Abstract

While prior research repeatedly emphasized the importance of client-vendor knowledge transfer in global ISD outsourcing projects, there is still very little understanding about the knowledge transfer between vendor companies. However, due to the increasing involvement of multiple vendors within a global ISD project, the topic becomes vital. Thus, the purpose of this paper is to analyze how and through which factors vendor-vendor knowledge transfer is shaped. As research on this topic is scarce, we applied an exploratory in-depth single-case study as research approach. The case comprises a global ISD project initiated by a large German bank involving several globally distributed vendors. For data collection and analysis, techniques from grounded theory method were adopted. The analysis of our case suggests that knowledge transfer between vendors runs through four stages and is influenced through various factors relating to certain characteristics of the knowledge receiver, the structure of the knowledge to be transferred and organizational characteristics of the involved parties. The paper concludes by offering theoretical and practical implications.

Keywords: Global sourcing, Multisourcing, Cross-vendor knowledge transfer, Case study.
1 INTRODUCTION

Information systems development (ISD) is “a knowledge intensive activity of organizing and integrating the specialized expertise, skills, and perspectives of various project stakeholders into an appropriate, coherent, and practical solution” (Tiwana 2003, p. 260). Thus, it is not surprising that prior research has found that knowledge transfer between client and vendor plays a crucial role for the success of global ISD outsourcing projects (Gupta and Raval 1999; Levina and Ross 2003; David, Chand et al. 2008).

However, today’s practice of global ISD outsourcing comprises not only offshore, nearshore, and onshore delivery locations coming into operation within one global sourcing model, but also the use of multiple service providers even within one project (Levina and Su 2008). Multi-vendor projects are characterized by the fact that the responsibility for service delivery is distributed across several vendors. In this context, practitioners constantly face challenges to govern the interplay between the involved vendors in a way that the individual service delivery parts intertwine smoothly in order to ensure a successful overall service delivery. Amongst others, this requires knowledge transfer not only from the client to the vendor organization, but particularly between the involved vendors (Bapna, Barua et al. 2010).

Against this background, it is even more remarkable that the extant literature has hardly covered this topic despite its strong practical relevance. Except for a study covering the knowledge transfer in offshore supplier networks within the field of strategic alliances (Rottman 2008), there is still a gap in the literature regarding the knowledge transfer between vendor companies. This perception is in line with recent calls for research especially requesting the analysis of vendor-vendor learning in multisourcing arrangements (Bapna, Barua et al. 2010). This study is a first step towards filling this gap. First, we make a contribution to the IS literature with the identification of the major steps of a vendor-vendor knowledge transfer. And second, we contribute to the literature stream through the identification of four influencing factors. In the process, we adopt a theoretical framework of inter-organizational knowledge transfer from the general management domain as meta-theoretical lens for the conceptualization process.

In summary, we pose the following research questions:

1) How does knowledge transfer between vendor companies take place?
2) Which factors influence the knowledge transfer between vendor companies?

These questions are explored by interpreting the results of 23 qualitative interviews from a single-case study comprising a large global information systems development project initiated by one of the leading international financial services institutes with strong operations in Germany (called BANK afterwards). BANK is a leading global investment bank with a strong private clients business offering financial services throughout the world. The global information systems development project’s objective was the migration of BANK’s online banking system to a new underlying technology. In summary, roughly 100 people from five organizations have worked geographically distributed across nine locations in four countries in order to technically reengineer a critical business system with high visibility to the end customer.

The paper is structured as follows. The following section gives a brief overview over the relevant literature streams. In the subsequent method section, we explain the reasons for conducting a qualitative and exploratory case study and provide information on how we employed principles of the grounded theory method to build, rather than test theory. After a short case description, we then focus on the analysis of the data where we present the core categories that emerged in this exploratory study. The final section presents the key findings and the implications for research and practice.
2 THEORETICAL BACKGROUND

In the context of dyadic global IS outsourcing relationships knowledge transfer is defined as the communication of knowledge from the client organization so that it can be understood and implemented by the vendor organization (Dibbern, Winkler et al. 2008). Thereby, the knowledge to be transferred comprises both, explicit knowledge (e.g. industry-specific knowledge) and implicit knowledge (e.g. client-specific working procedures). The latter is much more difficult to codify and therefore needs to be transferred using other mechanisms such as frequent face-to-face interaction (Szulanski 1996).

Knowledge transfer has been shown to play a crucial role for the success of global IS outsourcing projects: extant literature has repeatedly demonstrated the positive effect of successful knowledge transfer on project performance (e.g., Nicholson and Sahay 2004; Kotlarsky and Oshri 2005; Oshri, Kotlarsky et al. 2007; Ramasubbu, Mithas et al. 2008; Rottman 2008), whereas numerous researchers have found that a lack of knowledge transfer represents a major drawback for global ISD outsourcing projects (e.g. Gupta and Raval 1999; Kliem 2004; David, Chand et al. 2008; Dibbern, Winkler et al. 2008; Leonardi and Bailey 2008).

However, the definition as well as the majority of the studies addresses dyadic client-vendor global IS outsourcing relationships, whereas the task of knowledge transfer in multi-vendor projects remains unconsidered in this literature stream.

Multiple-vendor sourcing is primarily defined through the involvement of a single client and multiple vendors (Dibbern, Goles et al. 2004). Prior research has revealed that client companies make use of multiple vendors in order to maximize benefits and at the same time minimize risk: on the one hand, firms engage in relationships with multiple service providers in order to mitigate the risks of resource dependency and vendor opportunism resulting from dyadic relationships (Cross 1995; Currie 1998; Huang, Miranda et al. 2004). On the other hand, researchers have emphasized on the importance of restricting the number of suppliers in favour of a few preferred suppliers (Lacity and Willcocks 1998; Aron, Clemons et al. 2005). Accordingly, one research stream deals with the setup and management of vendor portfolios (Levina and Su 2008; Poston, Kettinger et al. 2009), another research stream investigates the tradeoffs resulting from using one or many vendors. While single-sourcing increases the vendor’s commitment but comes with the risk of dependency, multi-sourcing provides the ability to choose the supplier with the best fit but in return increases cost in terms of additional management overhead (Levina and Su 2008).

In the general management literature, the topic of knowledge transfer is discussed under the label inter-organizational knowledge transfer in contrast to “intra-organizational” knowledge transfer. In recent years, journals have come up with special issues on knowledge transfer (e.g. Easterby-Smith, Lyles et al. 2008) and also several review articles have been written (e.g. Argote and Todorova 2007; van Wijk, Jansen et al. 2008), pointing to the topic’s undiminished importance. From this domain, we adopt a theoretical framework on inter-organizational knowledge transfer as meta-theoretical lens in this paper. The framework helped us to scale up our theory and enhance the conceptuatization of the four influencing factors that emerged in the second part of the case analysis. We briefly introduce this meta-theory at the beginning of our case analysis.

However, the transfer of knowledge from vendor to vendor within a multiple-vendor project has not been explored to date. Thus, our understanding of knowledge transfer within a vendor portfolio is quite limited. This research takes advantage of studying a global information system development outsourcing project that involved multiple vendors which allows us to better understand the transfer of knowledge from vendor to vendor in global multi-sourcing constellations.
3 RESEARCH METHOD

Our epistemological position for this research is interpretive, i.e. among other issues we particularly acknowledge the subjective nature of the world and aim at interpreting the reality from the viewpoints of our interview partners (Walsham 1993). Hence, we did not predefine any hypothesis in a deductive manner from existing theories. Rather, we adopted a qualitative research approach and conducted an in-depth exploratory single-case study focusing on theory-building as opposed to theory-testing (Stebbins 2001; Yin 2003). Due to the lack of understanding regarding the management of nearshore and offshore relationships in multiple vendor constellations (King and Torkzadeh 2008), we consider an exploratory research approach as most appropriate.

The primary unit of analysis is a globally distributed software development outsourcing project undertaken by a large international bank and several vendors. With regards to data collection and data analysis, we adopt techniques provided by the grounded theory method, including constant comparisons and theoretical sampling (Glaser 1978; Glaser 1998).

Due to the project’s time schedule, the data collection took place in two phases. We started the interviews in July and August 2009 and continued with a second round of interviews in November and early December 2009. The interview partners were selected from multiple organizational levels of Bank as well as from the four vendor companies and comprise interviewees from strategic management, project management, subproject management, as well as selected project team members. Thereby, the overall number of interviews was determined based on the criterion of “theoretical saturation”, i.e. we continued the data collection until further interviews did not contribute additional insights any more (Glaser and Strauss 1967).

In total, we conducted 23 interviews with 20 individuals for our primary data collection, resulting in over 35 hours of interviews and 120 pages of interview transcriptions. The interviews lasted between one and two hours while on average interviews were around 1.5 hours. Except of one phone interview with an interviewee located in Brazil, we conducted all interviews face-to-face, in which 12 interviews took place in Germany and 10 interviews in Spain. The interview languages were German and English depending on the respective country background of the interviewee. All interviews were conversational in nature and were conducted using an interview guideline consisting of semi-structured interview questions, whereas we individualized the questions according to a respondent’s role and previously collected data.

In addition to the interviews, we had access to documents that have been generated in the course of the project. We examined project tracking sheets, project presentations, status reports, and lessons learned documents. We used this secondary data in order to supplement the primary data as well as for data triangulation purposes.

Due to the banks corporate policy we were not permitted to tape-record the interviews. Thus we had to rely on extensive note taking (Eisenhardt and Bourgeois 1988). As according to the grounded theory method data collection and data analysis are interwoven with each other, we transcribed the field notes immediately after each interview session and used the generated insights to identify appropriate interviewees and questions for the forthcoming interviews (principle of theoretical sampling). We coded the interview transcriptions by identifying, naming, and categorizing phenomena related to our research question. Thereby, we first compared the interviews among each other as well as with the available secondary data (principle of constant comparison). After we discovered the main conceptual themes in the data due to their high frequency of mentioning (principle of emergence), we started comparing the interview data with the conceptual themes. As the study developed the identified themes became more elaborated in terms of developing more general categories as well as structuring these emerging categories. In order to facilitate the overall coding and conceptualization process we used the software product ATLAS.ti.
CASE ANALYSIS & DISCUSSION

4.1 Detailed case description

The case upon which our analysis is based comprises a global multi-vendor ISD outsourcing project initiated by a financial services institute in Germany, assigned the pseudonym BANK. BANK is a leading global investment bank with a strong private clients business.

The overall project goal was the reengineering of BANK’s online banking system. With more than one million users per day the online banking system is a critical business system with high importance and visibility both to the management and to the customer. Even if the old system was still able to meet BANK’s requirements and to serve the increasing number of customers, its underlying technology required a high degree of costly expertise and maintenance expired in the near future. As a consequence, BANK had decided to migrate to a sustainable but well-established (as opposed to latest technologies) technology allowing for reusability through a modular architecture and being supported by a much broader supplier base.

Whereas the previous system had been developed and maintained by a single long-time service provider, BANK now pursued a multi-vendor sourcing strategy. That is, multiple, partly internationally operating, service providers were involved into the reengineering of the system. All vendors were selected on a best-fit basis and were directly contracted by BANK. Furthermore, BANK also attached importance to including near- and offshore outsourcing concepts into the overall delivery model in order to be able to reengineer the online banking system as cost efficient as possible. Thus, the project’s multi-vendor constellation including global sourcing elements fitted perfectly to BANK’s sourcing strategy aiming especially at continuity, flexible vendor selection (based on a pool of certified strategic vendors) and cost efficiency.

As the knowledge transfer largely took place between two of the involved vendors (in the following named ARCHITECT and IMPLEMENT), the subsequent section focuses on a brief description of these two vendor and their respective area of responsibility.

ARCHITECT is a German boutique consulting firm focusing on IT transformation. In the project, ARCHITECT was responsible for designing the architectural framework of the new online banking system as well as to control whether the implementation activities of IMPLEMENT are compliant with the principles of the defined framework.

IMPLEMENT is a leading international IT service provider for the financial services sector, providing IT solutions and services in three business areas (services, resourcing and software) and is one of the bank’s preferred service providers since many years (e.g. IMPLEMENT was operating and maintaining the old online banking system). In the course of the reengineering project, IMPLEMENT was responsible for writing the technical design documents and to do the implementation of the system. As both, the technical design documents and the implementation need to strictly follow the architectural framework ARCHITECT has been bound by contract to transfer the relevant knowledge to IMPLEMENT in the course of the project. An associated objective was to enable IMPLEMENT to take over the maintenance of the new system after the project has been completed.

The project had started in October 2008 with a three-months ramp-up phase. After the online banking of an affiliated company serving as a pilot had already been successfully transferred to the new technology in July 2009, the redesign of BANK’s online banking system had finally been successfully completed in December 2009.

4.2 Case analysis

4.2.1 Stage Model

By analyzing the case described above, we were able to identify the major stages of the vendor-vendor knowledge transfer (figure 1) and understand how its evolvement was influenced by several
factors during the course of the project. The findings will be described in detail in the subsequent sections.

One of the core concepts that emerged from the data was the **evolving character of the knowledge transfer process**. That is, instead of applying a pre-defined knowledge transfer approach the proceeding to successfully transfer knowledge depends on the characteristics of the involved players as well as on contextual parameters. A project manager from ARCHITECT explained:

> We have a general feeling where to start with the knowledge transfer, but how I need to go ahead to conduct the knowledge transfer at its optimum that depends on the individual context.

ARCHITECT started into the knowledge transfer with the **transfer of the fundamental technological concepts** (stage 1). They have been giving detailed presentations of the architectural framework itself, the underlying theory, and the corresponding design principles. Supplementary, the team offered bilateral coaching sessions to IMPLEMENT, which had to take place by phone due to the distributed setting of the project. After a while, it became apparent that IMPLEMENT had still difficulties to adopt the new architecture, as BANK’s project lead remembers:

> The effort to train the multipliers of IMPLEMENT has been underestimated. Instead of the originally planned three sessions ten workshops have been necessary.

It turned out that problems of understanding did come up very late in the process. They have been not already realized when the framework was presented but as recently as in the course of action, i.e. when writing the technical design documents respectively in the course of the implementation (writing source code). Obviously, it was not enough to transfer the conceptual fundamentals only. Even though this approach had from ARCHITECT’s experience already worked well in other settings, it did not match with the specific requirements in this context. A project manager from ARCHITECT described:

> We learnt that the allocation of theory and practice is different from what we expected at the beginning. There need to be much more examples, less presentation of concepts. The knowledge transfer was too theoretical and the practical elements conveying the “how to” have been missing.

One explanation might be that the practical design and implementation knowledge, other than conceptual knowledge that can written down and visualized, cannot hardly be codified and thus is much more difficult to transfer. In order to transfer tacit knowledge, the knowledge receiver needs to get into contact with the knowledge to be absorbed more deeply (Argote, McEvily et al. 2003). This is not possible through, from the perspective of the knowledge receiver, passive presentations only. In consequence, ARCHITECT has taken his knowledge transfer approach towards a more practitioner-oriented transfer process now aiming at **transferring the practical design and implementation knowledge** (stage 2). A project manager from ARCHITECT commented:

> The changed approach means a lot more examples. Many things that have been written down on paper make no sense until one begins doing it.

In order to check whether this new stage has been successfully reached, ARCHITECT monitored the development of the questions that came from IMPLEMENT. Based on this input, ARCHITECT further adapted his knowledge transfer approach to the particular setting of the project and to the individual needs of IMPLEMENT.

That way, the knowledge transfer approach developed from concept-based presentations over the inclusion of multiple examples towards a form of a **joint cross-vendor learning based on implementation experiences** (stage 3). This stage can be especially characterized by an intense involvement of the party the knowledge is transferred to. Through the conduction of on-site workshops it has been ensured that individual interaction between the programmers from IMPLEMENT and the technical experts from ARCHITECT could take place, thereby focusing on the
current practical questions from the developers work rather than on additional training material. A project manager from ARCHITECT described:

\[\ldots\] Finally, we have conducted frequent lessons learnt sessions, in the course of which we concentrated on misunderstandings and errors. We have discussed a lot with the developers, trying to establish a joint understanding.

However, as the global service delivery concept of IMPLEMENT involved several locations in Spain and Brazil, not all developers engaged in the project could participate personally in the knowledge transfer activities. Hence, the relevant knowledge about the new architectural framework has not only to be transferred but the knowledge had also to be multiplied across the global delivery network comprising several locations and countries (stage 4).

Due to the project’s tough timeline, the knowledge transfer and subsequent multiplication needed already to take place while IMPLEMENT’s development team was still ramping up the resources from 10 to 50 developers in the development centers in Spain and Brazil. Beyond that, the process challenged through the mismatch of the involved parties’ organizational setups. Whereas ARCHITECT is represented through a team of five quite experienced experts following an onshore delivery model, IMPLEMENT’s implementation team comprises 50 people with various competence and practice levels working in a distributed setting including near- and offshore locations. This requires the multiplication of the transferred knowledge from the IMPLEMENT technical experts to the remote-working developers who did not participate directly in the knowledge transfer. A project team member of IMPLEMENT noticed:

First, ARCHITECT had difficulties to understand the challenge of a large, distributed project team. It requires a huge effort to scale the knowledge to more than 30 developers in Brazil and Spain. The material provided from ARCHITECT did not support our need for knowledge multiplication very well.

Due to the minor experience of ARCHITECT with IMPLEMENT’s organizational setup, the multiplication of knowledge was mainly realized IMPLEMENT-internally. IMPLEMENT used the training material from the workshops with ARCHITECT as a basis and enhanced the presentations with own notes. Thus, they created very detailed manuals for both, team members in distant locations and future team members that aren’t even on board yet. A project manager from IMPLEMENT outlines:

We did training [with ARCHITECT] for the technical experts who had to come up with manuals for the programmers. Experts in the area have to document and explain it to their colleagues at the same time. \[\ldots\] New project members are taking over simple tasks and learn by cooperating with expert persons.

Beyond that, IMPLEMENT relied on training on the job in order to quickly introduce new team members into the project. In order to make the knowledge equally accessible to all developers working in different locations, a corporate wiki containing all the documents and presentations was setup. A project manager from IMPLEMENT explained:

We established a wiki that helped people to understand the software architecture. As our programmers work in different places it is critical to have the knowledge formalized. There is a huge investment in creating a forum and wiki and a central knowledge base in order to avoid high dependencies from the more expert people. So some people in the team only worked to facilitate the work.

Thus, through capturing all necessary knowledge through documentation, IMPLEMENT achieved three benefits for its internal knowledge multiplication: first, the knowledge is made equally accessible to all developers working in different locations, second, since the knowledge transfer is based on a train-the-trainer concept, comprehensive documentation balances the load for the multipliers (which are typically rare), and last, the knowledge was already put into documentation and hence immediately available for future team members.
In summary, the first part of our analysis suggests that vendor-vendor knowledge transfer runs through 4 stages as depicted in figure 1.

![Figure 1](image)

**Figure 1.** Stage-model of vendor-vendor knowledge transfer in global ISD outsourcing projects with multiple vendors

### 4.2.2 Influencing factors

In the second part of the analysis we show the factors that have influenced the shaping of the project’s vendor-vendor knowledge transfer. As there is a lack of literature on vendor-vendor knowledge transfer in the global ISD outsourcing domain, we thereby draw on a theoretical framework of inter-organizational knowledge transfer from the general management research domain. The framework has been developed on the grounds of the unbowed importance of knowledge transfer as a research area within the broader domain of organizational learning and knowledge management and identifies current and future key themes of the knowledge transfer between organizations (Easterby-Smith, Lyles et al. 2008). In doing so, the framework comprises three fundamental categories: the “resources and capabilities of both the donor and recipient firms, the nature of knowledge that is being exchanged, and inter-organizational dynamics” (Easterby-Smith, Lyles et al. 2008, p.678).

The first important concept that emerged from the data is the knowledge receiver’s level of knowledge. When designing the knowledge transfer it is important to understand where to tie in with the knowledge that needs to be transferred. In the case at hand, all vendors have been involved in prior projects with BANK, i.e. there was already an existing client-vendor relationship between the bank and each of the vendors before the project started. Accordingly, as the project started, there was no significant need for the transfer of functional and process knowledge from the client to the vendors, as this knowledge has already been built up over years. BANK’s project lead remembered:

> There was no need to transfer functional knowledge [...] This was very valuable as often the learning phases are even longer than the real projects.

However, in the course of writing the design documents (prior to the implementation activities) it turned out that IMPLEMENT missed fundamental technical knowledge that has been assumed to already exist as basis for the agreed knowledge transfer. Thus, the level of IMPLEMENT’s technical knowledge influenced the shaping of the knowledge transfer as the scope of the knowledge transfer had to be redefined. Furthermore, ARCHITECT needed to exceed his role as a pure training and...
controlling instance and actively participated in the writing process in order to not endanger the project’s overall timeline.

Besides the knowledge receiver’s level of knowledge also the knowledge receiver’s mindset emerged from our interview data as an important influencing factor affecting the knowledge transfer between vendors. In vendor-vendor constellations the relationship between the involved vendor companies can be characterized as competing whereas in the context of client-vendor knowledge transfer the mindset of the involved parties is shaped fundamentally through the attributes of the relationship between client and vendor which involves by nature status and power differences (Nicholson and Sahay 2001). To show that power differences are also involved in the case on hand, consider the following statement made by a BANK subproject manager:

To be honest, my attitude is that in case of doubt I am right as I am BANK, not any people’s bank. And I am the customer. This mindset makes it easier for me in case of conflicts.

However, in this case of vendor-vendor knowledge transfer, there is not such a power relation as all vendor companies have been directly contracted by BANK. In fact, the joint customer affiliates the vendors with each other on the same level. Nevertheless, when the project started, IMPLEMENT seemed to have another self-concept than the rest of the vendors based on his prior very intense cooperation with the bank. From prior projects he was accustomed to a large autonomy with regards to his implementation activities which came along with sparse control through the client. In this project however, due to the multi-vendor-constellation tasks such as the architectural framework and software test that have been performed by IMPLEMENT in prior projects are now with other vendors. Furthermore, his design and implementation activities were being controlled not by their customer but by another vendor (that is ARCHITECT). Thus, IMPLEMENT was not only required to gain knowledge about the new software architecture, but needed also to adjust his mindset regarding his role and responsibilities within the project. A project manager from IMPLEMENT illustrated the new perspective as follows:

For sure, we would prefer to also have the responsibility for the framework, as it is part of our portfolio. But the client has decided differently [...] so now we are jointly responsible for this project. As a consequence, we have to prioritize the project goals higher than our goals as a service delivery company in order to create a win-win-situation. Even this is not easy, as you do not have a guarantee that you get back what you invest.

Thus, while in client-vendor constellations mainly the knowledge donor’s (client) mindset has been identified to put the knowledge transfer at risk due to fear of job loss and resistance to change (Gregory, Beck et al. 2009), knowledge transfer from vendor to vendor can be heavily influenced through the knowledge receiver’s mindset based on former experience and status.

As depicted in table 1 prior research has identified absorptive capacity, transfer capabilities and the motivation of the involved parties as major influencing factors on inter-organizational knowledge transfer. Our data analysis above suggests that the present factors need to be enhanced: while for the above mentioned factors a degree of symmetry between donor and recipient has been diagnosed (Easterby-Smith, Lyles et al. 2008), we propose an additional factor that relates to the recipient only. Our data indicate that both, the knowledge receiver’s level of knowledge as well as his mindset play an important role in the shaping of the knowledge transfer process. The former aspect is directly concerned with the question of the already available knowledge as a basis for the knowledge transfer. The latter aspect deals with the knowledge receiver’s attitude towards the knowledge transfer, thus referring to a kind of a mental point of contact. Thus, the two aspects can be aggregated to one factor relating to the knowledge recipient’s starting conditions constituting a central input for the setup of a successful knowledge transfer process.

A further influencing factor that emerged from our data concerns the object of the knowledge transfer itself: the structure of the knowledge that needs to be brought across to the knowledge receiver. When knowledge is transferred from the client to the vendor it is generally a question of functional
and process knowledge as in dyadic global outsourcing settings, the functional and process knowledge is typically with the client, whereas the vendor brings in the technical knowledge (Tiwana 2003). However, in multiple-vendor constellations that require knowledge transfer between the involved vendors, the knowledge to be transferred is mainly technical in nature. In the case at hand the technical knowledge to be transferred from ARCHITECT to IMPLEMENT concerned the new architectural framework as well as the corresponding design principles and implementation rules which ensure that project goals such as reusability will be reached. In the course of the knowledge transfer it became apparent that this kind of knowledge formed a sharp contrast to IMPLEMENT’s delivery model and that way hampered the knowledge transfer. A project manager from ARCHITECT explained:

*Software architecture has a quite comprehensive character, if you want to understand you need to see the overall picture, whereas the organizational setup of IMPLEMENT follows a “split the task and distribute the sub-tasks to the developers”-mode. The developers do not see the big picture. When the code from the different developers has been assembled it was obvious that the basic concepts of the architecture have not been sufficiently understood.*

Thus, there was a mismatch between the kind of knowledge and the organizational setup that needed to be taken into account in order to avoid inefficiencies in the knowledge transfer process. As one of IMPLEMENT’s managers confirmed, its global delivery model requires first to look at the system at large, and second to split up the task in preferably self-contained sub-tasks. After matching the difficulties of the sub-tasks with the competence profiles of the developers the work is distributed. In doing so, the distributed teams are able to work as independently from each other as possible. Associated with the challenge of the missing big picture is the problem of missing identification with the objective, the system, and the customer. To show that IMPLEMENT is quite aware of these obstacles introduced through the global delivery approach, consider the following statement made by a project manager:

*Here we have the advantage that the system we develop can be presented online. That way, people can be closer to the task even when working in different locations [...] One major problem in a global setup is that not all people have contact to the customer, so that people miss the emotional part and are not able to perceive the importance of project.*

This finding from our analysis, that the characteristics of the knowledge to be transferred shapes the knowledge transfer process, is basically in line with findings from prior research that has come to the conclusion that the properties of knowledge directly impact inter-organizational knowledge transfer (Argote, McEvily et al. 2003). Thereby, the framework differentiates between the attributes tacit, ambiguous, and complex (see figure 1). In the context of dyadic global outsourcing settings, one of the prevalent perspectives on the knowledge to be transferred is the distinction between functional, process, and technical knowledge (Tiwana 2003). Our case study results show that there is also another meaningful perspective: rather than differentiating knowledge according to self-referencing criteria such as its attributes or types as described above, our analysis suggests relating the characteristics of the knowledge to be transferred to its external context such as the organizational setup of the knowledge receiver.

Beyond that, it emerged from our data that the knowledge transfer process was also influenced through differences in organizational size of the two vendors. Whereas ARCHITECT is represented through a team of five quite experienced experts following an onshore delivery model, IMPLEMENT’s implementation team comprises 50 people with various competence and practice levels working in a distributed setting including near- and offshore locations. This requires the multiplication of the transferred knowledge from the IMPLEMENT technical experts to the remote-working developers who did not participate directly in the knowledge transfer. A project team member of IMPLEMENT noticed:

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<table>
<thead>
<tr>
<th>Category</th>
<th>Theme</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Resources and capabilities of donor and recipient firm</td>
<td>Absorptive capacity</td>
<td>Absorptive capacity refers to the ability to recognize the value of new knowledge and to assimilate and use that knowledge</td>
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<tr>
<td></td>
<td>Transfer capability</td>
<td>Transfer capability refers to the ability to make information available to the recipient in an efficient manner</td>
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<td></td>
<td>Motivation</td>
<td>Motivation refers to the willingness to learn respectively to teach</td>
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<tr>
<td>Starting conditions</td>
<td>Knowledge receiver’s level of knowledge and knowledge receiver’s mindset (factor relates to knowledge receiver only)</td>
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<tr>
<td>Nature of knowledge</td>
<td>Tacitness</td>
<td>Prior research established that the properties of knowledge affect the ability to transfer that knowledge, the rate at which it will be assimilated, and how much is retained</td>
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<td></td>
<td>Ambiguity</td>
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<td>Complexity</td>
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<tr>
<td>External context</td>
<td>Relation of the characteristics of the knowledge to be transferred to its external context (e.g. the organizational setup of the knowledge receiver)</td>
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<tr>
<td>Inter-organizational dynamics</td>
<td>Social ties</td>
<td>Social ties refer to informal, social links between members of the same organization or different organizations</td>
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<td></td>
<td>Structures and mechanisms</td>
<td>The structure of the inter-organizational relationship refers to the context in which knowledge transfer takes place, and the transfer mechanisms which are established within that context</td>
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<td></td>
<td>Power relations</td>
<td>Recipient and donor are often in a situation of power asymmetry with the latter being in a more superior position.</td>
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<td></td>
<td>Trust and risk</td>
<td>Trust and risk refers to source credibility and the risk of unintended transfer of knowledge that leads to the erosion of competitive advantage</td>
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<tr>
<td>Organizational size</td>
<td>Differences in the organizational size need to be overcome in order to ensure a successful knowledge transfer process (e.g. different organizational setups)</td>
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Table 1. Factors influencing inter-organizational knowledge transfer  
(Easterby-Smith, Lyles et al. 2008, own findings)

This finding from last quote is related to the third category of the theoretical framework, which is inter-organizational dynamics. In the framework, the themes as well as the definitions and examples
most often used refer to client-vendor relationships where in particular strategic alliances have been identified as the prevalent structure in the context of inter-organizational knowledge transfer. However, our case study is about a multisourcing arrangement involving two companies working for the same client in a joint information systems development project. Against this background, the relationship between the two is best characterized as competing. With it, the above mentioned themes appear in a different light and new aspects emerge. Many studies have evaluated the impact of organizational size on knowledge transfer with mixed results (van Wijk, Jansen et al. 2008). However, while most of these studies address the relation between organizational size and the extent of knowledge transfer, our data suggests that also differences in the organizational size of the involved parties matter. Thus, this finding adds a new aspect to the theme ‘structures and mechanisms’.

In summary, the second part of our analysis suggests that four factors have mainly influenced the shaping of the vendor-vendor knowledge transfer in our case. Through relating the findings to an existing framework of inter-organizational knowledge transfer we have shown that the specifics of knowledge transfer between vendors is able to add new perspectives and aspects in the context of knowledge transfer in global ISD outsourcing projects with multiple vendors. Table 1 provides a short overview by relating knowledge factors identified by Easterby-Smith et al. (2008) with the findings from our case study.

5 CONCLUSION

This paper is a first step towards a better understanding of the knowledge transfer from vendor to vendor in global information systems development outsourcing projects. While researchers have put forth numerous studies addressing various aspects of the client-vendor knowledge transfer, our study is one of the first empirical studies focusing on the knowledge transfer process within the vendor portfolio of a global ISD project. Therewith, our study contributes to a better understanding of an important aspect of coordination amongst vendors in IS multisourcing arrangements as recently requested for future research by Bapna et al. (2010).’

We also addressed the questions of how vendor-vendor knowledge transfer takes place and through which factors it is shaped and thus make an important contribution to the IS multisourcing domain literature. Using grounded theory techniques, we were able to inductively identify the major stages of the knowledge transfer between two vendors in a global ISD outsourcing project with multiple vendors. The first two stages are concerned with one-directional transfer of knowledge in the sense that there is a knowledge donor and a knowledge receiver and the knowledge flow is from the donor to the receiver. In stage three the understanding of roles and responsibilities obviously has already changed towards shared understanding and joint action. Finally, stage four is dealing with the task of diffusing the transferred knowledge into the receiver’s organization which in the context of global ISD outsourcing is typically spread globally. Thus, this stage model of a vendor-vendor knowledge transfer does not only focus on the typical knowledge transfer activities (stages one and two), but also includes more advanced forms of knowledge transfer such as joint learning and addresses the challenges of knowledge multiplication. Beyond that, we identified four factors that influenced the shaping of the knowledge transfer process.

To the best of our knowledge, our study is one of the first studies to introduce the theoretical framework of inter-organizational knowledge transfer into the specific context of global multivendor ISD outsourcing projects. By extending the framework to this context, we make a theoretical contribution to the theory of inter-organizational knowledge transfer in the IS domain. Our detailed case analysis of a global multivendor ISD outsourcing project has several implications for global sourcing practice. The main suggestion for practitioners is to take the results of this study into account in the course of the vendor selection process: instead of applying a best-fit-for-task strategy only, aspects such as their capabilities and characteristics with regards to knowledge transfer might be worth to be considered. Second, the findings may support vendor project managers to take potential influencing factors on knowledge transfer into consideration to smoothen and improve the transfer of knowledge within a multi-vendor constellation.
However, there are limitations to be taken into account: The results of this study might be specific in large IT reengineering projects in the German financial services industry. For instance, the knowledge transfer had been contractually agreed with both involved vendors. Therefore, the results must not necessarily be generalizable across other types of multi-vendor constellations. Thus, we would like to encourage researchers to further study the posed research question in other contexts (e.g. manufacturing context) and settings. In addition, the analysis of this paper which focuses on influencing factors on knowledge transfer processes could be extended to identify further factors that matter during the transfer of knowledge between vendors.

References


