a total number of employees of more than thirty thousand.

Xi'an Qinhua Natural Gas Co., Ltd, established in 2006 in Xian city Shaanxi province, China, is mainly engaged in the wholesale trade of natural gas. It is also involved in the operation of gas distribution systems (e.g., mains, meters), and operates as a gas marketer and broker. In addition, it is engaged in transmitting and

distributing gas to final consumers. Its operations are primarily in China.

Under the agreement, Hong Kong & China Gas Co. invested 2 billion yuan (248 million dollars), with a 49 percent of stake in Xian Natural Gas Co, in this new entity, and Xi'an Urban Infrastructure Construction Investment Group Co., Ltd owns the rest of 51 percent of stake with a total investment amounted to 2.08 billion yuan (258.12 million dollars). Xian Natural Gas Co. holds a 25-year right to distribute gas in Xian city.

Hong Kong & China Gas Co. formed this joint-venture to in order to get benefits from increasing energy demand (Cheng, 2006). This is due to two factors. The Chinese government encourages the use of cleaner-burning fuels, such as natural gas, as an alternative to coal. In addition, the continuous economic growth of Xian's and the local government's policy in promoting cleaner energy boosted gas demand.

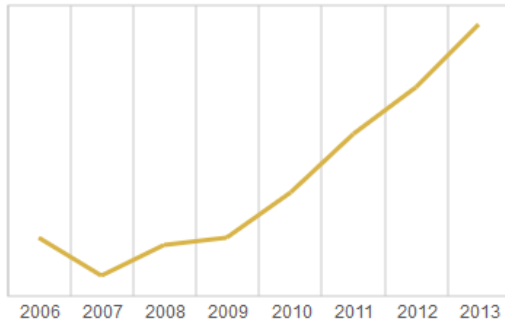
Xian's 600-kilometer (373-mile) gas pipeline network supplies the fuel to 470,000 households with annual consumption at 500 million cubic meters. Annual gas consumption may rise to 1.14 billion cubic meters by 2024, and the number of customers is expected to increase to 1.3 billion (Cheng, 2006).

Hong Kong & China Gas has grown quickly in the Chinese market since the 1990s. By the end of June 2015, it had developed 128 projects in China, serving 20 million customers and had sales volume growth of 3.5%. HK&CG expects China will have stable growth in gas sales through at least 2020 due to factors such as increasing urbanization, housing construction, and greater availability of supply.

From the table 3 listed below, it is noted clearly that the total assets of Xi'an Qinhua have decreased, reaching the lowest point in 2007 due to financial crisis and market downturn, and since then, it has been increasing dramatically year after year (Bureau van Dijk, n.d.). The growth is also observed in table 4, where the operating revenue increased from 2006 to 2009, dropped slightly from 2009 to 2010, and then to increase again from 2010 to 2012 with a slight decrease in 2013.

**Table 3.** *Total Assets of Xi'an Qinhua in 2006-2013*

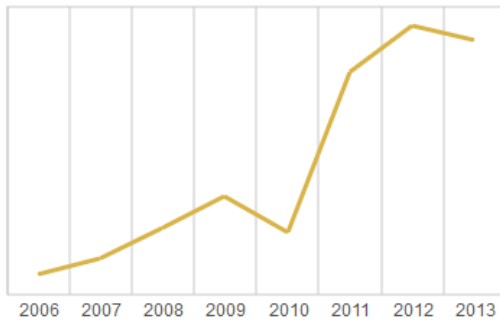
Total assets



Source: Bureau van Dijk

**Table 4.** *Operating revenue of Xi'an Qinhua in 2006-2013*

Operating revenue



Source: Bureau van Dijk

### ***Case 3: GAC Toyota Motor Co., Ltd***

Toyota Motor Corporation (Toyota), incorporated in 1937 in Japan, is a leading global manufacturer of automobiles. It is engaged in design, manufacture, assembly, and sales of passenger cars, recreational and sport-utility vehicles, minivans, and commercial vehicles such as trucks, related parts, and accessories. It owns 54 manufacturing facilities in 28 countries, and its products are distributed in over 170 countries and regions. Its business

operations are categorized into three reportable segments: Automotive, Financial Services, and Other.

Guangzhou Automobile Group Co., Ltd, established in 1997 in China, is an investment holding company. It is principally engaged in the research, development, and manufacture of vehicles and parts, automobiles sales and logistics, and automobile financing and insurance and related services as well as property investment business.

Guangzhou Toyota Motor Co., Ltd. was founded in September 2004 in Guangzhou, China. The total amount of investment is 3.8 billion yuan (460 million in US dollars), shared equally by Guangzhou Automobile Group Co., Ltd. and Japan's Toyota Motor Corporation, and the cooperation is set up for a period of 30 years with an initial annual production capacity of 200,000. The firm currently has over 5,500 employees, including over 23.1% of college-educated, and the average age was 23 years old.

The new entity is engaged in the manufacture of motor vehicles, offering sports utility vehicles (SUVs), trucks, vans, and cars under a variety of brands, automotive replacement parts, accessories, repair and maintenance, leasing, and financing services of vehicles of Camry-class mid-size cars.

The establishment of this IJV helped Toyota catch up with rivals that entered into the Chinese market earlier since Toyota is still a second-tier automaker in China, and the new venture will help Toyota to narrow the gap between itself and the top players such as Volkswagen AG and General Motors Corporation. With the introduction of new models Toyota is expected to enhance its market share to 10 percent from 3 percent by 2010. In addition, the new venture enables Toyota turn into a real global automaker and keep it on course to become the biggest automaker worldwide, since the new entity may boost its annual capacity to 250,000 units annually if demand exists (Ying & Inoue, 2004).

## Results

As it is shown from the following chart 1, among the five respondents from three IJVs, two (Xi'an Qinhua and GAC Toyota) do not believe that they learned a great deal of technology/process know-how from International Joint-Venture (IJV) partner, two

(LCFC) agree with this statement and one (LCFC) strongly agreed with this statement. Therefore, it is likely that LCFC realized knowledge transfer between partners and knowledge transfer does not take place as frequently as possible in Xi'an Qinhua and GAC Toyota.

## Knowledge transfer technology/process know- V) partner

**Chart 1.**

It is demonstrated from the chart 2 listed below, among the five respondents from three IJVs, two (LCFC and GAC Toyota) don't think that partner is willing to share technology/process know-how with them, two (LCFC and Xi'an Qinhua) agree with this statement, and one (LCFC) is strongly agreed with this statement. Hence, there is a willingness to share knowledge between partners in Xi'an Qinhua and LCFC, but not in GAC Toyota.

## Willingness to Share g to share technology/

**Chart 2.**

As it is illustrated in the following chart 3, among the five respondents from three IJVs, one (Xi'an Qinhua) does not believe that there is an overall high feature of trust in this International

Joint-Venture (IJV) between partners, two (LCFC, and GAC Toyota) are not sure about this statement, one (LCFC) is agreed with and one is strongly agreed with this statement. Thus, only LFCF enjoys a high level of trust.

# Trust 信任方面3. his International Jo 企

Chart 3.

As it is seen from the following chart 4, among the five respondents from three IJVs, one (Xi'an Qinhua) is not sure whether that partner provided the necessary knowledge to enable the success of the International Joint-Venture (IJV), three (2 of LCFC and 1 of GAC Toyota) agreed with, and one (LCFC) is strongly agreed with this statement. Therefore, the partner is committed in terms of knowledge in LCFC and GAC Toyota.

# Commitment 承诺方面 to enable the su ) . 合作伙伴

Chart 4.

As it is demonstrated in the chart 5 listed below, among the five respondents from three IJVs, one (Xi'an Qinhua) is uncertain



whether that partner assigned competent and suitable personnel for the success of the International Joint-Venture (IJV), two (LCFC) are agreed with, and two (LCFC and GAC Toyota) strongly agreed with this statement. Hence, partner is perceived as committed in terms of human resources in LCFC and GAC Toyota.

## Commitment 承诺方 ersonnel for the IJV). 合作伙伴为

Chart 5.

It is illustrated from the following chart 6 that among the five respondents from three IJVs, one (GAC Toyota) is uncertain whetherthe partner supplied the adequate attention and time of management that was necessary for ensuring the success of the International Joint-Venture (IJV), three (2 of LCFC and Xi'an Qinhua) are agreed with, and one (LCFC) is strongly agreed with this statement. Therefore, the partner committed in terms of management time and attention in LCFC and Xi'an Qinhua.

## Commitment 承诺方 d time of manage cess of the Internationa

Chart 6.

As it is shown in the chart 7 listed below, among the five respondents from three IJVs, four (Xi'an Qinhua, GAC Toyota, and 2 of LCFC) are not sure about that mistrust on the original International Joint-Venture(IJV) contract has been issues in the International Joint-Venture(IJV), and one (LCFC) is agreed with this statement. Thus, most of them are uncertain about whether mistrust on the original IJV contract has been issues during their cooperation.

## Conflict 冲突方面 nt-Venture(IJV) Join

**Chart 7.**

It is demonstrated from the following chart 8 that among the five respondents from three IJVs, two (LCFC and Xi'an Qinhua) disagree with that disagreement occurs concerning goals and/or operational or managerial expectations, one (GAC Toyota) is uncertain about this statement, and two (LCFC) agreed with this statement. Hence, disagreements take place due to the goals and/or operational expectations in LCFC, whereas disagreements take place not because of the goals and/or operational expectations in Xi'an Qinhua.

## Conflict 冲突方面 8 or operational or manag

Chart 8.

As it is illustrated in the chart 9 listed below, among the five respondents from three IJVs, one (GAC Toyota) disagreed with that any misunderstanding is derived from cultural differences, two (LCFC and Xi'an Qinhua) are uncertain about this statement, and two (LCFC) agreed with this statement. Therefore, misunderstanding comes from cultural differences in LCFC, whereas misunderstanding is not derived from cultural differences in GAC Toyota.

## Conflict 冲突方面 tural

Chart 9.

It is observed in the chart 10 listed below that among the five respondents from three IJVs, one (Xi'an Qinhua) disagreed with that partner is very protective of its technology/process know-how, three (2 of LCFC, and GAC Toyota) are agreed with this statement, and one (LCFC) strongly agreed with this statement. Thus, the partner protected its technology/process know-how very much

from its counterpart in LCFC and GAC Toyota, whereas the situation is different in Xi'an Qinhua.

# Protection 保 hr

Chart 10.

It is illustrated in the chart 11 listed below that among the five respondents from three IJVs, one (LCFC) strongly disagreed that partner is a current competitor, two (GAC Toyota and Xi'an Qinhua) disagreed with this statement, one is uncertain (LCFC) about this statement, and one (LCFC) strongly agreed with this statement. Hence, in GAC Toyota and Xi'an Qinhua, the partner is not viewed as a current competitor.



Chart 11.

As it is demonstrated in the chart 12 listed below that among the five respondents from three IJVs, one (LCFC) strongly disagreed with that partner is a potential competitor, one (Xi'an Qinhua) disagreed with this statement, three (2 of LCFC, and GAC

Toyota) agreed with this statement. Therefore, in LCFC and GAC Toyota, the partner is considered as a potential competitor, and in Xi'an Qinhua, the partner is not viewed as potential competitor.

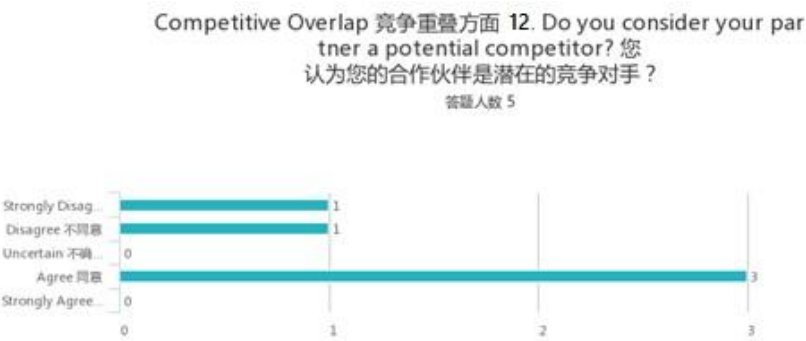


Chart 12.

It is seen in the following chart 13 that among the five respondents from three IJVs, one (LCFC) strongly disagreed with that partner's technology/process know-how is easily codifiable (in blueprints, instructions, formulas, etc.), one (GAC Toyota) disagreed with this statement, and three (2 of LCFC, and Xi'an Qinhua) agreed with this statement. Thus, in GAC Toyota, the partner's technology/process know-how is not easily codifiable, whereas, in LCFC and Xi'an Qinhua, partner's technology/process know-how is easily codifiable.



Chart 13.

As it is illustrated in the following chart 14, among the five respondents from three IJVs, one (LCFC) strongly disagreed with that partner's technology/process know-how is more explicit than tacit, one (GAC Toyota) disagrees with this statement, and three (2 of LCFC, and Xi'an Qinhua) agreed with this statement. Hence, in GAC Toyota, the partner's technology/process know-how is more tacit than explicit, whereas, in LCFC and Xi'an Qinhua, the partner's technology/process know-how is more explicit than tacit.

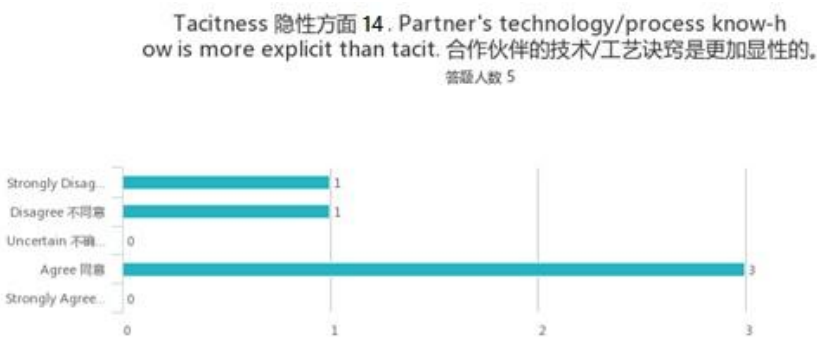


Chart 14.

It is shown in the chart 15 listed below that among the five respondents from three IJVs, two (LCFC and GAC Toyota) disagreed with that national cultural differences have not been issues in this International Joint-Venture (IJV), one (Xi'an Qinhua) is uncertain about this statement, and two (LCFC) agreed with this statement. Therefore, cultural differences have been issues in GAC Toyota, and not have been problems in LCFC and Xi'an Qinhua.

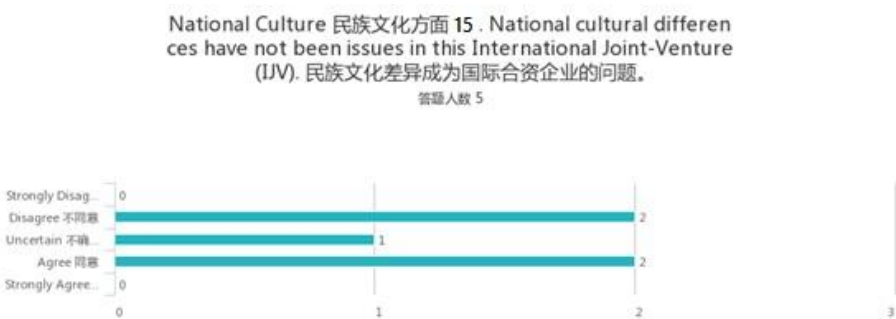


Chart 15.

It is observed in the following chart 16 that among the five respondents from three IJVs, all of them agree that the international joint-venture has been a success in meeting its expectations. Hence, all of the three IJVs have met their expectations successfully.

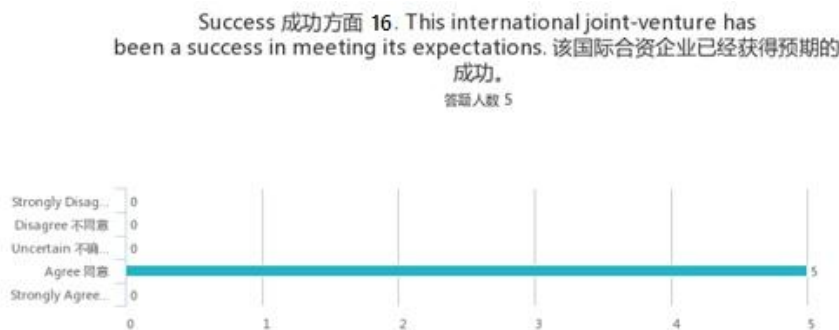


Chart 16.

As it is noted in the following chart 17, among the five respondents from three IJVs, one (LCFC) is uncertain about that the international joint-venture has been a success in sharing information, and the rest of four (2 of LCFC, Xi'an Qinhuia, and GAC Toyota) agree with this statement. Thus, all of the three IJVs have been successful in sharing information between partners.

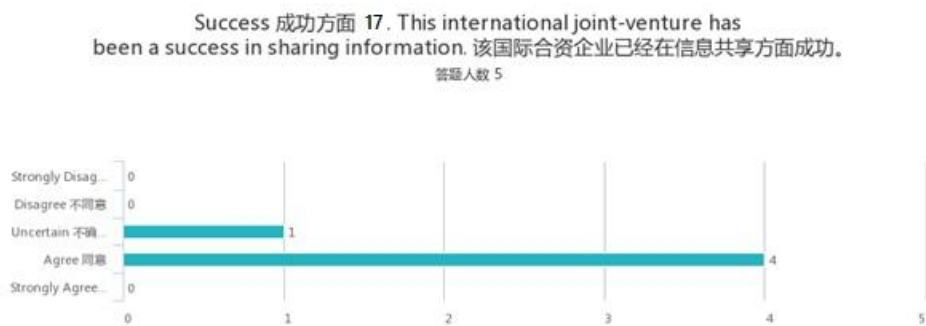


Chart 17.

As it is shown in the chart 18 listed below, among the five respondents from three IJVs, one (LCFC) is uncertain about that

measures could have been taken to improve flow of knowledge/process between parties, and the rest of four (2 of LCFC, Xi'an Qinhua, and GAC Toyota) agreed with this statement. Therefore, all three IJVs should take measures to improve flow of knowledge/process in order to be more successful.

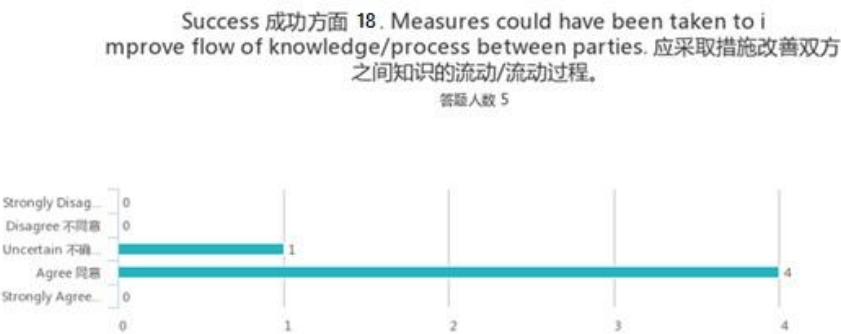


Chart 18.

The table below summarizes the survey mentioned above results, based upon which the flowing discussions are developed. In the table, the answer of each item is filled out by respondents with SA, A, U, D, and SD, which stand for strongly agree, agree, uncertain, disagree, and strongly disagree, respectively.

Table 5. Survey results

Factors	Items	LCFC	LCFC	LCFC	Xi'an Qinhua	GAC Toyota
Knowledge Transfer	You learned a great deal of know-how from partner	SA (5)	A (4)	A (4)	D (2)	D (2)
Willingness	Partner is willing to share knowledge with you	SA (5)	A (4)	D (2)	A (4)	D (2)
Trust	Overall high level of trust	SA (5)	A (4)	U (3)	D (2)	U (3)
Commitment	Commitment in Knowledge	SA (5)	A (4)	A (4)	U (3)	A (4)
	Commitment in Personal	SA (5)	A (4)	A (4)	U (3)	SA (5)
	Commitment from Management	SA (5)	A (4)	A (4)	A (4)	U (3)
Conflict	Conflict/Mistrust in Original Contract	A (4)	U (3)	U (3)	U (3)	U (3)
	Disagreement on goals	A (4)	A (4)	D (2)	D (2)	U (3)
	Misunderstanding due to cultural differences	A (4)	A (4)	U (3)	U (3)	D (2)
Protection	Partner is protective of its knowhow	SA (5)	A (4)	A (4)	D (2)	A (4)
Competitive Overlap	partner as current competitor	SD (1)	U (3)	SA (5)	D (2)	D (2)
	partner as future competitor	SD (1)	A (4)	A (4)	D (2)	A (4)
Tacitness	Know-how is easily codifiable	SD (1)	A (4)	A (4)	A (4)	D (2)
	Know-how is more explicit	A (4)	A (4)	SA (5)	A (4)	D (2)
Cultural Factor	National cultural differences not being issues	A (4)	A (4)	D (2)	U (3)	D (2)
Success	Success in meeting expectations	A (4)	A (4)	A (4)	A (4)	A (4)
	Success in sharing information	A (4)	A (4)	U (3)	A (4)	A (4)
	Success in taking measures to improve knowledge flows	U (3)	A (4)	A (4)	A (4)	A (4)



## Discussions

**Table 6.** *Summary of Survey Results*

	Knowledge Transfer	Willingness	Trust	Commitment	Conflict	Protection	Competitive Overlap	Tacitness	Cultural Factor	Success
LCFC	A (4)	A (4)	A (4)	A (4)	A (4)	A (4)	A (4)	A (4)	A (4)	A (4)
Xi'an Qinhua	D (2)	A (4)	D (2)	U (3)	U (3)	D (2)	D (2)	A (4)	U (3)	A (4)
GAC Toyota	D (2)	D (2)	U (3)	A (4)	U (3)	A (4)	A (4)	D (2)	D (2)	A (4)

Based on table 5, table 6 summarizes the results of the survey.

Based on the fact that partners are willing to share knowledge in Xi'an Qinhua and LCFC, but not in GAC Toyota, and among the three IJVs, LCFC has successfully transferred knowledge between partners and Xi'an Qinhua and GAC Toyota are not as successful as LCFC in transferring knowledge between partners, it is concluded that willingness to share knowledge does impact knowledge transfer and the more willingness to share knowledge that exists between partners in IJVs, the more successful will be the knowledge transfer between partners in IJVs.

The results of the survey suggest that trust alone is not enough to conclusively promote knowledge transfer. Because partners are willing to share knowledge in Xi'an Qinhua and LCFC, but not in GAC Toyota, and in none of the three IJVs, there exists a high level of trust.

LCFC is the only firm that the partners were committed in all three aspects, in terms of knowledge, human resources, and management time and attention. GAC Toyota has a partner's commitment in terms of knowledge and human resources, and Xi'an Qinhua has partner's commitment to management time and attention.

As mentioned previously, this research identifies commitment in three aspects: commitment in knowledge, human resources, and management time and attention. Since partners are willing to share knowledge in Xi'an Qinhua and LCFC, but not in GAC Toyota, and LCFC is the only firm that partners were committed in all three aspects, GAC Toyota has partner's commitment in terms of knowledge and human resources, and Xi'an Qinhua has partner's commitment in management time and attention, the following conclusion is drawn that commitment does impact willingness to share knowledge between partners in IJVs and the more

commitment that exist between partners in IJVs, the greater willingness to share knowledge between partners in IJVs.

Most of the three IJVs are not sure about whether mistrust on the original IJV contract has caused issues during their cooperation, conflict between partners in LCFC takes place due to the goals and/or operational expectations and misunderstanding comes from cultural differences, and disagreements occur not because of the goals and/or operational expectations in Xi'an Qinhua, and in GAC Toyota, misunderstanding is not derived from cultural differences.

Since partners are willing to share knowledge in Xi'an Qinhua and LCFC, but not in GAC Toyota; conflict between partners in LCFC occurs because of the goals and/or operational expectations and misunderstanding derived from cultural differences; disagreements take place, not due to the goals and/or operational expectations in Xi'an Qinhua; and in GAC Toyota, misunderstanding derived not from cultural differences, it is difficult to conclude whether conflict affects willingness to share knowledge between partners in IJVs.

Because of the fact that partners are willing to share knowledge in Xi'an Qinhua and LCFC, but not in GAC Toyota, and among the three IJVs, partners protect their technology/process know-how very much from their counterparts in LCFC and GAC Toyota, whereas the situation is different in Xi'an Qinhua, the following conclusion is drawn that the protection does impact willingness to share knowledge negatively and the more protective the partner is, the less willingness exists to share knowledge between partners in IJVs.

Among the three IJVs, Xian Qin is the only firm that does not consider its partner as a current competitor nor a potential competitor. In GAC Toyota, partner is not viewed as a current competitor but a potential one, and in LCFC, partner is considered as a potential competitor.

Due to the fact that partners are willing to share knowledge in Xi'an Qinhua and LCFC, but not in GAC Toyota, and Xian Qin does not view the partner as a current competitor and potential competitor. In both GAC Toyota and LCFC, the partner is viewed as a potential competitor. Thus it would appear that competitive

overlap does affect willingness to share negatively. Partners are willing to share knowledge in IJVs when they are not competitors, and the high level of competitive overlap hinders willingness to share knowledge between partners in IJVs.

In GAC Toyota, the partner's technology/process know-how is not easily codifiable and is more tacit than explicit. In LCFC and Xi'an Qinhua, the partner's technology/process know-how is easily codifiable and more explicit than tacit. Since partners are willing to share knowledge in Xi'an Qinhua and LCFC, but not in GAC Toyota and GAC Toyota, it would appear that tacitness does affect the willingness to share knowledge in IJVs. The more tacit the knowledge is, the less willingness exists to share knowledge between partners in IJVs.

Cultural differences have been issues in GAC Toyota, and have not been problems in LCFC and Xi'an Qinhua. This fact is consistent with the theory of cultural distance since there is more similarity between Chinese culture and Taiwanese culture, and Chinese culture and culture in Hong Kong than there is between Chinese culture and Japanese culture.

Based on the fact that partners are willing to share knowledge in Xi'an Qinhua and LCFC, but not in GAC Toyota and cultural differences have been issues in GAC Toyota, and not have been problems in LCFC and Xi'an Qinhua, it is concluded that cultural distance affects the willingness to share knowledge in IJVs negatively. In other words, the more dissimilarity that exists in cultures, the less willingness exists to share knowledge between partners in IJVs.

Since all of the three IJVs have met their expectations successfully, have been successful in sharing information between partners, they should take measures to improve flow of knowledge/process in order to be more successful, the conclusion can be drawn that knowledge transfer leads to the success of IJVs and measures should be taken to improve the transfer of knowledge to succeed.

As partners are willing to share knowledge in Xi'an Qinhua and LCFC, but not in GAC Toyota, all of the three IJVs have met their expectations successfully, to different degrees, and have been successful in sharing information between partners. By observing

the results, the following conclusion is drawn that willingness to share knowledge between partners in IJVs leads to knowledge transfer between partners and the success of IJVs.

## Managerial implications and conclusion

As it is mentioned above, the results are consistent with the theory that willingness to share knowledge impacts knowledge transfer positively and the more willingness to share knowledge that exists between partners in IJVs, the more successful will be the knowledge transfer between partners in IJVs and measures should be taken to improve the transfer of knowledge in order to be more successful.

In addition, the results support the theory that commitment (Inkpen, 1998) affects the willingness to share knowledge between partners in IJVs positively. The more commitment that exists between partners in IJVs, the greater the willingness to share knowledge between partners in IJVs that exists between partners in IJVs.

Furthermore, the results show that protection, competitive overlap, tacitness, and cultural distance impact willingness to share negatively. If partners are willing to share knowledge, then they are not so protective about it. In addition, partners are willing to share knowledge in IJVs, when they are not competitors, and the high level of competitive overlap hinders willingness to share knowledge between partners in IJVs. The more tacit the knowledge is, the less willingness to share knowledge between partners in IJVs. The more dissimilar the cultures are, the less willingness to share knowledge between partners in IJVs.

Surprisingly, it is not evident that trust affects willingness to share knowledge between partners in IJVs based on the results. In addition, it is difficult to conclude whether conflicts affect the willingness to share knowledge between partners in IJVs. These two findings are counterintuitive. One explanation might be that the contracts were believed to be enforcing conditions that would be unnecessary in a trusting environment.

Based on the conclusion that willingness to share knowledge leads to knowledge transfer and success of IJVs and commitment impact willingness to share knowledge between partners in IJVs

positively, and protection, competitive overlap, tacitness and cultural distance (Parkhe, 1991, 1993) impact willingness to share negatively, partners in IJVs should be willing to transfer knowledge to each other in order to make knowledge flow between them and IJVs successful and to be able to more willing to transfer knowledge between partners in IJVs, they should enhance their commitment in IJVs and try to find partner who has more complementary resources and capabilities, more cultural similarity, and less competitive overlap.

Although a quantitative analysis through structural equation modelling is desired for this research, in order to empirically and simultaneously test a series of interrelated dependence relationships among the measured variables and latent constructs, as well as those between several latent constructs, due to the limitation of data, statistical analysis such as structural equation modeling is not applied. It is suggested that future research should focus on this type of empirical study by collecting more responses to survey.

Even with low levels of trust, knowledge sharing could be high; therefore, there may be other factors that affect knowledge sharing success. Future research may identify the factors that can make the differences.

As mentioned previously, this research identifies commitment in three aspects: commitment in knowledge, human resources, and management time and attention. However, the research findings suggest that all of the commitment aspects may not be actualized at once. This is illustrated with the survey that partners may or may not be willing to share knowledge based on specific commitments. Future research should specify what aspects of commitment partners prefer and why.



# 4 Overall conclusion

This book improves our understanding of knowledge transfer in MNEs through both intra-firm and inter-firm perspectives. It explores the conditions under which knowledge flows are likely to occur in MNEs, between parent and subsidiary and between MNEs and their partners in IJVs, and the influence on the performance of IJVs, as IJV is a popular entry mode when MNEs expand their operations overseas, through which firms' performance is enhanced.

It is important to establish IJVs with foreign partners in order to acquire and sustain competitive advantage and improve performance by leveraging resources and capabilities. However, it is difficult to transfer knowledge between partners and more than half of IJVs usually fail. Therefore, it is crucial for the IB field to explore the determinants of knowledge transfer process. Since absorptive capacity has been extensively studied and willingness to share knowledge is rarely researched, making willingness to share knowledge between partners in IJVs is more complicated than it is between parent and subsidiary.

Through case studies, and with survey data collected from a sample of IJVs in China, some factors that influence willingness to share knowledge between partners in IJVs have been identified, and the important role of willingness to share knowledge and its relationship with the success of IJV are examined.

This study explored factors that may affect knowledge transfer between parent and subsidiary, and factors that may influence the willingness to share knowledge between foreign partners in IJVs. These factors provide a better understanding of how knowledge is transferred within MNEs and in IJVs and their relative effects on IJV performance. The identification of these influencing factors and the interaction of them in determining the knowledge transfer between parent and subsidiary and between MNEs and their foreign partners in IJVs are likely to be of interest for both researchers in the field of international business and managers in MNEs who take charge of their operations.

## **Findings and results**

Based on the essay in chapter 1, it can be inferred that efforts should be made in order to improve the two-way flow of knowledge transfer to improve the cumulative knowledge-base of MNE and its subsidiary overtime, through transmission willingness and absorptive capacity.

Based on the essay in chapter 2, ways to improve knowledge transfer through transmission willingness and absorptive capacity are proposed.

Based on the essay and survey results in chapter 3, it finds that willingness to share knowledge leads to the success in IJVs, and commitment and similarity between national cultures affect willingness to share knowledge positively, competitive overlap, protection, and tacitness affect it negatively, and, surprisingly, trust and conflict do not affect willingness to share.

Therefore, the following model is proposed for MNEs to follow as a guideline for the successful transfer of knowledge:



$[(\text{Willingness to share knowledge}^1) + (\text{Commitment}) + (\text{Similarity between National Cultures})] - [(\text{Competitive Overlap}) + (\text{Protection}) + (\text{Tacitness})]$  contribute to Transmission Willingness (1)

*Transmission Willingness + Absorptive Capacity contribute to Successful Knowledge Transfer* (2)

## **Guidelines for businesses to follow for successful transmission of knowledge**

In order to improve knowledge transfer in MNEs, This study also suggests that a two-way flow of knowledge transfer assists enhance the cumulative knowledge-base of MNE and its subsidiary overtime. Transmission willingness and absorptive capacity are important both to the amount and the speed of transmission.

To improve the intra-firm knowledge transfer in MNEs, effort should be made within MNEs and between the parent and subsidiary to include knowledge transfer as one of the strategic objectives along with financial factors. In the implementation process, effort should be made to improve the willingness to share information with a subsidiary and to eliminate any institutional barriers that may exist in this regard. At the same time, efforts should also be made in convincing parent and subsidiary that they can learn from each other. One-way directional learning will result in limited knowledge transfer while two-way transfer will lead to accumulation of knowledge pool of parent and subsidiary, which in turn, may turn into the firm's competitive advantage.

Due to the obstacles of knowledge transfer that exist within MNEs, a framework is proposed in order to improve the transmission willingness and the absorptive capacity and create a better fit between the parent and the subsidiary. The rapport and

<sup>1</sup> *Willingness to share knowledge* is treated differently than *Transmission Willingness* in this dissertation. *Willingness to share knowledge* means knowledge is shared without any blockages among various business units and that is the only way knowledge can be transferred across these units. Hence, *transmission willingness* means a process of openness about knowledge across units and elimination of factors that may hinder sharing.

bonding created during the process of knowledge transfer will establish reliability and altruism between the parent and the subsidiary. Cultural factors such as individualism/collectivism, power distance, and common working language should be considered to improve the effectiveness of cross-border knowledge transfer within MNEs.

In order to enhance inter-firm knowledge transfer, willingness to share knowledge should be encouraged because the more willingness to share the knowledge that exists between partners in IJVs, the more successful will be the knowledge transfer between partners in IJVs and measures should be taken to improve the transfer of knowledge in order to be more successful.

Since commitment affects willingness to share knowledge between partners in IJVs positively, protection, competitive overlap, and cultural distance influence willingness to share negatively, firms should improve their commitment to the new entity and find partners who have a low level of competitive overlap and more similarity between national cultures.

Due to the limitation of data, in-depth system dynamic modeling is not able to be conducted, and statistical analysis such as structural equation modeling is not applied. The future research attempts to collect more responses of survey and conduct quantitative analysis through simulation and structural equation modeling to empirically and simultaneously test a series of interrelated dependence relationships among the measured variables and latent constructs, as well as those between several latent constructs.

Even with low levels of trust, knowledge sharing could be high; therefore, there may be other factors that affect knowledge sharing success. Future research may identify the factors that can make the differences.

As mentioned previously, this research identifies commitment in three aspects: commitment in knowledge, human resources, and management time and attention. However, the research findings suggest that all of the commitment aspects may not be actualized at once. This is illustrated with the survey that partners may or may not be willing to share knowledge based on specific

commitments. Future research should specify what aspects of commitment partners prefer and why.

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