The Factors Influencing Information Systems Outsourcing Partnership – A Study Integrating Case Study and Survey Research methods

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Abstract

Outsourcing of information system (IS) functions is growing rapidly. Many researches relevant to the IS functions outsourcing, from the economic viewpoint, used the resource-dependence theory, transaction-cost theory, and agent cost theory. Explaining the relationship between organizations from a purely economic point of view is unjustifiable because inter-organizational relationships form from the social learning experiences based on specific sequential interactions. This study focuses on the working relationship between the outsourcing service receiver and the service provider in the outsourcing on-going stage based on a social perspective. The purpose of this study intends to use the social theories to investigate the influencing factors of IS outsourcing partnerships between the firm and the service providers. In order to validate the research model, this study integrated case study and survey research methods, or what has been called 'triangulation' to verify the research model. The results of the study provide a research model of the IS outsourcing partnerships to the follower researchers, and provide the suggestions to the firm to ensure the success of the IS functions outsourcing.

Keywords：IS Outsourcing, Partnership, Social Exchange Theory

1. Introduction

Outsourcing of information system (IS) functions is growing rapidly. While IS functions outsourcing is not really a new phenomenon, it is noteworthy that the outsourcing market jumped from NTD $49.8 billion in 1997 to NTD $63.6 billion in 1998 (27.7% growth rate) in Taiwan. Industry analysts predict that the global market will grow from $86 billion in 1996 to more than $137 by 2001 (DiRomualdo and Gurbaxani, 1998). Clark, Zmud, and McCray (1995) identified several factors including information systems technology change, technology management, and business change that favor outsourcing.

Much research relevant to the IS functions outsourcing, from the economic viewpoint (Meyer, 1994;Walker and Weber, 1984), uses the resource dependence theory, transaction cost theory, and agent cost theory (Ang and Straub, 1998; Alpar and Saharia, 1995; Aubert et al., 1996; Clemons, Reddi, and Ros, 1993;Grover and Teng, 1993; Nam et. al., 1996; Ngwenyama and Bryson, 1999; Loh and Venkatraman, 1992). Economic theories aim at explaining the characteristics of a governance or contract (Hallen et al., 1991). However, explaining the relationship between organizations from a purely economic point of view is unjustifiable because inter-organizational relationships form out of the social learning experiences based on specific sequential interactions (Lee and Kim, 1999). This study focuses on the working relationship between the outsourcing service receiver and the service provider in the outsourcing on-going stage based on a social perspective.

Grover, Cheon, and Teng (1996) indicate that the nature of outsourcing has evolved. The business relationship between the outsourcing service receiver and the service provider is increasingly that of a partnership rather than merely that of customer and vendor. McFarlan and Nolan (1995) see the willingness to undertake client-vendor partnerships and alliances as one of the prime movers for outsourcing IS functions in the future. Partnerships and alliances may be major vehicles for business growth in the future, where partnerships pair two or more business with complementary strengths to undertake ventures that neither could undertake independently, as stated by Drucker (1995).

Rita Terdiman, vice president and research director at Gartner Group, believes that in the longer term, companies will use "best of breed" partnering, with one vendor acting as the prime contractor. In such cases, the client and prime contractor will strive more for a partnership relationship rather than a simple customer/supplier relationship (McNurlin and Sprague, 1998 p.239). Several factors favor IS outsourcing partnerships. One is the inability to write complete contracts. Second, there is considerable investment by one or both parties in assets that are specific to the relationship. Partnerships have continuity mechanisms that protect such investments and promote further investments. Finally, when the needs met through outsourcing are ongoing and best met through a long-term relationship with a vendor and repeated contracts, a partnership provides the mechanisms for sustaining such long-term relationships (Klepper and Jones, 1998).

Grover, Cheon, and Teng (1996) concluded from a study that both service quality of the vendor and

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elements of partnership such as trust, cooperation, and communication are important for outsourcing success. Lee and Kim (1999) also find that partnership quality may serve as a key predicator of outsourcing success. Several firms have established partnerships with service providers, as in the Kodak-IBM-DEC partnership (Applegate and Montealergre, 1991) and USAA-IBM partnership (Lasher et. al, 1991). They recognized the limitations of legal contracts and sought flexible relationships with their service providers based on mutual trust (Lee and Kim, 1999).

The purposes of this study are as follows. (1) From the social viewpoint, this study intends to develop a research model based on the social exchange theory to investigate the factors influencing outsourcing partnerships between firms and the outsourcing service providers of the IS functions. (2) This study employs triangulation (Webb et al, 1966), integrating the case study and survey research methods to empirically validate the research model and to evaluate the social exchange theory as applied to the MIS area.

2.Literature Review

2.1 IS Outsourcing and Partnership

There are many definitions of IS outsourcing. In this study, we adopt the definition of IS outsourcing articulated by Grover, Cheon, and Teng (1996): "the practice of turning over part or all of an organization's IS functions to an external service provider." This comprehensive definition classified IS outsourcing into two categories: asset outsourcing, which involves transfer of assets such as hardware, software, and people to service providers, and service outsourcing, which involves system integration and system management services without asset transfer (Lee and Kim, 1999).

Various definitions of the term partnership exist. La Londe and Cooper (1989) defined partnership as "a relationship between two entities that entails the sharing of benefits and burdens over some agreed upon time horizon." Ellram (1995) adds the dimension of information sharing: "an agreement between a buyer and a supplier that involves a commitment over an extended time period, and includes the sharing of information along with a sharing of the risks and rewards of the relationship." Numerous other definitions include the key characteristics of shared risks/rewards, long-term focus, joint activities, and the concept of trust.

Lambert, Emmelnainz, and Gardner (1999) defined a partnership as "a tailored business relationship based upon mutual trust, openness, shared risk, and shared rewards that yields a competitive advantage, resulting in business performance greater than would be achieved by the firms individually." Lee and Kim (1999) defined IS outsourcing partnership as "an inter-organizational relationship to achieve the participants shared goals."
Powell(1990) identifies the bases for partnership relations: (1)Reciprocal, mutually supportive actions so that both gain over time, (2)Trust that the other partner will take positive actions and refrain from opportunistic actions, (3)A long-term perspective and the willingness to give and take, resolving differences as they arise and sharing gains, risks, and losses, (4)Reputation as the most significant sign of reliability and a reduced need for monitoring. The desire for continued participation in the gains of the partnership limits opportunism, (5)Performance monitoring that occurs more through a peer review process than explicit measures, (6)Mutual consent instead of formal rules and procedures, (7)A meshing of processes in the two organizations and a blurring of the line between them.

According to Henderson(1990), what sustains the long-term aspect of partnership, or what he calls "partnership in context" involves:(1)Mutual gains, or the belief on the part of both partners that working together will bring benefits that can't be achieved individually, (2)Commitment to the partnership through shared goals, incentives that reinforce the goals, and the existence of contracts, (3)A predisposition to partner based on (a)managerial belief that competition demands close working relationships with other organizations, and (b)trust that the other firm will do the right thing and not take advantage of the situation.

2.2 Theoretical Foundations of the Study—Social Exchange Theory

One theoretical perspectives based on social exchange theory (Blau, 1964; Homans, 1958; Thibaut & Kelley, 1959) provides the theoretical foundations to develop the research model of this study.

A social exchange approach has its origins in several disciplines, including anthropology (Levi-Strauss, 1969; Mauss, 1954), economics (Ekehm 1974), sociology (Cook & Emerson, 1978; Emerson, 1981), and social psychology (Blau, 1964; Homans, 1961,1974; Thibaut & Kelley, 1959). Social exchange theories and concepts have been important in research on human sexuality (Sprecher, 1998), relationship formation (Huston & Burgess, 1979), employer attitude (Whitener et al., 1998), and the distribution channel working relationship (Anderson and Narus, 1984, 1990).

In 1959, Thibaut and Kelley posited a theory of interpersonal relations and group functioning, where dyadic relationships were primarily considered. This work, along with a few related works of that period (Homans 1958), has come to be known as social exchange theory (Carman 1980; Kelley and Thibaut 1978). Further development of this theory has recently been presented by Kelley and Thibaut (1978, 1983). Most social exchange models share the following basic assumptions (LaGaipa, 1977; Nye, 1979), (a) Social behavior is a series of exchanges; (b) individuals attempt to maximize their rewards and minimize their costs; and (c) when individuals receive rewards from others, they feel obligated to reciprocate. The IS outsourcing exchange model fulfills the basic assumptions stated above.

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The exchange relationship between two participants (e.g., the outsourcing service receiver and the service provider) was analyzed, based upon their interactions. The basic conceptual tool used by Thibaut and Kelley (1959) for this analysis of dyadic interaction was the outcome matrix, which showed the behaviors each participant could enact and the resultant outcome of each behavior, dependent upon the behavior of the other participant. The consequences of the interactions, termed outcomes, represented the rewards obtained and costs incurred by each participant from performing a given behavior.

There are three types of social relationships (Emerson, 1981). The first type of exchange relationship is negotiated transaction. A negotiated transaction involves mutually contingent contributions to the exchange, with both contributions evolving together in some social process. The second type of transaction involves paired but separately performed contributions, only one of which is contingent upon the other. A "free gift", or altruistic act might initiate the process. The last type of exchange relation has been called "incorporation" by Barth(1966). It is very similar to what Emerson has called "productive" exchange relation. Incorporation is based on a special form of exchange in which separately obtained benefit is not possible.

The essence of the IS outsourcing partnership matches the first type of social exchange relations (a negotiated transaction) and the third type of social exchange relations (an incorporation relation). Therefore, this study uses the constructs of social exchange theory to develop the research model of IS outsourcing partnership. Meanwhile, many other researches have employed social exchange theory in their studies. Lee and Kim (1999) established partnership quality as a key predictor of outsourcing success. They propose a theoretical framework for outsourcing partnership based on the social exchange theory, power and political theory. Anderson and Narus(1984,1990) built upon work from social exchange theory and channels of distribution and presented a model of distributor- manufacturer working relationships.

3.Research Model

This study uses social exchange theory (Blau, 1964; Homans, 1958; Thibaut & Kelley, 1959) to develop the research model（figure 1）. The independent variables affecting the IS functions outsourcing partnership include the outcomes given at comparison level, common values, communication, and mutual dependence. The mediating variables are power, trust, commitment, and conflict. The dependent variable of this research model is outsourcing partnership measured by the satisfaction of the outsourcing service receiver. The operational definition and related literature are shown at table 1. Thirteen hypotheses were created to investigate the causal relationship among all the variables in the research model (table 2).

Morgan and Hunt (1994) proposed that the presence of relationship commitment and trust is central to successful relationship marketing. Therefore, when both commitment and trust are present, they lead directly to cooperative behaviors that are conducive to relationship marketing success. Commitment has long been central in the social exchange literature (Blau, 1964; Thibaut and Kelley, 1959). Like commitment, trust also has been studied widely in the social exchange literature (Fox, 1974; Scanzoni, 1979).

Outcomes stated as CL_{alt} is a construct adapted from social exchange theory that represents the perceived dependence of the distributor upon the manufacturer. The level of outcomes obtained, judged against CL_{alt}, determines participant's mutual dependence upon the relationship. Outcomes given comparison level (or CL) is also posited by Thibaut and Kelley (1959) as bases for evaluation of the outcomes obtained from a particular relationship.

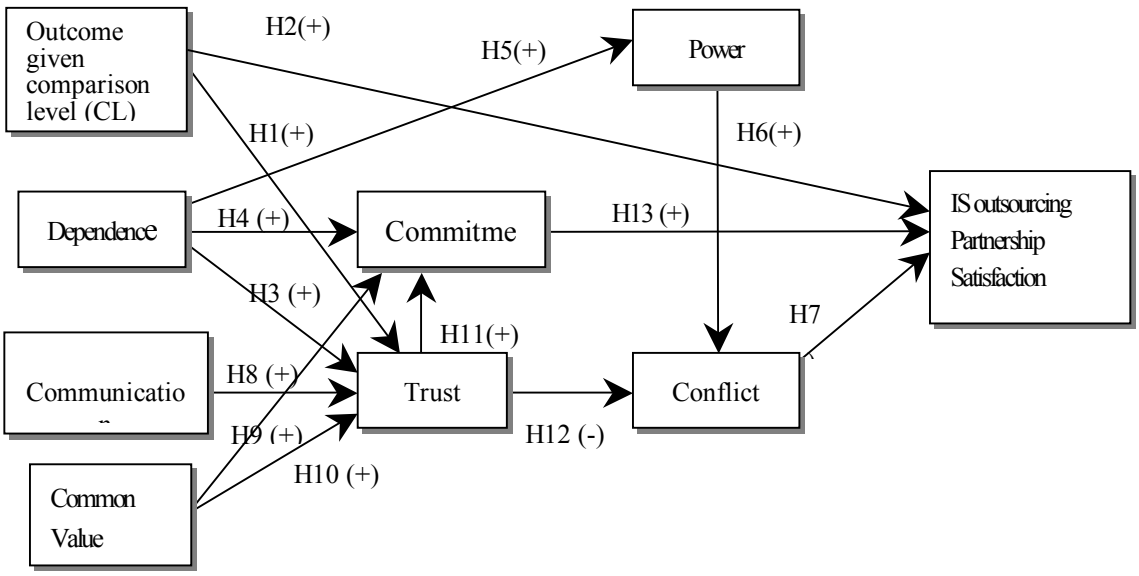

Figure 1 The research mode of the factors influencing IS outsourcing partnership

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Table 1. Operational definition and related literature

Variables	Operational definition	Related literature
Outcome given comparison Level (CL)	IS outsourcing service receiver's assessment of the results (reward obtained minus costs incurred) in comparison with expectation	Anderson and Narus (1984, 1990)
Dependence	IS outsourcing service receiver's perceived reliance on the outsourcing vendor	Anderson and Narus (1984, 1990)
Power	Degree of the ability of IS outsourcing vendor to influence the outsourcing service receiver's decision making	Wilkinson(1974), Nelson and Cooprider (1996), Anderson and Narus (1990)
Conflict	The frequency and intensity of disagreement between IS outsourcing service receiver and vendor	Firat et al.(1975), Etgar (1979), Reve and Stern (1979), Anderson and Narus (1984, 1990) , Lee and Kim (1999)
Communication	The formal and informal sharing of information or meaning between IS outsourcing service receiver and vendor	Anderson and Narus (1984, 1990) , Mohr and Spekman (1994) , Lee and Kim (1999)
Common Values	Degree of similarity of the pattern of shared values and beliefs between IS outsourcing service receiver and vendor	Heide and John (1992), Klepper (1995),Lee and Kim(1999), Morgan and Hunt(1994)
Trust	Degree of confidence and willingness between IS outsourcing service receiver and vendor	Lee and Kim(1999) , Morgan and Hunt (1994), Mohr and Spekman (1994)
Commitment	Degree of the pledge of relationship continuity between IS outsourcing service receiver and vendor	Lee and Kim(1999), Mohr and Spekman (1994), Moorman et al. (1992)
IS outsourcing partnership Satisfaction	A positive affective state resulting from the appraisal of all aspects of the IS outsourcing service receiver's working partnership with outsourcing vendor	Anderson and Narus (1984,1990), Mohr and Spekman(1994)

Table 2. 13 hypotheses and supported literature

Hypothesis	Supported literature
H 1：There is a positive relationship between "outcome given comparison level" and "trust".	Anderson and Narus (1990)
H 2：There is a positive relationship between "outcome given comparison level" and "IS outsourcing partnership satisfaction".	Anderson and Narus (1984, 1990)
H 3 ： There is a positive relationship between "dependence" and "trust".	Lee and Kim (1999)
H 4 ： There is a positive relationship between "dependence" and "commitment".	Lee and Kim (1999)
H 5：There is a positive relationship between "dependence" and "power".	Anderson and Narus (1984,1990); Etgar (1976); Philips(1981)
H 6 ： There is a positive relationship between "power" and "conflict".	Anderson and Narus (1984, 1990); Gaski (1984); Walker (1972) ; Wilkinson (1981)
H 7 ： There is a negative relationship between "conflict" and "IS outsourcing partnership satisfaction".	Anderson and Narus (1984, 1990); Dwyer (1980); Lusch (1976); Rosenberg and Stern (1971); Wilkinson (1981)
H 8 ： There is a positive relationship between "communication" and "trust".	Anderson and Narus (1990); Lee and Kim (1999); Morgan and Hunt (1994)
H 9 ： There is a positive relationship between "common values" and "trust".	Lee and Kim (1999); Morgan and Hunt (1994)
H 10: There is a positive relationship between "common values" and "commitment".	Lee and Kim (1999); Morgan and Hunt (1994)
H 11: There is a negative relationship between "trust" and "conflict".	Anderson and Narus (1990); Morgan and Hunt (1994)
H 12: There is a positive relationship between "trust" and "commitment".	Morgan and Hunt (1994)
H 13: There is a positive relationship between "commitment" and "IS outsourcing partnership satisfaction".	Mohr and Spekman (1994)

3.Research Methodology

In order to validate the research model, this study integrated case study and survey research methods, or what has been called 'triangulation' (Webb et al., 1966) to verify the research model, derived from the social exchange theory. Attewell and Rule (1991, p.367) highlight the 'complementarity between survey and fieldwork approaches to study information technology', stating that 'each is incomplete without the other'. Kraemer (1991) pointed out that survey research and fieldwork have always been alternative rather than competing sources of evidence and ideas. Attewell and Rule (1991, p.314) suggests that it makes sense to do fieldwork first. Getting close to the phenomenon – gathering insights or discoveries about causal links, motivations, reasons why things happened – should precede verification by more objective techniques, such as survey.

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This study employed multiple-case study first to revise the original research model, derived from social exchange theory; then survey research was used to collect the data from sample frame to verify the revised research model, derived from the result of multiple-case study.

3.1 Multiple-Case Study

Case methodology is clearly useful when a natural setting or a focus on contemporary events is needed (Benbasat et al., 1987). One of the key characteristics of the case methodology is "cases studies are most suitable for the exploration, classification and hypothesis development stages of the knowledge building process" (Bonoma, 1985; Yin, 1989). In order to select the appropriate samples, the authors decided the sample frame to include high technology electronic Industries, small-medium size industries, and governmental organization. We contacted four IC (Integrated-Circuit) manufacturers, four small-medium size companies, and two governmental agencies. Finally, eight firms in the southern part of Taiwan were selected. The unit of analysis is each organization's IS outsourcing case.

The authors interviewed the CEO or CIO of each firm. Before each interview was held, the interviewer called the interviewee to make an appointment. The interview questionnaire was sent to the interviewee 3 days ago by email before the meeting. Each interview lasted more than one and half hours, and all the interview process was recorded by tape for the analysis purpose. The interview questionnaire was designed based on the related literature and the constructs of this research model.

According to the results of the multiple- case study, the original research model was revised. Following are the key points of the results: (1) "power" construct is not significant in the IS outsourcing environment, (2) "trust" affects "dependence" rather than "dependence" influencing "trust", (3) "common values" is replaced by the construct of "mutual understanding", (4) Among the 13 hypotheses of the original research model, 9 of them were supported from the result of case study, while 4 of them are not supported. Also, three new hypotheses were created from the results of the study. Figure 2 shows the revised model from the result of multiple-case study and table 3 is the list of hypotheses derived from the result of case study.

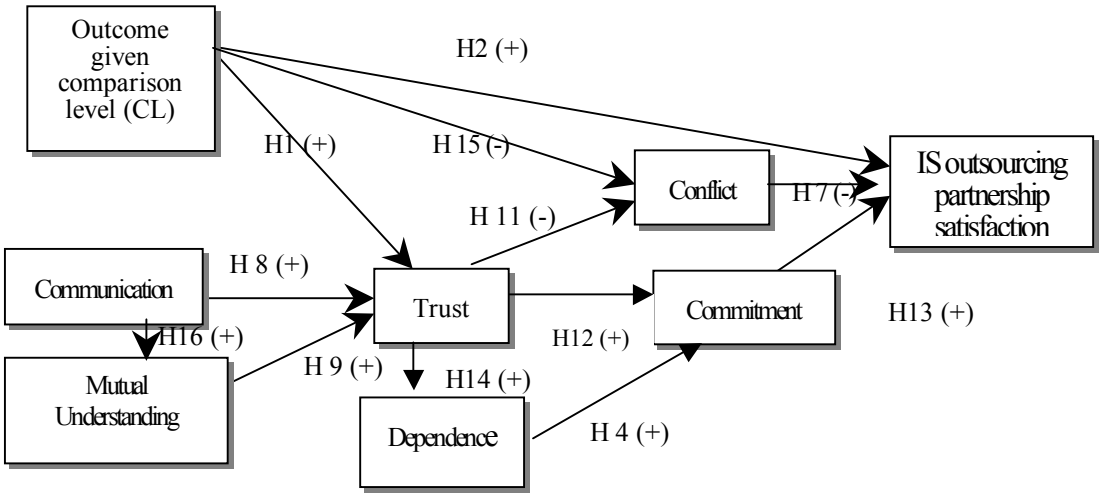

Figure 2. The revised research mode of the factors influencing IS outsourcing partnership derived from the result of multiple-case studv

3.2 Survey Research

Survey research was employed to verify the revised research model (figure 2) in this study. SAS (Version 6.12) CALIS was used to analyze the data collected from the sample firms in Taiwan. The sample frame is random selected from the members of the Association of the IS manager in Taiwan. Totally, 550 questionnaires were sent by mail or email. A total of 225 IS managers' responses were collected, providing a gross return rate of 40.91 %. Among the returning questionnaires, 28 were not well completed. The total useful respondents were 197, for a useful return rate of 35.82 %.

According to the literature reviews of other instruments (listed in table 4), the instrument for 8 constructs in the research model was developed. To establish the content validity of the scale items, a pretest of the instrument was conducted with 5 doctoral students, majoring in MIS. The subjects were asked to evaluate the contents of the items. The researchers referred to the opinions of the subjects to reworded or eliminated the items. The researchers again conducted a pilot study involving 5 MIS managers from the sample frame to re-evaluate the instrument. The purpose of the pilot study was to gain additional feedback about the questionnaire instrument. Finally, the instrument was well developed and there are 32 measurement items for these 8 constructs in the research model.

This study uses the confirmatory factor analysis (CFA) to assess the instruments' reliability, specifically internal consistency and construct validity, specifically

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convergent validity and discriminate validity. In all tests, the instrument must perform at statistically adequate levels. These levels have been documented, based on generally accepted criteria, by numerous researchers (Bqgozzi and Yi, 1988; 1991).

Table 3. the list of hypotheses derived from the result of multiple-case study

Hypothesis	Result Of multiple -case study	Remark
H 1：There is a positive relationship between "outcome given comparison level" and "trust".	Support	
H 2：There is a positive relationship between "outcome given comparison level" and "IS outsourcing partnership satisfaction".	Support	
H 3：There is a positive relationship between "dependence" and "trust".	Not support	"trust" affects "dependence" rather than "dependence" influencing "trust"
H 4：There is a positive relationship between "dependence" and "commitment".	Support	
H 5：There is a positive relationship between "dependence" and "power".	Not support	"power" construct is not significant
H 6：There is a positive relationship between "power" and "conflict".	Not support	"power" construct is not significant
H 7：There is a negative relationship between "conflict" and "IS outsourcing partnership satisfaction".	Support	
H 8：There is a positive relationship between "communication" and "trust".	Support	
H 9：There is a positive relationship between "mutual understanding" and "trust".	Support	"common values" is replaced by the construct of "mutual understanding"
H 10: There is a positive relationship between "mutual understanding" and "commitment".	Not support	"common values" is replaced by the construct of "mutual understanding"
H 11: There is a negative relationship between "trust" and "conflict".	Support	
H 12: There is a positive relationship between "trust" and "commitment".	Support	
H 13: There is a positive relationship between "commitment" and "IS outsourcing partnership satisfaction".	Support	
H 14: There is a positive relationship between "trust" and "dependence".	Support	New created hypothesis
H 15: There is a negative relationship between "outcome given comparison level" and "conflict".	Support	New created hypothesis
H 16: There is a positive relationship between "communication" and "mutual understanding".	Support	New created hypothesis

Table 4. The instrument of 8 constructs and related literature

Constructs	Related literature	Measurement items
Outcome given Comparison Level (CL)	Anderson and Narus (1984, 1990)	3
Dependence	Anderson and Narus (1984, 1990), Lee and Kim (1999), Mohr and Spekman (1994)	4
Conflict	Anderson and Narus (1984), Lee and Kim (1999)	5
Communication	Grover, et al.(1996), Lee and Kim (1999), Mohr and Spekman(1994), Morgan and Hunt (1994)	7
Mutual Understanding	Lee and Kim (1999)	3
Trust	Grover, et al.(1996), Lee and Kim (1999), Mohr and Spekman (1994)	6
Commitment	Lee and Kim (1999), Morgan and Hunt (1994)	4
IS outsourcing satisfaction	Anderson and Narus (1984), Grover, et al.(1996)	2

4. Research Finding

4.1 Data Analysis

The data analysis included three major components. First, descriptive statistics, such as means, standard deviations, and correlations for all variables are examined in order to ensure that further analysis can be undertaken. Second, CFA was utilized to assess the instruments' reliability, specifically internal consistency and construct validity, specifically convergent validity and discriminate validity. Finally, CFA was utilized to test the hypothesized relationships among research variables.

4.2 Summary Measures

4.2.1 Descriptive statistics

Table 5 shows the descriptive statistics and inter-correlations among research variables. These findings strengthen arguments raised earlier in the article about hypothesized relationships.

4.2.2 Instruments' convergent validity, discriminate validity and reliability

CFA was utilized to assess the instruments' reliability, specifically internal consistency and construct validity, specifically convergent validity and discriminate validity. Because the sample size in this study is too small (only 197) to include all the variables in a single factor analysis, the limited information factor analysis approach (Sethi and Carraher, 1993) seems ideal for this situation. Sethi and Carraher (1993) stated that model variables have to be partitioned on the basis of theory or content into hypothesized unidimensional groupings.

According to the suggestion of Sethi and Carraher

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(1993), this study partitioned the research model (figure 2) into two parts of measurement model based on social exchange theory. The CFA was used to test the instruments' convergent validity. Six goodness-of-fit indices were used, including chi-square/degree of freedom, goodness-of –fit index (GFI), adjusted good-ness-of-fit index (AGFI), normalized fit index (NFI), no normalized fit index (NNFI), comparative fit index (CFI), and root mean square residual (RMR). Table 6 shows the common fit indexes for analyzing the overall goodness-of-fit (Hair et al., 1995). The first part of measurement model includes three constructs, such as 'outcome given comparison level', 'conflict', and 'IS outsourcing satisfaction'. The second part of measurement model includes the remaining five constructs, such as 'dependence', 'communication', 'mutual understanding', 'trust', and 'commitment'.

Table 7 and table 8 show the results of CFA for two parts of measurement model. Since almost all the model goodness-of-fit indexes in table 7 and 8 meet the requirements of table 6, we can conclude that the instrument has good convergent validity.

Table 5. Descriptive statistics and inter-correlations for the study variables

	Outcome given C.L. (OUT)	Dependence (DEP)	Conflict (COF)	Communication (COM)	Mutual Understanding (MUS)	Trust (TRU)	Commitment (CMI)	Outsourcing satisfaction (SAT)
OUT	1.0							
DEP	0.248***	1.0						
COF	-0.362***	-0.128*	1.0					
COM	0.294***	0.286***	-0.255***	1.0				
MUS	0.063	0.268***	-0.069	0.516***	1.0			
TRU	0.273***	0.298***	-0.282***	0.515***	0.450***	1.0		
CMI	0.106	0.191***	-0.181**	0.526***	0.427***	0.618***	1.0	
SAT	0.504***	0.179**	-0.381***	0.534***	0.313***	0.436***	0.545***	1.0
Mean	4.30	4.34	3.78	4.7	4.40	4.46	5.43	4.91
S.D.	0.81	1.36	1.25	0.87	1.03	1.03	0.90	0.82

註：*** P<0.01, ** P<0.05, * P<0.1

Table 6. Common fit indexes for analyzing the overall model goodness-of-fit

Fit Indices	Recommended value
Normed Fit Index (NFI)	>=0.9
Nonnormed Fit Index (NNFI)	>=0.9
Comparative Fit Index (CFI)	>=0.9
Goodness of Fit Index (GFI)	>=0.9
Adjusted goodness-of-fit index (AGFI)	>=0.8
Root Mean Square Residual (RMR)	<=0.1

Table 7. The CFA results of the first part of measurement model (F3V11 deleted)

Construct	Measurement item	Factor loading	S.D.	Z value
Outcome given comparison level	F1V1	0.861	0.058	14.47***
	F1V2	0.859	0.067	14.44***
	F1V3	0.805	0.069	13.12***
Conflict	F3V8	0.865	0.081	14.78***
	F3V9	0.883	0.079	15.66***
	F3V10	0.748	0.093	11.91***
	F3V12	0.823	0.082	13.69***
IS outsourcing satisfaction	F8V33	0.933	0.066	16.43***
	F8V34	0.921	0.066	16.11***
Model goodness-of-fit indexes： $\chi^2 = 63.65^{***}$, df = 24, $\chi^2/df = 2.65$ GFI=0.938, CFI=0.968, NFI=0.950, NNFI=0.952 AGFI=0.885, RMR=0.066				

Remark：*** p<0.01

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Table 8. The CFA results of the second part of measurement model
（ F2V4, F4V13, F4V14, F4V15, F5V22, 5 items deleted）

Construct	Measurement item	Factor loading	S.D.	Z value
Dependence	F2V5	0.744	0.106	11.10***
	F2V6	0.645	0.107	9.41***
	F2V7	0.934	0.109	14.58***
Communication	F4V16	0.792	0.078	13.15***
	F4V17	0.908	0.067	16.37***
	F4V18	0.932	0.066	17.13***
	F4V19	0.909	0.069	16.39***
Mutual Understanding	F5V20	0.956	0.080	14.91***
	F5V21	0.876	0.087	13.42***
Trust	F6V23	0.670	0.082	10.43***
	F6V24	0.702	0.083	11.10***
	F6V25	0.864	0.068	15.05***
	F6V26	0.931	0.061	17.08***
	F6V27	0.904	0.066	16.22***
	F6V28	0.754	0.071	12.26***
Commitment	F7V29	0.809	0.064	13.49***
	F7V30	0.887	0.059	15.62***
	F7V31	0.923	0.060	16.67***
	F7V32	0.837	0.068	14.23***
Model goodness-of-fit indexes： χ^2 = 330.163, df = 142, χ^2/df = 2.33 GFI=0.842, CFI=0.938, NFI=0.897, NNFI=0.926 AGFI=0.788, RMR=0.108				

Remark：*** p<0.01

Discriminate validity using correlation analysis for two parts of measurement model were summarized in Table 9 and 10. Since all the correlation coefficients those plus or minus two standard deviation do not include 1 (Hair et al., 1995), we can conclude that all the constructs in the instrument has good discriminate validity. The reliability of each multiple-item measures was estimated using coefficient alpha, a commonly used measure of internal consistency (Cronbach, 1951). All of the alpha scores approximate .7 or larger, indicating that the measures are reliable (Cronbach 1951). Table 11 shows the Cronbach's alpha value of all the constructs.

Table 9. The results of correlation analysis of the first part of measurement model

	Outcome given comparison level	Conflict
Conflict	-0.440*** (0.068)	
IS outsourcing satisfaction	0.569*** (0.059)	-0.447*** (0.065)

remark：the numbers in ( ) are S.D.. *** p<0.01

4.2.3 Model verification and hypotheses test

The structural model was examined in terms of model goodness-of-fit, overall explanatory power, and postulated individual causal links. The explanatory power of the model for individual constructs was examined using the resulting R^2 for each dependent construct shown in table 12.

Figure 3 shows the result of path analysis. Among these 12 hypotheses, 11 of them are supported statistically significant and one hypothesis (H4) was rejected.

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Table 10. The results of correlation analysis of the second part of measurement model

Constructs	Dependence	Communication	Mutual Understanding	Trust
Communication	0.258*** (0.073)			
Mutual Understanding	0.176*** (0.065)	0.286*** (0.064)		
Trust	0.391*** (0.069)	0.526*** (0.054)	0.319*** (0.066)	
Commitment	0.276*** (0.075)	0.585*** (0.050)	0.381*** (0.069)	0.618*** (0.043)

remark：the numbers in ( ) are S.D.. *** p<0.01

Table 11. The Cronbach's α of all the constructs

Constructs	Cronbach's α
Outcome given comparison level	0.875
Communication	0.900
dependence	0.747
Conflict	0.925
Mutual Understanding	0.882
Trust	0.915
Commitment	0.919
IS outsourcing satisfaction	0.924

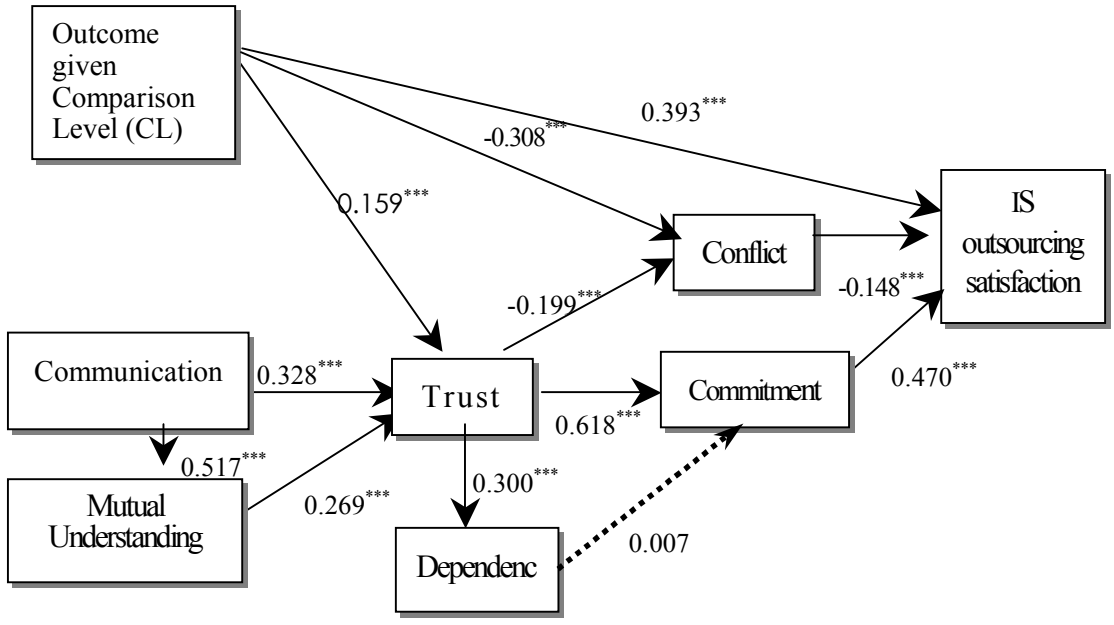

Figure 3. The result of path analysis *** = 0.01 ， ** = 0.05 ， * = 0.1

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Table 12. The results of path analysis of structural model

Construct		Outcome given comparison level	DEP	COF	COM	MU	TRU	CMT	R^2
Dependence (DEP)	Path coefficient						0.299		0.089
	S.D.						0.068		
	Z value						4.397		
Conflict (COF)	Path coefficient	-0.308					-0.198		0.170
	S.D.	0.068					0.068		
	Z value	-4.52					-2.91		
Mutual Understanding (MU)	Path coefficient				0.516				0.267
	S.D.				0.061				
	Z value				8.44				
Trust (TRU)	Path coefficient	0.159			0.328	0.268			0.340
	S.D.	0.060			0.070	0.067			
	Z value	2.62			4.68	3.96			
Commitment (CMT)	Path coefficient		0.007				0.618		0.384
	S.D.		0.059				0.058		
	Z value		0.120				10.52		
IS outsourcing satisfaction	Path coefficient	0.392		-0.148				0.469	0.532
	S.D.	0.052		0.053				0.050	
	Z value	7.417		-2.80				9.37	
Model Goodness-of-fit	Model Goodness-of-fit indexes $\chi^2 = 57.834^{***}$, df = 15, χ^2 /df = 3.85 GFI=0.937, CFI=0.911, NFI=0.886, NNFI=0.834 AGFI=0.848, RMR=0.074								

5. Conclusion and Discussion

This study employs social exchange theory to establish the research model. In addition, the triangulation research method is also adopted to verify the research model. First of all, the research model derived from social exchange theory has been revised according to the result of multiple-case deeply interview. Then, the survey research is included to verify the revised research model and test the 12 hypotheses. Finally, among these 12 hypotheses, 11 of them are supported statistically significant and one hypothesis (H4) was rejected.

The conclusions of this study are shown as follows: (1) the "power' construct doesn't exist significantly in the IS outsourcing situation, (2) "trust" determines "dependence" rather than "dependence" influences "trust", and "trust" has a significant positive effect on the "dependence", (3) "outcomes given comparison level" shows a strong positive relationship with "IS outsourcing satisfaction" and "trust", (4) "outcomes given comparison level" and "trust" have a significant negative effect on the "conflict", (5) the relationship between "trust" and "commitment" is strongly significant, (6) "common value" construct is replaced by the "mutual understanding", according to the result of case study. "Mutual understanding" is positively associated with "communication", and "mutual understanding" also has a significant positive effect on the "trust", (7) "dependence" has no effect on "commitment", indicating the lack of support for H4, (8) "Conflict" shows a significant negative effect on the "IS outsourcing satisfaction", and "commitment" is positively associated with "IS outsourcing satisfaction".

The contributions of this study are (1) to find out the factors influencing the IS outsourcing partnership – based on the social exchange theory, (2) to find out the causal relationship among all the variables in the research model, (3) to employ case study to revise the theory-based conceptual framework, (4) to use the results of survey research to test the hypotheses and verify the revised research model.

The results of the study, with regard to academic implications, provide a research model of the IS functions outsourcing partnerships to the future researchers who are interested in this topic. And, regarding the practical implications, the firm can apply the outcomes of the study to ensure the success of the IS functions outsourcing.

(For the ten pages limitation, reference will be provided undoubtedly by first author upon request).

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