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The Role of Client-internal Social Linkages for Outsourcing Success – An SNA Approach

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ABSTRACT

What is the role of a firm's internal social relations between business departments and IT unit for the success of its IT outsourcing relationship? In this paper, we propose that the relationship between business and IT of a firm is crucial for achieving effective outsourcing management and for enabling the vendor to deliver the services as demanded. Since the business side of the client firm represents the users of the information systems but the IT unit represents the interface to the outsourcing vendor firm, interaction between both units is proposed to be required for maintaining a good outsourcing relationship. Based on a survey in the German Banking Industry and by adopting a Social Network Analysis Approach which captures the interaction structure within the client firm and thus represents an innovative scale to outsourcing research, we show that tight social linkages *within* the client firm lead to higher service quality achieved by the vendor firm.

Keywords

Social Networks, Social Network Analysis, Business/IT Alignment, Service Quality, Outsourcing Success.

INTRODUCTION

Research on how to establish a successful outsourcing relationship has become quite mature within the last decade. Nevertheless, our understanding of implementing a successful relational governance, which covers the soft factors like harmonious conflict resolution, open and trustful communication, or commitment (Goo, Kishore, Rao and Nam, 2008), is still limited. As a second topic which is relatively new and immature within this field, the question of client-side outsourcing readiness arises: What are the important outsourcing success factors that reside inside the client firm? Only a few works (e.g. Alborz, Seddon and Scheepers, 2004; Martin, Wagner and Beimborn, 2008; Ranganathan and Balaji, 2007) have tackled this issue, but even less works focused on the role of the relationship between a client firm's business departments and IT unit in order to achieve high outsourcing quality. Adopting a Social Capital Theory (SCT) lens, we argue that knowledge transfer from the client to the provider requires tight social relationships between all personal entities involved. But, in contrast to other research on outsourcing relationship management (e.g. Goles and Chin, 2005; Goo et al., 2008; Lee and Kim, 1999) we do not focus on the relationship between the vendor and the client but on relationships *within* the vendor. In unison with many vendor firms that claim that the deep trench between business and IT of the client firm is one of the most severe reasons for outsourcing failure, we propose client-internal relationship management to be critical for successful outsourcing and posit the following research question:

What is the impact of a good relationship between business and IT unit of a firm on the success of its outsourcing relationship?

To answer this question, we will develop a research model based on both the SCT and the business/IT alignment literature. Subsequently, our survey on outsourcing arrangements in the German Banking Industry and our SNA measures are introduced. Conducting a Social Network Analysis (SNA) approach and testing our research model using PLS will show that the multiplexity of relationships between managers from business and IT units within the client firm positively affects the firm-internal alignment, and thus enables a more successful outsourcing relationship. Finally, the results and their limitations are discussed in the last section.

THEORY

In the following, we introduce the applied theoretical lenses before the research model is developed.

Social Capital Theory and Social Network Analysis

The Social Capital Theory (SCT) argues that relationships between entities are necessary for transferring knowledge and creating intellectual capital (Nahapiet and Ghoshal, 1998). Literature has proposed three dimensions to address these relationships, or *social capital* according to SCT: the *structural* dimension describes the existence of ties between two entities in terms of knowing each other and interacting/communicating with each other. The *cognitive* dimension focuses on shared codes, beliefs and language, being necessary to effectively exchange knowledge (Grant, 1996; Kogut and Zander, 1996). Finally, the *relational* dimension captures the “quality” of a social tie between two actors which has evolved over time and covers concepts like mutual trust, norms, obligations, and identification (Burt, 2000; Coleman, 1988; Granovetter, 1985). Obviously, these three dimensions are highly interdependent; they represent the fundament of social structure and they facilitate interaction between actors (Coleman, 1990). In contrast to all other forms of capital, social capital cannot be exclusively held by one individual; it “is owned jointly by the parties in a relationship” (Nahapiet and Ghoshal, 1998, p. 244). Furthermore the following consequences of social capital can be derived: (1) it helps individuals to efficiently interact (Burt, 1992) and to reduce transaction costs due to levels of trust and mutual understanding, and (2) it represents “an aid to adaptive efficiency and to the creativity and learning” (Nahapiet and Ghoshal, 1998, p. 245), and thus is a critical enabler of knowledge transfer and the creation of intellectual capital.

The notion of structural linkages, in particular, between entities is the key concept of Social Network Analysis (SNA) (Wellman, 1988); such linkages between social entities that can be individuals or organizational units constitute relationships (Burt, 1992; Knoke and Yang, 2008). The SNA tries to understand the properties of the structural environment of social entities, i.e. their relationships, and thus helps to shape and to operationalize the structural dimension of the SCT.

Business/IT Alignment

In general, IT business alignment can be defined as “the degree to which the information technology mission, objectives, and plans support and are supported by the business mission, objectives and plans” (Reich and Benbasat, 1996, p. 56). According to the Strategic Alignment Model (Henderson and Venkatraman 1993) alignment can be assessed at a strategic level and at a structural level. This view has been extended by incorporating a social perspective (Reich and Benbasat, 1996; 2000), which is part of the social capital concept and is adopted from Reich and Benbasat (1996; 2000), and from Tiwana et al. (2003). Moreover, we apply the social dimensions of alignment to the tactical and operational level of the firm as done by Wagner and Weitzel (2006), taking into account the interaction between IT and business in IT-business relationships on a rather operational and tactical level. *Operational alignment* is referred to by three dimensions: (1) interaction (describing interaction intensity and quality between business and IT), (2) shared domain knowledge between business and IT employees, and (3) relational linkage (mapping to the relational dimension of social capital) (Wagner and Weitzel, 2006). The second one can be further split into the IT knowledge of business professionals and the business knowledge of the IT professionals (Bassellier and Benbasat, 2004).

Research Model: Impact of Social Network Structures on Alignment and Outsourcing Success

In our model, we propose a causal relationship between social capital, alignment, and outsourcing success in terms of perceived service quality. We adopt an operational/tactical perspective on outsourcing with focus on mastering day-to-day situations and smaller change projects instead of evaluating the overall outsourcing deal regarding achievement of goals and matching with the client firm’s *strategic* alignment.

Outsourcing success is a multi-dimensional concept, covering both the strategic perspective of goal achievement (i.e. reaching cost cutting goals etc.) and a more operational perspective which focuses on receiving sufficient quality of service. In research works, the strategic and the operational dimension of outsourcing success often have been captured by the client’s overall outsourcing satisfaction (e.g. Lee and Kim, 1999), which actually is driven by the management’s perception of these two success dimensions. In contrast to many outsourcing papers, which do not handle this issue of choice of perspectives, we solely use the service quality-oriented dimension of outsourcing success. This better reflects our research being located on the operational/tactical level and thus allows for more consistent data collection and model testing.

In order to provide high service quality, the outsourcing vendor not only needs to be capable of and willing to provide the requested service, but is also dependent on effective information flow containing actual needs and demands of the client’s organization; knowledge sharing between vendor and client has shown to be an important determinant for outsourcing success in many studies (e.g. Lee and Kim, 1999; Lee, 2001). Since in many cases the vendor provides IT services which directly are perceived and utilized by users outside the IT department (such as applications hosting), demands and problems

arise in the business departments rather than in the client firm’s IT unit, which usually is the point of contact for the service provider. Capturing this requirement of firm-internal knowledge propagation, we argue that client-internal alignment between business and IT will be necessary to facilitate effective information exchange between the client’s business and IT unit, and enables effective information exchange between the client and the vendor in order to receive high service quality in turn (Mao, Lee and Deng, 2008).

Hypothesis 1 (a, b, c): Client-internal alignment (in terms of (a) interaction, (b) shared knowledge, (c) relational linkage) will drive outsourcing success in terms of received service quality.

Problems in knowledge transfer are generally considered as problems in communication and coordination (Leonardi and Bailey, 2008; Majchrzak, Rice, Malhotra, King and Ba, 2000), and may be caused in the social network structure, according to SCT. Consequently, a research aim accompanying the question for effective knowledge transfer is the question for effective and efficient interaction structures between the two parties. Therefore, we suggest drawing on SNA to disclose if there are typical interaction patterns among these two units and if they correlate with the firm’s outsourcing success. Precisely, we expect that patterns of social interaction constitute structures between IT and business unit that have an impact on outsourcing success. SNA is appropriate and potentially very useful for the analysis as it focuses on relationships among social entities, and on patterns and implications of these relationships (Knoke and Yang, 2008; Wasserman and Faust, 1994). Various applications of the SCT have chosen to measure the structural dimension by SNA measures (McLure Wasko and Faraj, 2005; e.g. Robert, Dennis and Ahuja, 2008). Particularly, we adopted the concept of multiplexity because it is directly related to the diffusion of information within networks (Minor, 1983) because it refers to the extent to which different relations of network linkages overlap. If individuals get together for certain reasons they will have more opportunities for interacting, for exchanging information, and thus for sharing knowledge. Furthermore, the degree of multiplexity relates to the issue of reduction of uncertainty (Albrecht and Ropp, 1984), which is an important factor for building trust. Again, individuals who are linked among each in various ways are better able to develop loyal relationships because they have more information about each other and are less uncertain about how each other will react (Albrecht and Ropp, 1984). This will produce social capital and establish high operational alignment between the organizational entities.

Hypothesis 2 (a, b, c): Network multiplexity between managers from the business and the IT side will increase the operational alignment (in terms of (a) interaction, (b) shared knowledge, (c) relational linkage) between the units.

Finally, in order to complete our model we need to take the interrelationships between the different dimensions of operational alignment into account. The higher the interaction quality among the parties, the higher will be both the mutual understanding from a knowledge-based view (Alavi and Leidner, 2001; Chan and Reich, 2007) and the relational exchange from a SCT perspective (Tiwana et al., 2003). In general, the three dimensions of operational alignment are considered to be highly correlated. Based on (Alavi and Leidner, 2001; Galunic and Rodan, 1998; Hansen, 1999) and on own earlier works (Beimborn, Hirschheim, Schlosser, Schwarz and Weitzel, 2008) we propose links from interaction to shared knowledge and the relational dimension. Thus, interaction represents the mediator between structural linkages and both mutual understanding and trust.

Hypothesis 3 (a, b): Interaction quality will positively affect shared knowledge and the relational dimension of operational alignment.

The resulting research model is depicted by the following figure.

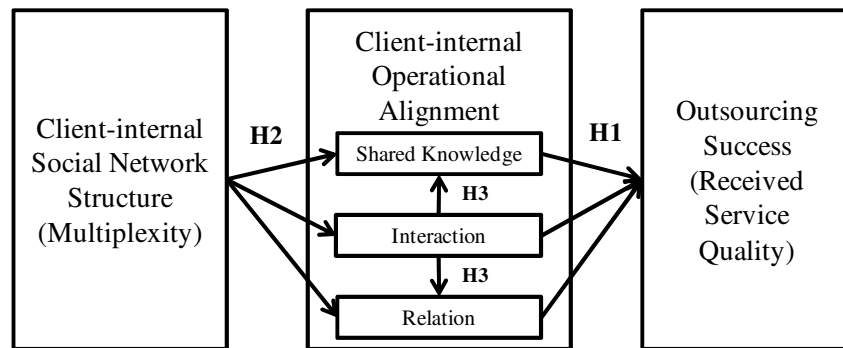


Figure 1: Research Model

METHODOLOGY

Data Collection

The data used in this analysis stem from a survey on outsourcing relationship management among the 1,000 largest German banks (according to total assets in 2007). As outsourcing object we chose the operations of the main loans system, thus concentrating on the cooperation between the bank and the external provider responsible for running and maintaining the loans system. A second focus was the alignment between the IT and business unit (credit department, in particular) within the bank.

In April 2008, we contacted the banks via phone in order to identify the manager responsible for managing the outsourcing provider. Subsequently, the paper-based questionnaires were mailed in June 2008, followed by a reminder in July. Those banks which had not answered were contacted by phone again and a second reminder was sent in August 2008 if necessary. We received 171 questionnaires but only 93 of them could be used in the following analysis because they showed no missing values regarding the measurement items used. Although this seems to be a large gap, one should be aware that filling the affiliation matrix requires significant effort for the respondent who often decided to skip this section of the questionnaire. In order to ensure that non-response bias is not present, we compared the answers of the early (N=81) and the late respondents (N=90). The Mann-Whitney test did not show significant differences for any of the items used in our research model.

Measurement

The questionnaire was derived from the literature, adapted where necessary, intensely discussed with academics knowledgeable about the financial services industry, and pre-tested independently with several bank managers. Based on the feedbacks, the questionnaire was slightly modified. In the following, we describe the operationalization of the constructs. An overview of all indicators is shown in Table 6 in the Appendix.

Social Network (Multiplexity): To capture the social network between the IT and business unit by a multiplexity measure, we use the concept of affiliation networks. Affiliation networks comprise a set of actors and a set of events (e.g. particular meetings) to which the actors belong (Knoke and Yang, 2008). For gathering the network, we propose six different types of events where employees meet each other. When specifying these six types, we chose both formal and informal events. The following figure shows the structure of the corresponding questionnaire item. The respondent was asked to enumerate a list of relevant persons from both the IT and the business unit who are somehow related to the loans system. For each person listed, his or her relation to different events had to be stated.

This table tries to map your social network between business and IT unit. Please identify those individuals (e.g. by initials, names, symbols etc.) who are involved in interactions with the outsourcing provider. If possible, name external events, and check who participates in which events.

external event 1: (frequently, e.g. sports) _____

external event 2: (less frequent, e.g. Christmas party) _____

Persons	Works at		Reasons for meeting					external event 1	external event 2
	our bank		meetings to control change processes	meetings to discuss business process improvements	meetings on operational topics	Spending lunch break together			
	business	IT							

To which of these persons do you directly talk to at least once every week?
 (please note initials from left column): _____

Figure 2. Formulated Question for Capturing the Social Network

The number of people to be enumerated was not pre-determined. This question format refers to the concept of the free choice format (Wasserman and Faust, 1994). Nevertheless, due to the complexity of the question and due to space restrictions, we allowed to nominate eight colleagues at most.

In addition to the six event types (each representing one *relation*), a seventh relation was gathered. At this point it is important to distinguish the terms of relation, tie, and linkage. In general, *relations* refer to a “collection of ties of a given kind measured on pairs of actors from a specified actor set” (Wasserman and Faust, 1994, p. 20). On the other hand “*ties* themselves only exist between specific pairs of actors” (Wasserman and Faust, 1994, p. 20). Consequently, the *linkage* or *relationship* between a pair of actors comprises all ties between them within the different relations. The seventh relation captures to whom the respondent talks directly at least once a week and was separately formulated since we cannot assume that the listed persons maintain ties among themselves as it is the case by participating persons in events¹.

For calculating the multiplexity, the two mode affiliation network has to be transformed into a one mode network, i.e. into the employee-employee network in our context. Therefore, affiliation matrix A (like Figure 2) must be multiplied by its transpose A' (i.e. A*A') (Knoke and Yang, 2008), leading to a symmetrical and valued matrix. Next, tables 1 and 2 illustrate the procedure (with P=person, E=event) with the cells of the employee-employee matrix (table 2) specifying the co-attendance for pairs of employees on the events. The affiliation network example consists of seven persons, including the respondent him-/herself (called EGO), and three events.

Employee-Event Matrix A				Transpose Event-Employee Matrix A'							
	E1	E2	E3		P1	P2	P3	P4	P5	P6	EGO
P1	1	0	0	E1	1	0	0	0	1	1	1
P2	0	1	1	E2	0	1	1	0	1	0	1
P3	0	1	1	E3	0	1	1	1	0	1	1
P4	0	0	1								
P5	1	1	0								
P6	1	0	1								
EGO	1	1	1								

Table 1. Example of an Affiliation Network Represented in a Matrix and the Transpose of the Matrix

Employee-Employee Matrix (A*A')							
	P1	P2	P3	P4	P5	P6	EGO
P1	1	0	0	0	1	1	1
P2	0	2	2	1	1	1	2
P3	0	2	2	1	1	1	2
P4	0	1	1	1	0	1	1
P5	1	1	1	0	2	1	2
P6	1	1	1	1	1	2	2
EGO	1	2	2	1	2	2	3

Table 2. Calculated Employee-Employee Network Represented in a Matrix

The ties between the employees are established by joint participation in the events. Therefore, each event can be seen as a relation in which the employees maintain ties to others. This is an important fact for calculating the multiplexity of the network because the concept requires that the investigated network consists of at least two relations (Knoke and Kuklinski, 1982). Furthermore, a threshold value must be specified to define at which level a relationship between two employees is multiplex. In our research the threshold is set at the value of two. At this threshold, the employee-employee matrix is dichotomized. Furthermore, the values of the diagonal are not relevant for the multiplexity because they describe on how many events an employee takes part. After these transformations, the multiplexity can be calculated in terms of the ratio of existing multiplex relationships between the employees to the maximum possible multiplex relationships which corresponds to the value of $n*(n-1)$, where n is the number of employees (Knoke and Kuklinski, 1982).

As mentioned above, the “direct talk” relation captures only the ties between the respondent and the nominated employees but not the ties among them. Thus, only the number of relations in the EGO row and EGO column increase about 1.

¹ This “direct talk” network corresponds to the concept of ego-centered networks (Wasserman and Faust, 1994).

The procedure of calculating the multiplexity is shown in the following tables which also illustrate the impact of the “direct talk” relation. The respondent (EGO) and P4 jointly attend in only one event (E3), i.e. the linkage between them is not multiplex. However, since they talk to each other directly, the linkage between them becomes multiplex as they “co-exist” in two relations, now.

“Direct Talk” Matrix						
	P1	P2	P3	P4	P5	P6
EGO	0	0	0	1	1	1

Table 3. “Direct Talk” Network Represented in a Matrix

Dichotomized Employee-Employee Matrix							
	P1	P2	P3	P4	P5	P6	EGO
P1	-	0	0	0	0	0	0
P2	0	-	1	0	0	0	1
P3	0	1	-	0	0	0	1
P4	0	0	0	-	0	0	1
P5	0	0	0	0	-	0	1
P6	0	0	0	0	0	-	1
EGO	0	1	1	1	1	1	-

$$\text{Multiplexity (M)} = 12/(7*6) = 0,286$$

Table 4. Dichotomized Employee-Employee Network each Represented in a Matrix

Operational business/IT alignment: As described above, the business/IT alignment construct is based on prior works (Reich and Benbasat, 1996; 2000; Wagner, 2007) and is measured by four sub-constructs: *Interaction* deals with both quantity and quality of interaction between business and IT unit. Therefore we investigate to what extent there are regular meetings between them. Moreover we examine if information exchange is effective and how good the communication between both sides is in general. *Relational linkage* captures the level of mutual trust and respect between business and IT as well as if they perceive each other as equal partners and regularly consult each other. *Shared domain knowledge* is viewed bilaterally. On the one hand, it is investigated if the IT unit has sufficient knowledge regarding the business processes and thus is able to interpret and solve problems in this area. On the other hand, we examine if the business employees have solid basic IT knowledge to understand how IT projects work and be able to actively participate and support those projects. All four sub-constructs are measured reflectively.

Outsourcing success: As explained above, we focus on the operational/tactical level of the outsourcing relationship. Therefore, outsourcing success is measured in terms of service quality as delivered by the vendor. We adopt items from the IS-SERVQUAL instrument (Kettinger and Lee, 1994) which has already been applied to outsourcing by Grover et al. (1996). For all constructs, the used indicators and the related references are listed in Table 6 in the appendix.

Analysis

For testing our hypotheses, we apply Partial Least Squares (PLS) using the free software package SmartPLS2.0.M.3 (Ringle, Wende and Will, 2007). In the first step, we only test hypotheses H2a-c, representing the influence of network multiplexity on the four alignment constructs. The second step analyses the mediation effect of interaction on the other alignment dimensions (H3a+b). Finally, we include our dependent variable to test the complete model, including hypotheses H1 a-c.

RESULTS

Measurement Model

Measurement instruments have to be analyzed regarding content validity, indicator reliability, and construct validity. *Content validity* examines the degree to which the supposed meaning of a construct is reflected by its measures (Boudreau, Gefen and Straub, 2001) and was ensured by developing indicator questions from prior research as well as by performing pre-tests to check for ambiguities. For ensuring *indicator reliability*, loadings should be above 0.7 (Hulland, 1999), which was ensured by all indicators.

To ensure *convergent validity* as an aspect of *construct validity*, we have to meet the composite reliability being above .7 and the Average Variance Extracted (AVE) above .5 (Chin, 1998). Table 7 in the Appendix shows that all of our constructs fulfill this requirement. Finally, *discriminant validity* represents the extent to which the items of a latent variable differ from items of other latent variables in the same model (Hulland, 1999). As Table 8 in the Appendix shows, all inter-correlations between

the latent variables are lower than the square root of the AVE. This demonstrates a good fit between the latent variables and their measurement items (Gefen, Straub and Boudreau, 2000).

Structural Model

Figure 3 shows the tested model which is evaluated in three steps: (a) direct model consisting solely of H2a-c, (b) mediated model additionally including H3a+b, and (c) overall model. Table 5 shows the results of the applied three-step PLS analysis (path coefficients and R²).

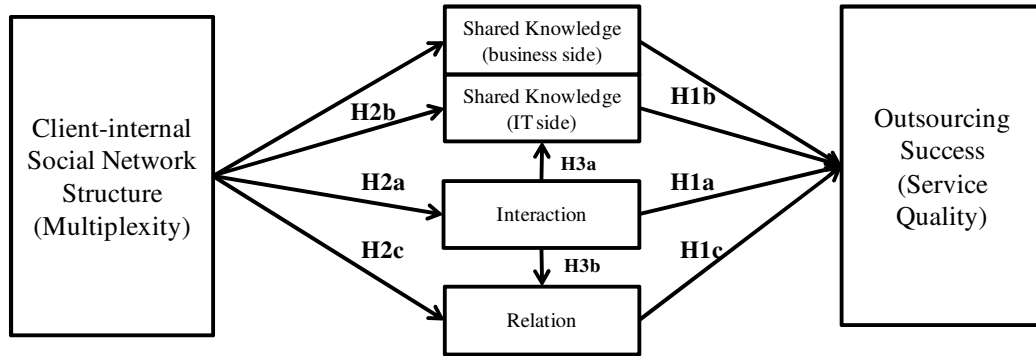


Figure 3. Tested PLS Model

	(a) Direct model		(b) Mediated model			(c) Mediated model with outsourcing success			
Tested hypotheses	H2a-c		H2a-c, H3a+b			H1a-c, H2a-c, H3a+b			
	Path from multiplexity on	R ²	Path from multiplexity on	Path from interaction on	R ²	Path from multiplexity on	Path from interaction on	Path on outsourcing success	R ²
Interaction	.249***	.062	.229**		.052	.229**		.155	.052
SDK-BU	.239***	.057	.070	.697***	.513	.072	.695***	.291**	.512
SDK-IT	.221**	.049	.131	.287***	.117	.133	.283***	.240***	.115
Relation	.195*	.038	.038	.649***	.443	.039	.647***	-.213*	.432
*: p<.1, **: p<.05, ***: p<.01								Outsourcing success:	.199

Table 5. PLS results

Direct Model: The model consisting of only the direct paths from multiplexity to the alignment sub-constructs shows that all paths are significant, indicating a positive impact of higher network multiplexity on all alignment dimensions.

Mediated Model: As opposed to the direct model, when connecting interaction to the other three alignment constructs, the paths from network multiplexity to relational linkage and shared domain knowledge become insignificant. However, the link to interaction stays significant. Thus, we can assume full mediation meaning that the impact of multiplexity on relational linkage and both shared knowledge constructs is fully mediated by interaction.

Overall Model: The overall model finally shows evidence for both shared knowledge in IT and business strongly positive affecting outsourcing success in terms of service quality. Interestingly, interaction shows a positive but insignificant influence while relational linkage even more contra-intuitively shows a significant negative impact.

As summary, we can conclude that H2 holds only for interaction (H2a) and that H1 only holds for shared domain knowledge (H1b). H3 (relationship between alignment dimensions) holds in any case, which enables us to argue that H2b+c are at least indirectly fulfilled since interaction mediates the impact of multiplexity on shared knowledge and relational linkage.

DISCUSSION AND CONCLUSION

Our research presented in this paper aims to demonstrate the role of client-internal social linkages for outsourcing success using the concepts of affiliation, ego-centered networks, and multiplexity. The research model framed the relationships between the structure of the network (comprising firm-internal IT and business unit) and operational alignment. We showed that outsourcing success is positively influenced by good client firm-internal alignment which in turn is driven by the degree of multiplexity in the network structure. We discovered that multiplexity increases the quality of interaction between business and IT unit of the client firm and thus improves their relational linkage and shared knowledge. Moreover, client-internal

shared knowledge is positively related with outsourcing success, i.e. shared knowledge of business and IT leads to spill-over of relevant information and knowledge to the vendor firm, which in turn can provide more adequate services. When both sides know what the other side is doing and how, it seems likely that e.g. system requirements and service levels are communicated to the IT provider in a more consistent and accurate way. Moreover, the risk of misunderstandings and badly defined service requests will be lower when there is good bank-internal shared domain knowledge. Furthermore the results show that the influence of client-internal interactions on outsourcing success is fully mediated by knowledge sharing. This is not astonishing because good or regular interaction alone does not lead per se to superior (perceived) service quality as long as this cannot be fastened on concrete results. In fact, interaction facilitates shared knowledge which then affects outsourcing success as measured in this study.

Somewhat surprising is the negative link between relational linkage and outsourcing success. One would normally assume a positive (or no) impact resulting from better trust between bank-internal business units and the IT unit. However, one possible explanation may be that if there is a high level of relational linkage then in turn the IT provider will receive too less of the necessary information needed to do a good job. Thus, something like a sworn community inside the bank may hinder collaboration with external partners on the operational level and will likely hinder direct access between the vendor and the business side of the client which sometimes (e.g. during change projects) might be helpful even when IT acts as a good intermediary.

Beside the typical limitations which come along with quantitative research like the probability of common method bias (although quite improbable due to the unique measurement of multiplexity as our exogenous variable), subjectivity of answers, and limited transferability of the results to other types of outsourcing, other industries and countries, there are some particular issues: Martin et al. (2008) showed that the age of the relationship influences the necessity of knowledge transfer between client and vendor (more important in the beginning). Although our sample shows, due to the particularities in the German banking system, predominantly very old outsourcing relationships, we need to control for age and other contingency variables in a subsequent step. As another limitation, we only measured interaction structure by the degree of multiplexity. Although we showed that it is a theoretically important concept which empirically showed to support our proposition, SNA provides other measures which are important for describing the network structure such as density and centrality, in particular. Those measures maybe could even better explain our model. Nevertheless, due to our survey-based approach, we are limited regarding the applicability of those measures, but we are confident that our cross-sectional survey-based approach compensates for this possible shortcoming, even more since multiplexity is a more complex and thus richer instrument.

Finally, we can conclude that interaction patterns between the client's firm-internal IT and business unit which exhibit a high multiplexity are an important client-side capability for maintaining a good outsourcing relationship.

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APPENDIX

Variable	Item	Indicator	Adapted from
Outsourcing Success (Service Quality)	OS1	Changes to services are realized within the guaranteed time frame.	(Grover et al. 1996; Kettinger and Lee 1995; Parasuraman, Zeithaml and Berry 1988)
	OS2	Users of the credit system are happy with the services provided.	
	OS3	The service provider shows adequate readiness to respond to our requests.	
Interaction Dimension	ID1	There are meetings on a regular basis between IT unit and business unit.	(Broadbent and Weill 1993; Chung, Rainer and Lewis 2003; Martin et al. 2008; Reich and Benbasat 1996)
	ID2	IT and business units effectively exchange information.	
	ID3	Communication between IT and business units in our bank is very good.	
Shared Domain Knowledge (IT unit)	SKDIT1	The employees of the IT unit know the credit process.	(Bhatt 2003; Broadbent and Weill 1993; Martin et al. 2008; Reich and Benbasat 1996; Teo and Ang 1999)
	SKDIT2	The employees of the IT unit are able to interpret business-related problems and to develop solutions.	
	SKDIT3	Our IT staff has a sufficient banking know how to understand business problems and find solutions.	
Shared Domain Knowledge (Business unit)	SKDBU1	Our banking employees (non-IT) have strong knowledge of IT projects.	
	SKDBU2	Change requests from business units are usually well thought out.	
Relation Dimension	RD1	There is a high level of mutual trust between IT unit and business unit.	(Bhatt 2003; Martin et al. 2008; Ravichandran and Lertwongsatien 2005; Teo and Ang 1999)
	RD2	There is a high level of mutual respect between IT unit and business unit.	
	RD3	The business unit views our IT unit as an important consultant.	

Table 6. Construct Specification

	AVE	Composite Reliability	R Square	Cronbach's Alpha
Interaction	0.6873	0.8679	0.0523	0.7709
SDK-BU	0.6767	0.8063	0.5117	0.5317
SDK-IT	0.7921	0.9195	0.1153	0.8686
Relation	0.7272	0.8886	0.4316	0.8116
Outsourcing Success	0.6326	0.8366	0.1987	0.7122

Table 7. Quality measures for reflective constructs

	M	Interaction	SDK-BU	SDK-IT	Relation	OS
Mult1	1.000	0.229	0.231	0.198	0.187	0.002
ID1	0.279	0.895	0.623	0.326	0.570	0.308
ID2	0.173	0.807	0.518	0.125	0.598	0.099
ID3	0.107	0.781	0.622	0.310	0.469	0.313
SDKBU1	0.217	0.454	0.758	0.122	0.470	0.278
SDKBU2	0.174	0.690	0.883	0.207	0.372	0.292
SDKIT1	0.100	0.363	0.281	0.897	0.236	0.263
SDKIT2	0.249	0.277	0.173	0.924	0.255	0.252
SDKIT3	0.185	0.183	0.080	0.848	0.127	0.285
RD1	0.109	0.574	0.350	0.247	0.850	0.037
RD2	0.204	0.612	0.514	0.194	0.911	0.139
RD3	0.166	0.483	0.402	0.159	0.792	0.044
OS1	0.023	0.282	0.223	0.175	0.124	0.760
OS2	-0.057	0.239	0.186	0.242	0.081	0.721
OS3	0.026	0.216	0.375	0.280	0.035	0.894

Table 8. Cross-loadings of manifest variables