

# Exploring Contemporary Issues in Knowledge Transfer in IT Outsourcing: The Theoretical Perspective

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## **ABSTRACT**

This paper is aimed at exploring those theories and their applications which have traditionally adopted to investigate offshore outsourcing practice. Contemporary research in knowledge transfer concerning outsourcing software development context between partners, whose goals are conflict, has adopted several theories in information system (IS) disciplines. Several relevant IS theories have been being adopted in the IS outsourcing literature. However, social exchange theory (SET) has a unique explanatory power. In the discussion, the traditional IS theories will be examined, and the potential of the SET will be explored.

## **Keywords**

Knowledge transfer, IT outsourcing, knowledge-intensive work, knowledge-based theory, transaction-cost theory, agency theory, social exchange theory, game theory.

## **INTRODUCTION**

The evolution of the global economy has greatly driven a change toward business practice. Many multinational corporations are increasingly practicing offshore outsourcing strategies to sustain competitiveness and secure market shares. It has been over 40 years since outsourcing was introduced in corporate America in a variety of businesses. Especially in IT operation, offshore outsourcing practices have swiftly been adopted because of advanced telecommunication technology and profit derived from operation cost reduction. In this regard, the adoption rate definitely continues to grow as the practice can still generate substantial profit and, thus, help such firms to sustain their position in the competitive markets (Slaughter and Ang, 1996).

However, contemporary IS outsourcing literature has shown contradictory outcomes. Especially in IT works, while many trusted practitioner sources confirm that outsourcing practice is gaining popularity (Beal, 2004; DiamondCluster, 2005), many efforts to pursue outsourcing is reported the difficulties or, even, failures (Aron and Singh, 2005; Cater, 2006; Hatch, 2005). Among the complaints were (1) quality was initially poor, (2) delivery was slow, and (3) personnel issues were costly such as high supplier turnover interfered with success. Investigating upon successes and failures, researchers, however, discovered that most of the firms thriving have undergone their second attempt pursuit by intensively paying attention on knowledge transfer processes (Rottman, 2008).

Knowledge transfer is the heart of knowledge management problem (Rottman, 2008). Knowledge is recognized by firms as a critical source of power due to its scarcity in its environment (Hackney et al., 2005). Desouza and Vanapalli (2005) suggest that knowledge should be treated as a secret and made available only for commercialization. Potentially, in order to maximize the productivity of the firm, knowledge could be completely kept confidential from certain entities such as employees, firm's subsidiaries, and business partners, especially in knowledge intensive businesses. This leads the intertwining dilemma in pursuing the optimality in knowledge transfer, the competing goals: preventing most critical business knowledge components visible from the partners while facilitating all subunits able to successfully carry out a project.

Generally, cooptation refers total mentality of cooperation under competitive business circumstances. Brandenburger and Nalebuff (1996) argue that firm's subunits cooperate to holistically leverage and maximize the firm's profit while those subunits also compete to divide such profit up. Brandenburger and Nalebuff's (1996) cooptation, to certain extent, could respond to the Lou's (2005) fundamental duality: whereas creating value is an inherently cooperative process, capturing value is inherently competitive. The subunits cannot act in isolation since they cognize their interdependence, and, within a multinational enterprise, inter-unit cooptation is concerned with cooperation and competition that concurrently take place

between two or more geographically disperse units (Lado et al., 1997). Under the cooptation circumstances, subunits cooperate in technological, operational, organizational, and financial areas (Lou, 2005). However, issues and agendas in financial area need to be more comprehensively addressed.

A multinational company could encounter cooptation among its sub-units in different locations. Subunits cooperate under the cooperative competitive condition in outsourcing scheme in four areas: technological, operational, organizational, and financial (Lou et al., 2005). They share knowledge to achieve competitive advantages and to exploit economies of scope (Ghoshal and Bartlett, 1988; Zander and Kogut, 1995). Sub-units of a multinational companies face compete and cooperate (Ghoshal and Bartlett, 1988), and several studies try to understand how collaborative and competitive ties concurrently take place simultaneously (Nohria and Ghoshal, 1997; Tsai, 2001, 2002; Tsai and Ghoshal, 1998). This duality has become a major challenge for multinational companies that seek to manage their intra-organizational knowledge flows, internalize globally coordinated operations, and differentiate various subunits with different strategic identities and roles (Govindarajan and Gupta, 2001; Kogut and Zander, 1996; Tsai, 2002).

### **Knowledge**

Ideologically, knowledge is philosophically differently defined. However, the definition and the interpretation of knowledge is scoped by espousing Davenport (1997)'s view. According to Davenport (1997) and Nonaka and Takeuchi (1995), knowledge is treated as a tangible resource or commodity which can be used and distributed. Within the context of the firm, knowledge, as a commodity, produces such as creation, codification, sharing, learning, and innovation (Herder et al., 2003). Taking this perspective, knowledge itself is a very important resource as it economically useful (Drucker, 1993). Moreover, to effectively economically utilize knowledge, it is vital to understand what the knowledge is capable of and how it can be operationalized (Davenport and Prusak, 1998).

Davenport and Prusak (1998) remark knowledge derived from minds at work. That is, knowledge is a watery body mixed of experience, values, contextual information, and expert insight that can generate a new piece of knowledge itself. Likewise, Albert and Bradley (1997) define knowledge as information combined with experience, interpretation, and reflection in a high-value form, while Wigg (1996) specifies the knowledge as a mixed body of insights, understand, and practical know-how which is intelligently functional. Kogut and Zander (1992) and Tsai (2001) substantiate that knowledge can be shared in various forms and presentations such as invention, know-how, research facilities, product development guidelines, machinery operation, production process blueprints, technology information system, program codes, etc., through R&D, technology transfer, equipment relocation, resource redeployment, and personnel rotation (Ghoshal and Nohria, 1989; Wolf and Egelhoff, 2002).

### **Dimensions of knowledge**

Generally, it is agreed upon that knowledge is characterized into two forms: tacit and explicit (Nonaka, 1994). According to Borghoff and Pareschi (1997) explicit knowledge is understandingly constructed, easily codified, and captured in several of digestible, tangible forms. Therefore, tacit knowledge is tractable and facilitating knowledge transfer. On the contrary, according to Borghoff and Pareschi (1997), tacit knowledge is inexpressible, and thus difficult to codify and capture. Unfortunately, tacit knowledge is responsible for seventy percent of organizational knowledge (McManus and Snyder, 2003). Kreiner (2002) suggests that tacit knowledge, although difficult to be codify, capture, and transfer, can somehow be manageable by extracting such knowledge from the knowledge workers.

However, explicit and tacit knowledge are interdependently connected in a certain way (Alavia and Leidner, 2001). Alavi and Leidner (2001) argue that almost all kinds of knowledge are practically inseparable and comprised of explicit and tacit knowledge. This implies that, with sufficient knowledge management, tacit knowledge is somehow capable of being explicated and, therefore, transferred.

### **Role of knowledge in IT offshore outsourcing**

IT profession is considered as one of the most knowledge-intensive work. Especially in IT offshore outsourcing, stock of knowledge workers is economically part of offshore outsourcer decision making to invest in a particular country (Borensztein et al., 1998). Romer (1986, 1990), Lucas (1988), and Grossman and Helpman (1991) stress the importance of knowledge that it is to some extent a public good, and moreover R&D, education, training, and other investments in knowledge creation may generate externality that prevent negative returns to scale for labor and physical capita. Borensztein et al. (1998) and Xu (2000) also note that FDI tends to flourish in a host country which has a minimum threshold of stock of human capital. More specifically, Noorbakhsh et al. (2001) discovers that the levels of human capital in accumulated years of secondary and tertiary education are capable of influence decision making of foreign investment.

The most representative model of human capital in the growth literature was elaborated by Lucas (1988). He points out that human capital and knowledge are synonyms and are a voluntary outcome of the learning process. Based on his theoretical setting, some authors of the new growth literature (Mankiw et al., 1992; Barro and Sala-i-Martin, 1997; Acemoglu and Angris, 2000; Krueger and Lindhal, 2001) have empirically proved that the stock of human capital plays an extremely important role in promoting economic growth and prosperity (Mankiw et al., 1992).

### **Software development as knowledge intensive activity**

Software development is defined as a complex problem solving process simultaneously involving a number of individuals, teams, and organizations with competing goals, interests, and responsibilities (Curtis et al., 1988) and depends on depends on skilled workers and their knowledge, cognitive ability, and expertise (Blacker, 1995). Moreover, software development activity includes a variety of cognitive and organizational issues concerning communication and knowledge management, which directly relates to the nature of software development work (Waterson et al., 1997; Walz et al., 1993). In addition, Adelson and Soloway (1985) and Robillard (1999) elaborate that these knowledge intensive activities involve coordinated application of a variety of specialized knowledge in formulating an appropriate software solution to solve a business problem.

Regarding the involvement of knowledge within software development, Rus and Lindvall (2002) specify relevant knowledge into two types: (1) technical knowledge for developing a system and (2) business knowledge for guiding designs. Technical knowledge is defined as knowledge about design (such as software architecture, design patterns, heuristics, best practices, and estimation models), programming (e.g., languages and tools), and software processes (such as analysis, design, testing, and debugging procedures). In business application, knowledge also embraced business processes, business rules, policies and procedures, and the business objectives associated with the project's problem domain (Walz et al., 1993).

However, Walz et al., (1993) state that it is impossible for individual team members, in general, to possess all the knowledge required for the project; therefore, they need additional information and knowledge from different relevant sources and from team members. Many researchers on collaboration in software development teams emphasize the importance of knowledge transfer among members, and they argue that software development project involves activities that require the participation and contribution of all team members (Carmel, 1999; Curtis et al., 1988). Curtis et al. (1988) argue that the more the complex system, the more the team members need to learn from each other in the team. Lam (1997) raises an issue that the process of knowledge acquisition and sharing is problematically embedded in societal, organization, and cognitive levels of analysis, that which is increasingly being focused in the studies on the nature of embedded knowledge in order to understand acquiring, sharing, and using such knowledge (Lam, 1997, 2000; Sole and Edmondson, 2002).

Transfer of knowledge from one set of individuals to another has been a key area of interest for knowledge management researchers. Alavi (2000) emphasizes the importance of knowledge transfer that, in order to accomplish superior performance of a social entity and knowledge generation, knowledge transfer needs to take place. Cross et al. (2004) highlights the value of knowledge sharing as it leads to an innovation which contributes to organizational effectiveness. Basically, transferring knowledge is very painstaking (Szulanski, 2000), and it could be more painful for geographically distributed teams (Alshawi and Al-Karaghoul, 2003; Davenport and Prusak, 1998; Sarker and Sahay, 2004).

### **Issues in knowledge sharing and transfer**

A large body of literature has scrutinized mechanism used to achieve knowledge transfer (Cohen and Bacdayan, 1994; Huber, 1991; Levitt and March, 1988). Szulanski (2000) proposes that five basic elements can potentially influence the transfer of knowledge: channel, message, context, recipient, and source. Especially in the source, characteristics of the source could potentially have an influence over knowledge transfer efficacy. Certain studies indicates that different characteristics of the source could be considered as a friction in knowledge transfer (Davenport and Prusak, 1998; Hinds et al., 2001; Szulanski et al., 2004).

Unfortunately, some knowledge is embedded in local contexts, rendering difficulties in migration across boundaries (Bechky, 2003; Lam, 1997; Lam, 2000; Szulanski, 1996; von Hippel, 2001). Badaracco (1991) makes a distinction between migratory and embedded knowledge: migratory knowledge can be inscribed in certain forms such as books, formulas and machines whereare embedded knowledge is deep rooted in particularized "relationships among individuals and groups and in the particular norms, attitudes, information flows and ways of making decisions that shape their dealings with each other" (p. 79). That is, knowledge residing in specialized groups or methods of work situated in certain context may be too problematic to transfer owing to its embeddedness (Nicholson and Sahay, 2004).

Knowledge sharing has been studied from several perspectives: global value-chain (Hedlund, 1994; Hitt, Hoskisson, and Ireland, 1994), resource exploitation and exploration (Kogut and Zander, 1992; Zander and Kogut, 1994), and global integration (Ghoshal and Bartlett, 1988; Gupta and Govindarajan, 1991). Although, many studies aim at apprehending how

knowledge sharing is influenced by externalities<sup>1</sup> (Eisenhardt and Behnam, 1995; Granstrand, Hakanson, and Sjolander, 1993; Roth and Morrison, 1992; Ruggles, 1998), they have addressed only cooperative side while less attention has been paid to the competition within (Lou, 2005).

Under offshore outsourcing context, Lou (2005) classifies subunits cooperation into four different areas: technological, operational, organizational, and financial. Each area is challengingly different in practices, opportunities, and risks. While IS researchers have extensively studies technological, operational, and organizational areas, less work has unfortunately been done in financial areas. Furthermore, concerns and practices over financial area of cooperation are internationally connected to currency exchange among subunits and local taxing at subunit location.

### THEORETICAL FOUNDATIONS

Studies on knowledge transfer in software development outsourcing are conducted in various disciplines and, thus, involve many theories and many of their applications. Predominantly, those theories are heavily and firmly utilized in political sciences, studies of labor management, business administration, information sciences, psychology, philosophy, education, sociology, and mathematics. Table 1 shows related theories which are highly adopted in high impact articles regarding knowledge transfer in software development offshore outsourcing. Each of them fundamentally lubricates constructing the gravity of the research in different level of analysis with different basic assumptions and foci. The following sub sections provide concrete elaboration and adoption.

| Theory Involved         | Level of Analysis          | Basic assumption   | Maintainable/focus   | Key Authors  |
|-------------------------|----------------------------|--|--|--|
| Transaction-cost theory | Individual, Organization   | Limited rationality, opportunism   | Transaction costs, production costs  | Coase (1937); Williamson (1975; 1993; 1985a; 1985b)                          |
| Social exchange theory  | Individual, Organizational | Participation in exchange occurs with the assumption of rewards and obligation to return rewards   | Exchange of activities, benefits/costs, reciprocity, balance, cohesion, and power in exchanges | Blau (1964); Emerson (1962); Homans (1958)                                   |
| Game theory             | Individual, Organizational | Every player under the same conditions, make rational and intelligent decisions to maximize profit, incomplete information                     | Decisions under certain situations   | Kreps et al. (1982); Nash (1953); Spence (1976); Fudenberg and Tirole (1990) |
| Agency theory           | Organizational             | Asymmetry of information, differences in perceptions of risk, uncertainty  | Agent costs, optimal contractual relationships   | Jensen and Meckling (1976)   |
| Knowledge-based theory  | Organizational             | Socially complex, heterogeneous knowledge bases and capabilities among firms are the major determinants of sustained competitive advantage and | Knowledge as a competitive advantage, large-scale intra- and inter-firm knowledge management   | Grant (1996); Kogut and Zander (1992); Nonaka (1994)                         |

<sup>1</sup> According to Lou (2005), externalities refer to such as institutional deterrence, regulatory hindrance, environmental, hostility, liability of foreignness, consumption behavior, and intellectual property rights protection.

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|--|--|---------------------------------|--|--|
|  |  | superior corporate performance. |  |  |
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**Table 1. Overview of theories involved in knowledge transfer in software development offshore outsourcing.**

(Source: Constructed by author, modified from various sources)

**Knowledge-based theory of the firm**

The knowledge-based theory of the firm views knowledge as the most strategically significant resource of the firm. Grant (1996), Kogut and Zander (1992), and Nonaka (1994) point out that the theories of knowledge-based resources are usually difficult to imitate and socially complex, and therefore heterogeneous knowledge bases and capabilities among firms are the major determinants of sustained competitive advantage and superior corporate performance. Knowledge is embedded and carried through multiple entities including organizational culture and identity, policies, routines, documents, systems, and employees. Originating from the strategic management literature, this perspective builds upon and extends the resource-based view of the firm initially promoted by Penrose (1959) and later expanded by Wernerfelt (1984), Barney (1991), and Conner and Bacdayan (1992). Proponents of the knowledge-based view argue that the resource-based perspective is comprehensive enough. Specifically, the resource-based theory treats knowledge as a generic resource, rather than having special characteristics. It therefore does not distinguish between different types of knowledge-based capabilities. In addition, Alavi and Leidner (2001) notes that Information technologies can play an important role in the knowledge-based view of the firm in that information systems can be used to synthesize, enhance, and expedite large-scale intra- and inter-firm knowledge management.

The research interest in organizational capabilities has been recently revitalized by knowledge-based theories (Grant, 1996; Kogut and Zandar, 1992; Quinn et al, 1997). These argue that organizational knowledge, such as operational routines, skills, or know-how, are the most valuable resources and its strategic management capability is a key factor under a more dynamic and rapidly changing environment; i.e. from the knowledge-based perspective, organizational capability is considered as a key source of competitive advantage, the concept of ‘knowledge link’ as one of the major organizational management capabilities for learning or acquiring needed knowledge from other organizations. Asakawa (1995), Gupta and Govindarajan (1991), and Tsai (2001) discuss that the multinational corporation is basically conceptualized as a network of units which have strategic mandates and thus access and transfer knowledge from different positions. Granovetter (1985) notes that, although organizational network positions differ, the corporate embeddedness of organizational units in this network provides a basic social context which is common for all units. Knowledge management literature mostly refers to the knowledge-based view of the firm (Conner and Prahalad, 1996; Kogut and Zander, 1993). This view suggests that knowledge is a primary resource and that social networks facilitate knowledge sharing within an organization. Grant (1996) adds that knowledge, as a resource, requires organizational capabilities in absorbing and then exploiting the knowledge.

**Transaction cost theory**

Pioneered by Coase (1937) and then principally developed by Williamson (1975, 1985a), transaction cost theory is based on the assumption that human beings are utility maximizers and firms are profit maximizers. To achieve these goals, agents are bounded rational and sometimes display opportunistic behaviors. The paradigmatic question of transaction costs theory is the ‘make-or-buy’ decision: should a firm carry out an economic activity in-house or should it be outsourced as Williamson (1985b) refers to these as modes of governance—organizational hierarchy and the market respectively. According to Gurbaxani and Whang (1991), in making this decision firms balance the savings made in production, since a supplier can provide the goods/services more cheaply, against the transaction costs that result from outsourcing. These costs include operational costs and contractual costs. Douma and Schreuder (2002) note that, if the savings in production costs exceed the transaction costs, it is worth outsourcing and vice versa.

According to Williamson (1993), a transaction cost is a cost induced in making an economic exchange. Transaction costs, often known as coordination costs, are well defined as the costs of all the information processing necessary to coordinate the work of people and machines that perform the primary processes, whereas production costs include the costs incurred from the physical or other primary processes necessary to create and distribute the goods or services being produced. Regarding the application of the theory, Ouchi’s (1980) and Thompson et al.’s (1991) literature on network organizations and Wenger’s (1998) studies on communities of practice have show nuances in the relationship between buyers and sellers. Wang (2002) applies transaction costs theory specifically to apply to IT outsourcing, although Ang and Straub (1998) make the first attempt to compare the relative effects of production and transaction costs on onshore outsourcing decisions in the IT context in USA banking businesses greatly influenced by the production cost advantages. Transaction costs play an important role in the outsourcing decision (Ngwenyama and Bryson, 1997). Interestingly, the coefficient for production cost advantage is

approximately six times larger than that of transaction costs. Kogut and Zander (2003) argue that knowledge transfer could not be understood unless transaction cost has been involved in the investigation. In this regard, firm is considered as a community which knowledge is embedded within. Buckley and Casson (1976) and Hennart (1982) emphasize that firms will be efficient when they are able to create and, then, transfer the knowledge. Teece (1997) discovers that knowledge will be capable of being transferred among firms when those firms have comparable organizational, operational, and technological infrastructure.

### Agency Theory

The assumption of agency theory is based on asymmetric information and different perceptions of risk (Jensen and Meckling (1976). Eisenhardt (1989) points out that problem pose the difficulties under conditions of incomplete and asymmetric information. The fundamental arguments underlying this theory partly contribute to opportunistic human tendencies. Sharma (1997) offers an interesting application of agency theory by investigating opportunism in knowledge exchange among outsourcers under the information asymmetry condition. The basic assumption is that vendors tend not to behave opportunistically when

- The clients display certain level of trust in the vendors.
- The vendors themselves highly participate in coproduction of the outsourced service.
- The vendors realize that taking advantage is capable of harm their reputation.
- The vendors have fair organizational governance system.
- Information asymmetries and knowledge gaps between the vendors and clients are minimized

Agency theory became a valuable theoretical framework to analyze the relationships between a firm and the parties responsible for IT services. Chalos and Chung (1998) apply agency theory to implement a mathematical model to point out that outsourcing as a opportunity to optimize oversea managerial operability which is in turn strengthen firm's core competency. The model is based upon the assumption the uttermost motivation for outsourcing is the intensity incentive. Quinn (1999) revisits the concept of strategic outsourcing, further arguing that outsourcing of knowledge-based activities require a high-level, diverse set of skills. Moreover, he gives a recommendation that a certain set of management techniques and strategies are required in order to thrive in outsourcing.

A good deal of literature adopted agency cost theory has listed trust as an important principle in knowledge exchange, for trust is regarded as behavioral adhesive which improves relation among subunits (Neilsen, 2001). According to Aulakh et al. (1996), trust promotes long-term collaboration among partners and encourages mutual learning and knowledge exchange. By this means, nurturing trust could prevent opportunistic behaviors and therefore positively facilitate knowledge transfer among subunits. In addition, trust is historically based upon interactions among them.

### Game Theory

Game theory is a branch of applied mathematics that uses models to study interactions with formalized incentive structures, encompassing decisions that are made in an environment where various players interact strategically. In other words, game theory studies choice of optimal behavior when costs and benefits of each option are not fixed, but depend upon the choices of other individuals (McMillan, 1992). Game theory has applications in a variety of fields, including economics, international relations, evolutionary biology, political science, and military strategy. Kreps, et al. (1982), Nash (1953), and Spence (1976) employ game theory as attempts to explain the strategic behavior of players or actors in particular games. These situations are characterized by specific assumptions concerning the production function of a company, the environment and informational structures: All players work under the same conditions and make rationale and intelligent decisions to maximize their profits. Fudenberg and Tirole (1990) describe that the only determinant for these decisions is the perception of the expected actions of the antagonist. In general, it is possible to have 2-player games or n-player games; in addition, newer dynamic game theory<sup>2</sup> as opposed to the traditional mathematical game theory incorporates the assumption of incomplete information into its analytical models.

Elitzur and Wensley (1997) use game theory to examine and explain certain characteristics of IT outsourcing, including knowledge transfer. Their main argument is on the role of incentives and fees as tools to help shape the structure of outsourcing accommodation. van Hippel (1988) and Schrader (1990) studies knowledge exchange among competitors using prisoners' dilemma paradigm originated by Axelrod (1984), and Schrader (1990) concludes that cooperation only occurs

<sup>2</sup> The definition is provided by Stanford Encyclopedia of Philosophy, <http://plato.stanford.edu/entries/game-theory/>

when the players anticipate a long-term relation with an appropriate level of trust between them. Loebecke et al. (1999) provide game-theoretical framework for investigating cooperation in competitive environment. Regarding managing intergenerational knowledge transfer, Loebecke et al. (1999) treat and manage explicit and tacit knowledge differently as they have different dynamics. In addition, Kesteloot and Veugelers (1994) examine cooperation in knowledge-intensive activities, such as R&D, among organizations, and then apply game theory to analyze how those organizations can be prevented from cheating on the co-operative environment.

### **Social exchange theory**

Recently, there has been interest in applying concepts on social exchange theory to understand outsourcing decisions and outcomes (Hui and Beath, 2002). Social exchange theory grew out of the intersection of economics, psychology and sociology, focusing on the exchange relationship between specific actors (Blau, 1964). According to Homans (1958), the initiator of the theory, it was developed to understand the social behavior of humans in economic undertakings. The fundamental difference between economic exchange and social exchange theory is in the way actors are viewed (Emerson, 1987). Today, social exchange theory exists in many forms, but all of them are driven by the same central concept of actors exchanging resources via a social exchange relationship where social exchange is the voluntary transfer of resources between multiple actors (Cook, 1977). The theory has evolved from a dyadic model to a network model (Cook, 1977) with market properties (Emerson, 1962). The crux of the theory is still best captured in Homans's (1958) own words. Blau (1964) added that social exchange theory is based on the concept of trust to explain the exchange relationships among participants.

According to Gulati (1995), trust played a critical role in the development of a long term relationship and in facilitating an exchange relationship. Therefore, trust is a basic concept in separating the relationship type into a transactional style or a partnership-style relationship and it evolves through mutually satisfying interactions and increasing confidence in the relationship. Emerson (1972, as cited in Dibbern et al., 2004, p. 19) stress that there are social exchange attributes highly applicable to outsourcing scenario where clients and vendors are the entities involved in social exchange: Reciprocity, A mutual exchange as a result of the need to reciprocate the benefits received; balance, there is an equilibrium or equality in distribution due to mutual dependence between each of the actor in an exchange; cohesion, when one or both actors in the exchange run into a conflict involving the exchange; power, the amount of monetary influence one can exercise on the other.

Level of teams' collaborative activity can socially affect establishing trust among entities (Arora and Forman, 2007; Carmel and Abbott, 2007; Hui et al., 2008). They make the observation that poor project performance and poor relationship quality with IT vendors contributed to firms bringing interdependent IT activities. Jarvenpaa and Staples (2000; 2001) apply social exchange theory to study sharing behaviors for information and expertise while Bock and Kim (2002) adopt social exchange theory to determine the knowledge-sharing attitude. In addition, Hall (2003) studies the application of social exchange theory on knowledge sharing in large, distributed, information-intensive organizations. He concludes that social exchange theory is greatly useful for studying knowledge-sharing relationship among geographically distribute subunits, and the theory is moreover capable of guide the researchers to invent optimal conditions for such relationships.

### **CONCLUSION**

This paper was to explore IS theories which have been adopted in contemporary offshore outsourcing. Most of conventional literatures were heavily based upon knowledge-based/resource-based theory, the mechanism of transferring knowledge, embedding knowledge, and knowledge transfer capabilities. Unfortunately, their findings are very evident that most of knowledge transfer studies in recently have been targeting at intra-firm genre (i.e. Hansen et al., 2005; Inkpen and Tsang, 2005; Agarwal et al., 2004; Carlile, 2004; Szulanski et al., 2004; Reagans and McEvily, 2003; Spencer, 2003; Hansen, 2002; Postrel, 2002; Tsai, 2002; Boland et al., 2001; Schulz, 2001; Tsai, 2001; Dyer and Nobeoka, 2000; Levin, 2000; McEvily, Das and McCabe, 2000; Osterloh and Frey, 2000; Hoopes and Postrel, 1999; Simonin, 1999; Appleyard, 1996; Mowery et al., 1996; Heckney et al., 2005), and the knowledge in the context was considered as an economically passive body. In this regarded, knowledge-based theory may less be applicable in the IT offshore outsourcing context.

On the contrary, transaction cost theory treated knowledge as an economic asset which was used to increase productivities among business partners to achieve their common goals under certain pressure in larger economic system of the market. However, the nature of the theory was managerial and rather seeking for hard negotiation than locating an optimal point of the negotiation. Similarly, agency theory was toward managerial perspective of the socially, poetically, and economically information-asymmetric stakeholders competing for maximizing returns with imperfect information. Interestingly, agency theory suggested that one particular partner, regardless of its size or technological advancement, could not be better of the others when it did not know what it does not know. Therefore, this drove all the stakeholders to make a 'cautious' moves guided by vaguely political hierarchical protocol to approach and negotiation one another.

Interestingly, in game theory, making 'cautious' strategies was quite similar to agency theory's basis. However, the differences noticeable between these two theory were the game theory was by far highly strategic than the agency theory, and all the players in the game theory were leveled. Moreover, knowledge in game theory framework was played down and perceived merely as an asset not-so significant since the theory highly valued the players and their cautious strategic moves. Seemingly, knowledge-base theory, transaction cost theory, agency theory, and game theory combined, if so, could be a very powerful framework for deepening understanding knowledge transfer in IT offshore outsourcing, for they quite covered all the possibly related respects of knowledge transfer in offshore outsourcing in term of scope and scale. Notwithstanding, these theories severely lacked the most important factor, cultural perspectives.

Social exchange captures all potential factors and perspectives which are necessary for closely investing knowledge transfer (transfer as one of the exchange modes) in offshore outsourcing setting as it covers social, political, economical, psychological perspectives, ranging from societal to individual levels of analysis, and focusing on the activities and the all inclusive circumstances that the exchange takes place. Moreover, the theory itself is socio-cultural context sensitive, and it is therefore highly applicable in to the settings where culture is perceived as incubatory inertia.

Thriving in knowledge transfer is course of the main objective of contemporary research agendas in offshore outsourcing; however, other related issues are worth investigating and studying. The big steps ahead are not to merely re-solve the current issues but to articulate how will the future agendas emerge, what the future agendas look like, how will future issues be, how will the future work address current issues, and how can we make a better framework than what we have had in the past.

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