Title Key factors affecting transnational knowledge transfer in the context of the Euroaid Asia programme

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by

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ABSTRACT

The thesis aims to identify and verify the key factors affecting transnational knowledge transfer (TKT) in the context of the EuroAid Asia Programme. This study extends the existing research on knowledge transfer (KT) by investigating the neglected area of TKT, an area which needs better understanding, given the rapid development of TKT. Compared to the KT at the individual, group, or organizational level, TKT is both more complicated to comprehend, and has received less attention.

This study begins with a literature review of the definition of knowledge and KT, analysis of KT at different levels, and summary of a comprehensive set of factors that may influence KT. Then, in order to empirically explore the key factors affecting TKT in the EuroAid Asia Programme and to evaluate the relative importance between factors, an international Delphi survey is employed. Through the two rounds, experts mentioned twenty-four factors and provided explanations for their views. Based on these survey results, a factorial model is developed.

The verified factors and the proposed model could help project participants better understand the process of TKT, remind them what key factors really influence the process of TKT and urge them to make an active effort to properly assess each factor before prioritizing the factors for management attention.

ACKNOWLEDGEMENTS

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Chapter 1: Introduction

1.1 Introduction

The primary aim of this thesis is to explore and verify key factors affecting transnational knowledge transfer (TKT) in the context of the EuroAid Asia Programme[1]. This Chapter begins with the presentation of the development of TKT. The Chapter then unfolds two reasons for the importance of investigating these key factors. Firstly, current research will be reviewed to prove the value of an empirical investigation on TKT in the context of the EuroAid Asia Programme. Secondly, the usefulness of the key factors affecting TKT is justified.

1.2 Research Background

1.2.1 The Development of TKT

As the world becomes more dynamic and increasingly uncertain, knowledge has become the most valuable and strategic resource (Zack, 1999). Hedlund and Nonaka (1993) classify knowledge by different levels: individual knowledge, group knowledge, organizational knowledge, and inter-organizational knowledge. The increasing use of knowledge in business contributed to the birth of knowledge management (Aranda and Fernandez, 2002). In the knowledge management

[1] EU initiated the programme to help Asian partners address challenging issues, such as food security, health, pollution, etc, by means of knowledge transfer.

process, KT is one of the most important stages, and is often considered to be laborious, time consuming and its success difficult (Nonaka, 1998; Szulanski, 1999). Accordingly, it has become a topic that is widely researched.

Some research analyses KT at different levels: individual, intra-organizational and inter-organizational. Polanyi (1994) proposes that knowledge may be transferred more efficiently through intra-organizational mechanisms than by means of external market mechanisms, because these transactions are open to several market imperfections.

As the world becomes a global economic network, knowledge is increasingly transferred between geographically dispersed individuals and organizations across different cultural and national boundaries (Lin *et al.*, 2005). As any case of KT may confront obstacles and complexities, cases of TKT may face extra challenging hurdles as participants might lack sufficient background information of each other and might not share the same language and interests.

In current literature, TKT activities are more discussed in terms of multinational corporations (MNC) or International Joint Ventures (IJV) at the intra-organizational level (Rebentisch and Ferretti, 1995; Gupta and Govindarajan, 2000; Wang *et al.*, 2004; Gooderham, 2007), and less discussed in terms of international KT projects at inter-organizational level (Chevrier, 2003; Duan *et al.*, 2006). Such international projects are sponsored by governments, non-government organizations (NGO), or other national and international entities. Reflecting the boom of cross-boundary scientific study and technology cooperation, more governments and enterprises have spent a large amount of

funds and resources on international KT projects to obtain increasing external knowledge. However, TKT in the context of government-funded international projects has received remarkably little attention.

1.2.2 The Necessity for an Empirical Investigation on TKT

Supported by European Commission, the EuroAid Asia Programme promotes and funds cross-country and cross-continent KT projects, such as Asia Invest, Asia Pro Eco, Asia IT&C and Asia-Link. Up to now, it has funded over 800 KT projects supporting the exchange of know-how and best practices among European and Asian higher education institutions, companies and public sectors. This regional integration and co-operation enables the countries involved to face cross-border challenges in many fields, such as the environment, economic co-operation, and the use and management of natural resources. It also offers a platform for KT between developed countries and developing countries. In these funded projects, knowledge sources are always advanced countries and recipients are developing countries. Knowledge is transferred via certain channels and activities, such as training and education, business networking, development of new business opportunities, and exchange of ideas.

However, as knowledge is the fundamental basis of competition (Zack, 1999), when the knowledge is transferred cross-border, the sharing of knowledge is perceived as risking a loss of power, and the protection of knowledge may therefore inhibit the transfer and sharing processes (Randeree, 2006). Thus, the knowledge to be transferred in projects could be withheld, which leads to inefficiency as time and money is spent. Furthermore, the existing theories and

practice of KT at individual, intra-organizational or inter-organizational level cannot be applied to solve these problems at transnational level. In order to improve the effectiveness and efficiency of international projects, it is useful therefore to carry out empirical investigations on the TKT process, in this case in the particular context of progress within the EuroAid Asia Programme.

1.2.3 The Usefulness of the Key Factors

In terms of the foregoing discussion, the KT process has been described complex and difficult (Szulanski, 1999), and inter-organizational KT as even harder. In this global arena, the complexities even increase in scope within TKT and cannot be fully explained by the theories of KT at individual or organizational level; furthermore, TKT has received little attention in the literature. As it can be expected that additional problems will occur in the process of TKT, so it is important to consider more specific factors. Some of these factors may overlap with the outcome of current literature about KT, such as motivation of partners, knowledge absorptive ability and the nature of the knowledge. Others may be unique and totally different from previous ones. This research will discuss a comprehensive listing of factors influencing KT based on the existing literature and empirically identify the key factors affecting TKT. The outcome of this research will help programme participants better understand the key factors affecting TKT, and is intended to be useful for future management of the EuroAid Asia Programme.

1.3 Research Aim and Objectives

The main aim of this thesis, as mentioned at the beginning of this chapter, is to explore and verify key factors affecting the success of TKT in the EU's EuroAid Asia Programme. The purpose is to help practitioners and participants who involve in TKT better understand and improve the progress of TKT between different countries and cultures. In order to achieve this aim, the following specific objectives were identified:

1. To understand factors affecting KT through extensive literature review.
2. To collect valuable opinions about key factors from experts involved in the EuroAid Asia Programme, and to analyse these data.
3. To identify and verify a comprehensive set of factors affecting TKT.
4. To provide a better understanding of TKT, and to offer managerial guidance and implications from the findings.

1.4 The Structure of the Thesis

The thesis includes six parts: introduction, overview of KT and TKT, consideration of key factors, research method and technique, findings and discussions, and conclusions.

This Chapter (Introduction) unfolds a brief overview of the whole thesis. It describes the background of the topic selection, lists the main issues about knowledge, KT, and TKT and justifies the usefulness of the key factors affecting TKT. Then, the research aim and objectives are identified. Finally, the layout of the thesis is presented in Figure 1.1.

Chapter 2 overviews KT and TKT. It starts with review of definitions of knowledge and KT. Then, an analysis of KT at different levels; individual, the small group, intra-organization, inter-organization and transnational is provided. Finally, it identifies the question that forms the basis of this research study.

Chapter 3 reviews frequently mentioned factors affecting KT and applies Albino *et al.*'s (1999) four-component framework to classify these factors. And then, it analyses each factor accordingly.

Chapter 4 first compares the advantages and disadvantages of quantitative and qualitative research methods from two aspects, deductive vs. inductive and positivism vs. interpretivism. Then based on the research aim, a research method (questionnaire survey) is selected. And then the Delphi technique is adopted to use for investigating and verifying the key factors affecting TKT.

Chapter 5 begins with analysis of responses received from the Delphi surveys, and then describes the findings from this investigation. Each verified factor is analysed and then this study develops a factorial model for TKT. Subsequently, some insights generated from the survey results are discussed.

Finally, in Chapter 6, a summary, the main contributions to KT and implications of this research are presented. In addition, limitations of the study are discussed, and future research is recommended.

The layout of the whole thesis is diagrammatically presented in Figure 1.1.

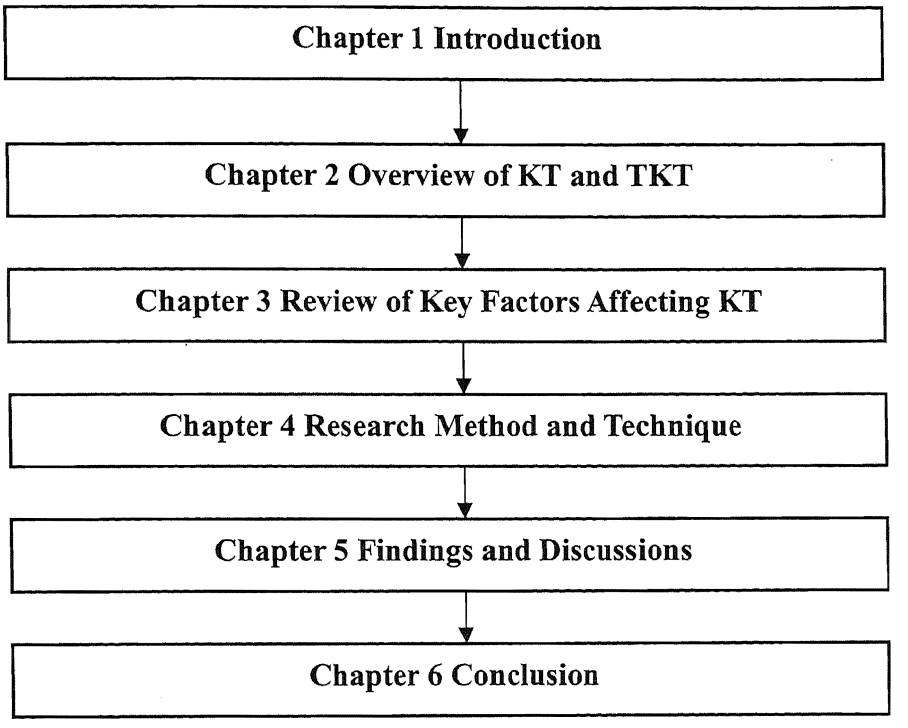

Figure 1.1 Layout of the Thesis

In the next chapter, background literature on knowledge and KT, and KT at different levels will be reviewed.

Chapter 2: Overview of KT and TKT

2.1 Introduction

Chapter 1 introduces the development of TKT, the necessity for an empirical investigation on TKT and the usefulness of the key factors that affect TKT in the context of the EuroAid Asia Program. In terms of forgoing discussion, TKT is a more complicated process than KT at individual or organizational level, but receives less attention. This chapter will review the definitions of knowledge and KT and then discuss KT at five levels (i.e. individual, the small group, intra-organizational, inter-organizational, and transnational). Through detailed analysis of KT issue at each level, Albino *et al.*'s (1999) four-component framework is identified as an appropriate method to categorise factors affecting KT.

2.2 Review on Knowledge and KT

2.2.1 Knowledge and its Classification

2.2.1.1 The Definition of Knowledge

Knowledge is an elusive concept that has been defined in various ways (Hedlund, 1994). Many researchers have given definitions of knowledge in different context, but none of the definitions is universal. Some classical ones are as follows:

Table 2.1 Definitions of Knowledge

Original Literature	Definition of Knowledge
Polanyi (1958)	An abstract concept that is consciously or unconsciously built by the interpretation of a set of information acquired through experience and meditation on the experience itself, and that is able to give its owner a mental and/or physical ability in an "art".
Kogut and Zander (1992)	Knowledge incorporates both the relatively tacit know-how defined as the accumulated practical skill or expertise that allows one to do something smoothly and efficiently and information or know-what which accommodates more articulable dimensions of knowledge.
Davenport and Prusak (1998, p. 5)	A fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information.

2.2.1.2 Classification of Knowledge

The knowledge can be categorised with different views from different scholars. In theoretical perspective, Polanyi (1966) divides knowledge into two categories: explicit knowledge and tacit knowledge. This classification has received agreement from most knowledge experts. Explicit knowledge can be readily codified, articulated, shared and captured. It can be shown in manual, patents, reports, documents, and databases. Tacit knowledge, developed from personal beliefs, perspectives, physical experiences, value systems, intuition or implicit rules of thumb, is hard to communicate or to share with others. Precisely, Polanyi (1966) expresses that "we can know more than we can tell." This suggests that tacit knowledge may be best transferred through more interpersonal means (Goh, 2002), such as apprenticeship, teamwork, chatting room and opportunities for face-to-face conversation with self-reflection on experiences and lessons learned

in job. Moreover, a great deal of literature argues that the tacit knowing is the dominant principle of all knowledge and it forms the foundation for building sustainable competitive advantage (Nonaka, 1994; Nonaka and Takeuchi, 1995; Spender and Grant, 1996; Johannessen *et al.*, 2001; McAdam *et al.*, 2007). Along the same line, Inkpen (1998) and Petersen *et al.* (2003) further develops this dichotomised categorization of knowledge, which is easily perceived as an overt simplification because most knowledge is not totally tacit or completely explicit. These researchers illustrate that most knowledge spreads somewhere between the two extremes, and possesses both explicit and tacit characteristics.

Furthermore, Ryle (1949) divides knowledge into know-how and know-what. OECD (2000) further develops Ryle's classification as know-how, know-what, know-why and know-who. Other classifications of knowledge include Spender's (1996) individual/collective knowledge, Bhatt's (2002) simple/complex knowledge, and Chua's (2002) personal/public knowledge. These classifications can help people obtain an in-depth understanding of the traits of knowledge, but they seem to be abstract, far from the practice.

In practical perspective, specifically in organizational practice, Bontis (1999) proposes intellectual capital as a type of organizational knowledge. He divides intellectual capital into human capital, structural capital and relational capital. These three sub-phenomena are found in human beings, organizational routines and network relationships respectively. The practical perspective regards organizational knowledge as a static asset in an organization.

2.2.2 The Definition of KT

Many researchers have defined KT at different levels. First of all, KT can be described as "how knowledge acquired in one situation applies (or fails to apply) to another" at the individual level (Singley and Anderson, 1989, p. 1). Though KT of organizations originates from individuals, the difficulty and complexity of organizational KT transcends the individual level. Argote & Ingram (2000) define knowledge transfer as "the process through which one unit (e.g., group, department, or division) is affected by the experience of another". Major and Cordey-Hayes (2000) see a transfer of knowledge as a conveyance of knowledge from one place, person, ownership etc., to another. Some scholars also interchange the term KT with 'knowledge sharing' (Cummings, 2003). Furthermore, as learning is the process of linking, expanding, and improving data, information, knowledge and wisdom (Wang and Ahmed, 2003), many studies see KT as the process of individual and organizational learning (Bresman *et al.*, 1999; Lord and Ranft, 2000; Ipe, 2003). Goh and Richards (1997) identify the ability to transfer knowledge is one key attribute of learning organizations. More precisely, effective KT is clearly fundamental to the related issues, organizational learning, the knowledge-based business, and the management of intangible assets and intellectual capital.

2.3 Classification of KT According to Different Level

2.3.1 Individual Level

At the most basic level, knowledge is possessed, created, shared and leveraged by individuals. So the knowledge in organization is firstly derived from different

actor's personal knowledge. Namely, without individuals' involvement, knowledge cannot be transferred at any level. Though knowledge sharing between individuals is considered to be a fundamental and natural function of organization or an activity that automatically happens in organizations, the previous study acknowledged that knowledge sharing in organization is a multifaceted and complex process (Hendriks, 1999). Thus, a better understanding of the phenomenon of knowledge sharing between individuals can help further analyse all the other levels.

From a process perspective, KT between individuals is thought to be an interaction or communication between people. Therefore, based on information theory, Shannon and Weaver propose a model to explain communication process, which includes information source, transmitter, receiver, noise and other factors (Rogers, 1994). These key factors involved in the communication process are shown in Figure 2.1. When two individuals communicate, the encoding and decoding of messages is also a social process, involving human relationships among the individuals, as well as their individual beliefs and prior experiences. It is also proved that culture and cognitive similarity among individuals is a good precondition for training (Argote and Ophir, 2000).

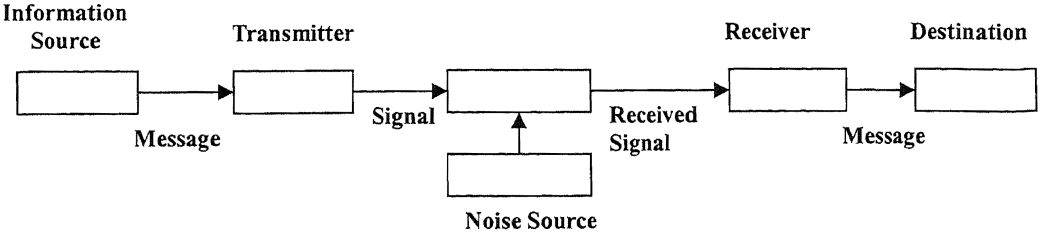

Figure 2.1 The Model of Communication (Shannon and Weaver, 1972)

Grounded on the classic Shannon-Weaver's model (1972), Albino *et al.* (2004) propose the model graphically representing KT. In their model, the receiver in Shannon-Weaver model becomes the "knowledge recipient", as it is the subject who learns or acquires knowledge. The message becomes the "object", as it can be produced by complex technology. Human's cognitive system helps translate information into knowledge, as it is a set of individuals' features that determine the way they value and apply information. To sum up, Albino *et al.*'s model components include sender's cognitive system, recipient's cognitive system, codification, interpretation, and knowledge object.

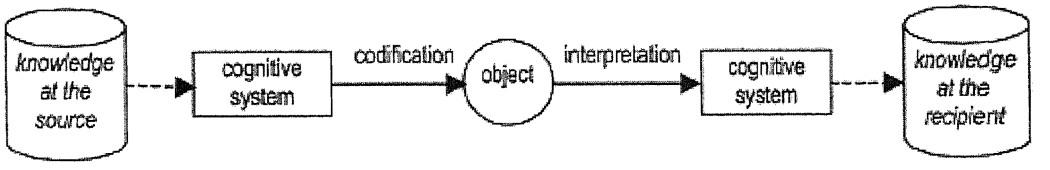

Figure 2.2 A Graphical Representation of KT (Albino *et al.*, 2004)

In line with Shannon and Weave (1972) and Albino *et al* .(2004), Lind and Persborn (2000) also analyse that KT is about interaction and communication between two individuals: a knowledge giver and a knowledge recipient. (See details in Figure 2.3)

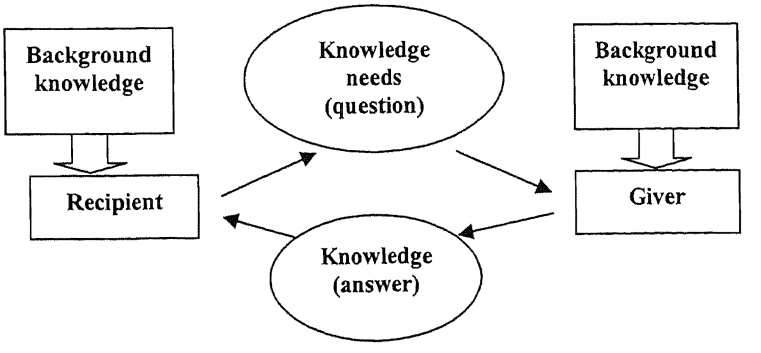

Figure 2.3 KT between Two Individuals (Lind and Persborn, 2000)

The specific steps are listed as follows:

- The knowledge recipient identifies knowledge needs based on his/her background knowledge, then constitutes a question in terms of the identified needs, and further initiates the transfer process by delivering the question to the giver;
- The giver interprets the question using his/her background knowledge;
- The giver formulates an answer to the question in accordance with his/her background knowledge and delivers it to the recipient;
- The recipient interprets the answer by means of his/her background knowledge, develops a solution for the question, and in turn increases his/her background knowledge itself; and
- Possibly and finally, the recipient might feedback to the giver some knowledge about the applicability of the answer. This knowledge may also in turn help the giver to further develop his/her background knowledge.

There are several important issues that might lead to the failure of KT between individuals (Lind and Persborn, 2000), for example, the giver might not have the accurate background knowledge for interpreting the question or the recipient might not understand the answer and/or is not able to internalise the answer into his/her background knowledge.

Furthermore, Ipe (2003) develops a conceptual framework (see Figure 2.4) to describe several significant factors that influence the knowledge sharing between individuals in organizations. They are nature of knowledge, motivation to share,

opportunities to share, and the culture of the work environment. These four factors are all interconnected and they exert influence to each other in a nonlinear fashion. Figure 2.4 represents the model of knowledge sharing, which illustrates that the first three factors are embedded within the fourth factor, the culture of the work environment.

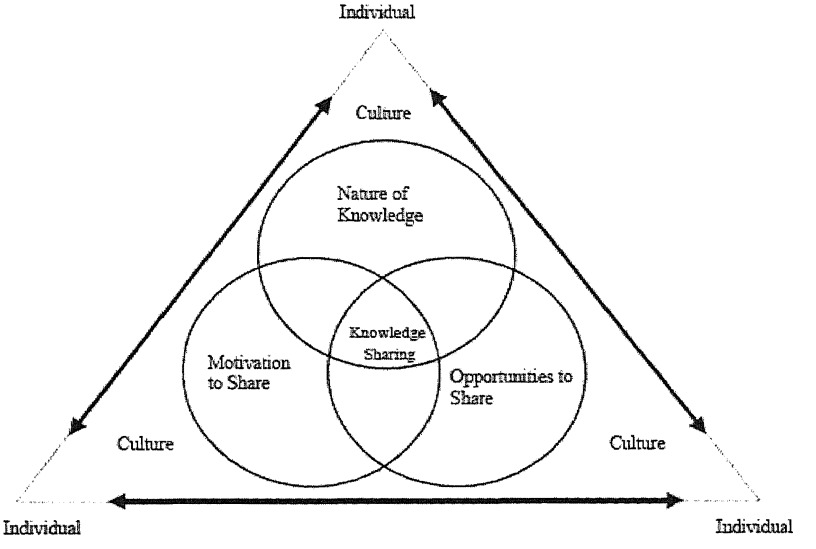

Figure 2.4 A Model of Knowledge Sharing between Individuals in Organizations (Ipe, 2003)

Many authors also agree that knowledge transfer depends on the individuals' characteristics, such as experience, values, motivation, beliefs. Cohen and Levinthal (1990) effectively summarise this idea as individual's absorptive capacity, which is defined as the ability of individuals in an organization to assimilate and apply new information by relating it to prior existing knowledge.

2.3.2 The Small Group Level

Knowledge must be created from some source. The foregoing discussion has illustrated that individual is a basic source, and another most common source in

organizations are groups (Parent *et al.*, 2000). The group is a bigger unit in comparison to the individual; therefore, group KT cannot be seen as an analogy of individual KT. Many researchers define a small group as having at least three and no more than twelve or fifteen members. It has to be three at least because if two, it would be a dyad.

Although relatively less study has been directly conducted on KT at group level, several researchers have thought groups as an important intermediary in organization to help improve the organizational knowledge management capability. Hanson (1999) shows how strong ties between groups positively affect the transfer of complex knowledge. Lind and Seigerroth (2003) attempt to use team-based reconstruction approach for moving from personal to shared contextual knowledge, and this leads to the organizational ability expansion. A special form, focus group, is also seen as one way that organizations are using to enhance knowledge creation (Parent *et al.*, 2000). Focus groups, namely interactive discussion groups, are generally used for exchanging ideas, generating knowledge and exploring opinions (Gallupe *et al.*, 1992). Hedlund and Nonaka (1993) also interpret that a small group allows a detailed and deep look at what is going on within the organization. In business, such small groups often have temporary structures designed to achieve one goal and this fact indicates that the small group is the level at which much of KT and learning take place. To sum up, subordinate to the organization, the small group is very critical to knowledge development.

Some researchers investigate group KT among the sub-units of organizations. Tsai (2001) argues that KT among organizational units provides opportunities for mutual learning and inter-unit cooperation, which could stimulate knowledge creation. His contribution discusses intra-organizational knowledge transfer in view of the units' centrality in the network and their absorptive capacity. While Kogut and Zander's (1993) research focuses on the problematic transfer of tacit knowledge, Szulanski (1995) attempts to investigate the "stickiness" of knowledge and emphasises the significance of established linkages between units. By doing a diachronic analysis of difficulty that characterises KT within an organization, Szulanski (2000) develops a well-known process model which identifies four stages of KT, i.e. initiation, implementation, ramp-up, and integration (see Figure 2.5) and points out factors that are expected to correlate with difficulty at different stages of the transfer.

Initiation means the initiation of a transfer; implementation means initial knowledge implementation effort; ramp-up represents that knowledge implementation towards to a satisfactory performance; integration means that once the results are satisfied, the use of knowledge becomes routinised and integrate the practice with other efforts of the recipient.

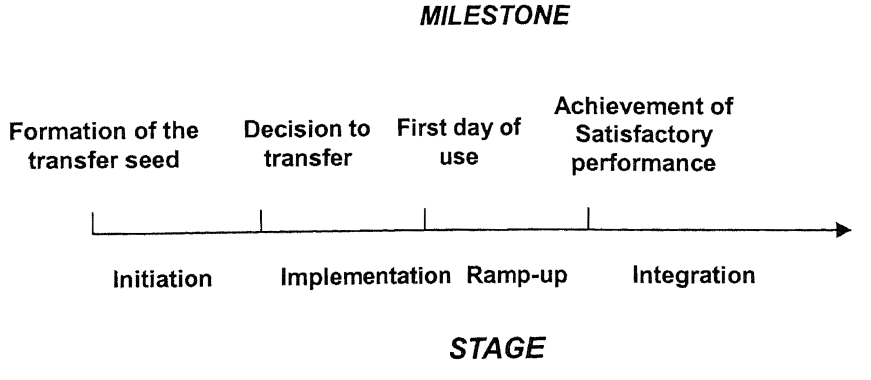

Figure 2.5 The Process of KT between Groups (Szulanski, 2000)

At the initiation stage, the effort is made to recognise the opportunities to transfer and to decide whether or not to pursue it. Finding an opportunity means that individuals or groups find both a gap and knowledge to address that gap. This becomes quite demanding when existing operations are insufficiently understood or when relevant and timely measures of performance as well as internal or external yardsticks are missing. An opportunity for a transfer can exist as soon as the seed for that transfer is formed, i.e., a gap and knowledge to address that gap is found within the organization. The discovery of gap may trigger problematic search for suitable solutions. Because of the source's inadequate understanding and ability to explain a practice, the recipient's incomplete ability to specify the environment where new knowledge will be applied, and imprecise measures of performance used to identify opportunities subject to chance fluctuation, the search for opportunities and the decision to proceed with a transfer occurs under some degree of irreducible uncertainty or causal ambiguity. This results more difficulties to evaluate the real value of an opportunity and whether to proceed it. However, if the knowledge transferred has been proven robust in other situations and the knowledge source has a well-known credibility, this ambiguity can be mitigated. Therefore, to complete the initiation of a transfer, substantial preparation, such as scope delineation, timing selection, costs assessment and establishment of participant mutual obligations, is required (Szulanski, 2000).

At the implementation phrase, after decision of KT, the attention shifts towards the exchange of information and resources between source and recipient. When transfer-specific ties are established between participants, the information and resource flows will typically increase and possibly peak at this stage (Szulanski, 2000). The most challenging thing at this stage is to bridge the communication gap between the source and the recipient, to fill the recipient's technical gap as well. Bridging the communication gap may require solving problems caused by incompatibilities of language, coding schemes and culture conventions. The other difficulties involved are technical gap, personnel change and poor coordination between the source and the recipient (Szulanski, 2000).

At the ramp-up stage, as long as the recipient begins using the transferred knowledge, the main concern becomes recognizing and solving unexpected problems that keep the recipient from matching or exceeding prior expectations of post-transfer performance. The difficulty that the recipient will face is the number and seriousness of unexpected problems and how much effort is required to solve these problems (Szulanski, 2000). Alternatively, this stage offers a brief window of opportunity to rectify unexpected problems where the recipient is likely to begin using new knowledge ineffectively ramping-up gradually toward a satisfactory level of performance, often with external assistance (Szulanski, 2000).

At the last stage, integration, once satisfactory results are achieved, the use of new knowledge becomes gradually routinised. This progressive routinization is incipient in every recurring social pattern. The new practices will blend with the objective, taken-for-granted reality of the organization. The difficulty the recipient

may experience depends on the effort required to remove obstacles and to deal with challenges to the routinization of the new practice (Szulanski, 2000).

Along with these four stages, Szulanski (2000) also points out that at the initiation and implementation of the transfer, involvement and cooperation of knowledge source is of importance; however, as KT process unfolds, the influence from knowledge source diminishes. Once the recipient has obtained satisfactory results, less interaction is needed from knowledge source. From this moment on, the attributes of the recipient are likely to become more important in transfer.

Based on this theoretical model, Szulanski (2000) investigates 122 KT practices between groups. The results prove that the model fully presents the complexities and difficulties that embedded at KT, and this model is applicable for the analysis of KT between groups within an organization.

2.3.3 Intra-organizational Level

Besides studying KT at both individual and group levels, KT at intra-organizational level, which views an organization as a systematic whole, needs to be studied. Nonaka (1994) explains how knowledge-creating activities result in organizational innovation and argues that after new knowledge is developed by individuals, organizations play a critical role in articulating and amplifying the knowledge.

Just as the foregoing discussion about no distinction between KT and organizational learning, Gilbert and Cordey-Hayes (1996) see KT as a learning process to achieve successful technological innovation. In addition, they develop a

conceptual framework for uncovering the process of KT in organization (see Figure 2.6).

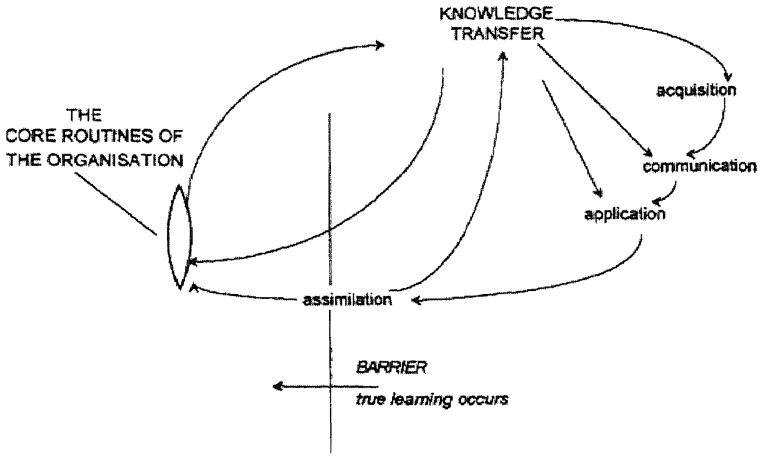

Figure 2.6 Conceptual Framework for KT (Gilbert and Cordey-Hayes, 1996)

- At the beginning, the organization must acquire knowledge. The organization might learn from its past by doing, by "borrowing", or by acquiring individuals with new knowledge and by a continuous process of searching or scanning. The prior knowledge which is held by the organization will direct and determine how it moves forward.
- The second step is the communication of knowledge. Communication can be written or spoken out. The organization must be aware of the possible problems they are facing to information dissemination.
- After the knowledge is acquired and communicated, it must be used in practice, rather than the knowledge itself.
- Finally, also the eventfulness of the whole process is the assimilation of the results and effects of the knowledge application gained. This requires the knowledge routinization.

This model is evaluated and its value for exploring organizational processes is well demonstrated. Apparently, the analysis of different stages looks similar as Szulanski's process model. The difference is that Szulanski's focuses on different groups within organizations, but Gilbert and Cordey-Hayes's model sees an organization as a whole.

Besides the analysis of KT process, other researchers point out key factors affecting KT at organizational level. Goh's (2002) integrative conceptual framework (see Figure 2.7) that links key factors which influence KT is also well cited by researchers.

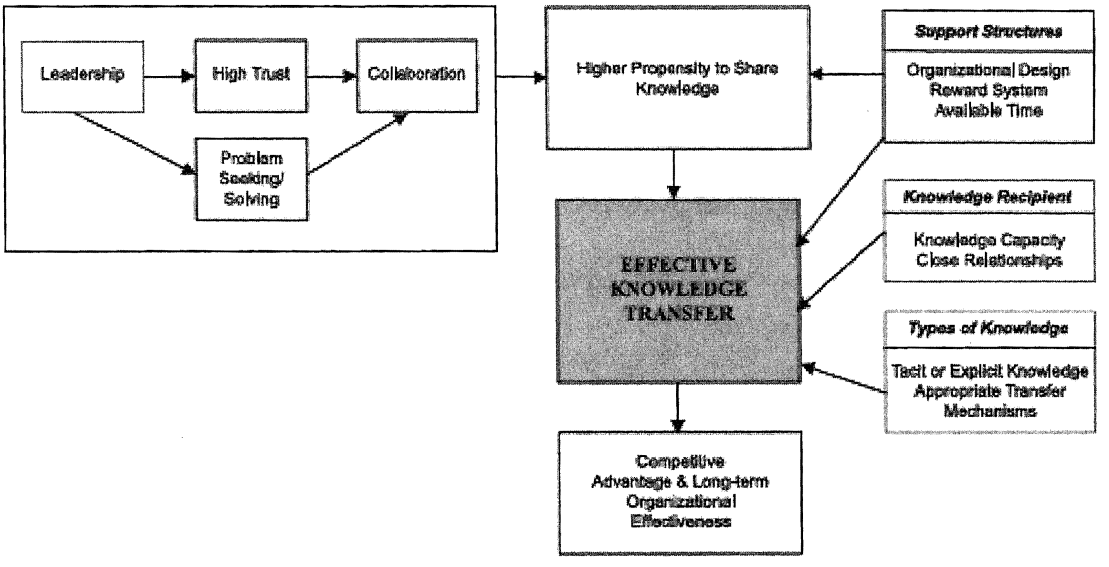

Figure 2.7 An Integrative Framework: Factors Influencing Effective KT (Goh, 2002)

First of all, organizational culture, which is frequently mentioned, can be an enabler of KT. He suggests that a strong cooperative and collaborative culture in organizations is an important prerequisite for KT within organization. A secretive and unilateral decision-making environment will result in poor cooperation,

inhibit communication and reduce the willingness to share information. In an organization within cooperative culture, people would be trustful with each other and willing to share their ideas and insights. Thus, a cooperative organizational culture can significantly increase members' propensity to share knowledge and information. In addition, cooperation and collaboration will foster a problem-seeking and problem-solving culture, which means people will actively find their knowledge need and sources and adopt an open attitude of improvement and learning (Goh, 2002). Moreover, leadership is also a key role in maintaining this culture of problem seeking, problem solving, and cooperation. As a role model, the leader's behaviour greatly influences employees. If the leaders are tolerate about problems, admit to mistakes and treat everyone equally, employees will try new practices and experiments without concern to be punished.

As well as these factors, Goh (2002) further discusses the following factors, which also influence the effectiveness of KT. These factors are:

- Support Structure-An appropriate infrastructure reinforces and supports KT. In hierarchical organization, knowledge is likely sticky and not easily moved to other parts of the organization (Bartlett and Ghoshal, 1998; Szulanski, 2000). In order to solve this problem, horizontal communication and reward system are developed to encourage sharing of information. Appropriate technology can help support a change to a culture of openness and accessibility to information critical to problem solving. In fact, technology facilitates horizontal communication and makes it easy for employees to share and access information and

knowledge databases. Specifically, employees have to be well trained in using these technology skills and maximise the potential to increase information sharing. After employees learn new knowledge of technology or shared information, the organization needs to free up time for employees to take opportunity to use it.

- Knowledge Recipient- Another factor is knowledge recipient. There are two main considerations related to recipient, knowledge capacity and close relationships. Knowledge capacity can be seen as recipient's motivation, absorptive capacity, and retentive capacity. Before transferring knowledge, the organization has to ensure that both parties have similar knowledge base to learn, and to understand each other. Besides, knowledge recipient's absorptive capacity is very important. Absorptive capacity refers to the ability to assimilate and replicate new knowledge gained from external sources (Cohen and Levinthal, 1990). Training in creativity and experimentation can help increase these aspects. The nature of relationship between knowledge recipient and giver can sometimes inhibit effective KT. Both sides need to invest time and resources to build a close relationship with equivalent skills and knowledge capacities.
- Types of Knowledge- the last key factor to consider is the type of knowledge to be transferred. As discussed about knowledge classification in Section 2.2.1, the organization needs to be aware that the type of knowledge can be critical factor in deciding on the type of process needed to facilitate the KT (Goh, 2002).

Then, Goh (2002) integrated all these factors to form a conceptual framework, which shows how effective KT can be achieved. This framework emphasises the "soft" factors, such as organizational culture, which can obviously lead to individuals or groups having higher propensity to share knowledge. Meanwhile, he argues many organizations have focused more on the "hard" factors such as information technology and structured design, but excluded the "soft" factors, which are harder to develop and require a long-term focus and effort.

Finally, in order to create an effective KT, Goh (2002) suggests, also confirmed by a lot of researchers (Locke and Jain, 1995; Wathne *et al.*, 1996; Davenport and Prusak, 1998; Zack, 1999; Sung and Gibson, 2001), the following measures:

- A high level of trust is needed between individuals and groups in the organization. The behaviours of leaders also need to be consistent with a pursuit of openness.
- A strong culture of cooperation has to exist. It encourages individuals and groups to work together on projects and problems.
- The organizational environment should link to problem seeking and problem solving, keeping continuous learning and improvement. Such as, employees are encouraged to gather relevant information.
- The reward systems must not be purely focused on financial results. Rewards should be broadly based on other criteria such as successful knowledge sharing, cooperation, and teamwork. By this way, reward system can support the flow of knowledge and a well-functioning organizational management.

Besides Goh's conceptual model, Cummings and Teng (2003) examine a contextual model of KT within more than 15 industries across three forms of governance (see Figure 2.8), including knowledge context, recipient context , relational context and activity context. In knowledge context, articulability and embeddedness of knowledge are two key factors. In recipient context, recipient's learning culture and priority of project are important. Relational context comprises organizational, physical, knowledge and norm distance. Activity context mainly considers transfer activities. The empirical evidence confirms a negative relationship between KT and the articulability, embeddedness, knowledge distance, norm distance, and transfer activities.

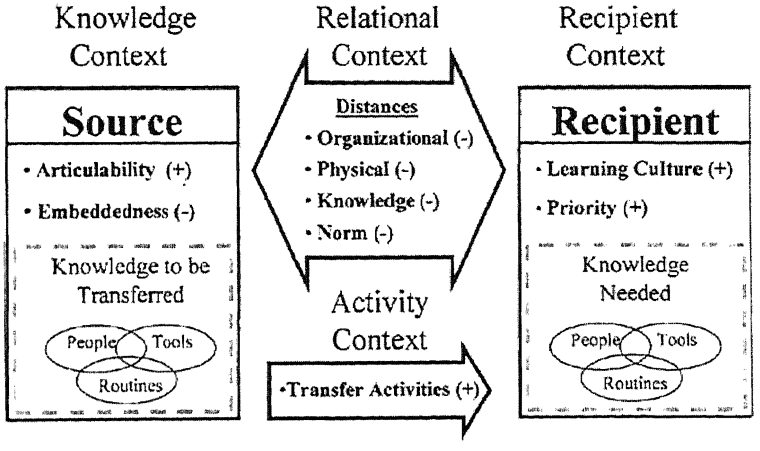

Figure 2.8 Research Model of KT (Cummings and Teng, 2003)

In summary, the above three frameworks analyse the intra-organization KT from different perspectives. Gilbert and Cordey-Hayes diagnoses KT process. Goh, Cummings and Teng mainly focus on key factors affecting KT.

2.3.4 Inter-organizational Level

When organizations are encouraged to open their borders to flows of information and knowledge from the networks and develop knowledge base to generate fresh insights into strategies, markets, and relationships, knowledge has to be codified. However, with the increasing codification level, knowledge can be easily shared with other competitors, so some researchers (Albino *et al.*, 1999; Argote and Ingram, 2000; Mohr and Sengupta, 2002; Randeree, 2006) concern that inter-organizations can lead to unintended and undesirable KT, resulting in the potential knowledge spillover. Hence, the organization must protect and nurture its own knowledge base and intellectual capital (Quintas *et al.*, 1997). Based on the above discussion, KT at inter-organizational level is a double-edged sword and organizations have to solve the fundamental paradox of knowledge management, which involves more complicated factors, harder than the intra-organization level.

For better understanding of the KT process, it is necessary to review the current literature about different attempts in developing inter-organizational KT frameworks and other related issues. Most researchers have focused on KT in the contexts of international acquisition, joint ventures, strategic alliances or mergers and acquisitions (Schlegelmilch and Chini, 2003).

Cranefield and Yoong (2005) develops a six-stage process model for inter-organizational KT (see Figure 2.9). The model encompasses six stages: engaging, defining, seeking, articulating, integrating, and disseminating. Then,

they describe the organizational factors that affect inter-organizational KT during each of the stage (see Table 2.2).

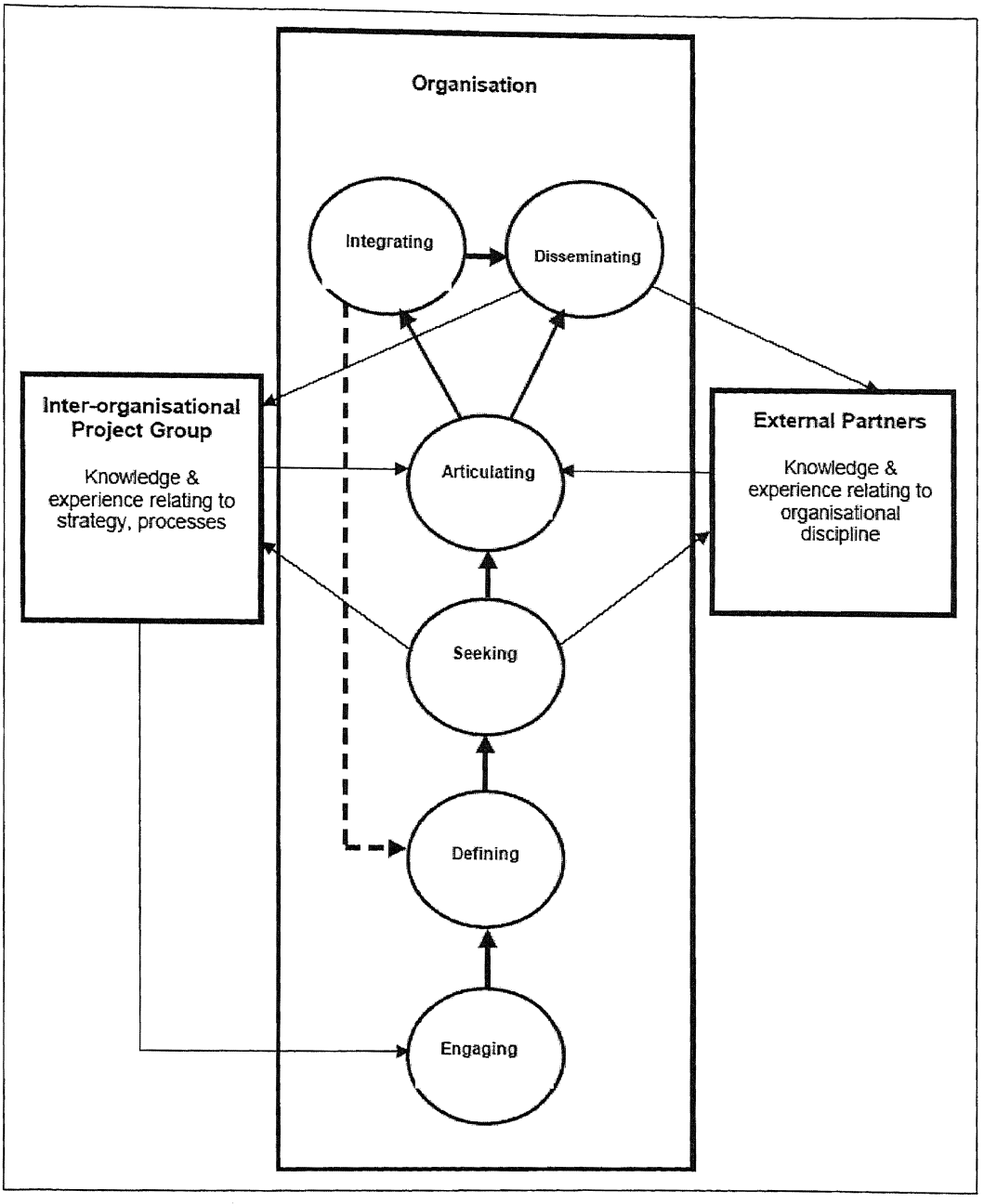

Figure 2.9 Model of KT: Inter-organizational Project Group to Organization (Cranefield and Yoong, 2005)

Table 2.2 Organizational Factors at Six Stages (Cranefield and Yoong, 2005)

Stage	Name	Activity	Key Factors
1	Engaging	Recognizing the challenge and making decision about the level of involvement.	Prior experience with the new knowledge framework; fit with existing organizational objectives; fit with traditional discipline area…
2	Defining	Recognizing a unique set of issues and problems	Inaccessible language; non-transferable examples; boundary objects
3	Seeking	Active seeking solutions and acquiring new knowledge to help them solve the problems they have identified	Lack of relevant discipline-specific knowledge; nature of team approach
4	Articulating	Transforming newly acquired knowledge into explicit knowledge	Codification, boundary objects
5	Integrating	Integrate the newly acquired knowledge with their existing strategic and managerial knowledge	Type of team approach; project framework; traditional structure
6	Disseminating	Organization disseminate their new knowledge to staff at various levels	Distribution of staff; subcultures; face-to-face communication

Furthermore, building on the work of the researchers' inter-organizational KT, Abou-Zeid (2005) highly focuses on the culture traits and conceptualises KT process as an unfolding process consisting of four stages, initiation, inter-relation, implementation and internalization. His conceptualization allows a closer examination of how the cultural traits of source and recipient firms affect each stage of the transfer process at different levels. Simonin (1999) examines the role played by the causally ambiguous nature of knowledge in the process of KT between strategic alliance partners and the findings highlight the critical role of knowledge ambiguity as a full mediator of tacitness, prior experience, complexity, cultural distance and organizational distance on KT. Inspired from Szulanski's (2000) process model, Chen *et al.* (2006) develops a five stage inter-organizational transfer framework in SMEs (Small Median Enterprises).

This study applies empirical evidence to illustrate that the transfer in SMEs follows a five stage process: identification, negotiation, selection, interaction and conversion.

From the factor perspective, Albino *et al.* (1999) develops a four-component framework in the inter-organizational KT among firms in industrial districts and this framework can systematically group different factors. These components are shown below.

- Actors- involved in the knowledge transfer process; the key factors related actors are openness, trust and prior experience
- Context- where the interaction takes place; the key factors related context are internal and external context
- Content- transferred between actors; the key factors related content are instrumental and cultural content
- Media- by which the transfer is carried out; the key factors related media are code and channel.

To sum up, Cranefield and Yoong, Abou-Zeid, Simonin, and Chen *et al.* diagnose the inter-organizational KT in process perspective. Albino *et al.* attach importance on factors.

2.3.5 Transnational Level

As the world's economy and workforce globalise, knowledge is increasingly transferred between geographically dispersed individuals, groups and organizations. Strategic alliances, multinational enterprises, and international

projects imply knowledge transfer across organizational, cultural, and national boundaries. In such KT, participants separate with each other through time, space, culture and language (Schlegelmilch and Chini, 2003), which significantly limit their ability to assess and share knowledge. Therefore, TKT not only possesses characteristics of KT at individual, group, organization levels, but also acquire some special features. Duan *et al.* (2006) depicts the relationship between four KT levels in Figure 2.10. According to the preceding analysis of this study, a revised model about five KT levels is developed in Figure 2.11.

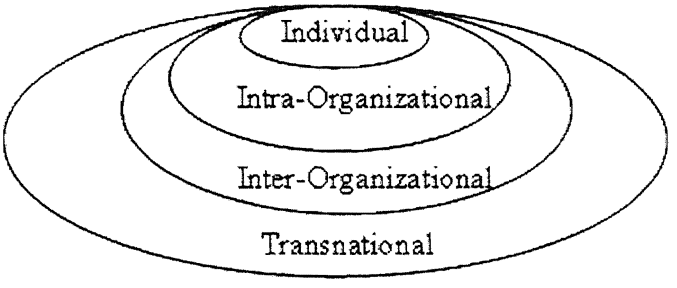

Figure 2.10 Knowledge Transfer Levels (Duan *et al.*, 2006)

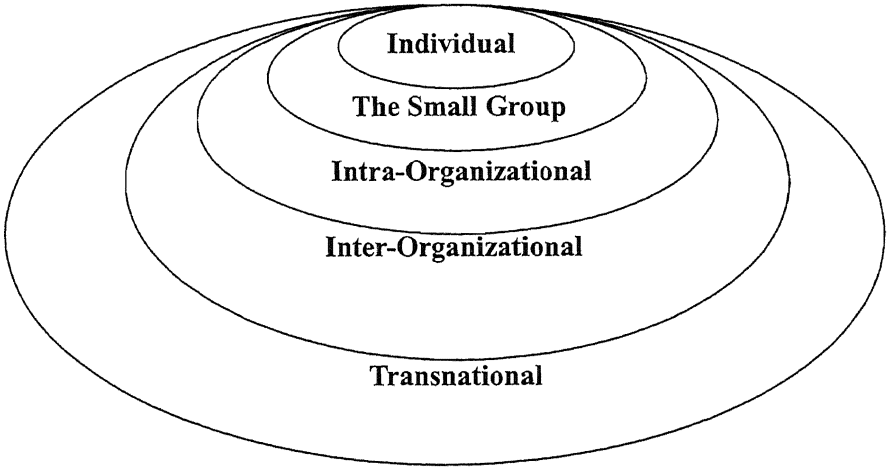

Figure 2.11 Knowledge Transfer Levels

Many researchers have investigated the issues of TKT. For example, Wang *et al.* (2004) propose an integrated 2-stage model describing the process of KT from

MNC parent to China subsidiary (see Figure 2.12). In the first stage, the model proposes factors affecting the extent of knowledge contributed by a MNC to its China subsidiary. In the second stage, the model proposes factors affecting the extent of knowledge acquired by the China subsidiary from its MNC parent. Knowledge contributed by the parent to the subsidiary is affected by two groups of factors: parent's capacity to transfer knowledge and parent's willingness to transfer knowledge. Holding constant knowledge contributed by the parent, knowledge acquired by the subsidiary from its parent is determined by two groups of factors too: subsidiary's capacity to acquire knowledge and subsidiary's intent to acquire knowledge.

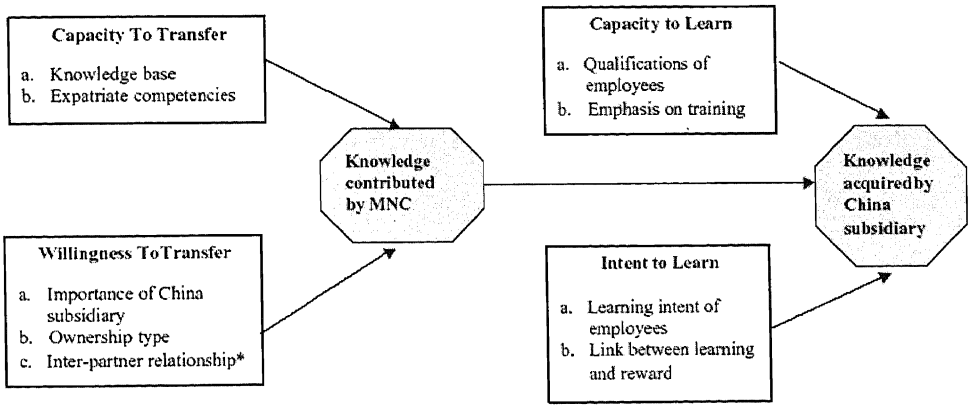

Figure 2.12 Factors Affecting KT from MNC Parent to China Subsidiary (Wang *et al.*, 2004)

Similar to Wang *et al.*'s model, Bresman *et al.* (1999) examine the KT and its facilitators in international acquisitions. Schlegelmilch and Chini (2003) propose a conceptual framework for marketing KT. They point out that strategic mandate, ability to engage in KT, organizational distance and cultural distance have an impact on the effectiveness of marketing KT. Miesing *et al.* (2004) generate a KT model based on the case study of Chinese FIEs (Foreign Invested Enterprises).

They indicate that successful intra-organization knowledge transfer depends upon the collective creation of knowledge as intellectual and social capital available throughout the organization, trust-based collaboration between distant entities that form the organization, and the willingness and ability of organizational units to utilise that knowledge.

Understand TKT is not only increasingly crucial for the success of MNCs, international acquisitions and transnational ventures, but it is also critical to transfer any work-related operation across national or cultural boundaries, such as TKT projects. For a variety of benefits, like the burden of R&D expenses shared among partners and learning from each other's knowledge and skills (Chevrier, 2003), TKT projects are welcomed by firms, academic institutions and public sectors. This kind of project has temporary structures designed to achieve one goal and the method is always through direct or indirect KT among partners.

Chevrier (2003) evidences the impact of culture diversity on TKT projects. Three kinds of cross-cultural strategies emerge from the comparative study of European project groups are drawing upon individual tolerance and self-control, trial-and-error processes coupled with personal relationship development, and setting up transnational culture. Holden and Kortzfleish (2004) bring in the concepts of translation theory into the discussion of KT in international contexts.

In the context of the Asia ICT Project-VEGNET (Enhancing Agribusiness Supply Chain Management with Internet Technologies), Duan *et al.* (2006) employ Albino *et al.*'s (1999) four-component framework to analyse different factors

affecting TKT among different partners. The four components with factors in the context of VEGNET project are identified and analysed below.

The factors in each component will unfold as follows:

- Actors include knowledge sender (project partners in Europe), knowledge intermediary (project partners in China), and the knowledge recipient (project beneficiaries in China) (see Figure 2.13). Some factors associated with actors will influence the KT, such as relationship, trust and motivation. One great finding from VEGNET is the recognition of knowledge intermediary, who plays a critical role in project, helping solve the knowledge gaps and the communication barriers, like culture difference and language problem.

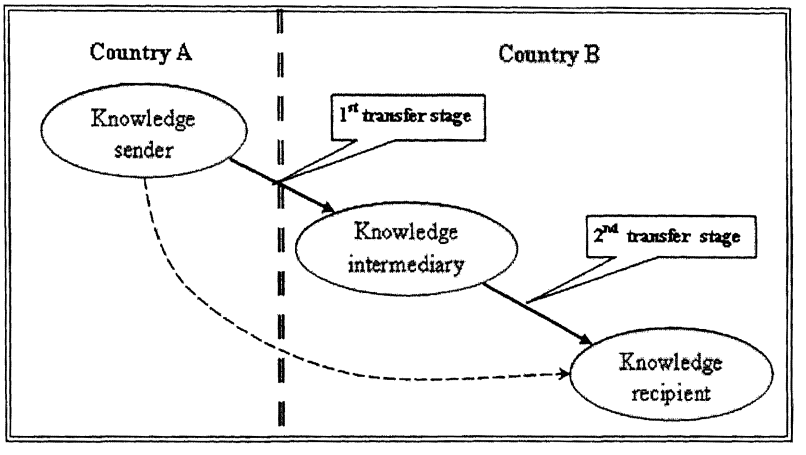

Figure 2.13 KT Process and Actors Involved in VEGNET (Duan *et al.*, 2006)

- Context refers to internal and external environment. In VEGNET, the KT can be seen inter-national and inter-organizational. Consequently, TKT has to overcome the culture difference at both across country and organizational level.
- Content which defined by Albino *et al.* (1999) is the ability to perform a

specific task. The content transferred between actors in VEGNET is know-how and best practice in supply chain operations and management. Most knowledge is classified as explicit knowledge.

- Media can be considered as every means useful for transferring knowledge. The media in VEGNET is mainly ICT, though face-to face meetings, discussion, site visits are also involved. The transfer activities not only overcome barriers and difficulties inhibited in inter-and intra-organizational KT in the same country, but also facilitate the culture and communication across different countries.

Enlightened by Duan *et al.* (2006), this study will also follow Albino *et al.*'s four-component framework to arrive at a comprehensive review of widely discussed factors affecting KT.

2.4 Chapter Summary

This chapter firstly presents the definitions of knowledge and KT. Then, an analysis of KT at different levels; individual, the small group, intra-organization, inter-organization and transnational is provided. Through the detailed analysis, Albino *et al.*'s (1999) four component framework (i.e. actors, content, context, and media) is considered as a systematic method to classify factors.

Chapter 3: Review of Key Factors Affecting KT

3.1 Introduction

Referred to Albino *et al.*'s (1999) four component framework, this chapter categorises frequently mentioned factors affecting KT into four components, actors, content, context, and media and then discusses each factor in detail. Finally, it identifies the niche that forms the basis of this research study.

3.2 Factors Affecting KT

Some researchers have done a comprehensive investigation on factors affecting KT and apply different categories to group them (Albino *et al.*, 1999; Szulanski, 2000; Cummings and Teng, 2003; Wang *et al.*, 2004; Cranefield and Yoong, 2005; Napier, 2005). Another group of researchers only identify a few factors based on literature understanding or practical research (Wathne *et al.*, 1996; Bresman *et al.*, 1999; Sung and Gibson, 2001 ; Goh, 2002; Schlegelmilch and Chini, 2003). The others focus on in-depth investigation of particular factor in KT (Osterloh and Frey, 2000; Chevrier, 2003; Minbaeva *et al.*, 2003; Holden and Kortzfleisch, 2004; Abou-Zeid, 2005; Javidan *et al.*, 2005). The KT process is collectively determined by five components: source context, recipient context, knowledge context, relational context, and media conduit (Bresman *et al.*, 1999; Szulanski, 2000). Both the knowledge source and the knowledge recipient, as either an individual or an organization, can be seen as actors in KT. Thus, the source and recipient

contexts can be integrated into one component actors. This discussion further proves that Albino *et al.*'s (1999) four components: actors, content, context and media is an appropriate analytical framework to group existing factors.

3.2.1 Actors

Actors are always being central to the process of KT process. Generally speaking, three key actors: knowledge sender, knowledge recipient, and knowledge intermediary, are involved in KT. Many factors related to these three roles have been explored and examined in existing literature.

Openness

By analyzing KT in a cooperative context, Wathne *et al.* (1996) suggest that one basic and determining factor is the participants' openness. The fear of losing ownership and power, to a position of privilege or simply to the unwillingness to devote time and resources will contribute to partner protectiveness. And then, protectiveness will intensify cross-cultural and other conflicts between partners, which also hinder KT.

Some researchers attempt to define openness. Stata (1989) regards openness as the partners' willingness to put all cards on the table, eliminating hidden agendas, share their ideas, feelings, and biases with others and accept other opinions and viewpoints. According to Hamel (1991), openness is discussed as "transparency", the knowability or openness of each partner and it is a key factor in the potential for learning. Furthermore, he argues that the degree of openness is due partly to their attitude toward outsiders. Another researcher who defines openness is

Badaracco (1991). He states that openness is paramount in knowledge links because much of what the parties are trying to learn from each other, or create together, is so difficult to communicate. Wathne *et al.* (1996) summarise that openness can be understood in terms of overall perceived openness of dialogue, the degree to which the partner representatives work closely together on a common task, and the degree to which the partner representatives perceive that the others withhold their knowledge.

Trust

In KT literature, trust is often discussed as an important element to transfer knowledge (Davenport and Prusak, 1998; Gupta and Govindarajan, 2000; Ford, 2003). Rolland and Chauvel (2000) state trust is the single most important precondition for knowledge exchange". Both Mayer *et al.* (1995) and Rotter (1967) believe trust is a willing expectancy of a party to be vulnerable to the word, promise, and actions of the other partner based on the expectation that the other will perform a particular word, promise, and actions important to the trustor. Thus, the analysis is based on the notion that people try to understand their partners in terms of words, actions, and motives that would predict positive responses. More specifically, as organizations become flatter and more geographically dispersed, traditional concepts of control are updated to an increased need of trust among individuals and groups, to carry out organizational tasks without close and frequent supervision (Moingeon and Edmondson, 1996). Wathne *et al.* (1996) propose that trust has a direct and positive influence on actors' openness and

indirectly affect the effectiveness of KT through its influence on perceived openness of the partner representatives.

Prior Experience and Knowledge

Another factor influencing the capability of both actors conveying knowledge is the prior experience and knowledge owned by both of the giver and recipient. Cohen and Levinthal (1990) state that the actor's prior knowledge accumulation increases both the ability to store new knowledge and the ability to use it. In other words, prior experience with a given knowledge base determines the level of the effectiveness with which new information can be acquired, used, and transferred, so prior experience is mainly a feature of knowledge recipient. For example, cumulative experience with a technology is a critical factor in understanding new technologies (Zander and Kogut, 1995). In addition, "a diverse background provides a more robust basis for learning because it increases the prospect that incoming information will relate to what is already known" (Cohen and Levinthal, 1990, p. 129). Then, it seems possible to claim that the higher the degree of actors' prior experience, the greater the effectiveness of KT (Wathne *et al.*, 1996; Albino *et al.*, 1999).

Another group of researchers consider prior experience as knowledge assets, knowledge base, or knowledge stock (Teece, 1977; Gupta and Govindarajan, 2000). The value of the source unit's knowledge stock with the recipient can affect transfer success (Gupta and Govindarajan, 2000). As described, knowledge internalization requires that the recipient can see the value of knowledge to be transferred. In addition, the value of knowledge reflects the source's credibility. If

the knowledge source is seen less credible, then its knowledge may also lose value in the eyes of the recipient, so affecting the outcomes of knowledge sharing (Cummings, 2003). Moreover, Bloodgood and Salisbury (2001) highlight that every organization needs to identify where knowledge resides in the organization. With reliable collections of knowledge assets, knowledge can be transferred to the right person at the right time and at the right place with great accuracy (Syed-Ikhsan and Rowland, 2004).

It is also argued that significant difference in knowledge and skills between partners have been shown to impede learning (Crossan and Inkpen, 1995; Cummings and Teng, 2003). More specifically, "if the knowledge gap between partners is too great, KT becomes almost impossible" (Hamel, 1991, p. 97).

Motivation

Motivation is also a key factor during knowledge sharing between individuals or organizations (Minbaeva *et al.*, 2003; Napier, 2005; Zhao *et al.*, 2005). Motivation means that the knowledge recipient intends to seek or accept knowledge from the outside, or knowledge sender is motivated to share own knowledge with others. The motivation of the knowledge source may vary with the incentive to compete or collaborate with the recipient and with the effort required to support the transfer (Szulanski, 2000). Osterloh and Frey (2000) argue that KT is intimately connected to motivation (intrinsic &extrinsic) and intrinsic motivation is crucial when tacit knowledge in and between teams must be transferred. In addition, a great deal of evidence demonstrates that motivations of the knowledge sender and receiver greatly affect the success of organisational

efforts to get knowledge (Huber, 2001). Lack of motivation may result in procrastination, passivity, feigned acceptance, sabotage, or outright rejection in the implementation and use of new knowledge (Szulanski, 2000; Goh, 2002).

Leadership

Many researchers agree that leadership also plays an important role in establishing some appropriate conditions required to facilitate KT (Goh, 2002; Ribiere and Sitar, 2003). Leaders can exert power on molding organizational culture and the supporting systems, which in turn will stimulate the KT initiates. Ribiere and Sitar (2003, p. 43) quote Dessler's (2001) definition of leadership as "influencing others to work willingly towards achieving objectives, to implement the company's plans. It means crystallizing a direction for employees and make them want to follow the leader in achieving the leader's goals". As long as leaders know the advantages and usefulness of KT, they can adjust their own behaviour towards it and take a more active and supportive role towards KT (O'Dell and Jackson, 1998), such as providing the appropriate infrastructure and changing the reward systems. In leaders' visible actions, employees can be encouraged to increase their propensity to participate KT activities and establish a collaborative environment for organization.

Absorptive Capacity

Absorptive capacity is seen as the ability of partners to generate, gather, organise and apply new external knowledge (Kayes and Kayes, 2005). Gaining insights from individual learning studies that an individual's learning is greatest when the

new knowledge to be assimilated is related to the individual's existing knowledge structure (Lane and Lubatkin, 1998), Cohen and Levinthal (1990) coin the term 'absorptive capacity' which they define as a firm's general ability to value, assimilate, and commercialise new external knowledge. Zahra and George (2002, p. 185) extend the earlier research and reconceptualise the concept of absorptive capacity "as a dynamic capability pertaining to knowledge creation and utilization that enhances a firm's ability to gain and sustain a competitive advantage".

Absorptive capabilities have four dimensions that perform different roles. "Acquisition refers to the firm's capability to identify and acquire externally produced knowledge. Assimilation refers to the firm's routines and processes that allow the examination, interpretation and understanding of the information obtained from external sources. Transformation refers to the firm's capability to develop and refine the routines that facilitate "combination" processes. Exploitation involves routines that allow firms to refine, extend, and leverage existing knowledge by incorporating it into to its operations" (Zahra and George, 2002, p. 189-190). A great deal of research (Cohen and Levinthal, 1990; Huber, 2001; Goh, 2002; Kayes and Kayes, 2005) shows absorptive capacity results from the recipient's prior related experience and the recipient's intelligence and comprehension as well.

Intermediary Competency

Besides knowledge sender and receiver, the knowledge intermediary plays a unique, but very critical role in facilitating and enhancing the KT process. Sharon *et al.* (2000) define knowledge intermediary is knowledge enabler who works to

identify, capture and transfer organizational knowledge, in turn minimizing time spent looking for vital information and reducing rework and redundancy of effort, and then these researchers uncover three basic categories that underline the range of knowledge intermediary roles: knowledge stewards, knowledge researchers, and knowledge brokers.

In current literature, knowledge intermediary is discussed as expatriates in multinationals (Delios and Bjorkman, 2000; Bonache and Brewster, 2001; Minbaeva and Michailova, 2004; Wang *et al.*, 2004) and intermediary (partner) in TKT project (Duan *et al.*, 2006). In multinationals, expatriate staffing performs two primary functions. They help align the operations of the subsidiary with that of the parent company and transfer the parent's knowledge to the subsidiary or as an agent for the acquisition of host-country knowledge (Delios and Bjorkman, 2000). In TKT project, knowledge intermediary also performs two functions. On the one hand, due to the recipient's absorptive competence level, any attempt to directly transfer the knowledge across countries may not be successfully and the intermediary can facilitate the KT between senders and recipients. On the other hand, owing to different culture and language problems, the intermediary also can assist breaking the communication barriers in the KT process and localise the knowledge to be transferred. From this, it seems to claim that the knowledge could be effectively transferred with participation of intermediaries.

3.2.2 Context

Transferring knowledge is very much context bound, so the transfer of knowledge is constrained by different contexts in which it is embedded. Basically, two kinds

of contexts have a deep influence on the KT: the internal context and external context (Albino *et al.*, 1999). The internal context corresponds to the organizational culture which includes organizational values, behaviours, technology assets, technical skills, etc. The external context could be represented by national culture and inter-organizational relationship. According to the current literature, several important factors are worth being noted.

Culture

Culture has been widely acknowledged as a key dimension of KT (Kedia and Bhagat, 1988; Simonin, 1999; Sackett, 2000; Berrell *et al.*, 2001; Sung and Gibson, 2001 ; Goh, 2002; Cummings and Teng, 2003; Ford and Chan, 2003; Schlegelmilch and Chini, 2003; de Pablos, 2004; Abou-Zeid, 2005; Al-Alawi *et al.*, 2007; Gooderham, 2007). Culture has been defined in many ways. Hofstede (2001, p. 9) arrives at a shorthand definition as "the collective programming of the mind that distinguishes the members of one group or category of people from another". Basically, culture can be used to any human collectivity or category: a profession, an organization, or a country. Studying the impacts of culture on KT is a complex task (Abou-Zeid, 2005). With respect to culture dimension, the following key factors influencing KT will be in the two areas: national culture and organizational culture.

- **National culture**

The national culture is always discussed when people from different cultures getting together for KT. About effects of national culture on KT, different researchers hold different opinions.

On the one hand, several researchers find no adequate evidence that cultural differences have an effect on KT. For example, Simonin's (1999) study on strategic alliances between firms from different countries shows that there is no significance that cultural difference has any effect on ambiguity in KT. Gupta and Govindarajan (2000) also find no evidence on cultural differences involving knowledge flow in multinational corporations.

On the other hand, some researchers have found national culture do affect knowledge sharing (Hofstede, 2001; Yoo and Torry, 2002). Kaedia and Bhagat (1988) indicate that cultural differences across nations in the KT is a major factor that influence the success. Javidan *et al.* (2005) suggest the transfer of knowledge from and to geographically dispersed unites within the organization and between organizations is likely to be affected by differences in national cultures. Berrel *et al.* (2001) compare the culture differences between Chinese and western culture, identifying the culture difference affect the whole process of KT. Hofstede's (2001) earlier survey has identified five independent dimensions of national culture differences, power distance, uncertainty avoidance, individualism versus collectivism, masculinity versus femininity, long-term versus short-term orientation. Each of these five dimensions may impact on knowledge processes. For instance, individualistic culture (e.g. America) may have more difficulty in sharing knowledge, since knowledge is considered as a source of power and a tool

for success for the individual. Conversely, cultures with collective characteristics (e.g. P. R. China) may find knowledge sharing easier because individuals would behave in a manner to satisfy the group benefits and maintain the group harmony. The explanations of five cultural dimensions are demonstrated as follows:

1. Power Distance related to the different solutions to the basic problem of human inequality.
2. Uncertainty Avoidance related to the level of stress in a society in the face of an unknown future
3. Individualism & Collectivism related to the integration of individuals into primary groups
4. Masculinity & Femininity related to the division of emotional roles between men and women
5. Long-term & Short-term Orientation related to the choice of focus for people's efforts: the future or the present

- **Organizational Culture**

Organizational culture is increasingly being recognised as a major factor to effective knowledge sharing (De Long and Fahey, 2000; Ipe, 2003). Ford and Chan (2003, p. 15) define organizational culture as "the organization's expectations and the reward structures that communicate to its members what the organization values". The values are communicated either explicitly or implicitly through practices, policies and symbolic interactions. Consistent with Nonaka &Takeuchi's (1995, p. 167) argument "organization culture orients the mindset and action of every employee", Davenport (1997) proposes organizational culture tells what to do and what not to do regarding knowledge processing and communication in organizations. In addition, a organization's culture also shapes

the perceptions and behaviours of its employees (De Long and Fahey, 2000). Within one organization, there are also some subcultures existing, resulting in their members valuing knowledge differently from other groups within the same organization (Pentland, 1995).

Organizations with supportive and cooperative innovation culture, should attempt to understand what it is about their culture that gives them a competitive advantage and develop and nurture those cultural attributes (Barney, 1986). Davenport *et al.* (1997) suggest that a friendly culture would be one of the most important factors for successful KT. The knowledge friendly culture would have the following three characteristics: innovative employees who have a positive attitude towards knowledge; people sharing knowledge without fear, and the organizational culture fitting with the firm's objectives for knowledge management.

Relationship

Relationship is found to be an important factor in determining the effectiveness of KT (Boisot, 1998; Lipscomb and McEwan, 2001; Ipe, 2003; Lin *et al.*, 2005; Napier, 2005; Sun and Scott, 2005; Inkpen and Wang, 2006). The effectiveness of sharing resources, including technical resources, knowledge, capital, products and other services, depends on the strength of the tie between them (Hansen, 1999), reflecting the ease of communication and the intimacy of the overall relationship between source and recipient. An arduous (i.e. distant and laborious) relationship between the source and recipient can lead to knowledge stickiness or KT difficulty (Szulanski, 1996).

Social Capital

Some researchers argue social capital, the relational resources embedded in the social networks to career success (Seibert *et al.*, 2001), as a critical factor for KT. Social capital not only facilitates the actions of individual members (Seibert *et al.*, 2001), but also contributes to development of intellectual capital (Nahapiet and Ghoshal, 1998). Sherif and Sherif (2006) extend prior study arguing that communities within low social capital will have limited power to transfer knowledge and further examine the impact from structural, relational and cognitive dimensions of social capital on KT.

Physical Distance

The physical distance refers to the difficulties, time requirements and expenses of communicating and face-to-face meeting due to actors' different geographical locations (Cummings, 2003; Cummings and Teng, 2003). Galbraith (1990) finds that due to the distances between the parties become larger, the slower and less the technology transfer. Hanson and Løvås's (2004) study also refers to geographical distance and confirms that large spatial distance reduces the tendency for the facilitation of competence transfers even when the source and the receiver have related competences. The possible explanation for the failure or ineffective technology transfer is that large physical distances can create communication difficulties (Cummings, 2003). Consistent with these contentions, other researchers (Dutton and Starbuck, 1979; Davenport and Prusak, 1998; Athanassiou and Nigh, 2000) empirically find that face-to-face meetings and conferences are more effective than other transfer forms. In addition, Bresman *et*

al. (1999) suggest that successful knowledge sharing requires the establishment of a sense of identity and belonging between the parties.

Organizational Infrastructure

Another aspect of the context influencing KT is the development of an appropriate organizational infrastructure which implies establishing a set of roles and organizational teams whose members have the skills to perform knowledge-related tasks (Davenport and Prusak, 1998). An appropriate infrastructure can reinforce and support KT (Goh, 2002). Hierarchical levels in organization can impinge communication and interaction; hence, breaking down hierarchies can help facilitate KT (Nonaka, 1994). Goh (2002) suggests designing tasks that require cross-functional collaboration. Another approach to build an effective infrastructure is a reward system. Rewarding should go beyond financial success (Bartlett and Ghoshal, 1998) and try to establish a horizontal communication environment with knowledge sharing in organization (Davenport and Prusak, 1998).

3.2.3 Content

The content of the knowledge transfer is the ability to perform a specific task. The type of content and the nature of knowledge will be analysed as follows.

Type of Content

Based on different tasks, Albino *et al.* (1999) divide content as instrumental content and culture content. Instrumental content is the necessary knowledge to do or coordinate a job. The object of this kind knowledge in an inter-organizational

network can be the improvement of the operational capabilities of the organizations. This knowledge could include individuals' ability, product and technology knowledge, technical operations and organizational procedures. Culture content is related to the knowledge for creating a specific cognitive organizational background. Namely, culture content can be seen as the knowledge capability from organizational culture, which has been in detail discussed in Section organizational culture, involving organizational values, beliefs, individual culture background and the "language" used in organizational communication. In order to address the problems associated with the accessibility of organizational language, Cranfield and Yoong's (2005) empirical study suggests undertaking substantial translation and interpretation efforts. In summary, the goal for this content is to improve the general understanding of actors involved with the KT processes.

The Nature of Knowledge

From Section 2.2.1, it is known that a dominant classification of knowledge is tacit/explicit knowledge related to the nature of knowledge. In fact, the nature of the knowledge has an important impact on the KT process. Recent literature focuses on the following two factors: tacit/explicit knowledge and causal ambiguity.

- **Tacit/explicit knowledge**

"Knowledge by its very nature exists in both tacit and explicit forms" (Ipe, 2003, p. 343). Explicit knowledge has a natural advantage over tacit knowledge in terms

of its high articulability. Bresman *et al.* (1999) examine the relationship between the articulability of knowledge and KT. The results show patents or blueprints, appearing to be more codified, are more easily transferred than technological know-how. Other researchers name tacitness of knowledge as knowledge embeddedness (Dixon, 2000; Cummings, 2003), because knowledge can be embedded in people or products, tools, and technology, routines, and a mix of multiple elements and sub-networks. Organizational need to be aware that the nature of knowledge may be the critical factor as it decides which type of process needed to facilitate the KT.

- **Causal ambiguity**

Simonin (1999) defines causal ambiguity as a shortage of understanding of the logical linkages between actions and outcomes, inputs and outputs, and causes and effects. His study on strategic alliances between firms finds that there is significant evidence that tacitness has an effect on ambiguity in KT. Complex and causally ambiguous knowledge could be inert in which its transfer will require re-construction and adaptation of knowledge receiver (Kogut and Zander, 1992). Through a two-step survey of 122 transfers of organizational practices within 8 firms, Szulanski (2000) illustrates causal ambiguity is significant at all stages of the transfer, initiation, implementation, ramp-up and integration. With its relative importance, it would appear that causal ambiguity is one of the most important predictors of stickiness.

3.2.4 Media

As actors identify the proper knowledge to transfer, they need to decide proper transfer media to facilitate transfer success.

Language and Translation

Language is the vehicle of most of cross-cultural research and it has been recognised as an important factor to develop and increase capacity for knowledge absorption (Kayes, 2002; Kayes and Kayes, 2005).

According to Kayes (2002), the structure of language needs to be taken into account when describing experience because language forms the raw material of experience. Venzin (1998) notes that knowledge is generated from different language systems and cultures. If the context changes (e.g. culture or language), knowledge also changes. In other words, one person translates own knowledge from his/her own cultural context (Hurn, 1996). Thus, learning can be seen as a process of language acquisition and transformation.

The language barrier is perhaps one of the most obvious blocks to knowledge flows between cultures within organizations (Ford and Chen, 2003). A lack of shared language and common interests limits the ability of actors to share and assess knowledge (Carlile, 2004). Holden and Kortzfleisch (2004) bring in linguistics to understand KT and propose that cross-cultural KT is crucially a form of interactive translation. Furthermore, three issues related to the quality of translation are highlighted: ambiguity (one word being understood in two or more ways), interference (intrusion from one's own cultural background), and lack of

equivalence. So when the number of languages used is increased, translation errors are randomised (Hofstede, 2001).

Transfer Channel

As discussed in Section nature of knowledge, the choice of transfer channel depends upon the characteristics of the knowledge being transferred (Abou-Zeid, 2005). Communication channels (Gupta and Govindarajan, 2000) and interactive translation of ideas, values, and knowledge (Holden and Kortzfleisch, 2004) facilitate trust and knowledge exchange. Communication channel should be diverse, with different levels of communication to succeed in knowledge transfer. Other researchers (Pedersen *et al.*, 2003; Abou-Zeid, 2005; Napier, 2005) also analyse transfer conduit and transfer mode, which are another names of transfer channel. The effective knowledge transfer conduits are affected by their compatibility with the knowledge structure of the recipient firm.

In Pedersen *et al.*'s (2003) study on KT performance of multinational companies, they identify two basic mechanisms of KT, rich communication media and written media. The richness of media can be analysed in terms of two underlying dimensions: the variety of cues the medium conveys and the fastness of feedback the medium can provide (Daft and Huber, 1987). Many researchers agree face-to-face communication is a rich communication media as this is experience-based, interactive, flexible and adaptable (Daft, 1986; Wathne *et al.*, 1996; Bresman *et al.*, 1999). Napier (2005) also finds that Vienamese prefer face-to-face interaction to other channels and foreigners change their correspondence to follow Vienamese email style. Albino *et al.* (1999) propose

that when the transferred knowledge is equivocal, the use of rich media can reduce the equivocality of the task. Even though face-to-face interaction has been seen as the richest medium because of its capacity to feedback immediately and the availability of multiple cues (Wathne *et al.*, 1996), this channel is costly due to travel costs, dissimilar organizational cultures, and to language differences (Pedersen *et al.*, 2003).

Besides rich communication media, written media can be also applied to transfer knowledge based on manuals, data base development, and blueprints (Pedersen *et al.*, 2003). Compared to face-to-face interaction, written media are less costly because low level of individual interaction is required and costs of copying written media are low. However, as knowledge embedded in written media is more tacit and context specific, the less efficient is the use of written media.

Internet and Communication Technology (ICT)

Syed-Ikhsan and Rowland (2004) believe that ICT technology is a key enabler in implementing a successful knowledge management programme and strategy, and it is considered as the most effective means of capturing, storing transforming and disseminating information. Goh (2002) argues that using technology could facilitate knowledge transfer. For example, to transfer knowledge across this global organization, each BPX (BP Exploration) site is equipped with at least one desktop videoconferencing system, document scanning and sharing tools, and the requisite telecommunications networks to facilitate the exchange of tacit knowledge (Davenport *et al.*, 1997). It is discussed that different ICT systems

designed to handle different kinds of information and data, are appropriate to transfer different kinds of knowledge (Bolisani and Scarso, 1999).

3.4 Chapter Summary

In this chapter, the author applies Albino *et al.*'s (1999) four component framework to systematically analyse the frequently mentioned factors affecting KT. It is evident that the complexities and difficulties in TKT cannot be fully explained by the theories of KT at individual or organizational level, it is important to consider specific factors which affect TKT activities. Some of these factors may overlap with the outcome of current literature about KT, such as culture, motivation of partners, and the nature of the knowledge. Others may be unique and totally different from previous ones. In addition, TKT activities have been discussed in terms of multinational corporations (MNC) or International Joint Ventures (IJV). Thus, this research will empirically identify and verify the key factors affecting TKT in this particular context of the EuroAid Asia Programme.

The next chapter (i.e., Research Method and Technique) will demonstrate how to empirically identify and verify key factors affecting TKT in the context of the EuroAid Asia Programme. In order to verify whether these factors also affect TKT activities in this particular context of the EuroAid Asia Programme, an empirical investigation needs to be carried out.

Chapter 4: Research Method and Technique

4.1 Introduction

This chapter describes the selection of research strategy, method and technique. Firstly, Section 4.2 discusses the general issues about research philosophy and approach. Secondly, Section 4.3 selects proper research method. Third, Section 4.4 comprehensively describes Delphi technique for this research.

4.2 Research Strategy

4.2.1 Research Philosophy

4.2.1.1 Inductive versus Deductive Thinking

Two broad logical reasoning, the deduction and induction, tells the relationship between theory and research.

Deductive thinking develops from more general to more specific; therefore, this is called a "top-down" approach. It begins with thinking up a theory about a topic of interest. Then, the theory is narrowed down into specific hypotheses and further narrowed down when observations are collected to address the hypotheses. This ultimately enables us to test the hypotheses with specific data, whether it is a confirmation or rejection of the original theories. The nature of deduction is more narrow and concerned with testing or confirming hypotheses.

Inductive thinking works the other way. It moves from more specific observations to more general theories; therefore, it is call a "bottom-up" approach. This theory begins with specific observations and then forms some hypotheses that can be explored. Finally this leads to develop some general conclusions or theories. In other words, the process of induction involves drawing generalizable inferences out of observations (Bryman, 2004). The goal of this research is to explore and verify some key factors affecting TKT in the context of the EuroAid Asia Programme; therefore, in the first round, it is to explore some general theories, so the inductive approach is applied, and then in second round, it is to test what the key factors are, deductive will be used.

4.2.1.2 Positivist versus Interpretivist

On epistemology consideration, positivist and interpretivism are concerned with what is regarded as authentic knowledge and how it is originated. Positivism, developed by Auguste Comte who is widely regarded as the first true sociologist in the middle of the 19th century, believes the social world can and should be studied according to the same principles, procedures and ethos. Such knowledge can only come from positive affirmation of theories through strict scientific method. The interpretivist, by contrast, mainly reflects the importance of humans. That means this concept is concerned with the emphatic understanding of human action rather than with the forces that are deemed to act on it (Bryman, 2004).

As an overview of Chapter 1 and literature review of Chapter 2, the subject of this study is to collect experts' subjective opinions on key factors affecting the process of TKT; therefore, the interpretivist approach, not positivist, is adopted.

4.2.2 Research Approach Selection

A reasonable research approach will provide a clear framework to determine the suitable research methods and techniques for the study. The selection of research approach is based on the discussion of quantitative versus qualitative. Quantitative research normally emphasises quantification in the collection and analysis of data. Harvey (2002) describes quantitative data as 'data which can be sorted, classified, measured in a strictly objective way - they are capable of being accurately described by a set of rules or formulae or strict procedures which then make their definition. By contrasting, qualitative research usually emphasises words rather than quantification in the collection and analysis of data, so it usually achieves a greater level of depth and detail than quantitative techniques. Both of them have characteristics on each aspect of research philosophy accordingly.

Table 4.1 Fundamental Differences between Quantitative and Qualitative Research Strategies (Bryman, 2004)

	Quantitative	**Qualitative**
Principal orientation to the role of theory in relation to research	Deductive; testing of theory	Inductive; generation of theory
Epistemological orientation	Natural science model, in particular positivism	Interpretivism

Both of quantitative and qualitative approaches do have advantages and disadvantages. Quantitative research can widely cover the large range of situations, run fast and economical, but it fails to understand the significance people attach to actions; therefore, it is hard to generate theories. Qualitative method enables the researcher to obtain new ideas and understand people's meanings; however, it may demand much time and energy for data collection and analysis.

After comparing both research approaches, qualitative approach was decided to be more suitable for this study. However, it is still believed that the distinction between quantitative and qualitative techniques is not always clear. For example, interviews can be used to gather data in either a quantitative or qualitative way (Easterby-Smith *et al.*, 1995). Selection between them depends on the practice of research method and its technique. Sometimes these two approaches can be mixed for a particular reason. For this study, the research method will combine qualitative and quantitative ways together.

4.3 Selection of Research Method

In current literature, the most popular research methods are questionnaire survey, semi-structured or in-depth interviews, focus group, case study and observation. The research methods must be appropriate to the objectives of the study. One objective of this study is to encourage each participant to express their opinions on the key factors affecting TKT. Questionnaire surveys can help process a descriptive or explanatory research. In addition, during the empirical investigation, convenience is very important for respondents. Questionnaire can give much freedom and time for each respondent to complete when they want and at the speed that they want to go. Given the reasons above, questionnaire method is used in this study.

4.4 Selection of Delphi Technique

To extract a maximum amount of unbiased information and obtain the most reliable consensus, Delphi technique will be adopted. This part will introduce the

Delphi method and then analyse its application in this study.

4.4.1 Introduction of the Delphi Method

4.4.1.1 Definition of the Delphi Method

Delphi technique, or Delphi method, is named after the famous ancient Greek oracle at "Delphi", who provided visions of the future to those people who sought advice. Then one of its earliest applications was carried out at the RAND Corporation. Its aim was to assess the direction of long-range trends on science and technology and their possible influence on society. The study covered six areas, scientific breakthroughs, population control, automation, space progress, war prevention and weapon systems (Gordon and Hayward, 1968). Though Delphi was firstly applied in 1948, the method became well-known only after the first article about Delphi was published in 1963.

The Delphi method can be characterised as a useful communication tool to systematically collect and aggregate informed judgements from a group of experts on specific questions or issues (Helmer, 1977; Reid, 1988). Dalkey and Helmer (1963) define that the method is to obtain the most reliable consensus of a panel of experts, by putting them into a series of in-depth questionnaires, interspersed with controlled feedback. This technique is different from brainstorming or other group approaches, as its process is non-threatening and anonymous, avoiding group interactions of individuals, but helping experts express their opinions freely.

4.4.1.2 The Process of Delphi

Delphi method is a group facilitation technique that seeks to obtain consensus on

the opinions of experts through a consequential of questionnaires. At the early stage of Delphi, the experts from the required discipline are identified and invited to participate in the inquiry. Meanwhile, the Delphi questionnaire is designed and refined by researchers. Then Delphi researchers send the first round questionnaire to the panel of experts and construct the communication process. The first round questionnaire usually includes open-ended questions, allowing experts to elaborate freely on their responses. Then, the researchers review, judge, and capture the information from these responses and compile the results into the second iteration. In the second round, each expert will be asked to modify his or her opinion in view of the others' opinions presented. In Delphi research, a number of successive questionnaires are conducted. The process continues until group consensus is achieved or some predominated point in the process is reached.

4.4.1.3 The Basics of the Delphi Method

Although the usage of Delphi method for each study could be various, some common points of Delphi are essential and fixed. The basics: anonymity, controlled feedback, and statistical response characterise Delphi. The explanations for the basics are shown as follows (Dalkey, 1967).

1. Anonymity - the use of questionnaires or other communication where expressed responses are not identified as being from specific members of the panel allows for anonymity.
2. Controlled feedback from the interaction - Controlled feedback allows interaction with a large reduction in discord among panel members. Interaction consists of allowing interaction among group members in several stages, with the results of the previous stage summarised and group members

asked to reevaluate their answers as compared to the thinking of the group.

3. Statistical group response - the group opinion is defined as a statistical average of the final opinions of the individual members, with the opinion of every group member reflected in the final group response.

4.4.1.4 Applications

Since its early application on technological forecasting, the Delphi method has undergone continued development and demonstrated in a variety of areas. This technique has found its way in multiple areas, i.e. strategic planning (McKnight, 1991), theory and design applications (Corotis *et al.*, 1981), the future of inter-organizational system linkages (Daniel and White, 2005), rural tourism project evaluation (Szulanski, 1999; Briedenhann and Butts, 2006), selection of procurement systems for construction (Chan *et al.*, 2001) and health research (Meyrick, 2003). It is especially a popular method in exploring critical factors (Holsapple and Joshi, 2000; MacCarthy and Atthirawong, 2003; Xiao *et al.*, 2006). In addition, this method has been firstly applied to investigate barriers of KT in different levels of learning in the organization (Sun and Scott, 2005).

Based on the forgoing discussion, Delphi technique is suitable to adopt for this study. The Delphi technique will facilitate communication among a panel of geographically dispersed experts, to obtain different opinions on key factors affecting TKT.

4.4.2 Intention of Survey

This study seeks to find and verify the key factors affecting TKT in the context of the EuroAid Asia Programme; therefore, this research will elicit two kinds of

valuable information, diverse opinions given by experts according to their experience and knowledge in the EuroAid Asia Programme and a consensus of opinion.

4.4.3 Identification of Experts

The key to a successful Delphi study mainly lies in the selection of participants, who are knowledgeable and willing to contribute valuable ideas (Gordon, 1994). As the Delphi method uses a panel of experts who have experience or knowledge of the subject being studied, the panel is not generally selected randomly and persons who are likely to contribute valuable ideas are essential to include. The panel of this research was selected based on the database at the EuroAid Asia Programme website.

There were two steps to identify the experts. Firstly, the website and status of projects were considered. As websites provide first hand information, the ones with detailed information and well-organised content will be selected for further consideration. Moreover, if the status of each project was presented on the website as finished or on-going (but will finish soon), it was easier for involved experts to recall or evaluate factors. After this initial careful screening, one hundred and fifty one projects were chosen. Secondly, characteristics of experts were considered carefully. The following criteria were employed to identify eligible participants for the Delphi survey. In order to obtain the most valuable ideas, the person who met either one of these three sampling criteria was selected.

1. Practitioners to have extensive working experience in the EuroAid Asia Programme.

2. Experts to be currently or directly involved in the programme management.
3. Experts to have solid knowledge in KT.

Finally, sixty experts were in invited in the first round. The expert selection process is shown in Table 4.2.

Table 4.2 Expert Selection

Project Name	Original Quantity	Step 1	Step 2
Asia Pro Eco	166	65	23
Asia IC&T	147	44	16
Asia-Link	155	32	15
Asia-Invest	250	10	7
In Total	718	151	60

4.4.4 Questionnaire Design

Following Linstone (1978), to collect a wide array of views, the first round is usually qualitative by using open-ended questions,. The first round is composed by two parts, a questionnaire (see Appendix A) and a cover letter (see Appendix B). The cover letter explained the goal of the research and meanwhile let the experts realise and feel that they are significant in the study and more importantly, they are interested by the topic. Furthermore, the letter encouraged experts to realise that each round was constructed entirely on their responses, which promoted their interest, sufficient ownership, and active participation. In the first round of Delphi, experts were asked to list at least five important factors and explanations (See Appendix D), and write down some personal information, like name and job title. For experts' convenience, a list of factors reported in the current literature is also provided. In round two, the systematically synthesised

feedback was presented to each expert in rank-type and it enabled the experts to refine their views as the group's process. This questionnaire is attached in Appendix E.

4.4.5 Questionnaire via Web-based Instrument

There are two traditional types of questionnaires, self-administered and interviewer-administered. This study applied self-administered questionnaire in experts' convenience. Traditionally, self-administered could be processed by post or random delivery and collection. Nowadays, with communication technology develops, online questionnaire becomes the most cost effective and fastest method. This study used E-mail and internet survey to distribute questionnaire. The round one questionnaire was designed with SNAP software and linked at a secure web location (see screenshot in Appendix C). This technique can seize expert's responses automatically. Such electronic presentation of research instrument has been shown to provide a number of benefits (Weible and Wallace, 1998), such as taking advantage of participants' creativity and facilitating effects of group involvement and interaction. It is also structured to capitalise the advantage of group problem-solving ability and minimised the liabilities of group problem-solving.

4.4.6 Data Analysis and Validation

After Delphi Round 1, a variety of opinions would be collected from the panel of experts. This research would apply content analysis method to analyse the panel's feedback and group the comments based on the similar items. Content analysis represents a formal approach to summarise any form of content by counting

different aspects of the content (Hussey and Hussey, 1997). As one of the quantifying methods, it can systematically convert qualitative data into numerical data. Silverman (1993) suggests drawing up simplified key parts of text based on analysis and theoretical understanding of the substance of the text.

In this research, referring to the factors discussed in existing literature, factor categories would be formed by a knowledge transfer expert and the author. By using content analysis, different opinions describing the similar factor were consolidated into one category. Moreover, if none of the experts disagree with the categorization in the next round, it further proves that the categorization of factors is valid.

4.5 Chapter Summary

This chapter starts with discussing research philosophy in comparison of inductive versus deductive thinking, positivist versus interpretivist, and then qualitative and quantitative approaches are analysed. Survey method is adopted for this study. Finally, Delphi technique and its process is comprehensively introduced. In Chapter 5, the findings from the empirical investigation by using Delphi technique will be presented. Furthermore, conclusions and implications will be demonstrated in Chapter 6.

Chapter 5: Findings and Discussions

5.1 Introduction

Chapter 4 firstly describes the research strategy, including research philosophy and research approach. Then, it explains the process of selecting an appropriate research method and technique and comprehensively introduces the design of two-round Delphi survey in this study. This chapter begins with analysis of responses in each Delphi round. Then, a detailed analysis of each mentioned factor is presented. Finally, based on the Delphi results and factor analysis, a factorial model for TKT is developed.

5.2 Analysis of Responses

5.2.1 Delphi Round One: Exploring Key Factors Affecting TKT

The Delphi round one aimed to investigate diverse opinions about key factors affecting TKT.

Sixty experts were approached and twenty experts responded. The effective response rate was 33%. It is supposed that this high response rate is due to that expert's are personally invited. The efficiency and effectiveness of the web-based questionnaire and the interest of the topic were also thought to have played an important role. In addition, reminder letters were sent to the non-respondents via e-mail who had not replied. The profile of participant experts in round one is

presented in Table 5.1 as follows.

Table 5.1 Profile of Participant Experts in Round One (N = 20)

	No. of responses	%
Job Title		
Professor	10	50%
Project manager/director	5	25%
Others	5	25%
Type of Organization		
Academic Institution	16	80%
Public Organization	2	10%
Commercial Organization	2	10%
No. of EC Projects involved		
≥3	13	65%
1 – 2	7	35%
Years of experience in EU Projects		
≥10	4	20%
4 – 9	11	55%
≤3	5	25%
Type of EC Programme *(Total>20 or 100%, because of multiple answers)*		
Asia-Link	12	60%
Asia Pro eco	8	40%
Asia ICT	6	30%
Asia Invest	2	10%
Others	8	40%
Country		
United Kingdom	7	35%
Denmark	6	30%
Bangladesh	1	5%
Greece	1	5%
Indonesia	1	5%
Italy	1	5%
Netherland	1	5%
P. R. China	1	5%
Spain	1	5%

The experts that responded represent a wide distribution of professionals. Ten of them are professors (50%) and five are project manager/directors (25%). In addition, sixteen members are from academic institution, two from public organization, and two from commercial organization. It also can be seen that

sixteen panellists (80%) are working for academic institutions, and two for public organization (10%) and two for commercial organization (10%). About experts eligibility, thirteen experts (65%) have involved in more than three EC Projects and seven less than three projects (35%); four have participated in EU Projects more than ten years (20%), eleven respondents about four to nine years (55%), and five less than three years (25%). Among twenty experts, twelve have been participated or participating in Asia-Link (60%), eight in Asia Pro Eco (40%), six in Asia IC&T (30%), and two in Asia Invest project (10%). About the base of experts, seventeen from Europe i.e. United Kingdom (35%), Denmark (30%), Netherland (5%), Italy (5%), Greece (5%), and Spain (5%), and three from Asia i.e. Bangladesh (5%), Indonesia (5%), and P.R. China (5%). The composition of this panel achieves variation in experts' background and cultural settings, and provides a balanced view for the Delphi survey.

After one and half months, multiple opinions suggested by the panellists on key factors affecting TKT were collected (See Appendix D). Content analysis was used to analyse the panel's feedback and group the comments based on the similar items. In this research, different opinions describing the similar factor were consolidated into one category. For example, the following eight sentences from this survey results are all associated with "language", so they were combined together.

1. Language could be a major barrier to the KT success as it affects the effective communications among partners.
2. Language is always an added problem.
3. Language barrier provides additional resistance to KT.

4. The lack of language skills may hamper the effectiveness of knowledge transfer.
5. Language difference creates problems in understanding the knowledge to be transferred because it is very difficult to communicate and to understand each other.
6. Clarity of language is vital, agreeing what terms mean to each partner.
7. Patience when having a discussion with people not using their first language.
8. The quality of translation: three issues are highlighted; ambiguity, interference and lack of equivalence.

Following this rule, altogether twenty four categories were identified. A list of factors with explanations were formed in Table 5.2.

Table 5.2 Factor and Explanations from the Round One

Relationship • Trust and relationship are important for KT. This is more evident when working with Asian partners (mentioned by 2 experts); • A good relationship is the most important factor to make an international project work successfully (mentioned by 3 experts); • Personal contacts and friendship is the basis of any fruitful collaboration; in particular if scientific KT or sharing of ideas is involved (mentioned by 2 experts); • Participants will overcome practical differences to support partners because of relationship, not legal contract; • The setting up of friendly relationship helps to bridge the communication differences; • A good relation enables all to openly discuss differences in knowledge approaches and eases transnational knowledge transfer (mentioned by 2 experts); • A good relationship, for instant, previous cooperation in other activities, will enhance KT; • A good level of interaction makes communication easier; • An excellent and trusty relationship will enhance the activities as planned to do for the accomplishment of the proposal.
Knowledge distance • If the recipients' knowledge level is too low, they may have difficult to absorb the knowledge to be transferred directly; • If partners already have a sound basis/training in relevant discipline, the transfer of additional knowledge is simplified; • An extra-effect is needed from the coordinator in explaining the task in a very basic level in order that the partners can understand what they need to do; • Market knowledge or a similar technical background facilitates KT as partners enter common ground and speak the same language; • Awareness/understanding of topics in knowledge content; • Experience of all partners in successful KT activities; • Terminology: in some sector, there is a substantial difference in the understanding of the terms used by the European and the Asian organizations. This seriously affects the cooperation and KT; • A good collaboration needs partners of equal strength; if one partner is too weak (or less developed), collaboration becomes help, which isn't sustainable because it's a one way operation; • A gap exits between partners in terms of their knowledge bases and in terms of their different cultural behaviour will influence the success of transferring knowledge (mentioned by 2 experts).
Language • Language could be a major barrier to the KT success as it affects the effective communications among partners; • Language is always an added problem; • Language barrier provides additional resistance to KT (sometimes also different body language makes communication unclear). Differences in start and end points when talking with each other affect the process as well; • The lack of language skills may hamper the effectiveness of knowledge transfer; • Language difference creates problems in understanding the knowledge to be transferred because it is very difficult to communicate and to understand each other; • Clarity of language is vital, agreeing what terms mean to each partner; • Patience when having a discussion with people not using their first language; • The quality of translation: three issues are highlighted; ambiguity, interference and lack of equivalence.
Culture awareness • Culture is a critical factor in KT. A sound understanding of the culture differences of

all partners will help the KT success;
- Culture understanding enables effective communication and avoids superficial "pseudo-interaction";
- Considering pedagogical culture-differences in understanding of the nature of teaching and learning;
- A substantial difference has been observed in the way to organize terms and work with Asian partners;
- Awareness of others' culture facilitates positive dialogue and interest in others' cultural background facilitates enthusiasm;
- Be aware of cultural misunderstanding of learning;
- It is important that all partners do know the respective cultural backgrounds (intercultural competence);
- Teachers from the west should be aware of the different teaching norms in their recipient countries.

Motivation
- The need of a specific knowledge to solve a problem and/or to be promoted within the institution and/or to be able to apply for other national projects is relevant;
- It is prerequisite to have a common reason for collaboration, and to establish common motivation drivers. Drivers in a collaboration are different among different stakeholder groups. Drivers for all groups need to be established and link to an organizational culture;
- All partners should be aware of the necessity to adjust their knowledge according to new requirements imposed by globalization;
- A need or desire to seek or accept knowledge from outside will influence the KT heavily (mentioned by 2 experts);
- Willing to adapt knowledge to the local context;
- Instant response is needed to see the eagerness that indicate the good communication as a key indicator of good collaboration, meanwhile sincerity is also needed to keep maintaining the good team work;
- Motivation of the partners specially European Partners about the project target is necessary.

Objective and focus
- Clear focus of collaboration. If there is a broad range of activities, you cannot deepen the partner's competence in a specific field;
- Research will be fruitful if those institutions have common interest on the matters conducted together, the objective of the research will give benefit to the institutions involved;
- Objectives and methodology should be negotiated among partners before the project start;
- It is only possible to transfer knowledge between partners if all partners aim at the same objectives;
- New technology and knowledge transfer need to fit the overall strategy of both parties;
- The knowledge transfer has to be based on existing needs, requirements and problems of the Asian targeted regions. Thus, a sound background work has to be performed that will provide the necessary elements and success factors for this transnational cooperation;
- On-site follow-up, i.e. somebody from outside should live with the project to keep the team focused on the objective.

Trust
- Trust is the basis of any fruitful collaboration;
- Trust is critical for relationship building;
- Trust is important for KT;
- Knowledge that provided from the advance institution, supported by under developed institution by providing samples needed for the research collaboration, won't be possible without trust, win-win and good communication;

- Trust is important for relationships and communication;
- Trust among partners will allow to overcome problems and unforeseen obstacles;
- Organizational outlook should be such that within such project the mutual trust and cooperation will be developed between the Asian and European Institution.

Openness

- True KT requires at least some openness (although this can increase with further acquaintance). KT can be impeded by one party's greater interest in money transfer;
- Openness facilitates positive dialogue;
- We have experienced more openness in communication both among the Asia and European partners by using ICT, since the interface in an virtual environment is not personal. The Asian teachers experienced that traditional hierarchical structures were broke down and communication more easy;
- Openness and acceptance of new methods and differences in cultural approach is important;
- A successful project requires partners willing to work together to reach a common objective;
- Bi-directional knowledge transfer: in a development project "knowledge" does not belong to only one partner. Even when transferring knowledge (e.g. international best practices) adoption to local needs is a key condition for success.

Transfer channel (topic-oriented workshops and training course)

- Successful projects should have the chance to fund follow-up activities to intensify collaborations;
- Short workshops involving foreign experts as well as local ones from academic institutions and companies, give the possibility to foster Asian partner networking capability;
- A course run abroad can only be attended by those send abroad, a course run on site can be attended by many other people;
- The selection of the appropriate communication channels and mechanisms is of vital importance for the success of the KT task. Furthermore, a good networking approach in the target areas will ensure sustainability and replication of the knowledge transfer to regions with similar problems;
- Lead partners network: expert of lead partner's global dissemination channels.

Respect

- A good project in the development field should based on mutual respect (mentioned by 2 experts);
- The advance institution will respect under-developed institution, by discussing things before and during research activity, informing all results and ask approval before publication;
- Obviously when partners work on mutual respect and understanding, KT is enhanced.

Instrumental content

- For some partners it is the 1st European project, so they don't have experience in this kind of projects;
- As the project was implemented in a cross cultural and multidisciplinary context, Europeans and Asians had to be engaged in the learning process as learners;
- It is important that all partners are familiar with or at least understand EC management regulations as this eases the intra-group work

Use of Internet and Communication Technology (ICT)

- It's essential to communicate regularly. When countries which temporarily restrict internet accesses or which can't provide regular electricity supply are part of the group, this influences and even hinders knowledge transfer;
- Interaction is vastly reduced because of poor online communication facilities;
- By using ICT, the interface in an virtual environment is not personal, so more openness is experienced in communication.

Nature of knowledge to be transferred

- Hard subjects (math, science and technology) are easier for knowledge transfer

because they still operate on a knowledge transfer pedagogy; • It is difficult to transfer tacit knowledge especially when using electronic communication tools; it is also difficult to express tacit knowledge, let alone to transfer it partners in different culture and language context; • The degree of explicitness vs tacitness, the simplicity vs complication of knowledge will have an important impact on the KT process.
Knowledge absorption • Absorptive capacity, important for assimilation and application; • Ability to learn, learning is an integral part of the knowledge transfer process; • Learning by doing- training is not enough, must have experience of using the new skills and knowledge in new contexts, and never build the solution in the west and send it ready made.
Cultural content • It is important to build an organizational culture related to the collaborative virtual network established. Culture differences related to history, origin, religion have to be accepted in a virtual environment, where exposure and explicitness is dominating. Culture knowledge leads to an organizational culture that can make things function; • Organizational values and beliefs, and the language used in the organization to communicate are the most important factor for the success of transferring knowledge.
Policy framework/ Bureaucratic procedures • Long bureaucratic procedures limiting the freedom for travelling of some Asian people, reduce the opportunity of them to travel to Europe to attend technical visits; • There can be policies that restrict knowledge transfer, e.g. lack of IPR (Intellectual Property Rights) protection in some countries.
Use of expert trainers • Trainers must know their subject deeply, including knowledge of the conditions of the student group, an expert from the student's community would be ideal.
Selection of appropriate partners • Selection of the appropriate partners in the area addressed by the project ensures effective knowledge transfer and mainly the future implementation of this know-how in the target areas. The importance is also the selection of European and Asian organizations with previous cooperation experience.
Partners' networking • National partners' existing networks with business and other stakeholders
Flexibility • The world is moving fast and only projects that can quickly response to the situation are successful. Flexibility in budget, schedule etc., are important.
Timing • Is the 'topic area' new/relevant?
Causal ambiguity • Some partners don't see the project as a way to accumulate knowledge only to do the tasks planned. They don't link the task to do with KT.
Institutional collaboration • Support from the dean/institution between institution will legitimate all activities done in the collaboration, because the institution will be responsible for the results and impact of the collaboration.
Expertise Knowledge about the subject • Expertise knowledge of the team members from both sides are necessary for the target achievement of the subjects to be addressed;

The number of instances that fall into each category was counted and the frequencies of factors in a descending order were fed back to panellists for the

Delphi round two (see Appendix E). A cover letter was also designed (see Appendix F).

5.2.2 Delphi Round Two: Verifying the Importance of Factors

The round two aimed to explore the agreement of factors and record their selection frequency. Twenty experts were re-invited and further reminder letter has also to be sent. Seventeen experts replied and the response rate was 85%. Based on experts' replies, no one disagrees with the factor categorization from round 1, so it further proves that the categories identified were valid.

This round offered panellists a new chance to refine their opinions. The panellist might overlook some factor in round one. As reminded in this feedback, he/she may change the original idea by selecting an additional factor or could exchange original one to the new one. After careful consideration and reselection, the consensus of experts was gradually formed. The level of agreement of each factor both in round one and two, and the rate change are shown in Table 5.3.

Table 5.3 Consensus Rate of Each Factor in Round 1&2

Factors	Round 1		Round 2		Change
	N = 20	%	N = 17	%	
Relationship	13	65%	15	88%	+23%
Culture awareness	8	40%	14	82%	+42%
Language	8	40%	13	76%	+36%
Motivation	8	40%	11	65%	+25%
Knowledge distance	10	50%	11	65%	+15%
Objectives and focus	7	35%	10	59%	+24%
Selection of appropriate partners	1	5%	9	53%	+48%
Transfer channel	5	25%	9	53%	+28%
Trust	7	35%	8	47%	+12%
Openness	6	30%	8	47%	+17%
Use of ICT	3	15%	6	35%	+20%
Respect	4	20%	6	35%	+15%
Knowledge absorption	3	15%	6	35%	+20%
Use of expert trainers	1	5%	5	29%	+24%
Flexibility	1	5%	5	29%	+24%
Instrumental content	3	15%	5	29%	+14%
Nature of knowledge to be transferred	3	15%	4	24%	+9%
Partners' existing networks	1	5%	4	24%	+19%
Institutional collaboration	1	5%	4	24%	+19%
Causal ambiguity	1	5%	3	18%	+13%
Expertise knowledge about the subject	1	5%	3	18%	+13%
Policy framework/ Bureaucratic procedures	2	10%	2	12%	+2%
Timeliness of the topics	1	5%	2	12%	+7%
Cultural content	2	10%	1	6%	-4%

As shown, relationship achieves the highest degree of consensus (88%) and becomes the most forcing factor in TKT of the EuroAid Asia Programme. Culture awareness (82%) and language (76%) are also very significant factors highlighted. It is apparent that the consensus ratings for relationship, culture awareness and language are very close to one another and all are extremely high. Other factors, motivation (65%), knowledge distance (65%), objectives and focus (59%), selection of appropriate partners (53%), and transfer channel (53%) get relatively high consensus. The consensus for trust (47%), openness (47%), use of ICT (35%), respect (35%) and knowledge absorption (35%) are moderate. Another factors,

use of expert trainers (29%), flexibility (29%), instrumental content (29%), nature of knowledge to be transferred (24%), partners' existing networks (24%), and institutional collaboration (24%) obtains relatively low consensus ratings. The five factors of least importance were causal ambiguity (18%), expertise knowledge about the subject (18%), policy framework/bureaucratic procedures (12%), timeliness of the topics (12%), and cultural content (6%). Except cultural knowledge, the consensus rates of other factors increase through the survey. Precisely, the inferences from the list of factors cannot be drawn for a wider population; however, the goal of this Delphi study is not to achieve a statistically significant result, but to provide possible insights of the TKT issue based on the experience and knowledge of experts. Thus, the outcome of factor sequence is as valid as the opinions of the experts who made up the panel rather than in terms of a majority vote.

In theory, Delphi methodology can be carried out by several rounds of questionnaires; however, previous research has shown that two rounds are sufficiently effective in allowing an exchange of comments and reaching a broad consensus of opinion (Turoff, 1970; Stronks *et al.*, 1997). The panellists are likely tired from completing more than two rounds of questionnaires, which can result in a low response rate (Adler and Ziglio, 1996). In this research, based on the experts' own experience and knowledge in the EuroAid Asia Programme and opinions suggested by other experts, experts were believed to reconsider their choice carefully in round two and their choice tended to be consistent in the future. Hence, this study was undertaken in two rounds.

5.3 The Verified Key Factors

The results and analysis of two Delphi rounds illustrate that twenty four factors are selected with explanations and then agreed by different experts. It is worth noting that some of the factors have been identified by previous research, which also has been discussed in literature review section of this thesis, i.e. relationship. culture awareness, language, motivation, knowledge distance, transfer channel, trust, openness, use of ICT, knowledge absorption, instrumental content, nature of knowledge to be transferred, partners' existing networks, causal ambiguity, and cultural content. The others are firstly investigated in this research and received some empirical support (i.e. objectives and focus, selection of appropriate partners, respect, use of expert trainers, flexibility, institutional collaboration, expertise knowledge about the subject, policy framework/bureaucratic procedures, and timeliness of the topics). A detailed discussion about each factor will be shown as follows.

Relationship

Overall, relationship maintains the top one in the Delphi survey. It appears that almost all experts agreed that relationship plays a critical role in TKT. Chevrier (2003) has explained when people are well acquainted with one another, they may empirically set up working arrangements more easily. In this research, three experts noted a strong degree on that "a good relationship is the most important factor to make an international project work successfully". Another two experts described that "trust and relationship are important for KT (this is more evident) when working with Asian partners."

One social phenomenon called Guanxi is a particularly cultural or society practice in Chinese life, and also prevalent throughout Asia. Guanxi is literally "a relationship" between objects, forces, or persons. This relationship is not only applied to husband-wife, kinship, and friendship relations, it can also have the sense of "social connections" dyadic relationships which based implicitly (rather than explicitly) on mutual interest and benefit (Yang, 1994). Once Guanxi is established between two people, either of both can ask for favour of another with expectation that incurred debt will be repaid sometime in the future. This type of favour usually involves applying position or influence to obtain scarce goods or services, to secure access to inaccessible areas or to ensure favourable treatment (Brick, 1996).

Apparently, Guanxi has nothing to do with the EuroAid Asia Programme responsibilities. However, Guanxi, like an invisible hand, influences the ties between partners and controls the project management. For example, project participants always need to attend conferences abroad organised by one partner. The host may have to do something beyond the conference organization, i.e. showing visitors around the country. The visitors being welcomed need to appreciate this favour and reciprocate the kindness later. This reciprocal relationship (or particularly Guanxi) would help establish a harmonious project environment and facilitate KT across-culture. Thus, operating a good relationship (Guanxi) is an important facet of TKT.

Furthermore, the success of organizations is increasingly dependent on productive relationships with people from culturally different organizations (Javidan *et al.*,

2005), because relationship can do many functions, as experts noted in Delphi survey "participants will overcome practical differences to support partners because of relationship, not legal contract. The setting up of a good relationship helps to bridge the communication differences and enables all to openly discuss differences in knowledge approaches and eases transnational knowledge transfer". Based on these analyses, it can be summarised that relationship is a paramount factor in TKT and should be taken into consideration carefully.

Culture Awareness

As Section 2.4.2 stated that culture has been widely acknowledged as a key dimension of KT, most experts supported this contention by stressing "culture is a critical factor in KT. Culture understanding enables effective communication. Awareness of others' culture facilitates positive dialogue and interest in others' cultural background facilitates enthusiasm. It is important that all partners do know the respective cultural backgrounds". In this study, the descriptions of culture from experts are not simply referred to national or organizational culture, but as a general concept of culture. During two rounds, the consensus rating of culture presented a prominent change from 40% to 82%. One expert depicted that, "A substantial difference is observed in the way to organise terms and work with Asian partners".

The aim for the EuroAid Asia Programme is to transfer knowledge and skills from Europe to Asia, so the cross-cultural teaching and learning is seen as the core method to transfer knowledge. Programme teachers are often from developed countries or academic institutions of developing countries. They prepare learning

materials and transfer knowledge by their ways. Consistent with Hofstede's (2001) previous contention that there are cultural differences in teaching and learning and that there would be problems in cross-cultural learning situations, some experts in Delphi study noted, "teachers from the west should be aware of cultural misunderstanding of learning, be aware of the different teaching norms in their recipient countries and consider pedagogical culture-differences in understanding the nature of teaching and learning". In order to address this problem, Hofstede (2001) suggests that there is a need to teach the teacher how to teach or to teach the student how to learn, within different national cultural contexts.

The results from Delphi survey highly support one of the two opposite opinions in Section 2.4.2, cultures do affect KT.

Language

Besides relationship and culture, language is also of major concern in TKT. In the Delphi study, its agreement rating changed from 40% to 76%. Panellists noted, "language could be a problem, a hamper, a major barrier, an added problem, an additional resistance (sometimes also different body language makes communication unclear) to the KT success as it affects the effective communications among partners. Clarity of language is vital, agreeing what terms mean to each partner".

Even though English is the predominant language of the EuroAid Asia Programme, partners from Asian countries do not seem to have a good command of English. This can cause communication problems, especially in cases of

non-face-to-face communication and undermine Asian partners' capability to receive the knowledge. In fact, when the advanced knowledge is transferred from developed countries to developing countries, the knowledge needs to be translated from one language to another one, which tries to create a common cognitive background for participants. As the translator has a preferred language, this knowledge conversion process is culturally not neutral (Hofstede, 2001), because the impact of culture starts in the translator's mind. In addition, when the number of languages applied is increased, translation errors are randomised (Hofstede, 2001). That's why another expert being consistent with Holden and Kortzfleisch's (2004) opinion and noted, the quality of translation is concerned in TKT, three issues are highlighted, ambiguity, interference and lack of equivalence. In order to improve the situation, one expert suggested that patience is needed when having a discussion with people not using their first language.

According to the experts' responses, it is easy to know that "language" is really important for TKT, and should be taken into careful consideration by each project management when transfer knowledge.

Motivation

Compared to 40% in Delphi round 1, 65% experts selected motivation as a key factor affecting TKT in round two. Some experts expounded that the existence of motivation leads to KT, as noted that "the need of a specific knowledge to solve a problem and/or to be promoted within the institution and/or to be able to apply for other national projects is relevant. It is prerequisite to have a common reason for collaboration, and to establish common motivation drivers. A need or desire to

seek or accept knowledge from outside will influence the KT heavily".

Motivation refers to human behaviour and can be intrinsic and extrinsic. Intrinsic motivation occurs when people are internally motivated to do something rather than from any external incentive (i.e. a hobby). Extrinsic motivation comes from outside an individual, such as tangible rewards (money or grades) and intangible rewards (praise or public commendation). In the context of the EuroAid Asia Programme, as noted by two experts "drivers in collaboration are different among different stakeholder groups. Drivers for all groups need to be established and link to an organizational culture", partners are driven by a variety of motives. In Asia-Invest Programme, the drivers for Asia and EU countries are generally identification of suitable business partners and promotion of market potential through networking and attracting increased flow of investment among the target groups. Another example, with responsibility to foster Asian environment management and prevent further pollution, Asia-Pro-Eco Programme initiated a dialogue and promoted cooperation between Asian and European partners in technologies and policy making.

Moreover, one expert suggested that all partners should be aware of the necessity to adjust their knowledge according to new requirements imposed by globalization. According to the above discussion, motivation should be attached importance in TKT.

Knowledge Distance

An irresistible problem faced in the context of the EuroAid Asia Programme is

knowledge distance between partners. This factor was mentioned by eleven of the seventeen experts. Even though knowledge distance contributed to knowledge flow from advanced to laggard organization, sometimes the knowledge gap may influence the effectiveness of KT.

Some experts noted "if partners already have a sound basis/training, experience, market knowledge or a similar technical background, the transfer of additional knowledge is simplified; if the recipients' knowledge level is too low, they may have difficulty to absorb the knowledge to be transferred directly; a gap exits between partners in terms of their knowledge bases and in terms of their different cultural behaviour will influence the success of transferring knowledge". Another expert suggested that "terminology in some sector, there is a substantial difference in the understanding of the terms used by the European and the Asian organizations, which seriously affects the cooperation and KT". It means distinct academic backgrounds and operation systems result in different comprehension of the same knowledge. One expert also pointed out a unique opinion, "a good collaboration needs partners of equal strength; if one partner is too weak (or less developed), collaboration becomes help, which isn't sustainable because it's a one way operation". This means that if one partner is stronger with regards to knowledge, then he will need to help the other weaker partner. In this way the collaboration tends to rely more on the stronger partner, this might lead to the stronger partner having more control and even dominating the situation. Under this situation, one way operation will impinge the effectiveness of KT. To address this problem, another expert suggested that "an extra-effect is needed from the coordinator in explaining the task in a very basic level in order that the partners

can understand what they need to do".

According to this analysis, the viewpoint from this research is coincident with the foregone discussion in Section 2.4.1 that the knowledge gap between partners will hamper the effectiveness of KT.

Objectives and Focus

One of the important findings from this research is the recognition of the factor -objectives and focus, which was seldom investigated by previous research. In this study, many experts placed objectives and focus as an priority of the project, noted "research will be fruitful if those institutions have common interest on the matters conducted together, the objective of the research will give benefit to the institutions involved. It is only possible to transfer knowledge between partners if all partners aim at the same objectives. Objectives and methodology should be negotiated among partners. Knowledge transfer has to be based on existing needs, requirements and problems of the Asian targeted regions. Thus, a sound background work has to be performed that will provide the necessary elements and success factors for this transnational cooperation".

Different projects are alike with respect to their goal, which all explicitly focus on improving knowledge cross-flow and the quality of Euro-Asia partnerships. However, there are also some different sub-aims among different EuroAid Asia projects. The aim and objectives of each project are demonstrated as follows:

- The Asia-Link Programme is an initiative to promote regional and multilateral networking between higher education institutions in Europe and developing

countries in Asia. The programme aims to promote the creation of new partnerships and new sustainable links between European and Asian higher education institutions, and to reinforce existing partnerships.

- The Asia IT&C Programme is to foster economic growth and understanding between Europe and Asia through better awareness, access to, and use of Information and Communication Technologies (ICT). The purpose is to increase direct co-operation between Europe and Asia in the field of ICT; better serve the ICT needs of local communities and citiens, and provide an input into sustainable development.
- The Asia-Pro-Eco Programme is initiated to strengthen the environmental dialogue between Asia and Europe through the exchange of policies, technologies and best practices that promote more resource-efficient, market driven, and sustainable solutions to environmental problems in Asia. The programme aims to support a series of preventive and corrective actions, which materialise in technical solutions that contribute to both quality of life and economic prosperity in Asia.
- The Asia-Invest Programme is primarily intended for potential applicants: intermediaries from the EU and Asia - representatives of business, including chambers of commerce, sector and industry associations, standards and quality institutes and other non-profit multiplier organisations in contact with SMEs and interested in the promotion of trade and investment between the EU and Asia.

Indeed, objectives lead projects in all other aspects, like schedule, main activities, fund distribution and work division among partners. For instance, one expert

noted, "new technology and knowledge transfer need to fit the overall strategy of both parties". Therefore, the objectives must be very practical, achievable and executive. In order to stick to objectives of project, another expert suggested "somebody from outside should live with the project to keep the team focused on the objective".

Based on these responses, it can be concluded that objectives and focus is important in TKT, especially in very beginning stage.

Selection of Appropriate Partners

Another key finding from this survey is the recognition of selection of appropriate partners. This factor was just mentioned by one expert in round one, noted as "selection of the appropriate partners in the area addressed by the project ensures effective knowledge transfer and mainly the future implementation of this know-how in the target areas". Evidently, this factor was very convincing and agreed by nine experts in round two. Its consensus rate dramatically changed from 5% to 53%.

Partnerships between European and Asian organizations are at the core of the EuroAid Asia Programme and the basis upon which the European Commission wishes to promote regional and multilateral networking between organizations in the European Union, South- and Southeast Asia and China. Mainly, there are two ways organization can identify appropriate partners. First of all, all EuroAid Asia Programmes formally offers partner search facility, which provides each organization with the possibility of identifying potential partners with whom to

develop and submit a project proposal. After retrieving contact details of registered institutions from contact database, the organization can contact potential partners directly. Second, each organization can find partners in an informal way, like networking with past cooperation or word of mouth. Basically, trust, prior experience, theoretical knowledge and social interaction skills of the partners seem to be important factors that organizations should take into account when they make selection decision. Another criterion for selecting an appropriate partner is "the importance is also the selection of European and Asian organizations with previous cooperation experience". According to this analysis, selection of an appropriate partner has been recognised as a key factor influencing TKT.

Transfer Channel

More than the half panel agreed that transfer channel is a very important factor in TKT. When the aim and objectives are confirmed, some experts noted "successful projects should have the chance to fund follow-up activities to intensify collaborations. The selection of the appropriate communication channels and mechanisms is of vital importance for the success of the KT task". Another expert emphasised that "lead partner's global dissemination channels" contributed to KT effectiveness.

Just as some experts mentioned in survey the channels can be "short workshops involving foreign experts as well as local ones from academic institutions and companies, give the possibility to foster Asian partner networking capability or a course run abroad can only be attended by those send abroad, a course run on site

can be attended by many other people", a variety of activities have involved in each programme,

1. *Asia-IC&T*- training programme, workshop, international seminar, case studies, project handbook making, questionnaire survey, development of an intelligent Web-enabled environment, etc.
2. *Asia-Invest* - business to business match-making and partnership building activities, Asian private sector support and technical assistance, institutional support, networking, and dialogue exchange, etc.
3. *Asia-Pro-Eco* – training course, study tour, project consortium, a holistic baseline and needs assessment, comparative study, etc.
4. *Asia-Link* - training workshops, exchange student/ professor programme, etc.

The project should find the proper activities to transfer knowledge properly; otherwise, like one expert concerned "if there is a broad range of activities, you cannot deepen the partner's competence in a specific field".

Trust

Although trust didn't receive over 50% agreement rate in this study, some experts still pointed out "knowledge that provided from the advance institution, supported by under developed institution by providing samples needed for the research collaboration, won't be possible without trust, win-win and good communication. Trust among partners will allow (partners) to overcome problems and unforeseen obstacles".

Trust of both recipient and sender sides is seen as a common factor in literature (Wathne *et al.*, 1996; Gupta and Govindarajan, 2000). Furthermore, some experts emphasised its prominent influence on other factors "trust is the basis of any fruitful collaboration; trust is critical for relationship building; trust is important for relationships and communication". It can be seen that, as previous researcher has proposed (Wathne *et al.*, 1996), in some situations, trust affects KT indirectly through exerting power on other factors.

Openness

Openness got the same consensus rate 47% as trust. Some experts noted, "openness facilitates positive dialogue; a successful project requires partners willing to work together to reach a common objective; openness and acceptance of new methods and differences in cultural approach is important; some true KT requires at least some openness (although this can increase with further acquaintance)".

Another expert brought forward a new term, "bi-directional knowledge transfer, (means) in a development project, knowledge does not belong to only one partner. Even when transferring knowledge (e.g. international best practices) adoption to local needs is a key condition for success". It means when knowledge is transferred, sender should be open to recipients' opinions and avoid cramming way.

Furthermore, the EuroAid Asia Programme partners are geographically dispersed in different places over the world. To assist more open dialogue, an expert

described that "they have experienced more openness in communication both among the Asia and European partners by using ICT (Internet and Communication Technology), since the interface in a virtual environment is not personal. The Asian teachers experienced that traditional hierarchical structures were broke down and communication more easy". This opinion pointed out ICT is a good way to improve openness between partners. Based on this analysis, openness and the methods to improve openness should be taken into account in TKT.

5.4 The Newly Found Factors

In total, nine factors were newly found in this research. Besides objective and focus, selection of appropriate partners, which have been mentioned above, some other factors were also highlighted, like respect, use of expert trainers, flexibility, institutional collaboration, expertise knowledge about the subject, policy framework/bureaucratic procedures, and timeliness of the topics. The following evidence will demonstrate why these factors could also affect KT.

Respect

Respect is an attitude of mutual regard, admiration or esteem. This factor hasn't been explored in previous research. In this research, four experts pointed it out in round one and it was agreed by six experts in round two. The final consensus rate is 35%. With more collision of diverse cultures, it is predictable that this factor will draw more attention in future TKT. It is believed "when partners work on mutual respect and understanding, KT is enhanced".

Respect enables people to work in a complimentary fashion, instead of each

person having to understand or agree with every detail of another's opinion. The project calls different participants with different cultural backgrounds and languages to work together and they may retain their own beliefs, values and customs. At this moment, some experts suggested that "a good project in the development field should (be) based on mutual respect. (When a knowledge gap exists between partners), the advance institution will respect under-developed institution, by discussing things before and during research activity, informing all results and asking approval before publication". Moreover, mutual respect can help address the gap between academicians and practitioners. Moreover, academicians would like to pursue academic freedom. Conversely, commercial organizations attempt to seek more profits. However, as the part of the project, academicians and practitioners need to admire the other's standpoint and performance.

Based on the analysis from the Delphi study, it can be claimed that respect should be taken into more careful consideration as TKT opportunities increase.

Use of expert trainers

One expert noted and four more supported later, "trainers must know their subject deeply, including knowledge of the conditions of the student group, an expert from the student's community would be ideal". As training sessions become a direct KT channel in the EuroAid Asia Programme, it required trainers not only to master the subject, but also to comprehend the learners' needs.

Flexibility

Five experts agreed, "the world is moving fast and only projects that can quickly response to the situation are successful. Flexibility in budget, schedule etc., are important". Flexibility can be seen as the ability of an organization to easily adapt to different circumstances. It related to organizational culture and infrastructure. Each project should have a flexible mechanism to deal with the changing environment.

Institutional collaboration

One expert noted and four experts supported in round two, "support from the dean/institution between institution(s) will legitimate all activities done in the collaboration, because the institution will be responsible for the results and impact of the collaboration." Basically, not all staff work for one project, but the support from the whole institution will facilitate KT process.

Expertise knowledge about the subject

One expert noted "expertise knowledge of the team members from both sides are necessary for the target achievement of the subjects to be addressed". Expertise consists of those characteristics, skills and knowledge of a person (that is, expert) or of a system, which distinguish from novices or less experience. The more participants know expertise knowledge, the more effective of KT.

Policy framework/bureaucratic procedures

Two experts noted, "long bureaucratic procedures limiting the freedom for

travelling of some Asian people, reduce the opportunity of them to travel to Europe to attend technical visits. There can be policies that restrict knowledge transfer, e.g. lack of IPR (Intellectual Property Rights) protection in some countries". This factor, about one country's institutionalism and policy, tries to explain how the general environment affects TKT.

Timeliness of the topics

One expert mentioned timing "is the 'topic area' new/relevant?" It means that the selection of the project topic should relate to current issues which need to be solved now.

5.5 A Factorial Model for TKT

According to the analysis of round one and two, this study will put twenty four factors explored and verified in Delphi survey into Albino *et al.*'s (1999) four-component framework and propose a factorial model for TKT in the context of the EuroAid Asia Programme (see Figure 5.1).

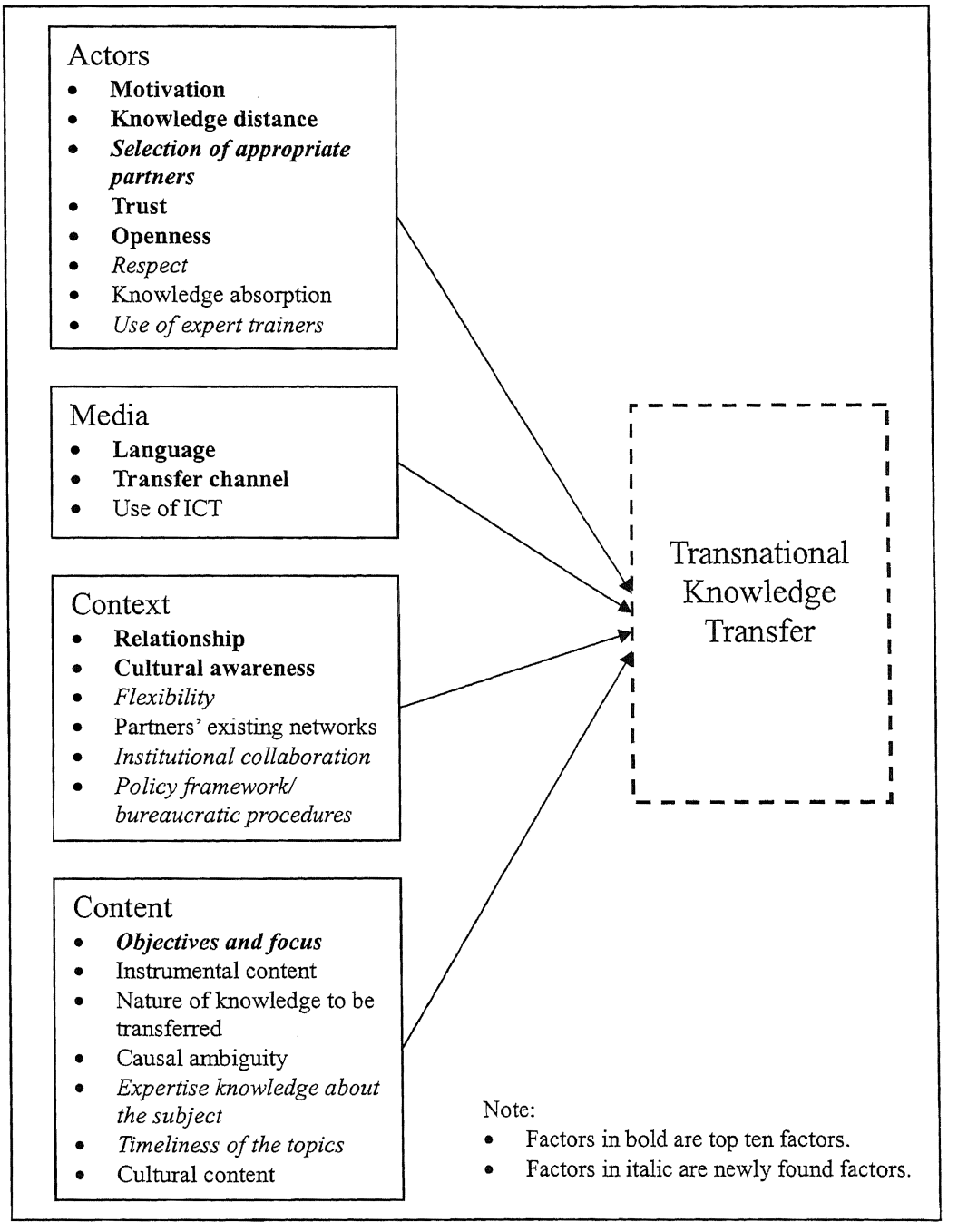

Figure 5.1 A Factorial Model for TKT in the context of the EuroAid Asia Programme

This model originally extends Albino *et al.*'s (1999) four component framework by linking important factors into each component, specifically in the context of government-funded international projects. It can be seen that the model consists of

two sections, the factor clusters (the left column) and transnational knowledge transfer (the right column). Each factor cluster lists related factors of which consensus ratings are in descending order. The factors in bold type are the top ten key factors and factors in italic are newly found factors. This factorial model presents a comprehensive list of key factors affecting TKT in the context of the EuroAid Asia Programme and systematically groups these factors explored and verified in Delphi survey into four components: actors, .media, context and content.

5.6 Chapter Summary

This chapter firstly analyses responses of two rounds in Delphi survey. Then, it explains the top ten factors and newly found factors identified and verified in the survey, and finally forms a factorial model for TKT. The next chapter will conclude on the key findings of this research, main contributions to KT, managerial implications, research limitations and further research.

Chapter 6: Conclusions

6.1 Introduction

There has been little research about transnational knowledge transfer (TKT) issues, especially in international projects, and this is inconsistent with the rapid development of TKT. Moreover, compared to knowledge transfer (KT) at an individual or organizational level, TKT is more complicated and difficult to understand. Only limited attempts have been made to analyse TKT issues in international projects and to investigate the key factors that affect cross-border KT.

The research described here has been an attempt to extend the existing research of KT by addressing the neglected area of TKT. The aim has been to empirically explore and verify the key factors affecting TKT in the context of the EuroAid Asia Programme, and then to develop a factorial model that can foster in programme participants a better understanding, planning and realization in KT projects among different countries and cultures. It is felt that this aim has been achieved. First of all, a comprehensive literature review was carried out into the definition of knowledge and KT, discussion of KT at different levels, and of the frequently mentioned factors that influence KT. Then, an empirical study using the Delphi technique was carried out to identify key factors affecting TKT in the context of the EuroAid Asia Programme. The first round of this Delphi survey

was to collect subjective opinions about factors from experts who have much experience of TKT in the EuroAid Asia Programme. Then, the experts' opinions were synthesised and fed back to them to obtain the relative importance of these factors in round two. Based on the survey results, this study also developed a factorial TKT model of the EuroAid Asia Programme. The model classified all the factors mentioned into Albino *et al.*'s (1999) four components. Each factor cluster listed some factors in descending order. It is hoped that both the factors and the developed factorial model itself will help international programme participants cope with the complexities and difficulties in TKT and be of assistance in the future management of international projects.

This final chapter begins by summarizing the key findings and the main contributions this study makes to KT and points out the managerial implications. And then, limitations of this research are identified and future research is suggested. The chapter ended with some concluding remarks.

6.2 Key Findings

The significance of top ten factors identified in this research has been discussed in detail in Chapter 5; this part will highlight the key insights from the survey results.

Overall, the research revealed that three key factors, relationship, culture awareness and language received an over 75% consensus rate. This suggests that most experts thought these three factors were highly important. Another factors: motivation, knowledge distance, selection of appropriate partners, objectives and

focus, transfer channel, trust and openness were agreed by more than 40% of the experts, so these factors are judged moderately important. Though the consensus rating of some factors was low, they are still important in some projects for particular reasons. It was also found that the consensus rating of some factors dramatically increased through survey (i.e. selection of appropriate partners, culture awareness, and language). It means that these factors and their explanations were very convincing, leading other experts to modify their first choice to choose these factors in the next round.

All in all, Figure 5.1 in Chapter 5 shows that the top ten factors are: relationship, culture awareness, language, motivation, knowledge distance, selection of appropriate partners, transfer channel, objectives and focus, trust, and openness. They are mostly distributed in 'actors' component. In addition, context component includes the two most important factors: relationship and culture awareness. Therefore, factors associated with the components 'actors' and 'context' are attached more importance than those in other two components.

It is worth noting that actor and context factors are related to the bond between people/organizations, and to the mutual understanding – of both knowledge sender and receiver units – of the underlying assumptions. These factors cannot be measured, so some researchers call these 'soft factors' in KT (Guzman and Wilson, 2005) and propose that soft factors play an increasingly important role in organizational development (Goh, 2002). Following the McKinsey 7S (Rasiel and Friga, 2001), Pascale and Athos (1981) also divided management into seven aspects: Strategy, Structure, Systems, Skills, Staff, Style, and Subordinate goals

(shared values). The first three (strategy, structure, systems), of the seven are called hard factors, dealing with the direction of the company over the long term, the basic organization of the company and formal/informal procedures that govern everyday activity. The remaining four factors (skills, staff, style, and shared values) are soft factors. These factors represent capabilities and competencies of company; the values and beliefs of the company and the company's people resources and how they are developed, trained, and motivated. Bohinc and Markham (2003) claimed the main reason for Japanese success is that Japan manages business with the whole complex of human needs, economic, social, psychological, and spiritual.

The EuroAid Asia Programme can be seen as a considerable knowledge reservoir, as it gathers and preserves a large amount of best-practice, expertise, and know-how across countries and cultures. Then, knowledge must spread quickly and effectively through different people and organizations. "Ideas carry maximum impact when they are shared broadly rather than held in few hands" (Garvin, 1998, p. 66). Therefore, in the knowledge sharing process, knowledge or technology cannot flow alone, but include human and contextual features that can serve as key factors that foster the transfer of knowledge. Guzman and Wilson (2005) also stress the factors related to people and context in KT because the realization of KT not only depends on people who interpret, organise, plan, develop and execute and use this knowledge, but also depends on the specific situation. This means that people's values and assumptions flow throughout the behaviour, decisions and actions related to the transfer of organizational knowledge. Thus, the transfer of organizational knowledge needs to be justified; people need to be motivated and

human cohesion is demanded. Just as the Delphi experts noted, "a good relationship and culture understanding among people and organizations would well enable KT". Based on the above theoretical and empirical evidence, this research implies that TKT in the specific context of government-assistance needs to pay more attention on soft factors related to the components 'actors' and 'context'.

6.3 Main Contributions to KT

This study has contributed to the analysis of KT in both theoretical and empirical ways:

Contribution 1 – Creation of a comprehensive list of mentioned factors affecting KT

Based on the current literature, even though a great deal of effort has been made to analyse factors affecting KT in different situations, there is still a lack of a comprehensive discussion about key factors affecting KT.

This study addressed this gap by categorizing frequently mentioned factors into Albino *et al.*'s (1999) four-component framework (i.e. actors, content, media and context). The background literature also reviewed various opinions about each factor from different researchers. All of these factors influence KT in greater or lesser degrees. Some researchers agree on one assertion of the factor, but others may hold different opinions. The results of literature review illustrated that the factors mentioned related to the 'actors' component are openness, trust, prior experience and knowledge, motivation, leadership, absorptive capacity, and

intermediary competency; 'context' factors are culture (national/ organizational), relationship, social capital, physical distance, and organizational infrastructure; 'content factors' are type of content (instrumental/cultural), the nature of knowledge (tacit/explicit), and 'media' factors, language and translation, transfer channel, internet and communication technology.

Contribution 2 - Identification and verification of key factors associated with TKT in the context of the EuroAid Asia Programme

From a theoretical perspective, TKT is harder and more complicated to understand than KT at individual or organizational levels, and it has received inadequate attention. Current literature has shown that multiple factors may affect the effectiveness of TKT, but little empirical investigation of this aspect has been made.

To address this gap, this study selected the EU's EuroAid Asia Programme as a research platform and used this as a basis to understand the empirical development of TKT. This research employed the Delphi survey method to collect and aggregate comments on key factors from the panel of experts involved in Programme. Two Delphi rounds were carried out. This survey results showed that twenty-four factors were identified, and also that their relative importance was verified (see Table 4.3). From this, a factorial model was derived. Based on the empirical evidence collected from Delphi survey, some important conclusions were generated as follows:

- The top ten factors, which achieved a high degree of consensus, are: relationship, cultural awareness, language, motivation, knowledge distance, objectives and focus, selection of appropriate partners, transfer channel, openness, and trust. The empirical evidence of a number of these factors collected from the Delphi survey is consistent with the literature review. Thus, the importance of relationship, cultural awareness, language, motivation, knowledge distance, transfer channel, openness and trust in TKT has both solid theoretical and empirical bases. By contrast, objective and focus, and selection of appropriate partners, are factors first highlighted in this study. These two factors were pointed out as key factors by many of the experts surveyed, so these two factors need to be taken into account when understanding KT.
- This study also identified some additional factors with lower consensus ratings ($\leq$40%). As with the top ten factors, some of these have been identified in previous literature, for instance, use of ICT, knowledge absorption, nature of knowledge to be transferred, partners' existing networks, causal ambiguity, instrumental content, and cultural content. The factor-oriented research carried out here confirmed these factors to be important as described in the implementation literature. Other factors (specifically: respect, use of expert trainers, flexibility, institutional collaboration, timing, policy framework/ bureaucratic procedures, and expertise knowledge about the subject) were first mentioned in this study, and showed up as effects on TKT in particular EuroAid Asia projects.

- The factorial model, with its verified important factors, are shown to be able to provide guidance - and a checklist - for programme participants to assist them as to which key factors really influence the process of TKT; and should be taken into consideration when participants and others are involved in EuroAid Asia and similar programme activities.

6.4 Managerial Implications

The findings from this study have one main managerial implication for practitioners and participants who involve in TKT. The list of twenty-four factors and their detailed explanations identified and verified by the panel of experts provides a more comprehensive and more practical checklist than earlier lists. This is because it was created by the panel of experienced and practicing project participants working in this specific field of government-assisted TKT. This list includes not only many factors that have been reported in the existing literature, but also a number of newly found factors. By providing this comprehensive list of factors associated with the four components, the study helps project managers raise awareness of key factors affecting TKT and make a more pro-active effort to properly assess each factor and avoid any neglect of other important factors. Once these factors are recognised in advance, any associated problems can be well addressed. Thus, this list can be used as assessment guidelines for developing project effectiveness and help project managers prepare better for future TKT activities.

6.5 Research Limitations and Future Research

Although the original research objectives have largely been met in the research, some limitations exist in this study, and recommendations about future research areas are suggested accordingly. The main ones are as follows:

- Although the Delphi method has many merits, such as the high degree of anonymity among panellists, synthesised feedback, and expert consensus, it also has some weaknesses. First of all, carrying out this Delphi technique was extremely time-consuming. The completion of the two rounds of Delphi questionnaires took about three months. Secondly, using the Delphi method in this research makes it difficult to arrive at an unbiased statistical analysis. The Delphi method is primarily a qualitative method that focuses on the panel to arrive at a consensus of opinions. The experts were not selected randomly, but based on their experience and knowledge regarding the topic and their willingness to provide opinions. Thus, the studies with a more diverse sample of experts from different projects are needed in future research. Thirdly, this research lacks in-depth explanations on some specific issues, such as the relationship between the factors. This study uncovered widely-based subjective judgements on factors affecting the TKT in the EuroAid Asia Programme, but was not able to further the discussion about relationships or interactions between different factors. Hence, more effort can be made to explore these in-depth opinions to explain the relationships between different factors.
- Like many studies, this study faced difficulties of lack of time, funding

and contact information. If two more years and sufficient funding can be offered, more personal interviews with geographically dispersed experts can be designed for data triangulation, and more rounds of Delphi technique can be carried out to test rank consistence. In future research, the researchers can consider cooperation with the EuroAid Asia Programme committee for accessing more detailed and accurate contact information for the survey and to seek funding support for this work. It would be expected that the outcomes will also help the Programme committee better understand the significant problems of the projects in which they work.

- Though this study explored many factors for TKT in the EuroAid Asia Programme, it is recognised that the research scale is limited. This study can be used as a "springboard" for future empirical research. It is suggested to choose more diverse programmes supported by governments, non-government organizations (NGO), or other national and international entities so as to arrive at a more comprehensive view of TKT in international programmes.

6.6 Concluding Remarks

This research first reviewed the existing literature on knowledge and KT, on classification of KT at different levels, and on frequently mentioned factors which influence the effectiveness of KT. Then empirical research by using the Delphi method was carried out to explore and verify the key factors affecting TKT in the context of a particular international aid programme, that of the EuroAid Asia

Programme. Finally, based on the results of the survey, a model of TKT with identified factors was developed. Note that this research explored TKT a rarely investigated area. The whole academic process assisted the author to accumulate valuable experience and knowledge, and the work contributed new insights into the KT field of research.

Appendices

Appendix A- The Questionnaire for Round 1

Delphi Expert Consultation
on Key Factors Affecting the Success of Transnational Knowledge Transfer

Round 1

We cordially invite you to participate in this questionnaire to help the research on the key factors influencing the success of transnational knowledge transfer. Please be frank and open with your comments. Your opinion is invaluable and will be taken into consideration carefully.

Your Opinions

Based on your Europe Aid Asia project management experience, would you please list about five factors in any order, which you believe are significant factors affecting the success of transnational knowledge transfer and explain why? For your information, a list of factors reported in the current literature is provided at the end of this questionnaire.

	Factor	Explanation
1		
2		
3		
4		
5		
Others		

Respondent Profile

Name of respondent (optional)		Job title	
Type of organization	Public Organization ☐ Academic Institution ☐	Commercial Organization ☐ Others, please specify _____	
How many EC projects have you been involved?			
How long have you been working on EC Funded Projects?		Years	
Type of EC Programmes involved	Asia Pro Eco ☐ Asia Link ☐	Asia ICT ☐ Others, please specify_____	Asia Invest ☐
Email			

Telephone	

Would you like to have a summary report?	Yes ☐	No ☐

Thank you very much for your participation.

Please kindly return this questionnaire before **24th Feb 2007**. If you have any questions, please feel free to contact me at yanqing.duan@beds.ac.uk.

Supplementary Information

Openness	a higher level of openness allows a more effective knowledge transfer	(Wathne *et al.*, 1996)
Motivation of partners	a need or desire to seek or accept knowledge from outside	(Minbaeva *et al.*, 2003)
Knowledge absorption	the ability of partners to generate, gather, organise and apply new knowledge	(Kayes and Kayes, 2005)
Organizational /National culture	a system of collectively shared values, beliefs, traditions and behavioural norms of similar persons in an organization/nation	(Hofstede, 2001)
Relationship between partners	a good relationship will enhance knowledge transfer	(Cummings and Teng, 2003)
Physical distance	the geographical difference leading to difficulties, time requirements and expenses of meeting face-to-face and communicating between partners	(Cummings, 2003)
Knowledge distance	a gap exists between partners in terms of their knowledge bases	(Cummings, 2003)
Instrumental knowledge	the knowledge necessary to do or to coordinate a job, such as individuals' ability, product and technology knowledge, technical operations, intra- and inter-organizational procedures and rules	(Albino *et al.*, 1999)
Cultural knowledge	organizational values and beliefs, and the language used in the organization to communicate	(Albino *et al.*, 1999)
Causal ambiguity	a lack of understanding of the logical linkages between actions and outcomes, inputs and outputs, and causes and effects	(Simonin, 1999)
The nature of the knowledge	the degree of explicitness vs tacitness of knowledge will have an important impact on the knowledge transfer process	(Bresman *et al.*, 1999)
Language difference	it creates problems in understanding the knowledge	(Ford and Chan, 2003)
The quality of translation	three issues are highlighted: ambiguity (confusion at the source), interference (intrusion from one's own cultural background) and lack of equivalence (absence of corresponding words or concepts)	(Holden and Kortzfleisch, 2004)
Channel	projects usually address knowledge transfer through a variety of channels, such as email, paper documents, a Web site and face-to-face interaction	(Davenport *et al.*, 1997)
Internet and communication technology (ICT)	the most effective means of capturing, storing, transforming and disseminating information	(Syed-Ikhsan and Rowland, 2004)

Reference

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Appendix B- Cover Letter for Round 1

Dear ,

In the last few years, EuroAid Asia Programme has funded over 800 cross-country and cross-continent knowledge transfer projects to promote the exchange of know-how and best practices among European and Asian higher education institutions, companies and public sectors. However, as knowledge transfer at a transnational level is a very complex process and difficult to achieve, it is important to understand the critical factors affecting the transfer success.

We are conducting a study to explore the main factors that affect the success of transnational knowledge transfer using Delphi method. Having reviewed the Europe Aid Asia project database carefully, you have been selected as an expert for our survey. Your views and feedback on this important issue will be very important and could contribute to our understanding on transnational knowledge transfer and help the future success of European Commission (EC) funded projects. I would be very grateful for your support.

For your information, the Delphi method is an empirical research tool for obtaining a reliable consensus opinion from an expert panel. The process is non-threatening and anonymous. It involves a few rounds of questionnaires collecting an expert's response to questions. After each round, a systematically synthesized feedback will be presented to every participant for future analysis until most of experts have reached consensus opinions.

We anticipate to conduct 2 to 3 rounds of surveys and would be very grateful if you could participate in this whole process. If, for any reasons, you can't participate, please could you pass the form to another person who may also be in a suitable position to address these questions?

Please complete the form in one of the following ways no later than 24th February 2007:
a) Fill the attached questionnaire in this email, or
b) Fill the online questionnaire at http://vegnet.beds.ac.uk/delphi/

All the information regarding you will be treated with strict confidentiality and anonymity. By participating in this survey, a summary report of the findings will be sent to you at your request.

Thank you for your time and co-operation in advance. Please feel free to contact me if you have any questions about the survey.

Yours sincerely,

Prof. Yanqing Duan

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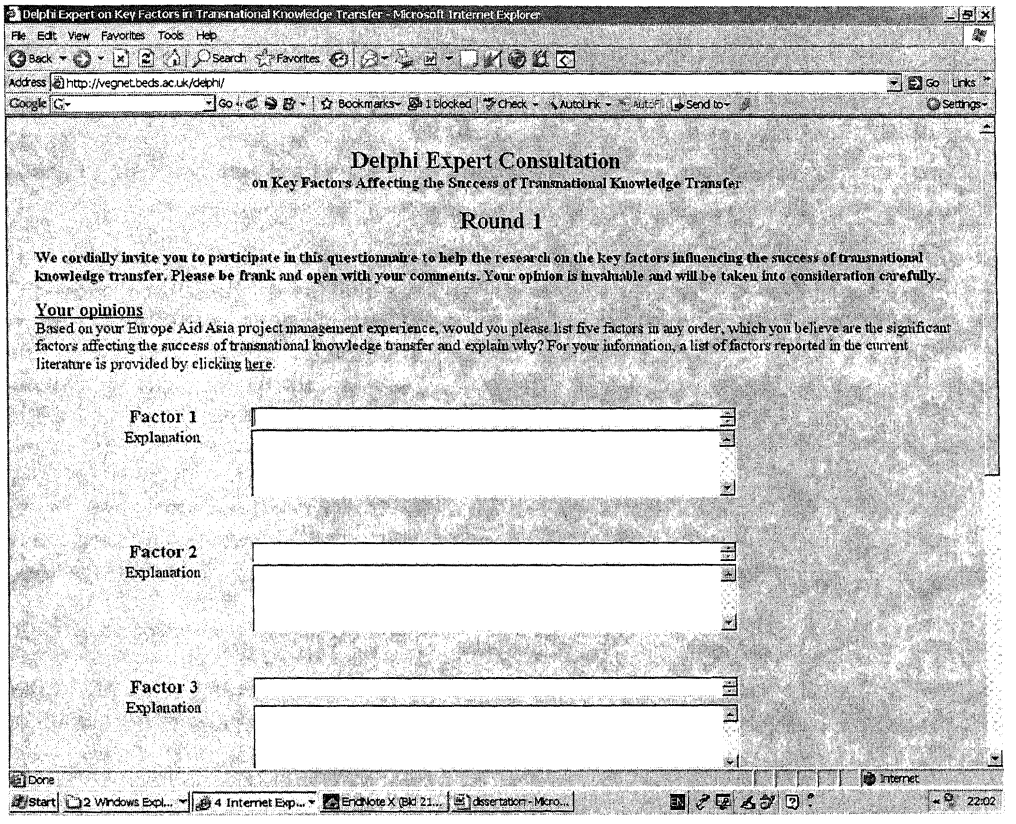
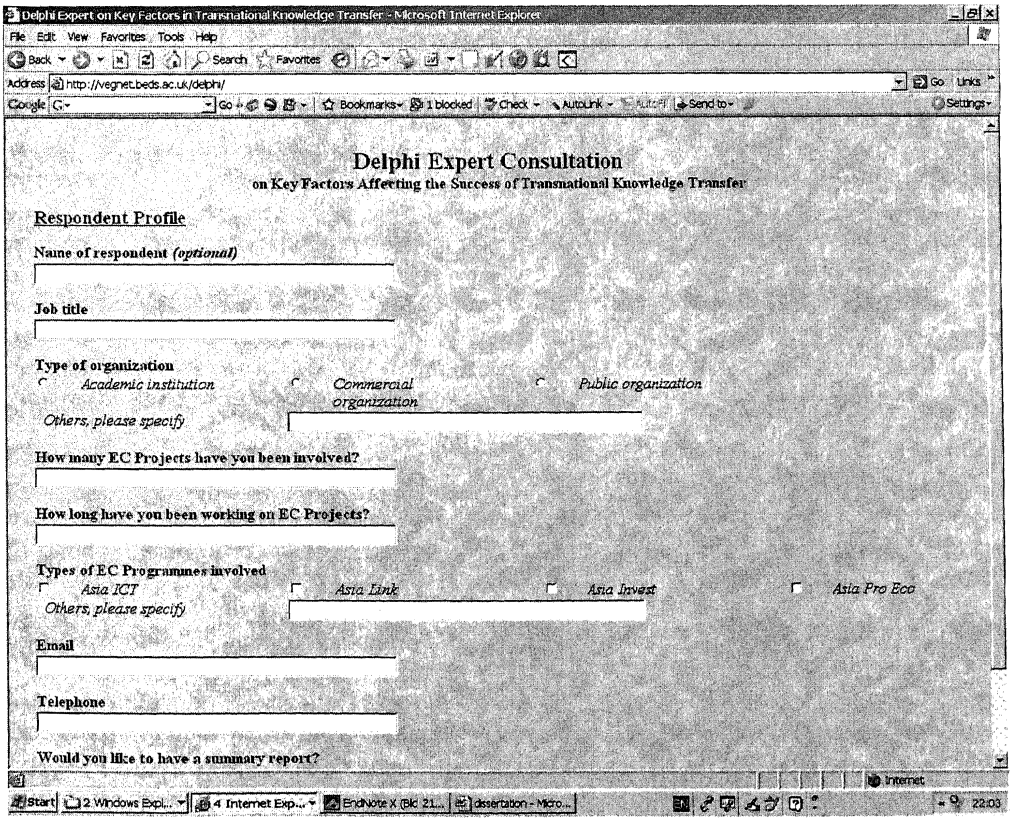
Appendix C- Web-based Questionnaire for Round 1





Appendix D- Collection of Factors from Each Expert

Expert 1
trust -critical for relationship building
absorptive capacity- important for assimilation and application
need identification-new technology and knowledge transfer need to fit the overall strategy of both parties
willing to adapt- knowledge needs to be adapted to the local context
ability to learn-learning is an integral part of the knowledge transfer process

Expert 2
culture difference tests- culture is a critical factor in KT. A sound understanding of the culture differences of all partners will help the KT success.
language problems- language could be a major barrier to the KT transfer success as it affects the effective communications among partners in different languages
knowledge distance- if the knowledge recipients' knowledge level is too low, they may have difficult to absorb the knowledge to be transferred directly.
Sometimes, an intermediary working between the sender and receiver may help to reduce the knowledge gap and facilitate more effective transfer.
relationship between partners- trust and relationship are important for KT. This is more evident when working with Asia partners, such as Chinese partners.
nature of knowledge- it is difficult to transfer tacit knowledge especially when using electronic communication tools. It is also difficulty to express tacit knowledge, let alone to transfer it partners in different culture and language context.

Expert 3
culture understanding- enables effective communication and avoids superficial "pseudo-interaction"
scientific training previously received by partners abroad- if partners already have a sound basis/training in relevant discipline, the transfer of additional knowledge is simplified
clear focus of collaboration- if there is a broad range of activities, you cannot deepen the partner's competence in a specific field.
tools of collaboration- avoid pure series of workshops. Include exchange of researchers and joint work on journal articles
policy framework- there can be policies that restrict knowledge transfer, e.g. lack of IPR protection in country where partner is located.

Expert 4
relationship/psychological contract- participants will overcome practical differences to support partners because of relationships, not legal contract
communication- clarity of language is vital, agreeing what terms mean to each partner
honesty- in relationships and in communication
respect- as above
innovation- finding new ways to communicate

Expert 5
personal contact- personal contacts and trust is the basis of any fruitful collaboration; in particular if scientific knowledge transfer or sharing of ideas is involved.
flexibility- the world is moving fast and only projects that can quickly response to the situation are successful. Flexibility in budget, schedule etc. are important, because the invested resourced create much more value compared to fixed operations.
equal partners- a good collaboration needs partners of equal strengths; if one partner is too weak(or less developed) collaboration becomes help, which is not sustainable because it's a one way operation
sustainability and follow up activities- to achieve real sustainability within the typical funding period of a project is a challenging task. Successful projects should have the chance to funded follow up activities to intensify collaborations; as a reference see the German Humboldt foundation: A humboldt fellow who was once with funding in Germany can be invited again which

leads to lifelong collaborations.

Expert 6

terminology- based on the experience gained in the projects, I managed so far, it appears that at least in the transport sector there is a substantial difference in the understanding of the terms used by the European and the Asian organizations. This seriously affects the cooperation and the knowledge transfer

selection of the appropriate partners- selecting of the appropriate partners in the area addressed by the project ensures effective knowledge transfer and mainly the future implementation of this know-how in the target areas. Very important is also the selection of European and Asian organizations with previous cooperation experience

background work- the knowledge transfer has to be based on existing needs, requirements and problems of the Asian target regions. Thus, a sound background work has to be performed that will provide the necessary elements and success factors for this tranasnational cooperation

selection of the appropriate communication channels-networking- the selection of the appropriate communication channels and mechanisms is of vital importance for the success of the knowledge transfer task. Furthermore, a good networking approach in the target areas will ensure sustainability and replication of the knowledge transfer to regions with similar problems.

Expert 7

organizational/national culture- to this I would add pedagogical culture-differences in understanding of the nature of teaching and learning

internet and communication technology(ICT)- interaction is vastly reduced because of poor online communication facilities

the nature of knowledge- it is well known that the "hard subjects"(maths, science and technology) are easier for knowledge transfer because they still operate on a knowledge transfer pedagogy.

openness- true knowledge transfer requires at least some openness(although this can increase with further acquaintance). Knowledge transfer can be impeded by one party's greater interest in money transfer.

relationship between partners- obviously when partners work on mutual respect and understanding, knowledge transfer is enhanced

Expert 8

language difference- always is an added problem

knowledge distance- an extra-effect is need from the coordinator in explaining the task a very basic level in order that the Chinese partners can understand what they need to do.

instrumental knowledge- for the Chinese partners is the 1st European project. They don't experience in this kind of projects.

organizational/national culture- a substantial difference has been observed in the way to organise teams and work in Chinese partners. They don't have it their organization people with the expertise that we need, so they go outside their organization to incorporate people need for the project.

causal ambiguity- my opinion is that they don't see the project as a way to accumulate knowledge only to do the tasks planned. They don't link the task to do with the knowledge transfer.

Expert 9

trust- openness of idea brought to other partners; knowledge that provided from the advance institution, supported by under developed institution by providing samples needed for the research collaboration, won't be possible without trust, win-win and good communication

respect each other- respect each other meaning, that the advance institution will respect to under developed institution, by discussing things before and during research activity, informing all results and ask approval before publication. Respect any questions, idea and comments from all institutions involved

institutional collaboration- support from the dean/institution-strengthened by MoU between institution will legitimate all activity done in the collaboration, because the institution will be responsible for the results and impact of the collaboration

common interest- research will be fruitful if those institutions have common interest on the matters conducted together, the objective of the research will give benefit to the institutions involved

instant responsiveness, sincerity- instant response is needed to see the eagerness that indicate the good communication as a key indicator of good collaboration, meanwhile sincerity is also needed to keep maintain the good team work

Expert 10

communication between partners- language barrier provides additional resistance to knowledge transfer(sometimes also different body language makes communication unclear). Differences in start

and end points when talking with each other affect the process as well.
motivation- the need of a specific knowledge to solve a problem and/or to be promoted within the institution and/or to be able to apply for other national projects is relevant.
personal relationship among partners- the setting up of friendly relationship helps to bridge the communication differences
topic oriented workshops and training courses- short workshops involving foreign experts as well as local ones from academic institutions and companies, give the possibility to foster(and show) Asian partner networking capability. The wish to show competence in the concerned field increases attendants' attention.
bureaucratic procedures- long bureaucratic procedures limiting the freedom for traveling of some Asian people, reduce the opportunity of them to travel to Europe to attend technical visits(some technologies are in use for quite some time)

Expert 11
good relationship between partners- a good relationship between partners is arguably the most important factor to make an international project work successfully. Without such a relationship, the project is likely to be almost useless
awareness of others' cultural backgrounds- to facilitate positive dialogue
openness- to facilitate positive dialogue
patience- patience when having a discussion with people not using their first language
interest in others' cultural backgrounds- to facilitate enthusiasm

Expert 12
openness- we have experienced more openness in communication both among the Asia and European partners by using ICT, since the interface in an virtual environment is not personal. The Asian teachers experienced (especially appreciated at the Thai University less at the Malaysian!) that traditional hierarchical structures were broken down and communication more easy. teachers role were questioned and the role of Europeans questioned as being the dominate.---into two categories
motivation of partners- it is prerequisite to have a common reason for collaboration, and to establish common motivation drivers. Drivers in a collaboration are different among different stakeholder groups(IT specialists, pedagogy, environmentalists, managers, etc) drivers for all groups need to be established and link to an organizational culture. the fact that the use of ICT represents the "modern world" is a motivation factor. this point is most effective in Asia while European universities are more reluctant.
relationship among partners- our collaboration was based on an year long collaboration. The main motivation factor was personal knowledge to partners which represented commitment to results. In addition, a certain organizational culture was established.
cultural knowledge- it is important to build an organizational culture related to the collaborative virtual network established. Cultural differences related to history, origin, religion have to be accepted in a virtual environment, where exposure and explicity is dominating. cultural knowledge (and acceptance) leads to an organizational culture that can make things function.
instrumental knowledge- the project was implemented in a cross cultural and multidisciplinary context. The areas of interaction were much related to the Asian context(a driver for both European and Asia) and the multidisciplinary approach meant that all technical groups(see above), Europeans as well as Asians had to be engaged in the learning process-as learners.

Expert 13
learn by doing- training is not enough, must have experience of using the new skills and knowledge in new contexts, and never build the solution in the west and send it ready made
on-site follow-up- somebody from outside should live with the project to keep the team focused on the objectives
cultural misunderstanding in learning- teachers from the west should be aware of the different teaching norms in their recipient country, so if they ask whether something has been understood, they student may yes regardless, and if the teacher suggests something, the students may do it regardless.
in-country training- a course run abroad can only be attended by those send abroad, a course run on site can be attended by many other people
expert trainers- trainers must know their subject deeply, including knowledge of the conditions of the student group- an expert from the student's community would be ideal.

Expert 14
openness- openness and acceptance of new methods and differences in cultural approach
confidence and good relationship- confidence and a good relationship among partners will

enhance knowledge transfer
language skills- the lack of language skills may hamper the effectiveness of knowledge transfer
common aims- It is only possible to transfer knowledge between partners if all partners aim at the same objectives
knowledge background- market knowledge or a similar technical background can facilitate knowledge transfer as partners enter common ground and speak the "same language".

Expert 15
motivation of partners- all partners should be aware of the necessity to adjust their knowledge according to new requirements imposed by globalization
relationship between partners- there should be a regular contact between all partners to minimise potential conflict and to keep up everybody's motivation; a good relation enables all to openly discuss differences in knowledge approaches and eases transnational knowledge transfer
cultural awareness- it is important that all partners do know the respective cultural backgrounds (intercultural competence). This is the basis of communication and helps to minimise misunderstandings
instrumental knowledge- here it is important that all partners are familiar with or at least do understand EC management regulations as this again eases the intra-group work
ICT- it's essential to communicate regularly; when countries which temporarily restrict internet accesses or which can't provide regular electricity supply are part of the group this influences and even hinders knowledge transfer

Expert 16
relationship between partners- a good relationship , for instant previous cooperation in other activities, will enhance knowledge transfer
knowledge distance- a gap exits between partners in terms of their knowledge bases and in terms of their different cultural behavior will influence factor for the success of transferring knowledge
cultural knowledge- organizational values and beliefs, and the language used in the organization to communicate are the most important factor for the success of transferring knowledge
language difference- it creates problems in understanding the knowledge to be transferred because it is very difficult to communicate and to understand each other
motivation- a need or desire to seek or accept knowledge from outside will influence heavily the knowledge transfer

Expert 17
good cooperation among partners- a good project in the development field should be based on mutual respect and good quality of dialogue.
selection of partners- a successful project requires partners willing to work together to reach a common objective.
good project design- objectives and methodology should be negotiated among partners before the project start.
trust- trust among partners will allow to overcome problems and unforeseen obstacles.
bi-directional knowledge transfer- in a development project "knowledge" does not belong to only one partner. Even when transferring knowledge (e.g. international best practices) adoption to local needs is a key condition for success.

Expert 18
motivation of partners-a need or desire to seek or accept knowledge from outside is the most important factors, as it is active
relationship between partners-a good relationship will enhance knowledge transfer
the quality of translation-three issues are highlighted; ambiguity, interference (intrusion from one's own cultural background) and lack of equivalence
the nature of the knowledge-the degree of explicitness vs tacitness of knowledge will have an important impact on the KT process
knowledge distance-a gap exists between partners in terms of their knowledge bases
knowledge complication-the knowledge is simple or complex, practical or not

Expert 19
relationship between partners- a good level of interaction makes communication easier
awareness/understanding of topics in knowledge content- level of evolution and understanding of the topic area- **knowledge distance**
timing- is the 'topic area' new/relevant
partners' networking- national partners existing networks with business/ and other stakeholders
lead partners network- expert of lead partner's global dissemination channels

experience- experience of all partners in successful KT activities

Expert 20
relationship between the partners- an excellent and trusty relationship will enhance the activities as planned to do for the accomplishment of the proposal
knowledge about the subject- expertise knowledge of the team members from the both
motivation of the partners-Motivation of the partners specially European Partners about the project target is necessary
organizational outlook-The organizational outlook should be such that within such project the mutual trust and cooperation will be developed between the Asian and European Institutions
personal level of friendship-personal level of friendship should exist among the key persons involved in the project from both the Asian and European side (at least team members from the Applicant and the lead partner)

Appendix E- The Questionnaire for Round 2

Delphi Expert Consultation
on Key Factors Affecting the Success of Transnational Knowledge Transfer

Guidance on completion

We cordially invite you again to participate in this Round 2 Questionnaire. The following are the factors, which you and other 18 experts have provided in Round 1. We have summarised all factors by compiling or rephrasing some of them. **Please select the most significant factors influencing the success of transnational knowledge transfer.**
Please feel free to make your own judgment on the number of factors to be selected based on your experience and by considering other experts' opinions.

Factor and explanation provided by 1st Round survey **KT=Knowledge Transfer**	**Frequency (No. of response is 20)**		**Your last selection**	**Your new selection**
	n	**%**		
Relationship • Trust and relationship are important for KT. This is more evident when working with Asian partners (mentioned by 2 experts); • A good relationship is the most important factor to make an international project work successfully (mentioned by 3 experts); • Personal contacts and friendship is the basis of any fruitful collaboration; in particular if scientific KT or sharing of ideas is involved (mentioned by 2 experts); • Participants will overcome practical differences to support partners because of relationship, not legal contract; • The setting up of friendly relationship helps to bridge the communication differences; • A good relation enables all to openly discuss differences in knowledge approaches and eases transnational knowledge transfer (mentioned by 2 experts); • A good relationship, for instant, previous cooperation in other activities, will enhance KT; • A good level of interaction makes communication easier; • An excellent and trusty relationship will enhance the activities as planned to do for the accomplishment of	**13**	**65%**	☐	☐

the proposal.				
Knowledge distance • If the recipients' knowledge level is too low, they may have difficult to absorb the knowledge to be transferred directly; • If partners already have a sound basis/training in relevant discipline, the transfer of additional knowledge is simplified; • An extra-effect is needed from the coordinator in explaining the task in a very basic level in order that the partners can understand what they need to do; • Market knowledge or a similar technical background facilitates KT as partners enter common ground and speak the same language; • Awareness/understanding of topics in knowledge content; • Experience of all partners in successful KT activities; • Terminology: in some sector, there is a substantial difference in the understanding of the terms used by the European and the Asian organizations. This seriously affects the cooperation and KT; • A good collaboration needs partners of equal strength; if one partner is too weak (or less developed), collaboration becomes help, which isn't sustainable because it's a one way operation; • A gap exits between partners in terms of their knowledge bases and in terms of their different cultural behavior will influence the success of transferring knowledge (mentioned by 2 experts).	**10**	**50%**	☐	☐
Language • Language could be a major barrier to the KT success as it affects the effective communications among partners; • Language is always an added problem; • Language barrier provides additional resistance to KT (sometimes also different body language makes communication unclear). Differences in start and end points when talking with each other affect the process as well; • The lack of language skills may hamper the effectiveness of knowledge transfer; • Language difference creates problems in understanding the knowledge to be transferred because it is very difficult to communicate and to understand each other; • Clarity of language is vital, agreeing what terms mean to each partner; • Patience when having a discussion with people not using their first language; • The quality of translation: three issues are highlighted; ambiguity, interference and lack of equivalence.	**8**	**40%**	☐	☐
Culture awareness • Culture is a critical factor in KT. A sound understanding of the culture differences of all partners will help the KT success;	**8**	**40%**	☐	☐

• Culture understanding enables effective communication and avoids superficial "pseudo-interaction"; • Considering pedagogical culture-differences in understanding of the nature of teaching and learning; • A substantial difference has been observed in the way to organize terms and work with Asian partners; • Awareness of others' culture facilitates positive dialogue and interest in others' cultural background facilitates enthusiasm; • Be aware of cultural misunderstanding of learning; • It is important that all partners do know the respective cultural backgrounds (intercultural competence); • Teachers from the west should be aware of the different teaching norms in their recipient countries.				
Motivation • The need of a specific knowledge to solve a problem and/or to be promoted within the institution and/or to be able to apply for other national projects is relevant; • It is prerequisite to have a common reason for collaboration, and to establish common motivation drivers. Drivers in a collaboration are different among different stakeholder groups. Drivers for all groups need to be established and link to an organizational culture; • All partners should be aware of the necessity to adjust their knowledge according to new requirements imposed by globalization; • A need or desire to seek or accept knowledge from outside will influence the KT heavily (mentioned by 2 experts); • Willing to adapt knowledge to the local context; • Instant response is needed to see the eagerness that indicate the good communication as a key indicator of good collaboration, meanwhile sincerity is also needed to keep maintaining the good team work; • Motivation of the partners specially European Partners about the project target is necessary.	**8**	**40%**	☐	☐
Objective and focus • Clear focus of collaboration. If there is a broad range of activities, you cannot deepen the partner's competence in a specific field; • Research will be fruitful if those institutions have common interest on the matters conducted together, the objective of the research will give benefit to the institutions involved; • Objectives and methodology should be negotiated among partners before the project start; • It is only possible to transfer knowledge between partners if all partners aim at the same objectives; • New technology and knowledge transfer need to fit the overall strategy of both parties; • The knowledge transfer has to be based on existing needs, requirements and problems of the Asian targeted regions. Thus, a sound background work has to be performed that will provide the necessary elements and success factors for this transnational cooperation; • On-site follow-up, i.e. somebody from outside should live with the project to keep the team focused on the	**7**	**35%**	☐	☐

objective.				
Trust • Trust is the basis of any fruitful collaboration; • Trust is critical for relationship building; • Trust is important for KT; • Knowledge that provided from the advance institution, supported by under developed institution by providing samples needed for the research collaboration, won't be possible without trust, win-win and good communication; • Trust is important for relationships and communication; • Trust among partners will allow to overcome problems and unforeseen obstacles; • Organizational outlook should be such that within such project the mutual trust and cooperation will be developed between the Asian and European Institution.	**7**	**35%**	☐	☐
Openness • True KT requires at least some openness (although this can increase with further acquaintance). KT can be impeded by one party's greater interest in money transfer; • Openness facilitates positive dialogue; • We have experienced more openness in communication both among the Asia and European partners by using ICT, since the interface in an virtual environment is not personal. The Asian teachers experienced that traditional hierarchical structures were broke down and communication more easy; • Openness and acceptance of new methods and differences in cultural approach is important; • A successful project requires partners willing to work together to reach a common objective; • Bi-directional knowledge transfer: in a development project "knowledge" does not belong to only one partner. Even when transferring knowledge (e.g. international best practices) adoption to local needs is a key condition for success.	**6**	**30%**	☐	☐
Transfer channel (topic-oriented workshops and training course) • Successful projects should have the chance to fund follow-up activities to intensify collaborations; • Short workshops involving foreign experts as well as local ones from academic institutions and companies, give the possibility to foster Asian partner networking capability; • A course run abroad can only be attended by those send abroad, a course run on site can be attended by many other people; • The selection of the appropriate communication channels and mechanisms is of vital importance for the success of the KT task. Furthermore, a good networking approach in the target areas will ensure sustainability and replication of the knowledge transfer to regions with similar problems; • Lead partners network: expert of lead partner's global dissemination channels.	**5**	**25%**	☐	☐

Respect • A good project in the development field should based on mutual respect (mentioned by 2 experts); • The advance institution will respect under-developed institution, by discussing things before and during research activity, informing all results and ask approval before publication; • Obviously when partners work on mutual respect and understanding, KT is enhanced.	**4**	**20%**	☐	☐
Instrumental content • For some partners it is the 1st European project, so they don't have experience in this kind of projects; • As the project was implemented in a cross cultural and multidisciplinary context, Europeans and Asians had to be engaged in the learning process as learners; • It is important that all partners are familiar with or at least understand EC management regulations as this eases the intra-group work	**3**	**15%**	☐	☐
Use of Internet and Communication Technology (ICT) • It's essential to communicate regularly. When countries which temporarily restrict internet accesses or which can't provide regular electricity supply are part of the group, this influences and even hinders knowledge transfer; • Interaction is vastly reduced because of poor online communication facilities; • By using ICT, the interface in an virtual environment is not personal, so more openness is experienced in communication.	**3**	**15%**	☐	☐
Nature of knowledge to be transferred • Hard subjects (math, science and technology) are easier for knowledge transfer because they still operate on a knowledge transfer pedagogy; • It is difficult to transfer tacit knowledge especially when using electronic communication tools; • The degree of explicitness vs tacitness, the simplicity vs complication of knowledge will have an important impact on the KT process.	**3**	**15%**	☐	☐
Knowledge absorption • Absorptive capacity, important for assimilation and application; • Ability to learn, learning is an integral part of the knowledge transfer process; • Learning by doing- training is not enough, must have experience of using the new skills and knowledge in new contexts, and never build the solution in the west and send it ready made.	**3**	**15%**	☐	☐
Cultural content • It is important to build an organizational culture related to the collaborative virtual network established. Culture differences related to history, origin, religion have to be accepted in a virtual environment, where exposure and explicitness is dominating. Culture knowledge leads to an organizational culture that can make things function;	**2**	**10%**	☐	☐

• Organizational values and beliefs, and the language used in the organization to communicate are the most important factor for the success of transferring knowledge.				
Policy framework/ Bureaucratic procedures • Long bureaucratic procedures limiting the freedom for traveling of some Asian people, reduce the opportunity of them to travel to Europe to attend technical visits; • There can be policies that restrict knowledge transfer, e.g. lack of IPR (Intellectual Property Rights) protection in some countries.	**2**	**10%**	☐	☐
Use of expert trainers • Trainers must know their subject deeply, including knowledge of the conditions of the student group, an expert from the student's community would be ideal.	**1**	**5%**	☐	☐
Selection of appropriate partners • Selection of the appropriate partners in the area addressed by the project ensures effective knowledge transfer and mainly the future implementation of this know-how in the target areas. The importance is also the selection of European and Asian organizations with previous cooperation experience.	**1**	**5%**	☐	☐
Partners' networking • National partners' existing networks with business and other stakeholders	**1**	**5%**	☐	☐
Flexibility • The world is moving fast and only projects that can quickly response to the situation are successful. Flexibility in budget, schedule etc., are important.	**1**	**5%**	☐	☐
Timing • Is the 'topic area' new/relevant?	**1**	**5%**	☐	☐
Causal ambiguity • Some partners don't see the project as a way to accumulate knowledge only to do the tasks planned. They don't link the task to do with KT.	**1**	**5%**	☐	☐
Institutional collaboration • Support from the dean/institution between institution will legitimate all activities done in the collaboration, because the institution will be responsible for the results and impact of the collaboration.	**1**	**5%**	☐	☐
Expertise Knowledge about the subject • Expertise knowledge of the team members from both sides are necessary for the target achievement of the subjects to be addressed;	**1**	**5%**	☐	☐

Other factor or any comments you would like to mention:

Thank you very much for your participation.

Please kindly return this questionnaire before **19th Mar 2007**. If you have any questions, please feel free to contact me at yanqing.duan@beds.ac.uk.

Appendix F- Cover Letter for Round 2

Dear ,

Many thanks for your time and support in the Expert Survey Round 1. We have received in total of 20 responses, which represent a 33% response rate. I am overwhelmed by the strong interest and valuable feedback received.

Now we have compiled all the responses and comments and are presenting you with the summary result. I would be very grateful if you could fill in the second round (and very likely the final round) of the survey. This short questionnaire requires you to re-consider your choice by comparing your opinions with other experts. It will only take you less than 15 minutes.

Please could you send your reply via the attachment by **19th March 2007**; your continuing support would be very important for the final outcome of the research. We will send you the result again after the second round survey.

Thank you for your time and co-operation in advance.

Please feel free to contact me if you have any questions.

Yours sincerely,

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DECLARATION

I declare that this thesis is my own unaided work. It is being submitted for the degree of Master of Science by research at the University of Bedfordshire.

It has not been submitted before for any degree or examination in any other University.

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