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# Contextual Factors, Knowledge Processes and Performance in Global Sourcing of IT Services: An Investigation in China

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## ABSTRACT

*In this paper, the authors explore the influences of two major contextual factors—supplier team members' cultural understanding and trust relationship—on knowledge processes and performance in global sourcing of IT services. The authors discuss a joint investigation conducted by a cross-cultural research team in China. Cultural understanding is measured by individualism with guanxi and mianzi, two Chinese cultural concepts, and trust relationship is measured by adjusting trust, a notion reflecting the uniqueness of the Chinese people. Knowledge processes are characterized by knowledge sharing. Performance is measured by the outcomes of global sourcing, which is represented by product success and personal satisfaction. Data are collected in 13 companies in Xi'an Software Park, with 200 structured questionnaires distributed to knowledge workers. The results of quantitative data analysis indicate that cultural understanding influences trust relationship greatly, as well as knowledge sharing and performance in global sourcing of IT services. Trust relationship significantly impacts knowledge sharing, whereas trust relationship and knowledge sharing have no impact on performance. This study suggests that special aspects of the Chinese context have significant direct impacts on knowledge processes while no direct and immediate impacts on performance in global sourcing of IT services.*

*Keywords:* Cultural Understanding, Global Sourcing, Knowledge Processes, Performance, Trust

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## INTRODUCTION

As the industry for global sourcing of IT and IT-enabled services has developed, many studies have explored ways of evaluating supplier's

capabilities and managing the sourcing process (Willcocks & Lacity, 2007). Also, some research has addressed the soft side of global sourcing, including innovation in relationships, social capital, and knowledge (Oshri, Kotlarsky, & Willcocks, 2008). Further, relevant research has paid special attention to knowledge processes

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in globally distributed contexts, which typically occurs in the form of knowledge transfer/sharing, knowledge-based coordination, and expertise management (Rottman, 2008; Kotlarsky, Oshri, & Van Fenema, 2008). Research findings show that global sourcing of IT services should be treated as a context-dependent scenario (Oshri, Kotlarsky, & Willcocks, 2008) where country contexts, such as national culture, government policies, political situation, economic conditions, technological environments, firm strategies, etc. should be considered (Seliem et al., 2003; Aharoni & Burton, 1994; Rosenzweig, 1994; Deans et al., 1991; Ein-Dor et al., 1993). These contextual factors contribute greatly to performance in global sourcing by affecting the relationship between supplier's capabilities and outcome in sourcing processes. Specifically, communication and coordination between supplier and client teams in knowledge processes, such as knowledge transfer/sharing, knowledge-based coordination and expertise management, are influenced by contextual factors, among which cultural understanding often has an intangible but significant impact because partners' cultural understanding is locally situated, behavioral and embedded in everyday work practices (Weisinger & Trauth, 2002), and trust relationship also has profound impact because partners' trust is an important aspect of social embeddedness in offshore IS projects (Rai, Maruping, & Venkatesh, 2009).

However, few empirical studies are concerned with the impacts of supplier team members' cultural understanding and trust relationship on knowledge processes or have associated it with performance in global sourcing of IT services. Furthermore, most of extant research has addressed the issues more or less from the perspective of client (e.g., Rai, Maruping, & Venkatesh, 2009) or relied on data gathered from Western cultures (Graf & Mudambi 2005, Heeks & Nicholson 2004, Carmel, 2003). Yet, research findings obtained from firms operating in a Western culture cannot be generalized to other cultures, e.g. the Eastern culture, since global sourcing is country-specific and related to the country's contexts (Seliem et al., 2003).

Moreover, the cultural distance between the West and the East makes the intercultural interaction/trust between them a critical issue different from intra-cultural interaction/trust (Li, 2009), which is usually the research area of extant cross-cultural studies in global sourcing.

Investigations of relevant issues in particular areas have emphasized the possible impacts of cultural differences (Straub et al., 2002; Dasgupta et al., 1999; Watson et al., 1997; Al-Khalidi & Wallace, 1999; Hassan, 1994; Wetherbe, Vitalari, & Milner, 1994). In order to strengthen the generalizability of the West-based evidence in global sourcing of IT services, country-specific and intercultural research is imperative. However, very few empirical studies on global sourcing of IT services have explored intercultural issues from the angle of Chinese suppliers, and centered on data collected in China, where the context is socially and culturally different from the usual context, e.g. the Western countries like U.K., U.S, Canada and Ireland, or the countries like India and Philippines which have historical colonial linkages with the West. Therefore, there is a need to broaden the understanding of cultural impact on knowledge processes and performance in global sourcing by conducting investigations in the Chinese context.

To address this need, a long-term joint research by the authors of this paper aims to investigate the impacts of cultural differences and test the generalizability of the Western-based evidence in global sourcing of IT services. This paper will explore the influences of two contextual factors, i.e. supplier team members' cultural understanding and trust relationship, on knowledge processes and performance in global sourcing of IT services in a Chinese setting. The purpose of this paper is to report on the results of a joint investigation that used questionnaire surveys, and to enhance the understanding of knowledge processes in global sourcing of IT services in a developing country context, i.e., China. For this purpose, first, besides individualism (Hofstede, 2001; Trompenaars, 1994), *guanxi* and *mianzi*, and their impacts on knowledge processes in global sourcing

of IT services will be addressed. In Chinese language, *guanxi* literally means relationship or connection (Ramasamy, Goh, & Yeung, 2006). Nowadays, it is used to indicate a variety of relationships between people, ranging from family relationships and clan relationships, to collegial relationships resulted from roommates, classmates, schoolmates, or work colleagues in the same company or military troop, etc. *Mianzi* originally refers to face (Barnes et al. 2010) in Chinese language. It often implies prestige and reputation, and therefore gives rise to expressions like face-giving (Barnes et al. 2010) and face-losing (Bozionelos & Wang, 2007). *Guanxi* and *mianzi* are two special aspects that are unique in Chinese culture and widely recognized by most of the Chinese people and some of the Western people (Bozionelos. & Wang, 2007; Keil et al., 2007; Marble & Lu, 2007; Fu, Tsui, & Dess, 2006; Ramasamy, Goh, & Yeung, 2006; Chen & Chen, 2004; Hwang, 1998; Chen & Starosta, 1998; Leung, Koch, & Lu, 2002). Second, trust relationship will be addressed, and a new notion, *adjusting trust*, will be proposed to highlight the cultural difference in trust relationship. Third, the links among cultural understanding and trust relationship and knowledge process and performance in global sourcing of IT services will be clarified.

The differentiation of this work from previously published work is that we will plough deeper along cultural difference between the West and China by using the cultural dimension of individualism (Hofstede, 1980, 2001; Trompenaars, 1994) along with the Chinese cultural constructs, i.e. *guanxi* and *mianzi*, that are popular in the social context of China, and we will explore cultural difference between the West and China in trust relationship. The theoretical contribution of this paper may be that it would enrich the theory about cultural difference and its impacts on knowledge processes in global sourcing of IT services by adding new elements to the existing constructs “cultural understanding” and “trust” to extend the existing theoretical model.

The findings in this study will have implications to IT services suppliers in both China

and other developing countries, to the MNCs/global corporations who are engaging or wishing to engage with business in China, and to IT services clients all around the world. The implications should enhance the understanding of knowledge processes in global information management in general and in global sourcing of IT services in particular.

This paper is organized as follows. First, we briefly introduce the specific context of global sourcing in China. Then, we introduce some constructs, propose a conceptual model, and formulate some hypotheses about contextual factors influencing knowledge processes and performance in global sourcing of IT services. Next, we present the methodology, including sampling, data collection, and data analysis. After that, we show the results of data analysis and explain the findings. Finally, we discuss the theoretical contributions and practical implications of this study, extending the implications of the findings beyond the country boundaries. In the concluding part we give some suggestions for future research.

## CONTEXT OF GLOBAL SOURCING IN CHINA

An increasing number of countries are becoming involved in providing IT and IT-enabled services to meet growing global demand. These services include those related to information systems development, maintenance and operation generally referred to as IT services and those related to IT-enabled non-core business processes. In this paper we use the term global sourcing of IT services to cover all the above areas. Previous research suggests that a number of factors are thought to influence success in global sourcing of IT services in developing countries from both the firm and country levels of analysis. At the firm level, access to location-specific features such as skilled labor, appropriate infrastructure and potential markets seems to influence decisions relating to the location of outsourced and offshored work (Graf & Mudambi, 2005). At the country level successful export strategies

may involve interrelated issues such as the local resource base specific to software development, national government investment and incentives, external linkages to other countries including the extended diaspora, local market demand and characteristics of the national software industry (Heeks & Nicholson, 2004). Literature specific to IT outsourcing also echoes these ideas and suggests countries follow a trajectory toward maturity in providing offshore services (Carmel, 2003). The above research findings appear to rely more on the context of the West, which may not be able to address the specificity of the situation in the East, especially in the Chinese context. Therefore, the context of global sourcing in China provides a significant and relevant research platform for both researchers and practitioners to explore these issues further.

Global sourcing of IT services provided in China typically includes coding, systems integration, data mining, network management, call centers, back office work and document management, etc. The incidence of large scale outsourced projects is limited, but the growth of global sourcing of IT services activities in China is surprising. India has traditionally led the way in both maturity and breadth of expertise offered in IT outsourcing (ITO) work, with \$US40.4 billion/£26 billion in software and services exports in 2008 (NASSCOM, 2008), while the Chinese software outsourcing market was reported to have reached 453 million RMB (£43 million approximately) in the third quarter of 2008, up 8.8% over the last quarter and representing an increase of 19.5% over the same period of the previous year (Analysis International, 2008). However, China is expected to challenge India's impressive competitive position (Qu & Brocklehurst, 2003) through investment in its skilled human resource capacity and in encouraging foreign direct investment (FDI) in the software development sector, which is the very base of ITO capability. China is thought to be actively addressing areas of weakness such as shortage of skilled labor, quality certification, and fragmentation of the Chinese software industry. This latter aspect is being fortified by boosting the number of software export clusters so as to

increase the access to overseas clients seeking global markets for outsourced work. As a result, the Chinese software outsourcing market was reported to have reached 20.1 billion US dollars (ChinaSourcing, 2010) in the year 2009. Furthermore, for years the central government and local governments of China have successively issued strategic plans and preferential policies to encourage the service outsourcing industry. Consequently, a number of cities, e.g. Beijing, Shanghai, Shenzheng, and Dalian, are developing rapidly in the industry. In 2009, twenty cities were commended as the first batch of service outsourcing demonstration cities by the State Council of China. These activities suggest that the political situation, economic conditions, and government policies in China are providing a facilitating environment for global sourcing of IT services to develop and grow.

The country level factors mentioned above may be useful to some degree in establishing broad pre-requisites for potential success in China's service outsourcing industry, but one area that is often neglected is the influence of social contextual factors such as culture, history and institutional settings in creating an environment that may provide uniquely advantageous aspects that can be exploited. Krishna et al. (2000), for example, demonstrate convincingly how India's social and historical heritage proved invaluable in providing a basis for their well-documented successes in software export. Compared with India, China is intrinsically more distinct from Western countries in terms of its social contextual factors. Thus, for example, China may not be as competitive as India and other rivals, such as Russia and Brazil, in attracting Western clients due to its significant cultural difference, which is even more pronounced than these rivals, who have had extensive historical linkages with Western countries. For this reason, China's major client to date is Japan, with a market share of 51.6%, while the EU and USA total 32.1% (ChinaSourcing, 2010). Hence, there is room for China to increase its share of the global sourcing market from Western clients. The challenge involved in this development may

be Chinese suppliers' cultural understanding and their trust relationship with clients. Some aspects uniquely existed in Chinese culture, e.g. *guanxi* and *mianzi*, should be considered along with cultural dimensions originated in the Western studies, e.g. individualism, and the characteristics uniquely observed in trust relationship in China, e.g. the Chinese "middle way" (Chen, 2002), should be incorporated in the frameworks of trust rooted in the Western studies, e.g. cognition- and affect-based trust (McAllister, 1995).

To create a cultural context more suitable for global sourcing of IT services, numerous "Software Colleges" and training institutions are emerging in China. These colleges and institutions emphasize not only language but also cultural knowledge and skills training. Furthermore, the Chinese government offers financial support for more and more postgraduate students to study abroad and attract overseas Chinese students back to start their careers or run their businesses in China after finishing studies abroad. In the above specific context of global sourcing in China, this research aims to investigate two major contextual factors, i.e. cultural understanding and trust relationship, which may influence knowledge processes and performance in global sourcing of IT services.

## CONSTRUCTS, CONCEPTUAL MODEL, AND HYPOTHESES

From the perspective of service providers, factors influencing global sourcing can be classified into two categories: internal factors and contextual factors. Internal factors represent some technological and organizational factors, which were addressed by Kotlarsky et al. (2008) as technology-based mechanisms and organization design mechanisms, and were defined by Levina and Ross (2003) as process capabilities and human resource capabilities. Supplier's human resources, IT-based skills, communication skills, quality standards, and core knowledge/expertise are some examples

of internal factors. Contextual factors roughly correspond to Krishna et al.'s (2000) considerations with regard to social and historical heritage. Rai, Maruping, and Venkatesh (2009), Heeks and Nicholson (2004), and Carmel (2003) have addressed these contextual factors in their studies. History of trade linkages, geographical position to clientele, relational factors, cultural issues and political issues are some examples of contextual factors. All the above factors can affect and be embodied in the two sides' intercultural understanding and intercultural relationship. Among these contextual factors, from the perspective of service providers, supplier team members' cultural understanding and their trust relationship with client can be two major factors that are related to the client-specific capabilities defined by Levina and Ross (2003). In addition to internal and contextual factors, attention should also be paid to other environmental factors, some of which were addressed by Heeks and Nicholson (2004) as local market demand and characteristics of the national software industry, others described by Graf and Mudambi (2005) as appropriate infrastructure and potential markets. But, in this paper the emphasis is placed on contextual factors.

To simplify the research model, in this paper we address only two major contextual factors, i.e. supplier team members' cultural understanding and their trust relationship with client, and their influences on knowledge processes and performance in global sourcing of IT services. Therefore, four constructs, i.e. cultural understanding, trust relationship, knowledge processes, and performance, will be considered. Cultural understanding will be addressed by examining individualism along with *guanxi* and *mianzi*, two special aspects in Chinese culture. Trust relationship will be probed into by viewing Chinese relationship style within extant mainstream trust frameworks. We endeavor to add something new to the existing constructs "cultural understanding" and "trust" and thereby to extend the existing theoretical model.

## Cultural Understanding

Although much cultural research has already been undertaken, most of these studies have been based on Western management philosophies and theories. Hofstede (1980) advocates the importance of cultural values in conducting cross-cultural study using social psychological perspectives. Trompenaars and Hampden-Turner (1997) adopt social anthropological perspectives to research into culture. Since global sourcing of IT services is a rapidly growing phenomenon of ever increasing importance worldwide and China is not only the world's most populous nation as well as one of the largest national economies but doubtless will also soon be a substantial player in the provision of IT services. Under this circumstance, research of cultural differences should consider Chinese philosophies, e.g. Confucianism, and their influences, and plough deeper the differences between Western culture and Chinese culture. Therefore, we embarked upon our journey with the intention of exploring the cultural differences between the West and China in a new way by considering two major notions of management rationality underpinned by Confucianism, i.e. *guanxi* and *mianzi*, hoping to provide a theoretically rich basis for developing more suitable variables to measure cultural understanding.

Hofstede's (1980, 2001) cultural dimensions originally included four dimensions: power distance, individualism, masculinity and uncertainty avoidance, to which long term orientation was added later. Trompenaars (1994) found five cultural dimensions: universalism vs. particularism, individualism vs. communitarianism, neutral vs. emotional, specific vs. diffuse, achievement vs. ascription. One might ask which aspects of "cultural understanding" are important in the Chinese context and why. Answers to such detailed questions would be very interesting and illuminating, and important for practice in global sourcing of IT services involved in Chinese context. From the pilot interviews conducted in this study we know that among those existed cultural dimensions,

individualism seemed to better reveal the cultural difference between Chinese culture and the Western one.

According to Hofstede (1980, 2001), individualism is the tendency of people to look after themselves and their immediate family only. According to Trompenaars (1994), individualism refers to people regarding themselves as individuals instead of part of a group. Hofstede's research has conceptualized individualism at the national level; however, they have been treated as being espoused at the individual level in much prior work (Cox et al., 1991; Bochner & Hesketh, 1994; Gomez et al., 2001; Srite & Karahanna, 2006; Rai, Maruping, & Venkatesh, 2009). Consistent with this, we define individualism at the individual level, combining Hofstede's and Trompenaars's definition. Individualism is the extent to which an individual's behavior is driven by personal rather than collective goals. Individuals with sense of high individualism find it quite acceptable for personal goals to supersede collective goals (Rai, Maruping, & Venkatesh, 2009). On the contrary, individuals with sense of low individualism are more willing to pursue collective goals at the expense of personal goals.

As Ramasamy, Goh, and Yeung (2006) noted, Chinese societies are still based on traditional Confucian values and *guanxi* becomes an enabler of transactions. Both the Chinese and the Western researchers have given *guanxi* some definitions (Pye, 1992; Bian, 1994; Tsui & Farh, 1997; Ghauri & Fang, 2001; Fan, 2002; Ramasamy, Goh, & Yeung, 2006). According to the widely referenced definition by Fan (2002), *guanxi* is a process of social interaction that begins with two persons but involves others at a later stage. Utilizing this definition, Ramasamy, Goh, and Yeung (2006) posit that *guanxi* involves a series of activities carried out by the parties concerned within their network and that it is all about the cultivation of long-term personal relationships. Therefore, *guanxi* is widely cited in the relationship management literature (Marple & Lu, 2007; Tan et al., 2009; Taormina & Gao, 2010). Specifically, *guanxi* is researched in knowledge transfer (Ramasamy,

Goh, & Yeung, 2006). Ramasamy, Goh, and Yeung (2006) explored the role of *guanxi* in knowledge management by examining the relationship between inter-firm knowledge transfer and *guanxi*.

Based on Hu's (1944) study, Keil et al. (2007) defined *mianzi* as a person's position within a social structure. *Mianzi* signifies the concern for gaining and maintaining "face" by means of achieving recognition with the group (Bozionelos & Wang, 2007). As Keil et al. (2007) noted, in cultures influenced by Confucianism, *mianzi* is very important, especially in business settings as well as everyday workplace interaction. Therefore, *mianzi* is addressed in business studies (Hwang, 1998; Chen & Starosta, 1998; Leung, Koch & Lu, 2002; Bozionelos & Wang, 2007; Keil et al., 2007). Specifically, *mianzi* is researched in the field of information systems (Barnes et al., 2010). Barnes et al. (2010) defined *mianzi* as the individual's social standing and position as recognized by others, incorporated into *mianzi* the action of paying respect in relation to moral reputation, and explored the effects of culturally constituted views of face-saving on software projects.

From the pre-survey interviews that the authors had done before the questionnaire surveys, some evidences were found to show that Chinese culture is very different from the Western one in three aspects: individualism, *guanxi* and *mianzi*. First, Chinese people tend to view an individual as a person who is being with groups and communities in certain contexts and situations while the Western people tend to regard an individual as a person independent of groups and communities. Second, Chinese people appear to think more of and take full advantage of *guanxi*, paying more attention to various formal and informal connections and relationships whereas the Western people seem to think less of *guanxi* and rarely use personal connections and informal relationships. Third, Chinese people tend to have strong senses of *mianzi*, caring more of one's prestige and reputation and often using a "middle way" (Chen,

2002) to avoid losing face or to give face, while the Western people appear to have weak senses of *mianzi*, and tend to care less of one's prestige and reputation, often use a either/or logic, and rarely keep away from losing face. Hence, in the conceptual model, we will use individualism along with *guanxi* and *mianzi* to depict cultural understanding.

## Trust Relationship

In the mainstream of trust research in the West, trust means one party's willingness to be vulnerable to another party (Mayer et al., 1995), and trust can be classified into two categories: cognition- and affect- based trust (McAlister, 1995). Over the past years when interest in trust accelerated, there was a significant increase in studying cross-national and cross-cultural differences (Schoorman, Mayer, & Davis, 2007). However, largely due to the confusion between intercultural trust and intra-cultural trust in so-called cross-cultural trust research, there is no integrative framework of intercultural trust. Li (2008) proposed a geocentric framework of trust that integrates and transcends the cultural values of the East and the West. We follow this line to integrate Chinese trust research with the extant Western trust research.

According to traditional Chinese culture, an individual is a person who is being with groups in certain contexts and situations, and he/she must objectively adjust to groups, contexts and situations. As a result, Chinese people tend to be happy with adjusting. When interacting with each other and building interpersonal relationship, Chinese people appear to choose a "middle way" (Chen, 2002), taking account of *guanxi* and *mianzi* issues. Consequently, trust relationship is influenced by *guanxi* and *mianzi*. In China, contracts and agreements are often neglected when deals happen between two individuals who have some sort of *guanxi*. Traditionally, to sign an agreement or a contract in China sometimes means distrust between the two parties who enter the agreement or contract, and not giving *mianzi*. Even though an agreement or a contract is signed, it is often not implemented



strictly when the two parties have *guanxi* with and give *mianzi* to one another.

Therefore, we propose a new term “adjusting trust” to characterize the uniqueness of the Chinese people’s trust relationship with each other, which is thought to be a special Chinese contextual factor. According to nomological theory (Brugha, 1998) about the science of the laws of the mind, there are only three kinds of qualitatively distinct decision processes: committing, adjusting and convincing. Adjusting decision making is used by both the Western and the Eastern people, but it is used more heavily in the Chinese culture than the Western culture (Brugha, 2001), perhaps due to the profound influence of Yin-Yang-based system thinking in the Chinese culture (Chen et al., 2010) and the long-term-oriented relationship (Barnes et al., 2010). Therefore, it is necessary to use the term “adjusting trust” to conceptualize the way the trust relationship is operationalized in the Chinese culture.

*Adjusting trust* refers to the trust relationship that originates from the interactive adjusting between a trustor and a trustee, which relies more on the dynamics of a trustor’s trustfulness and trustee’s trustworthiness. *Adjusting trust* emphasizes on making adjustments and keeping balance between a trustor and a trustee, supporting the idea that trust is an exchange mode (Li, 2007) and the reciprocity in trusting relationships should be realized (Schoorman, Mayer, & Davis, 2007). *Adjusting trust* focuses on both a trustor and a trustee. Only by concerning about the two focuses simultaneously can one establish trust as an exchange mode to regulate and adjust both sides’ cooperative behaviors (Williams, 2007). *Adjusting trust* will initiate risk-taking cooperative behaviors reciprocally from a trustor and also from a trustee; so it can serve as a special exchange mode (Larson, 1992). It will result in a pattern of cooperative behaviors from the both sides as self-initiated and self-regulated to demonstrate or prove a trustor’s trustfulness and a trustee’s trustworthiness in a reciprocal trust building process. Therefore, in the research model, we will use *adjusting trust* to describe trust relationship in global sourcing of IT services.

## Knowledge Processes in Global Sourcing

According to Kotlarsky et al. (2008), knowledge processes in globally distributed contexts, such as global sourcing projects, represent the value an organization generates from engaging in, improving, and magnifying knowledge work by collaborating across distances, time zones, and cultures. Following this definition, knowledge processes is characterized by knowledge sharing in this study.

Knowledge sharing is thought to be helpful to improve the effectiveness of group work (Storc, 2000). In globally distributed project teams like those in global sourcing, when sharing knowledge, there is a need for team members to know whom to contact about what in this specific organization. To meet this need, transactive memory has been developed. Wegner (1987) defined transactive memory as the knowledge possessed by group members coupled with an awareness of who knows what. Another concept that was proposed to describe knowledge sharing is collective knowledge. Collective knowledge, according to Grant (1996), comprises elements of knowledge that are common to all members of an organization. Although a range of communication tools (e.g., Groupware applications, knowledge repositories, videoconference, online chat, email), which support knowledge sharing across remote locations, can be used in globally dispersed teams in global sourcing, such technical solutions are not sufficient. This fact emphasizes the need for further examination of socially constructed elements involved in knowledge sharing as complementary mechanisms to existing technical solutions. Therefore, it is meaningful to relate knowledge sharing to some social aspects such as cultural understanding and trust relationship.

## Performance in Global Sourcing

Performance in global sourcing has a variety of dimensions. Hoegl and Gemuenden (2001) consider either product success or a desired performance of a distributed team as measures

for success in innovative projects. Various indicators, such as sales growth, on time product delivery and low cost, can represent product success. Kotlarsky and Oshri (2008) defined product success as the achievement of project objectives, either based on market or company data, or based on project participants' perception of product success. A desired performance of a distributed team can be a people-related outcome (Hoegl & Gemuenden, 2001) which entails meeting team members' psychological needs. So there should be some level of personal satisfaction (Kotlarsky & Oshri, 2008) that motivates individuals and teams to continue their engagement in collaborative globally distributed work. Hence, we use both product success and personal satisfaction to measure performance in global sourcing.

## Conceptual Model

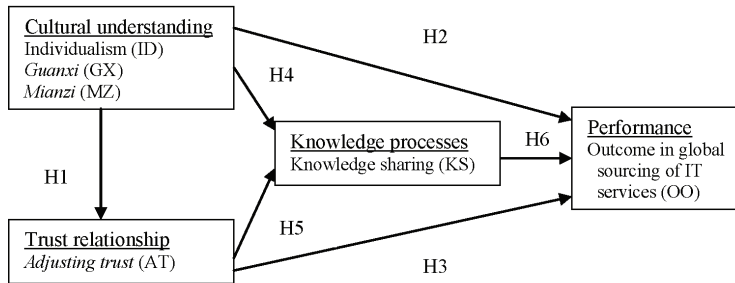
Intuitively, it may make no sense to study the supplier's understanding of their own culture in this cross cultural context. In fact, however, it is meaningful when the supplier's understanding of their own culture is related to the supplier's behavior (the result of cultural understanding) in their interactions with the other side (offshore client) and their implicit impacts on performance in global sourcing of IT services. According to one model of culture (Trompenaars & Hampden-Turner, 1998), there are three layers depicting culture. The outer layer consists of the explicit artifacts and products of the culture, e.g. explicit behavior. This level is observable. The middle layer contains the norms and values of the society. These norms and values can be both formal and informal, and they help people understand how they should behave. The inner layer contains the implicit assumptions that lead to specific norms and values and govern behavior. By understanding these assumptions, norms and values, members of a culture organize themselves in a way that helps them increase the effectiveness of their problem-solving processes and interact properly with other people. In the case of global sourcing of IT services, the Chinese supplier's understanding of their

own culture really influences their basic assumptions and norms and values, which guide the way they behave in knowledge processes, especially how they should share knowledge when providing IT services to their offshore clients. Therefore, it is reasonable that we study the Chinese supplier's understanding of their own culture (CU).

Of course, it would be more meaningful to study the Chinese supplier's cultural understanding of their overseas customers. In another paper (Abbott et al., 2010), we have studied this research question and identified some cross-cultural strategies taken by the Chinese providers, and theorized the complexities of cross-cultural collaborations in offshore outsourcing processes by posing a framework of "creolization" that further extends theoretical understandings of these processes. To make a complementary study, in this paper, our purpose is to study the impacts of the Chinese contextual factors, such as the Chinese service provider's cultural understanding of their own culture and their trust relationship, on knowledge processes and performance.

On the basis of the constructs addressed above, we build a conceptual model of the impacts of cultural understanding and trust relationship on knowledge processes and performance in global sourcing. The model is shown in Figure 1. Cultural understanding (CU) and trust relationship (TR) are thought to impact knowledge processes (KP) in global sourcing, which mediates the effects of the two major contextual factors on performance (PER) in global sourcing. In the research model, cultural understanding (CU) is measured by three aspects: individualism (ID), *guanxi* (GX) and *mianzi* (MZ); trust relationship (TR) is measured by *adjusting trust* (AT). Knowledge processes (KP) is characterized by knowledge sharing (KS), and performance (PER) in global sourcing is represented by outcome in global sourcing of IT services (OO), measured by product success and personal satisfaction. The hypotheses about the links between constructs are symbolized in Figure 1.

Figure 1. Impacts of contextual factors on knowledge processes and performance



## Hypotheses

Increasingly, researchers from a variety of business disciplines (Doney et al., 1998; Straub et al., 2002) have found that cultural understanding can influence trust relationship, work processes, and performance. At the same time, we have seen a growing trend toward globalization--in establishing alliances, managing and hiring employees, and entering new markets. These trends suggest a need to explore the links between cultural understanding and trust relationship and performance. Doney et al. (1998) viewed the concept of trust from the perspective of national culture and posed a series of research propositions demonstrating how societal norms and values influence trust-building processes. Following Doney et al.'s (1998) idea, in this study we view the concept of trust from the perspective of the Chinese national culture, which is measured by individualism, *guanxi*, and *mianzi*, and attempt to demonstrate how cultural understanding influences the trust relationship, which is measured by adjusting trust.

According to Doney et al. (1998), in the intercultural interactions like client-supplier deals in global sourcing of IT services, cultural understanding and trust relationship are associated with each other. A good cultural understanding may improve the trust relationship. Therefore, we hypothesize:

**H1:** In global sourcing of IT services, supplier team members' cultural understanding—measured in three aspects, i.e. individual-

ism, *guanxi*, and *mianzi*—will positively influence their trust relationship with the client, measured by *adjusting trust*.

In other words, the better the supplier team members' understanding of cultural characteristics in three typical aspects, i.e. low individualism and more concern with *guanxi* and *mianzi*, the better their trust relationship with the client team in global sourcing arrangements.

Bozionelos and Wang (2007) investigated the attitudes of Chinese workers towards individually based performance-related reward systems and suggested that *guanxi* and *mianzi* were impacting evaluations of performance, therefore the cultural characteristics of China, in particular *guanxi* and *mianzi*, must be taken into account in the Chinese cultural context. Keil et al. (2007) investigated the effect of culturally constituted views of face-saving on the willingness to report bad news regarding a software development project, attempting to explore the extent to which *mianzi* affects reporting of bad news. Based on Bozionelos and Wang's (2007) and Keil et al.'s (2007) studies, we hypothesize:

**H2:** Supplier team members' cultural understanding will positively influence performance in global sourcing of IT services.

In other words, the better the supplier team members' understanding of cultural characteristics in three typical aspects, i.e. low individualism and more attention to *guanxi* and *mianzi*,

the better the performance in global sourcing of IT services.

De Jong and Elfring (2010) investigated how trust affects the performance of ongoing teams and found support for the mediated effects of some team processes. According to this finding, it is reasonable that we suppose that supplier team members' trust relationship with clients will positively influence performance in global sourcing of IT services. Krishnan and Martin (2006) examined how uncertainty moderates the trust-performance relationship in alliances and argued that trust matters more to performance under behavioral uncertainty and less under environmental uncertainty. In global sourcing of IT services where cultural differences make behavioral uncertainty more pronounced than environmental uncertainty, supplier team members' trust relationship with clients should matter more to performance. Therefore, we hypothesize:

*H3:* Supplier team members' trust relationship with clients will positively influence performance in global sourcing of IT services.

Ramasamy, Goh, and Yeung (2006) explored the role of *guanxi* in knowledge management by examining the relationship between inter-firm knowledge transfer and *guanxi*, and found that *guanxi* provided main channels of knowledge transfer. Based on Ramasamy, Goh, and Yeung's (2006) study, we hypothesize:

*H4:* Supplier team members' cultural understanding will positively influence knowledge processes characterized by knowledge sharing in global sourcing of IT services.

In other words, the better the supplier team members' understanding of cultural characteristics in three typical aspects, i.e. low individualism and more concern with *guanxi* and *mianzi*, the better the knowledge sharing in global sourcing of IT services.

Hsu et al. (2007) examined knowledge sharing behavior in virtual communities and explored the relationship between trust, self-efficacy, and outcome expectations. According to Hsu et al.'s (2007) finding on the relationship between trust and knowledge sharing behavior within virtual communities of professional societies, we hypothesize:

*H5:* Supplier team members' trust relationship with clients will positively influence knowledge processes in global sourcing of IT services.

In other words, the better supplier team members' trust relationship with clients, the better the knowledge sharing between supplier team members and their clients in global sourcing of IT services.

Nelson and Coopridge (1996) argued that shared knowledge is achieved through the mechanism of mutual trust and influence between these relevant groups and studied the contribution of shared knowledge to IS group performance. They found that shared knowledge mediates the relationship between IS performance and trust. In addition, some other researchers (Kotlarsky et al., 2008; Oshri et al., 2009) argued that knowledge processes in global sourcing projects represent the value an organization generates from engaging in, improving, and magnifying knowledge work, and as a result, greater success may be achieved in global sourcing by realizing benefits of knowledge creation and exploitation embedded in knowledge processes. Therefore, we hypothesize:

*H6:* Supplier team members' knowledge processes associated with clients' work will positively influence performance in global sourcing of IT services.

In other words, the better the knowledge sharing between supplier team members and their clients, the better the performance in global sourcing of IT services.

Researchers claim that cultural values and the client's trust in the vendor influence offshore IS project success (Rai, Maruping, & Venkatesh, 2009). On the side of the supplier, similarly, supplier team members' cultural understanding and their trust relationship with the client may influence project success in global sourcing of IT services. Therefore, hypotheses *H1* to *H3* are meaningful to explore the influence of cultural values on trust relationship and their impacts on performance from the supplier's perspective. Furthermore, cultural understanding and trust relationship may be related to knowledge processes such as knowledge sharing through supplier team members' communication and collaboration with the client's team, that are needed in knowledge processes and that often contribute to the offshore project's success in global sourcing or IT services (Krishna et al., 2000). Therefore, hypotheses *H4* to *H5* are meaningful to explore the impacts of cultural understanding and trust relationship on knowledge processes and the mediating effects of knowledge processes on performance in global sourcing of IT services.

## METHODOLOGY

### Sampling

The research was conducted in Xi'an Software Park, an industrial site for IT and IT-enabled services firms engaged in global sourcing, Shaanxi province, China. Xi'an is the capital city of Shaanxi Province and is the core city for the five provinces located in Northwest China. In comparison to the other major outsourcing hubs in China, Xi'an is a famous metropolis not only for its historical and cultural resorts, but also for its college education, science and technology, and high-tech industries. Xi'an has a very good educational and R&D capability. It claims to be Top 3 (along with Beijing and Shanghai) in China in terms of its universities and institutes. Besides, it has a high software industry maturity and sufficient qualified software talents. However, the living cost index in Xi'an is lower than most of the major outsourcing

hubs in China. As a result, the labor cost and the employee turn-over rate is low. Furthermore, the local government has successively released preferential policies to attract overseas Chinese Diaspora and foreign investments. For these reasons, many returning overseas Chinese students choose Xi'an as a good place to start their careers or run their businesses, and lots of MNCs and global corporations come to seek opportunities. In 2009, Xi'an was recognized as one of the first service outsourcing demonstration cities by the State Council of China. Therefore, Xi'an City can represent the typical context of global sourcing in China.

Xi'an Software Park, Established in 1998, is a professional technology park concerned with developing software and service outsourcing industries. The park has been appraised as a national software industry base and national software export base, and a demonstrational area of national service outsourcing base. It comprises 90% of the enterprises engaging in software and service outsourcing in Xi'an. The services offered by these firms range from software development, through to IT-enabled tasks such as handling client queries and providing back-end support to client-facing processes. The park has an annual industrial growth rate up to 45%. At the end of 2008, there were nearly 780 companies, of which foreign-funded enterprises account for 170, and over 71,000 persons employed in the park. Total revenue reached 22.7 billion RMB, and export 110 million US dollars in 2008 (Xi'an Software Park, <http://en.xasoftwarepark.com/>). A group of world-renowned corporations have, in steady succession, moved into the Xi'an Software Park, e.g. Oracle, SPSS, Sybase, Emerson, ThoughtWorks, Objectiva, Nortel, Fujitsu, NEC, and NTT Data. There are also some companies from Taiwan and famous domestic software companies such as Huawei, ZTE, and Digital China, all experiencing considerable growth. Hence, the knowledge processes and performance in the firms in Xi'an Software Park, to some degree, can provide relevant data to address, from a Chinese perspective, the research issues raised above.

## Data Collection

The research team is global, collaborative and multi-cultural in composition and consists of: 3 native Chinese speaking researchers, two based in Xi'an city and the other in the UK; 2 native English speaking researchers based in the UK, and 10 native Chinese speaking postgraduate students based in Xi'an supervised by the Xi'an-based researchers. Questionnaire surveys were used in the research. In total, two visits were made by the UK-based researchers together with the local ones to the site, each separated by a six-month interval; further visits were made by the Xi'an-based researchers and their students to the site for administering the questionnaire surveys. Thirteen indigenous and multi-national companies, whose organizational structures reflected a mixture of expatriate and local management, were chosen as participants in the research. Assistance in recruitment of the candidate companies was obtained from the management of the software park.

Questionnaire surveys were conducted within thirteen participant companies involving 200 respondents. A questionnaire (in both Chinese and English language for each question) was designed collaboratively by the major researchers through regular Skype meetings, on the basis of the pre-survey interviews held in the first visit and relevant literature review. The questionnaire was created for the purpose of a multiple use, thus, it involved a variety of issues and thereby included lots of questions. Twenty-three big questions were designed explicitly to collect data from employees participating in global sourcing projects. Of those questions, a few questions dealt with general data on the respondents and their extant projects; while the majority of the questions focus on various specific issues, in which the issues addressed in this paper were included. For this majority, each question has some alphabetized question items. We use these question items with 5-point Likert scale to measure research variables. In this paper, due to the small scope of the research variables to be measured, we used only part of the question items, which will be addressed

later. The scales and items were based on the ones that were adopted in earlier studies and considered to have high content validity, but they were revised to suit this research in the specific context of China and some new items were developed on the basis of pre-survey interviews and focus group discussions. Earlier versions of the questionnaire were discussed through the Skype meetings, piloted using a number of postgraduate students at Xidian University, and revised before the final version was formulated. Relevant question items used in this study are attached in the Appendix.

The research lasted two years. At the start of this research, in November 2008, one of our UK-based researchers visited Xi'an and along with our major local researcher, launched the initial investigation. At that time, 7 software companies in Xi'an Software Park were visited, 9 managers from these companies were interviewed along with the Chief Information Officer for Xi'an Software Park. On the basis of initial findings from these pre-survey interviews, frequent Skype meetings were held between the UK and Chinese based researchers to further the research objectives. We decided to conduct a further study to closely investigate the areas that were deemed most relevant to our research. In May 2009, three UK-based researchers came to Xi'an. As part of the overall research process, a seminar was held in Xi'an Software Park, attended by more than 30 software companies. The researchers then worked in two research teams, each with a native Chinese and English speaker, and visited between them at least 9 companies. In tandem with the visits, questionnaire surveys were conducted by the postgraduate students. In total, 200 questionnaires were distributed to 13 companies; 160 were returned out of which 155 were valid.

## Data Analysis

Based on the evidence observed in our pre-survey interviews, we made the preliminary assumption that contextual factors affect knowledge processes and performance in global sourcing in the companies investigated. In principle,

we deemed that two major contextual factors, i.e. cultural understanding and trust relationship, were related to each other. These contextual factors seem to be related to knowledge processes. Besides, they appear to influence performance in global sourcing of IT services in two ways: 1) the direct influence through supplier team members' communication and collaboration with clients that occurs often in knowledge processes; and 2) indirect influence mediated by knowledge processes in dispersed project teams. These relationships have been shown in the research model in Figure 1.

Due to the complexity of the model, we decided to use both SPSS (V15.0) and AMOS (V16.0), which is a structural equation modeling analysis tool to analyze the data collected in the questionnaire surveys. In order to test the research model and hypotheses, we first defined research variables and question items for measurement. Then, we used SPSS (V15.0) to conduct reliability and validity tests of the research variables. After that, we used SPSS (V15.0) to do correlation analyses. Finally, we used AMOS (V16.0) to assess the model and to estimate the hypotheses by calculating the significance of the path coefficients.

### **Research Variables, Measurement, Internal Reliability, and Validity**

As shown in Table 1, from the perspective of suppliers, there are four research variables: Cultural understanding (CU), trust relationship (TR), knowledge processes (KP), and perfor-

mance (PER). Three aspects, individualism (ID), *guanxi* (GX) and *mianzi* (MZ), are chosen to measure cultural understanding (CU). *Adjusting trust* (AT) is proposed to measure trust relationship (TR). Knowledge sharing (KS) is used to measure knowledge processes (KP). Outcome (OO) in global sourcing of IT services in two aspects, product success and personal satisfaction, is utilized to measure performance.

In the Chinese context, people are not always open and extroverted as those in Western environments appear to be; Chinese people are characterized as being hesitant to reveal their inner feelings. In order to adapt to this specific context and the situation in global sourcing of IT services, we did not adopt Hofstede's (2001) question items for individualism. Instead, on the basis of Hofstede's (2001) question items, and considering the special situation in global sourcing of IT services, we designed three items to measure individualism. Motivated by the pre-survey interviews, we made efforts to scale the psychological and behavioral impacts of *guanxi* and *mianzi* on Chinese supplier team members in the context of global sourcing. Initially we designed four items to measure *guanxi* and another four items to measure *mianzi*. On the basis of the pre-test results of the variables' reliabilities, we finally chose three items to measure *guanxi* and keep all the four items to measure *mianzi*.

For the scale development of *adjusting trust*, we have taken a series of steps to form a set of question items. First of all, after a study of relevant theoretical literature on adjusting

*Table 1. Variables and reliability statistics*

Variables	Aspects	Number of items	Cronbach $\alpha$
Cultural understanding (CU)	Individualism (ID)	3	0.545
	Guanxi (GX)	3	0.792
	Mianzi (MZ)	4	0.565
Trust relationship (TR)	Adjusting trust (AT)	4	0.708
Knowledge processes (KP)	Knowledge sharing (KS)	8	0.871
Performance (PER)	Outcome in global sourcing (OO)	5	0.813

decision making (Brugha, 1998) and the fundamental difference between the Western and the Chinese thinking (Brugha, 2001; Chen et al., 2010), we summarized some major points that *adjusting trust* should contain in terms of its adjusting aspect. Then, we referred to the literature on trust and trust scales. Considering the characteristic of *adjusting trust* and the difference between it and other types of trust, e.g. cognition- and affect-based trust, we drafted seven items to measure adjusting trust rather than adopting any of the existing trust scales. Based on the pre-test results of the variables' reliabilities, we found that four items are more valid and reliable than the other three. Finally we chose the four items to form a scale of *adjusting trust*.

Based on the pre-survey interviews and relevant literature (Kotlarsky & Oshri, 2008; Han, Lee, & Seo, 2008; Liao, Fei, & Chen, 2007), we designed eight items to measure knowledge sharing (KS). Outcome in global sourcing of IT services (OO) is defined as the extent to which a global sourcing project achieves success in the dimensions of product success and personal satisfaction. Based on existing literature (Kotlarsky & Oshri, 2008; Han, Lee, & Seo, 2008), we designed five items to measure outcome in global sourcing of IT services, with the following aspects considered: 1) meet client deadlines on time, 2) deliver projects to the client's satisfaction, 3) staff being more skilled in the client's technology platforms, 4) staff being more skilled in the client's business domain, and 5) little or no turnover of staff on client projects.

The reliability of the multi-item scale in the questionnaire was determined by using the Cronbach alpha test, which measures internal consistency. As shown in Table 1, except for cultural understanding (CU), the alpha levels for three other research variables are all higher than 0.700, which is the recommended minimum acceptable level for adequate reliability (Nunnally, 1978). These figures indicate acceptable internal reliability of the measurement.

## Correlation Analysis

To find the glancing relationships among the research variables, we used SPSS (V15.0) to do a correlation analysis. The results of this analysis are shown in Table 2.

## Model Assessment and Hypotheses Testing

Establishing the glancing relationships among the research variables is not enough to validate the research model. We still needed to explore the exact relationships among the variables. For this purpose, we used AMOS (V16.0) to assess the model and to estimate the hypotheses by calculating the significance of the path coefficients. The results of model assessment and those of hypotheses testing are shown in Table 3 and Table 4.

## RESULTS

By using SPSS 15.0, we derived the results of the correlation analysis. Table 2 shows the following major results of the correlation analysis:

There is a significant positive correlation (with a correlation coefficient .678) between cultural understanding (CU) and trust relationship (TR). This indicates that supplier team members' cultural understanding may contribute greatly to trust relationship. There are significant positive correlations (with correlation coefficients .462, and .494 respectively) between trust relationship (TR) and knowledge processes (KP) and performance (PER), while a less significant positive correlation (with a correlation coefficient of .381) exists between cultural understanding (CU) and performance (PER). This implies that supplier team members' cultural understanding may contribute more to trust relationship (TR) than directly to performance (PER) in global sourcing of IT services, and trust relationship may contribute to knowledge processes and performance. In other words, cultural understanding is not only



Table 2. Results of correlation analysis

Variables		CU	TR	KP	PER
CU	Pearson Correlation	1	.678(**)	.265(**)	.381(**)
	Sig. (2-tailed)		.000	.001	.000
	N	155	155	155	155
TR	Pearson Correlation	.678(**)	1	.462(**)	.494(**)
	Sig. (2-tailed)	.000		.000	.000
	N	155	155	155	155
KP	Pearson Correlation	.265(**)	.462(**)	1	.117
	Sig. (2-tailed)	.001	.000		.146
	N	155	155	155	155
PER	Pearson Correlation	.381(**)	.494(**)	.117	1
	Sig. (2-tailed)	.000	.000	.146	
	N	155	155	155	155

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 3. Indices of model fit

Measures	Recommended level	Research model
$\chi^2$	-	2.142
Df	-	3
$\chi^2/df$	<2	0.714
P (P-value)	>0.05	0.544
Goodness of fit index (GFI)	>0.9	0.995
Root mean square error of approximation (RMSEA)	<0.1	0.000
Adjusted goodness of fit index (AFGI)	>0.9	0.968
Normal fit index (NFI)	>0.9	0.994
Comparative fit index (CFI)	>0.9	1.000

Table 4. Results of hypotheses testing

Path	Hypotheses	Standardized Estimate	P	Results
CU→TR	H1	-0.778	***	Support
CU→PER	H2	-0.920	***	Support
TR→PER	H3	-0.226	0.169	Reject
CU→KP	H4	0.327	0.037(**)	Support
TR→KP	H5	0.716	***	Support
KP→PER	H6	0.010	0.892	Reject

imperative to performance, but also necessary to trust relationship, which may mediate the relationships between cultural understanding and knowledge processes and performance in global sourcing of IT services. However, a less significant positive correlation (with a correlation coefficient .265) exists between cultural understanding (CU) and knowledge processes (KP). This implies that supplier team members' cultural understanding may contribute less to knowledge processes (KP) than directly to performance (PER) in global sourcing of IT services. The correlation between knowledge processes (KP) and performance (PER) is not significant, with a correlation coefficient .117. This means that knowledge processes may have no direct contribution to performance.

Based on the descriptive statistics and correlation analysis by SPSS (V15.0), we used AMOS (V16.0) to assess the model. We assessed the overall model fit using three types of goodness-of-fit measures, including absolute fit measures, incremental fit measures, and parsimonious fit measures. The results of the goodness-of-fit measures for structural equation modelling are shown in Table 3.

To assess the absolute fit of the model, we first examined the likelihood ratio Chi-square ( $\chi^2$ ). The Chi-square is non-significant ( $\chi^2=2.142$ ,  $p>0.05$ ), which indicates that the predicted model is statistically consistent with the actual model. In addition, GFI and RMSEA, which stand for absolute fit measures, are both in the commonly accepted threshold level. The incremental fit measures AFGI and NFI, and the parsimonious fit measures CFI all indicate a good fit. These results show that the model is acceptable.

The hypotheses were estimated by calculating the significance of the path coefficients, since AMOS (16.0) uses path significance to test hypotheses. The results are shown in Table 4.

Overall, the results indicate that all the hypotheses except *H3* and *H6* are supported. In other words, hypotheses *H1*, *H2*, *H4* and *H5* were substantiated. The acceptance of these hypotheses reveals that: in global sourcing of IT services, 1) cultural understanding influences

trust relationship greatly; 2) cultural understanding significantly influences performance; 3) cultural understanding influences knowledge processes; and 4) trust relationship has significant impacts on knowledge processes. It is noticeable that there is no evidence in this study to support *H3* and *H6*. These results indicate that: in global sourcing of IT services, 1) trust relationship has no impact on performance and 2) knowledge processes have no significant impact on performance. There might be two reasons why *H3* was not tested to be true. Firstly, trust relationship may have a less direct and tangible effect than indirect and intangible effects through other mediating factors on performance. Secondly, trust relationship may have a less swift effect than delayed effects on performance, which cannot be revealed by a cross-sectional study like the one presented. We think that the major reason for *H6* not being supported is that the impact of knowledge sharing on performance is not an immediate one and it may have delayed effects (Du, Ai, & Ren, 2007), but our study is a cross-sectional one, not a longitudinal one, so it cannot reveal the impacts of knowledge sharing.

## DISCUSSION

The objective of this research was to enhance our understanding of supplier team members' cultural understanding and trust relationship and their impacts on performance in global sourcing of IT services by incorporating some special Chinese cultural aspects, such as *guanxi* and *mianzi*, and considering the characteristics of trust relationship in Chinese business society. We sought to achieve this objective by examining cultural difference between the West and China along individualism, *guanxi* and *mianzi*, and defining the notion of *adjusting trust* to reflect trust relationship in the Chinese culture. Our results provide evidence that supplier team members' cultural understanding and trust relationship have significant impacts on knowledge sharing in global sourcing of IT services. These contextual factors establish a

social context for effective knowledge processes and good performance in global sourcing of IT services. Cultural understanding—at the level of supplier firms and of teams and client representative—must be actively managed to increase trust relationship and knowledge sharing and long-term performance in global sourcing of IT services.

## Theoretical Contribution

The theoretical contribution of this paper is that we have enriched the theory about cultural difference and its impacts on trust relationship, knowledge processes and performance in global sourcing of IT services by adding new elements to the existing constructs “cultural understanding” and “trust”. By this mean, we have extended the existing theoretical model in three ways. First, we have addressed two detailed aspects of “cultural understanding”, *guanxi* and *mianzi*, and their impacts on trust relationship and knowledge processes and performance in global sourcing. Second, we have explored the trust relationship and proposed a new construct, adjusting trust, to highlight the cultural difference. Third, we have clarified the links among cultural understanding, trust relationship, knowledge process, and performance in global sourcing.

The notion of *adjusting trust* can explain the paradox of respecting formal ranks/status and emphasizing informal *guanxi/mianzi* in Chinese social behaviors: the two being complementary supplements rather than conflicting substitutes. The concept of *adjusting trust* has two implications for the research on the trust issues in global sourcing of IT services. First, *adjusting trust* reveals a process involving psychological and behavioral patterns amongst the trustor’s and trustee’s reciprocal exchanges and adjustments to build trust. Secondly, *adjusting trust* shows the difference in nature between the Western trust and the Eastern trust, and thereby helps to shed light on the intercultural trust-building between the Western and the Eastern people.

The results of hypotheses testing show that: 1) cultural understanding influences trust

relationship greatly; 2) cultural understanding significantly influences performance; 3) cultural understanding influences knowledge processes; 4) trust relationship has significant impacts on knowledge processes; while 5) trust relationship has no impact on performance and 6) knowledge processes have no significant impact on performance. The first four results reveal the important roles of cultural understanding and trust relationship in global sourcing of IT services. These findings echo some previous findings, e.g. the finding that David et al. (2008) reported on the basis of their investigations in GLOBALIS’ distributed sites in Ireland and India, the findings of Kotlarsky and Oshri (2008) who state that a supplier team members’ cultural understanding of the client’s team can strengthen social ties between supplier and client teams in the dimensions of rapport and trust, and the findings that was reported about the role of social embeddedness and cultural characteristics (Rai, Maruping, & Venkatesh, 2009). These findings are consistent with Rottman’s (2008) finding that a supplier team members’ cultural understanding of the client’s team can increase social capital in the cognitive and relational dimensions respectively. These findings also support Evaristo’s (2003) general views on the management of distributed projects across cultures. While the last two results indicate that: in global sourcing of IT services, trust relationship may have a less direct and tangible effect than indirect and intangible effects through other mediating factors on performance. Furthermore, trust relationship may have a less swift effect than delayed effects on performance. Similarly, the impact of knowledge sharing on performance is not an immediate one and it may have delayed effects (Du, Ai, & Ren, 2007).

## Practical Implications

The *guanxi* and *mianzi* aspects of cultural understanding and the *adjusting trust* construct of trust relationship in the research model are really “new” to practitioners in terms of they may add some additional value to and shed lights

on the practice of deeper cultural understanding and trust between the western people and the Chinese people.

From the major results of hypotheses testing, we can derive the following practical implications: contextual factors in global sourcing of IT services, such as cultural understanding and trust relationship, play important roles that influence knowledge processes and performance directly and indirectly; therefore, suppliers should focus more on soft sides, like cultural understanding and trust relationship, since China is seen to be more culturally distant than other national cultures. This implication is meaningful especially to offshore service providers and clients whose cultural distance is larger than that of onshore providers and clients. It is meaningful to offshore service providers in general and to the Chinese suppliers and Western clients in particular because intercultural trust between those from the Chinese culture and Western cultures is a challenging issue.

From the statistical analysis results in this study, we can see that the impacts of trust relationship and knowledge processes on performance in global sourcing of IT services are not observed as is expected. Nevertheless, from our interpretation of the testing results we know that this result does not imply that trust relationship and knowledge processes are not important, but may indicate their indirect and lagged effects on performance. This finding has special meaning for global sourcing of IT services in which considerable knowledge and expertise are generated and accumulated and exploited in project teams. Due to the delayed effects, people must be patient to see the effects of trust relationship and knowledge processes, and seek for long-term benefits from them.

The aspects of cultural understanding and trust relationship and their links with knowledge processes and performance in global sourcing of IT services in the research model in this paper can be generalized to the following international business situations: 1) the interactions between MNCs' Chinese units/teams/individuals and their counterparts in the Western countries, 2) the interactions between the Western companies and

their Chinese partners, and 3) the interactions between the Chinese people and their Western colleagues in international organizations. For all these cases, we suggest that cultural understanding and trust relationship must be paid more attention when cultural difference is large. More intercultural trainings, more virtual intercultural meetings, more mutual site visits, and more real life intercultural interactions may be some helpful organizational practice.

## CONCLUSION

In this paper we have reported on a joint investigation conducted by a cross-cultural research team in a Chinese setting. We have explored the influences of two major contextual factors, i.e. supplier team members' cultural understanding and trust relationship, on knowledge processes and performance in global sourcing of IT services. We use individualism together with two special Chinese concepts, *guanxi* and *mianzi*, to measure cultural understanding, and *adjusting trust*, a notion with Chinese characteristic, to measure trust relationship. Through the quantitative analysis of the data collected in the questionnaire surveys that were conducted among 200 people in 13 companies in Xi'an Software Park, we have clarified the links among cultural understanding, trust relationship, knowledge process, and performance in global sourcing of IT services. The results of quantitative data analysis in this study indicate that supplier team members' cultural understanding has significant impacts on trust relationship, knowledge sharing and performance, and trust relationship significantly influence knowledge process, while trust relationship and knowledge sharing have no impact on performance. The findings of this study suggest that special aspects of Chinese context, like *guanxi*, *mianzi* and *adjusting trust*, appear to have significant impacts on knowledge processes in global sourcing of IT services. These findings substantiate the importance of supplier team members' cultural understanding and trust relationship for offshore service providers to improve knowledge processes and

performance in service providing processes and thereby achieving success in global sourcing.

The evidence provided in this study came from an environment that is socially and culturally different from the environments in which most prior global sourcing research has been undertaken, e.g., in Western countries like the U.K., U.S, Canada and Ireland, or in countries like India and Philippines who have historical colonial linkages with the West. The findings of this investigation suggest that the effect of two key contextual factors, namely the supplier team members' cultural understanding and trust relationship, on knowledge process and performance in global sourcing of IT services may be common in spite of social and cultural differences in different contexts. But the effect of supplier team members' cultural understanding on trust relationship and knowledge processes and performance in Chinese settings was found to be significant. This implies that cultural understanding is more important in the countries like China who may have a bigger cultural difference from their client countries than some other countries like India and the Philippines. These findings help to enhance our understanding of trust relationship and knowledge processes in global information management in general and in global sourcing of IT services in particular. They provide some empirical evidence on the international validity of findings from previous studies in Western environments and enhance efforts to build a general theory of global outsourcing and offshoring. Moreover, we think this study is unique in that it is based on empirical data and quantitative analysis of the data, because very little previous work, to our knowledge, actually used empirical data, i.e. quantitative analysis to come up with their models and findings, in other words, most of the previous studies were based on qualitative analysis of interview data. The findings from this study have implications not only for the global sourcing of IT services suppliers in China, but also for the global sourcing of IT services suppliers in

other developing countries, the MNCs/global corporations who engage or wish to engage with Chinese firms, and the global sourcing of IT services all around the world.

This study may have actual and potential strengths as follows. First, it addressed an interesting and important topic, global sourcing of IT services. Second, the paper focused on a field study conducted in an interesting context, i.e., China. Third, the paper had some theoretical contribution in terms of its extending the existing theoretical model by adding new elements to the existing constructs "cultural understanding" and "trust" to. Finally, the paper contributed to practice by providing recommendations and policies for practitioners to improve intercultural understanding and to enhance intercultural trust.

Due to the non-random sample used in this investigation, generalization of its findings to other Chinese service suppliers involved in global sourcing and beyond must be made cautiously. Replications of this study in China and in other countries are needed. To further understand the effects of other factors, other variables may be added to the research model used in this study, and longitudinal studies should be conducted to explore the delayed effects of trust relationship and knowledge sharing on performance. The reliability of the measurement for cultural understanding is not strong. Interpretation of the findings related to this construct, therefore, should be cautious and further development of a better measure for the construct is needed. Furthermore, additional studies of contextual factors and their impacts on knowledge processes and performance in global outsourcing and offshoring in different cultures and countries are indispensable. The accumulation of such studies will enable global outsourcing and offshoring researchers to make comparisons and to integrate findings into frameworks that enhance the understanding of the influences of impacting factors on knowledge processes and performance in global sourcing.

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## APPENDIX

### Relevant Question Items Used in This Study

- I am concerned about the client's family values.
- Our management incorporates opinions from project teams when making decisions.
- Our management and project teams communicate well each other.
- We and our client do our best to maintain the relationship.
- We and our client are willing to continue the relationship.
- We and our client have friendly relations.
- Saving face/avoiding losing face is very important in relationships with a client.
- Concern for others is important especially in business relationships.
- We and our client always try to keep each other's promises.
- We and our client are willing to comply with each other's requests.
- We and our client share the benefits and risks that can happen in the process of business.
- We and our client are interested in each other's problems.
- We and our client are generally cooperative in conducting business.
- Our client is sincere at all times.
- We and our client share information regarding business environment and technical change that affect each other's business.
- We and our client share business proposals and reports with each other.
- We and our client share business manuals, models, and methodologies with each other.
- We and our client share each other's success and failure stories.
- We and our client share business knowledge obtained from newspapers, magazines, journals, and television.
- We and our client share know-how from work experience with each other.
- We and our client share each other's know-where and know-whom.
- We and our client share expertise obtained from education and training.
- We have always been able to meet client deadlines on time.
- We have always been able to deliver projects to the client's satisfaction.
- We have our staff more skilled in the client's technology platforms.
- Our staff are getting skilled in the client's business domain.
- We experience little or no turnover of staff on client projects.

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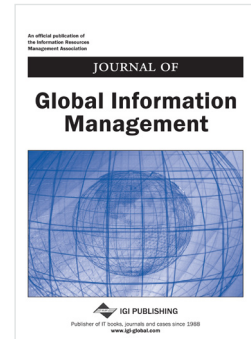
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