

Knowledge transfer in outsourcing: From theory to tooling

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Abstract. This chapter deals with knowledge transfer in outsourcing and more specifically in an outsourcing arrangement with a company headquarter in Denmark and an offshore dedicated development centre located in India. Challenges involved with respect to transferring the required knowledge when getting a new group in the offshore centre ready to take on new tasks inform the design of a systematic five-step approach to knowledge transfer. We discuss main design decisions and reflect on the pros and cons of a systematic, tool supported approach to a "soft", and less tangible issue such as knowledge transfer.

Keywords: Outsourcing, knowledge transfer, IT support.

1 Introduction

Research shows and companies know that it takes time before employees who are newcomers to an organization, or to a specific department, job, or project achieve the same level of productivity as their colleagues (Rollag et al., 2005). Similarly, it is recognized that to get newcomers up to speed, they have to be introduced to and learn about their tasks and the particular context in which they are to perform these tasks (Rollag et al., 2005). Many companies handle this challenge through formal introduction programmes, and subsequent on-the-job training, where experienced colleagues show the newcomers the ropes. Moreover, much knowledge transfer takes place informally and ad hoc through co-presence and socialization (Nonaka, 1991; 1994; Nonaka & Takeuchi, 1995).

However, when it comes to outsourcing of activities to another company, the lack of co-location and opportunities for spontaneous interaction mean that knowledge transfer between employees from the two companies does not happen as easily, if at all. In case of sourcing to offshore destinations this is further complicated. In this chapter, we discuss knowledge transfer in such a situation based on a longitudinal case study. The case study has taken place in Danske Bank – a major financial company – with substantial operational experience from collaborating with an Indian IT vendor since 2005. In the Indian company, a specific unit working only with Danske Bank has been established as a dedicated development centre. Five hundred Indian associates work in different development projects and in various system management areas in close cooperation with employees from the case company situated in Denmark. To enable this, initial training programmes have been set up where newly hired Indian associates receive a general introduction to Danske Bank's business domain, as well as information about the company's IT development model and system management procedures. However, following the initial training programme, project and system managers in Danske Bank who are responsible for outsourced activities have to ensure that further and more specific knowledge transfer about the project or area takes place. This means that they have to figure out what kind of knowledge the Indian associates need and how to transfer it.

Geographical distance and cultural differences add to the complexity of this task. Thus, many project and system managers face the challenge of dealing with knowledge transfer that ensures that the Indian associates reach the desired level of productivity – a new and unknown territory. With the approach described in this chapter, Danske Bank is moving from a situation where it is taken for granted that people will automatically share knowledge when they start working together towards a situation with a proactive and management initiated approach to knowledge transfer.

The knowledge management literature has looked extensively at the concept of knowledge; different types of knowledge, e.g., the well-known distinction between explicit and tacit knowledge (Polanyi, 1962; 1966); different types of knowledge processes, e.g., knowledge creation, sharing, transfer, etc. as well as at the mechanisms that support the creation, sharing, and transfer of different types of knowledge, see for example Nonaka & Takeuchi (1995). However, the definitions, discussions, and normative prescriptions found in the knowledge management literature are largely abstract and philosophical in nature. Thus, even though much research about different types of knowledge and knowledge transfer mechanisms exists, there is quite a distance to travel between the theoretical recommendations and the concrete task of establishing and executing a knowledge transfer plan. In line with this, there has also been a call for more research about knowledge transfer at the operational level as well as about the ways in which IT can play an important role in supporting knowledge transfer in practice (Markus, 2001).

Studies in the field of computer supported cooperative work (CSCW) have highlighted the impact of geographical distance and the importance of common ground, coupling of work, collaboration readiness and collaboration technology readiness, see for example (Olson & Olson, 2000). Moreover, virtual-teams research has studied the challenges with regard to creating and maintaining trust, mutual liking and shared meaning as well as of managing conflicts in teams where members work together across time, space and culture (Bjørn & Ngwenyama, 2009; Hinds & Bailey, 2003; Hinds & Mortensen, 2005; Jarvenpaa & Leidner, 1999). Also, in the outsourcing literature the problems and influence of geographical distance, cultural differences, the onshore staff's motivation for engaging in cross-cultural interaction, the offshore unit's lack of domain knowledge, etc. have received considerable attention (Beck et al., 2008; Carmel & Agarwal, 2002; Gregory et al., 2009).

In this chapter, we are interested in understanding how the problems of knowledge transfer at the operational level in outsourcing might be solved. We address the following research question: *How can a systematic, IT tool supported approach help managers establish and execute a knowledge transfer plan that overcomes the challenges of knowledge transfer in outsourcing?*

The chapter is structured as follows. In Section 2, we explain the definitions and theories that we use, while Section 3 contains a short description of our research approach. Section 4 presents the case company and its outsourcing arrangement as well as the main knowledge transfer challenges experienced through the four and a half years of operation. Based on an understanding of these challenges, in Section 5, we propose a systematic, tool-supported five-step approach to knowledge transfer. We present this approach in some detail in an attempt to make our design decisions and their rationale concrete for the reader and because when designing IT tools that are intended to support complex use and decision situations "the devil

is in the detail" (Bødker et al., 2005). Lastly, in the conclusion we present a short summary of our research.

2 Theoretical background

Getting new employees and project participants up to speed is a well-known organizational challenge, which has many dimensions. In this chapter, we discuss it as a knowledge transfer problem. Below, we present the definitions and views on knowledge and knowledge transfer that have informed our research.

2.1 What is knowledge?

Knowledge is a complex and multifaceted concept that is studied both at the individual and organizational level, and as something that can be acquired, created, shared, transferred, stored, etc. Moreover, knowledge is seen to be embedded in routines, processes, and artefacts; inherent to action; and necessary for interaction.

We adopt the view that knowledge is acquired by the individual as he or she identifies, interprets, and internalizes theoretical or practical knowledge (Pries-Heje, 2004; Myers, 1996), either by hearing about a topic or by doing something. The acquired knowledge is unique to the individual because the information and experience is filtered through and "added" to the stock of knowledge that the individual already possesses.

The knowledge that the individual has can be used to get the work done and can be articulated and codified for the benefit of others or for one self as part of reflective activities. Knowledge that can be articulated, codified, stored, and shared with others is often referred to as explicit knowledge (Nonaka, 1991; 1994). However, not all the knowledge that an individual possesses can be easily shared. Tacit knowledge is difficult to communicate to others via words and symbols because it is deeply rooted in action and the person's understanding of a specific context (Nonaka, 1991). Moreover, tacit knowledge consists of both a technical/bodily skills dimension where the individual "just knows" what to do, and a cognitive dimension where taken-for-granted beliefs, perspectives, and mental models facilitate and shape action (Nonaka, 1991).

However, all interaction requires people to be able to communicate. All communication and collaboration in turn rest on a foundation of information, which the interaction partners have in common and which they are aware that they share, i.e., on common ground (Kraut et al., 2002; Olson & Olson, 2000). In some situations, there is already much common ground prior to interaction because people are members of the same group or work environment, belong to the same national culture, have witnessed or experienced the same events, etc. At the same time, and partly due to the dynamic nature of everyday life, people always have to establish common ground during the particular interaction, by attempting to understand each others' current situations and gauging which views are shared, and what the other mis/understands about the information that one tries to convey. However, according to the principle of 'least collaborative effort', people will try to create grounding for their interaction with as little effort as possible; and people will, therefore, also often prefer to interact in person rather than through written media (Kraut et al., 2002).

2.2 Transferring knowledge from onshore to offshore personnel

In this chapter, we focus on knowledge transfer, and more specifically the knowledge transfer that takes place in situations, (1) where people interact with each other, in person or through various types of media and (2) where some people already possess knowledge that others need. We do not address whether new knowledge has to be or is created in connection with knowledge transfer activities. This delimitation has been chosen to stay in line with the way the case company understands and formulates the knowledge problem in outsourcing. Here knowledge needs are expressed in terms of knowledge already existing in Danske Bank to be re-used by Indian associates taking over new tasks. This focus on knowledge re-use is in line with the framework provided by Markus (2001).

Based on a synthesis of previous work in the knowledge management area, Markus (2001) proposes a theory that delineates four situations in which knowledge possessed and explicated by some are transferred to and (re)used by others. Two of these theoretical situations represent the knowledge transfer situations we see in the outsourcing arrangement under study very well. Following Markus (2001), we describe the two situations below.

- **Expertise-seeking novices** are people who are in need of more knowledge to be able to perform their work – because they are new to the work; because they have to perform it with increased productivity; or because they have encountered a problem with which they have no prior experience. The novices do not possess the knowledge they need themselves and therefore they have to get it from experts or through codified expertise. Markus (2001) refers to this as classic knowledge transfer, and as distinct from the knowledge sharing that takes place among colleagues, due to the fact that it supports people who differ substantially from the knowledge producers with regard to knowledge and background. The more dissimilar the novices and those who possess the knowledge are, the more difficult it is for the novices to know the jargon, which questions to ask, which symptoms to report, or which expert or expertise to look for. Moreover, once acquired it can still be difficult to know how to apply the knowledge appropriately. Thus, novices require information to be presented to them in a very accessible (i.e. in a de-contextualized) way and they need help in determining when and how to apply knowledge (i.e. with re-contextualization). Further, they may not be aware that they “need” knowledge and that adequate knowledge exists for their use, so general training is important. In this scenario, human and IT intermediaries who can ensure that knowledge is packaged, i.e. structured, formatted, sanitized and indexed, and disseminated are very important.
- **Shared work producers** are people who work together as colleagues on a team. The team members have much common ground, share a lot of knowledge during the work process, and produce and document knowledge that they use among themselves. The need for knowledge transfer arises, for example, when new people arrive in the group; here, the produced and documented knowledge can be used to recall reasons for decisions about what was done, how, and why, as well as about what still needs doing and what can be improved. The recommendations in the literature for successful knowledge transfer to new team members include providing support for locating knowledge, striving to document rationales for decisions (despite the effort it takes), maintaining context in records, and keeping the records private to the group, as this means that the records can contain “raw”,

unpolished notes and details, thereby decreasing the cost of capturing the information in writing.

2.3 Summary

Our view is that knowledge enables action and interaction. In particular, we see individual knowledge as central in getting professional work done and shared knowledge (i.e. common ground) as a necessary starting point for communication and collaboration.

Based on this understanding of knowledge, we are primarily interested in identifying the challenges of knowledge transfer and proposing a systematic, IT tool supported approach for dealing with knowledge transfer to *expertise-seeking novices*. There are two main reasons for this. First, the outsourcing arrangement that constitutes our empirical foundation involves people who are dissimilar with regard to the knowledge and background they have, and second, in this setup the Indian associates often need access to the knowledge of the Danish employees to be able to perform their job.

In addition, the empirical case study that we draw on is characterized by much client–vendor teamwork on IT development projects and system management areas. Aspects relating to the *shared work producers* situation will therefore also inform our empirical analysis and conceptual design.

3 Research approach

Our focal point is the knowledge transfer that takes place at the operational level in outsourcing. A longitudinal case study (Yin, 1994) with this emphasis has been conducted in collaboration with Danske Bank as an integral part of the SourceIT research project's activities with the company. An engaged research approach has been applied to avoid the production of research that is too abstract or irrelevant for practical problem solving, i.e., to avoid the research–practice divide (Van de Ven, 2007). The research team consisted of people from both academia and practice, more specifically two academics from Roskilde University and one practitioner from the case company, who was working as a liaison officer in India for a period of time and subsequently has taken on the management role for a team of 25 Indian associates. The research team has worked closely together to develop an empirically grounded and shared understanding of the knowledge transfer challenges in outsourcing and how they might be overcome.

Our research activities have been structured into four phases. In the first phase, the two academics spent three weeks in India in March 2009 to study the operational aspects of the outsourcing arrangement. This led to a more focused study of how to understand and support knowledge transfer, involving the practitioner from summer 2009 onwards. The practitioner was at this point in time on a short term posting (6 months) in India and was, among other things, charged with the task of improving the case company's way of conducting knowledge transfer. In the second phase, the aim was to understand the challenges of knowledge transfer in outsourcing, in general and as they pertain to the case. Over the course of a two month time period, a literature study of the knowledge management and outsourcing literature was conducted and the results here of, delineated in overview tables and text, were jointly discussed and compared with the case company's experiences. The discussions were

documented in a project log, containing our emerging understandings of the challenges of knowledge transfer as well as ideas for how to overcome them. In the third phase, the results from phase two (i.e. the documents and shared understanding) informed the first conceptual design of a multi-step knowledge transfer model. In the fourth phase, the knowledge transfer model gradually, and based on feedback and additional empirical insight, evolved into the conceptual design of a systematic five-step, IT tool supported approach to knowledge transfer. Table 1 provides an overview of the four phases and our research activities.

<i>Phases</i>	<i>Activities</i>	<i>Who and when</i>
1. Building common ground	<ul style="list-style-type: none"> Field study at the ODC in India: 18 interviews and observation (see Madsen and Bødker, 2010 for more detail) A short-term posting at the ODC in India 	<ul style="list-style-type: none"> The two academics, three weeks, Mar 2009 The practitioner, six months, Mar–Oct 2009
2. Understanding the challenges of KT	<ul style="list-style-type: none"> Literature study: Knowledge management; KT in outsourcing Joint conversations about the results of the literature study and their “fit” with and manifestation in practice; documented in a project log 	<ul style="list-style-type: none"> The research team, two months, Jul–Aug 2009
3. Conceptualizing a multi-step model to KT	<ul style="list-style-type: none"> Informed by the results from phase two, a multi-step model for overcoming the challenges of KT was developed 	<ul style="list-style-type: none"> The research team, two months, Sept–Oct 2009
4. Receiving feedback and refining the approach	<ul style="list-style-type: none"> Workshop: Presentation of KT model to the SourceIT project participants Workshop: Presentation of a systematic five-step, tool supported approach to the SourceIT project participants Presentation of the KT approach to another company with a dissimilar outsourcing arrangement to ensure the approach’s broader usefulness Two interviews with LOs to follow-up on challenges and experiences with KT Writing the book chapter and receiving feedback on the approach as presented in the chapter 	<ul style="list-style-type: none"> The research team and the academics and practitioners in the SourceIT research project, Nov 2009 The research team and the academics and practitioners in the SourceIT research project, May 2010 The research team and three employees involved in outsourcing, Jun 2010 The research team and two LOs working with knowledge transfer, Jun and Aug 2010 respectively The research team and the academics and practitioners in the SourceIT research project, Jan–Mar 2011

Table 1: Research phases and activities

Below, we report our empirical findings about the challenges of knowledge transfer in outsourcing; the overall design of the approach and IT tool; as well as reflections about the approach and its usefulness. These are the product of a number of iterations between data collection at various empirical sites, analysis of empirical data, comparison of literature and practice, and presentations for the people involved in the activities studied, people with managerial positions in Danske Bank, as well as for the other companies and academic researchers in the SourceIT research project.

Currently, the research is at the stage where we have received positive evaluations of the approach at the conceptual level. For example, the case company has recently developed and implemented a tool supported approach to knowledge transfer that is very similar to the one presented below. The next step is to continuously gain experience with and evaluate the implemented approach and thus further develop the approach and the tool based on learning points from the practical experiences with the utilization in the case company.

4 Case study

In this section, we first present Danske Bank's outsourcing arrangement in more detail. Then we describe the knowledge transfer challenges that the case company has experienced. Lastly, we summarize the results in the form of a list of ways in which a systematic approach to knowledge transfer should help the manager responsible for devising and executing a knowledge transfer plan.

4.1 The outsourcing arrangement

Danske Bank has substantial operational experience with a dedicated offshore development centre (ODC) in India which has been in place since 2005. The ODC is a facility owned by an Indian vendor, but dedicated to Danske Bank and the Indian associates work on the same technical platform as the Danish employees by connecting to virtual machines located in Denmark. Moreover, the ODC is located in four adjacent buildings that bear the Danish company name and where only the employees who are working for Danske Bank have access.

The chosen strategy is such that currently approximately 500 Indians employed by the Indian vendor are 'hired' from the Indian company into the ODC. These Indian associates are considered a pool of resources to be allocated to IT development projects and/or system management areas, just like other IT employees in Danske Bank. Consequently, the contract with the Indian vendor concerns the timely delivery of skilled personnel and billable hours rather than IT products or services. This outsourcing arrangement has been chosen to ensure access to a scalable workforce that can be adapted to meet the requirements of the bank's IT organization. With regard to the latter aspect, Danske Bank has deliberately chosen to establish a collaboration with a vendor that has the ability to attract and recruit newly educated candidates from the best universities as well as more experienced staff. In other words, a large, well-reputed vendor has been chosen to benefit from their ability to cater to the Indian labour market's focus on quick career moves and enhancement of the curriculum vitae.

To ensure a well-functioning client–vendor relationship, five Danes are posted in India to oversee the daily operations. The four liaison officers and a manager are all experienced

Danish employees with a long term posting in India. Their tasks are to conduct screening interviews with all candidates from the Indian company, control and follow-up on the contract with the Indian company, for example, with regard to the monthly billable hours, and to facilitate process improvement as well as other initiatives that strengthen the cooperation between Danske Bank and the outsourcing partner and increase efficiency and productivity. Furthermore, the Danes posted in India play an important role in facilitating and boundary spanning across the locations by helping people at both locations gain an understanding of differences in facilities, work culture, communication norms etc. and in aligning expectations among the stakeholders.

Of the 500 Indian associates, approximately 75% are allocated to system management tasks, while the remaining 25% work on development projects. Moreover, many Indian resources are allocated to tasks onshore, i.e., in Denmark; at any given time up to 20% of the billable hours concern onshore ODC resources. A typical onshore stay lasts from two to four months. An important characteristic of the chosen outsourcing strategy is that many activities are jointly performed by Danish employees and Indian associates, regardless of whether the tasks concern system management, IT development, or whether people are co-located or collaborate virtually. In other words, a *cooperative outsourcing* strategy has been implemented (Dibbern et al., 2004). In this outsourcing arrangement, knowledge transfer is very important, and also challenging as the establishment of common ground is crucial for efficient collaboration between the Danish employees and the Indian associates.

Knowledge transfer in the case company's outsourcing arrangement is essentially twofold. First, it is the obligation of the vendor to hire staff with the appropriate technical skills and subsequently train them in the case company's organization, processes, and tools as well as to provide general cultural training about Denmark and work culture in Denmark. In this chapter, we do not focus on this initial type of knowledge transfer. Rather, we are occupied with the knowledge transfer that needs to take place when Indian associates join a team, whether this is a system management or a project team, to provide newcomers with the necessary level of specific knowledge to be able to function in the team they are assigned to. The manager of the team is responsible for this knowledge transfer.

4.2 The challenges of knowledge transfer

Danske Bank has experienced three major types of knowledge transfer challenges of which one is about different knowledge types and varying needs, one is related to physical distance, and one concerns incentives and priorities.

4.2.1 Knowledge types and needs

All people know more than they are consciously aware of (Polanyi, 1962). In other words, people possess much tacit knowledge and therefore take many things for granted, also when transferring knowledge. Second, people have different backgrounds and levels of expertise, and thus, different knowledge (transfer) needs when assigned to similar tasks.

A simple, yet illustrative example of the challenge of tacit knowledge in the case company concerns the Danish mortgage system. Most Danish employees know that a mortgage in Denmark is a loan with the currency of up to thirty years whether it is a fixed rate mortgage or another kind of mortgage. So, in Denmark, the maximum currency is regarded somewhat as a

constant that may very well be left out in a knowledge transfer session. However, in India there is no such thing as a formalized maximum currency and most mortgages have a currency of ten to twenty years; and in a few cases, the currency may be more than twenty years and in a few cases less than ten. Consequently, if the Danish maximum currency is left out of the knowledge transfer there is indeed a risk that the Indian associates will work on the assumption that the mortgage system in Denmark is equivalent to the Indian system. A consequence of this is that the Indian associates write code that does not meet the expectations, let alone business needs, and Danish legal regulations. There are of course an endless number of similar examples of what is so common for the Danish employees that they forget that it may not be just as common for the Indian knowledge recipients, and vice versa.

Another issue that employees of Danske Bank often face is the question of how much the Indians know prior to knowledge transfer. The Indians have different backgrounds and levels of expertise. This inhibits a clear-cut definition of what type of knowledge to transfer and how as the needs vary from person to person.

However, the two abovementioned challenges related to tacit knowledge and different knowledge needs are not the only knowledge transfer challenges in an outsourcing context. The two other main categories are discussed below even though they – strictly speaking – are not about knowledge transfer. Instead, they address why knowledge sharing is more difficult across large geographical distance than if people are working in the same location.

4.2.2 *Physical distance*

Knowledge sharing is substantially more difficult among co-workers who are not co-located than among those who are (Olson & Olson, 2000). Experience in the case company supports this, as it clearly shows that both knowledge sharing as well as knowledge transfer are best done when the Indian resources are invited for an onshore stay of two to four months. It seems that knowledge sharing happens more or less automatically when people are in close physical proximity (Kraut et al., 2002); people simply go to each others' desks and ask for help as the need arises. This fluent pattern of interaction – aided by rich cues about peoples' availability for answering questions and evidence of what the person asking the question (mis)understands (Kraut et al., 2002; Olson & Olson, 2000) – is also exercised by onshore Indian associates. Thus, co-location of Danish employees and Indian associates means that knowledge transfer needs can be handled with low effort through “a quick chat”, i.e., in a way in which it does not feel like knowledge transfer.

However, there are many occasions in which an initial onshore stay is not possible for a variety of reasons. In these cases, the employees tend to stick to emails as the primary means of communication. Primarily because this form of communication is less prone to interrupt the recipient and because it feels less intrusive and uncomfortable to send an email than to call a person that you do not know well. From the viewpoint of the Danish employees, knowledge sharing hereby becomes a very time-consuming affair (please note that an investigation has not been conducted and we therefore only relate to the notion that it is *perceived* as time-consuming, not whether this is actually the case or not). Furthermore, the Indian associates on many occasions express that they feel they are burdening the Danish employees when asking (too many) questions. At the same time, a significant number of the Danish employees are not entirely comfortable with other types of communication technologies, and the available video conferencing rooms, the possibilities for shared desktops, etc. are rarely used.

4.2.3 *Incentives and Priorities*

Successful knowledge sharing over distance requires that the employees have an incentive to engage in this activity (Gregory et al., 2009; Markus, 2001; Olson & Olson, 2000); either because they need to give and seek information to progress with their own work, as increased levels of collaboration and knowledge sharing is prioritized and gets recognized by management, or because they are extrinsically motivated, i.e., by expected organizational rewards and reciprocal benefits, or intrinsically motivated to do so, i.e., by knowledge self efficacy and enjoyment in helping others (Lin, 2007).

However, in the busy environment of the case company, knowledge sharing between employees in Denmark and associates in India is often not prioritized. Employees in the case company are inclined to focus their effort on what is immediately beneficial for their own work and on what gets noticed by their local managers, namely the daily tasks and knowledge sharing among colleagues at the same location.

Getting knowledge sharing high on the list of priorities among the Danish employees is further complicated by the fact that, especially in the beginning of a collaboration on an IT project or in a system management area, there are clear knowledge asymmetries. Thus, in the beginning the Danish employees have knowledge that the Indian associates need. However, there is not necessarily any immediate benefits for the Danish employees in sharing their knowledge. In addition, it is difficult to measure, or just get a feeling of, the value of time spent on answering emails and engaging in other knowledge transfer activities. The Danish employees' motivation to do so, thus, can be quite low. Yet, in line with Heeks et al.'s (2001) findings about global software outsourcing, the experience in the case company is that when the Danish employees and the Indian associates have physically met and got to know each other, email exchanges work much better. The reason is presumably because knowledge about each other as persons makes it easier for the interaction partners to know what kind of information to include in the emails (Kraut et al., 2002; Olson & Olson, 2000) and because people are more willing to help someone they have met, know, and like (Clark & Mills, 1993; Haytko, 2004).

4.3 Summary

In addition to the basic introduction program carried out by the vendor, the case company currently uses two main mechanisms for knowledge transfer, namely onshore stays and email exchanges. Knowledge transfer that occurs as a natural part of onshore stays, i.e., facilitated by co-presence and spontaneous and informal communication of the Indian associates, is reported to work well and to be experienced as relatively effortless by the Danish employees. But otherwise, the general perception among the Danish employees is that helping Indian associates gain knowledge is a time-consuming affair that takes time away from their own work. A major reason for this perception is that helping the co-workers located in India is primarily taking place via email and that these emails have to be answered while the Danish IT employees are occupied with many other tasks and meeting the deadlines set by their managers and clients on these tasks. Table 2 provides a summary of challenges experienced.

We suggest that a way to overcome these challenges is by introducing a systematic approach to knowledge transfer. A systematic approach initiated by the project/system manager can help in several ways, for example, by turning the continuous email-based 'knowledge sharing'

among non-co-located Danish and Indians employees into “real work” with allocated hours that can be reported; identifying the real knowledge needs of the Indian associates, including their need for contextual information that is taken for granted by the Danish employees, so as to reduce the number of subsequent questions; and ensuring that a variety of knowledge transfer mechanisms are used both during formal knowledge transfer sessions and afterwards. Moreover, a benefit of a systematic approach to knowledge transfer is that the thoughts that are put into the first knowledge transfer plan in an area can be reused and refined later.

<i>Type of challenge</i>	<i>KT challenge</i>	<i>A systematic approach to KT should help the manager:</i>
Knowledge types and needs	Tacit knowledge. Knowledge needs vary from person to person.	Identify and include (tacit) knowledge that would otherwise be forgotten. Identify the real needs of the knowledge recipient(s).
Physical distance	The Danish employees consider knowledge transfer time-consuming due to the number of questions asked via email. The Indians associates also feel that they are burdening the Danish employees with (too many) questions.	Identify the knowledge needs that have to be met to reduce the number of questions from the Indian to the Danish employees. Identify a variety of relevant knowledge transfer mechanisms (incl. mechanisms that encourage knowledge transfer and sharing between Danish and Indian employees through means other than email).
Incentives and Priorities	The Danish employees focus their efforts on progressing with their daily work in accordance with management priorities.	Plan for and make the effort and effect of knowledge transfer transparent. With planning and transparency, knowledge transfer becomes “real work”, that can be sanctioned and prioritized by (top)management .

Table 2: Experienced challenges with knowledge transfer

5 A five-step approach to knowledge transfer

The point of departure for this section are the empirically identified challenges of knowledge transfer mentioned above (summarized in Table 2) and the notion that IT can and should play an important role in ensuring that knowledge transfer takes place (Markus, 2001). Based on this, we suggest a systematic, IT tool supported approach to knowledge transfer. The aim of the approach is to help the Danish managers plan and carry out knowledge transfer to Indian associates who are newcomers to a particular IT project or system management area.

The IT tool is more specifically thought of as a spreadsheet solution. The Danish employees in the case company are very familiar with this type of software functionality and they use it for many tasks. Moreover, several of Danske Bank’s existing outsourcing assessment and decision-tools, e.g., for making tactical decisions about which IT projects and system management areas to outsource, have been implemented as spreadsheet applications (Jørgensen et al. 2011 in Chapter 11).

The suggested approach consists of five steps. (1) The manager identifies the knowledge gaps that are most important to address. (2) The manager then selects appropriate knowledge transfer mechanisms. (3) The manager establishes a detailed knowledge transfer plan. (4) The

knowledge transfer plan is carried out. (5) Lastly, the effect of the knowledge transfer is evaluated. Table 3 provides an overview of the five steps, and the suggested actions and tool support for each step.

<i>Step</i>	<i>Action</i>	<i>Tool support</i>
1	Identify knowledge gaps <ul style="list-style-type: none"> • Identify the desired knowledge level. • Assess the Indian associates' current knowledge level. • Analyze the gaps between the desired and the current level, and select the most critical ones as focus areas for knowledge transfer. 	<ul style="list-style-type: none"> • A range of predetermined categories and questions help the manager consider what type of knowledge is particularly important for the given project/system management area. • For each question, each Indian associate's current knowledge level is scored on a scale. • The result is presented as a gap between the desired and the current level of knowledge for each question as well as for each category. The biggest deviations are highlighted. • The focus areas for knowledge transfer are actively chosen and automatically moved to a new sheet that will eventually become the knowledge transfer plan.
2	Identify knowledge transfer mechanisms <ul style="list-style-type: none"> • For each of the selected focus areas, knowledge transfer mechanisms are considered and chosen. 	<ul style="list-style-type: none"> • In the knowledge transfer plan, the knowledge transfer mechanism(s) for each focus area has to be chosen. For inspiration, a list of knowledge transfer mechanisms is provided.
3	Establish the knowledge transfer plan <ul style="list-style-type: none"> • A detailed knowledge transfer plan is made containing information about: <ul style="list-style-type: none"> ○ Focus areas ○ Transfer mechanisms ○ Responsible persons ○ Participants ○ Estimates (time and/or resources) ○ Requirements (space, equipment, etc.) 	<ul style="list-style-type: none"> • When the knowledge transfer mechanisms have been chosen, the other fields for knowledge transfer planning are activated. • For each knowledge transfer mechanism, it is outlined: who is responsible, who participates, estimated time for preparation, estimated time for execution, room and/or technology requirements, deadline etc.
4	Execute the knowledge transfer plan <ul style="list-style-type: none"> • Intermediates carry out the knowledge transfer. A knowledge intermediate may be either a knowledgeable person from the Danish organization or an experienced team member from the offshore centre. 	<ul style="list-style-type: none"> • The knowledge transfer plan is carried out without support from the KT tool.
5	Evaluate the effect of the knowledge transfer <ul style="list-style-type: none"> • Collect, store, and use data about the effect of the knowledge transfer. 	<ul style="list-style-type: none"> • No specific method for data collection is prescribed, but data about effects can be stored and spreadsheet functionality used for analysis.

Table 3: Overview over the knowledge transfer approach

In the following sections, we describe each of the five steps in the knowledge transfer approach in more detail.

5.1 Step 1: Identify knowledge gaps

In this step, a gap analysis lays the foundation for the subsequent knowledge transfer planning and execution. Thus, the Danish manager first decides what the desired or required level of knowledge is. Subsequently, the manager obtains information about the Indian associates' actual level of knowledge, e.g., by engaging in a dialogue with the Danish LOs, the Indian managers, and the associates themselves, as well as via the Indian associates' CVs. On this basis, an assessment of the gap between the desired and the current knowledge level is made. The outcome of the analysis is a decision about which gaps are the most severe and which therefore should be selected as the most important areas for knowledge transfer. As a part of arriving at a decision about which knowledge gaps to address, this first step should also help the manager become alert to tacit knowledge dimensions as well as the Indian associates' different knowledge transfer needs.

The IT tool supports the gap analysis in the following way. A number of predetermined categories and well thought out questions within each category help the manager consider what type of knowledge is particularly important for the given project/system management area. Thus, for each question, the manager sets the desired level of knowledge by using a predefined scale. Then, for each question, each Indian associate's current knowledge level is scored using the same scale. The result is presented as a gap between the desired and the current level of knowledge for each question (e.g., in numbers) as well as for each category (e.g., in a diagram). The biggest deviations are highlighted so that the manager gets an overview of where the major gaps are by quickly viewing the results for each associate. Based on this analysis of the knowledge gaps, the manager actively chooses the areas for knowledge transfer, and the selected focus areas are automatically moved to a new sheet that will eventually become the knowledge transfer plan.

As indicated above the predetermined categories, questions, and scales incorporated into the tool play an important role in ensuring that both explicit and tacit knowledge needs are addressed in the gap analysis.

For Danske Bank, we identified the following general categories: *business domain*, *IT*, *process*, *task*, *organization*. For each category, a number of questions were delineated. Here, due to space limitations, we demonstrate the approach by presenting one question for each category. The presented examples have been chosen to illustrate how the tool can help the manager consider aspects that might otherwise be forgotten, or taken for granted:

- *Business domain*: "The Indian associate is familiar with the rules and legislations of importance for the particular IT project/system management area."
- *IT*: "The Indian associate is familiar with the IT project/system management area's IT infrastructure and the dependencies between components."
- *Process*: "The Indian associate is familiar with the rules of conduct (e.g. with regard to sickness, vacation, whom to contact in case of various events, etc.) and norms of collaboration (e.g. with regard to deadlines) that pertain to the particular IT project/system management area."
- *Task*: "The Indian associate is informed about the purpose that the particular IT project/system management area serves for its users as well as about the vision and strategy for its future progress."

- *Organization*: “The Indian associate is familiar with the way the particular IT project/system management area is organized.”

Also, the scale that is used to set the score for each question has been designed to capture the explicit/theoretical knowledge vs. tacit/practical knowledge dimensions (Pries-Heje, 2004). Thus, for each question the manager has to consider if the theme: (1) is non-applicable; (2) is one that the Indian associate does not need/does not have knowledge about; or one the Indian associate should/does have knowledge about at the required level (3) from where they have heard about it (i.e. explicit/theoretical knowledge), (4) from where they have prior experience with it (i.e. tacit/practical knowledge), or (5) is one where they are experts.

5.2 Step 2: Identify knowledge transfer mechanisms

Step 2 concerns the identification and selection of knowledge transfer mechanisms that can appropriately address the focus areas identified in the previous step. As such, the knowledge transfer planning has commenced. However, the identification of relevant knowledge transfer mechanisms is included in the approach, and in the tool, as a separate step to ensure that it is given due consideration. Thus, at this stage the tool supports the project/system manager in realizing that there are many knowledge transfer mechanisms and that several mechanisms might be able to address the same knowledge transfer need.

A literature study (see e.g., Beck et al., 2008; Carmel & Agarwal, 2002; Willcocks & Feeny, 2006) as well as discussions with practitioners has led to the identification of the following (nonexhaustive) list of mechanisms:

- Class room training
- Reading documents
- Formalized QA-sessions
- Creating documentation (of previously undocumented IT systems or work flows, or translating documentation in Danish)
- Onshore stay
- Single point of contact
- Learning-by-doing (real task) / learning-by-experimentation (training task)
- Planned activities that focus on building common ground with regard to social norms, rules of conduct, communication, and coordination (e.g. a kick off seminar including both work and social activities)
- Mentoring and buddy arrangements (emphasis on knowledge sharing and transfer about social context)
- Apprenticeship (senior–junior work relationship)

In knowledge management terms ‘due consideration’ with regard to the identification and selection of transfer mechanisms also refers to reflections about whether contextualized knowledge is needed to address the knowledge gap as each mechanism to varying degrees support different aspects of decontextualization and recontextualization, respectively. The choice of mechanisms also indicates if effort is required to prepare for knowledge transfer by careful packaging of knowledge; so as to avoid the “easy” solutions, for example, to invite

Indian associates to ask questions “whenever you are in doubt”, or giving a hastily put together presentation at a virtual meeting.

5.3 Step 3: Establish a detailed knowledge transfer plan

After the completion of Step 2, a detailed knowledge transfer plan is made. For each selected knowledge area and transfer mechanism, a responsible Danish employee is assigned, the Indian participants are named, and time estimates for preparation and execution, as well as room and technology requirements are outlined. The tool supports the planning activity by providing the fields that ensure that the project/system manager considers the most important aspects, including some that are easily overlooked in a busy business domain, such as preparation time. The resulting knowledge transfer plan allows for an overview of the effort, i.e., the resource draw, that the knowledge transfer demands. This overview might cause the manager to want to investigate implications of choosing different transfer mechanisms. In this way, the tool supports the creation of different knowledge transfer scenarios, thereby helping the manager strike a balance between what is realistic with regard to the Danish employees’ use of time and satisfactory with regard to expected effect on the Indian associates’ knowledge needs.

5.4 Step 4: Execute the knowledge transfer plan

In this step, the knowledge transfer plan is carried out in practice, without support from the knowledge transfer tool. However, in connection with each knowledge transfer mechanism, evaluation data, in the form of the participants’ subjective satisfaction and perceived value, can be collected and stored in the spreadsheet. Evaluation data of this type is useful for the Danish employees who are responsible for the knowledge transfer initiatives as it allows them to continuously improve the knowledge transfer activities that are conducted in a specific area.

5.5 Step 5: Evaluate the effect of the knowledge transfer

The description of the challenges that Danske Bank experienced (see Section 4.2) indicates that it is important for the project/system managers to follow-up on the effect of the knowledge transfer initiatives on two measures: productivity and the number of purely question–answer oriented emails, i.e., emails that can be classified as pure knowledge transfer rather than collaboration/coordination oriented.

The case company already has a performance evaluation programme in which information about the Indian associates’ perceived level of productivity is systematically collected on a quarterly basis. These data can be imported into the spreadsheet, for example, to evaluate the impact on the perceived level of productivity; if the impact is immediate (positive impact) and then decreasing over time (suggesting the need for periodic intervention); or if it has resulted in a sustained increase, etc. Also with regard to emails, data can be collected and stored, either by asking the relevant Danish employees to count or estimate the number of QA-emails they receive before and after a knowledge transfer mechanism has been deployed. Together, data about productivity and the number of emails provide – some, but of course not complete – insight into the effect of the knowledge transfer initiatives. In a complex empirical reality, it is

very difficult to isolate the effect of one initiative, and as such it is also very difficult to say exactly which knowledge transfer mechanisms work the best and when. However, the data can complement the Danish employees intuitive understandings of what works and what does not.

6 Conclusion

Based on a longitudinal case study of an outsourcing arrangement between an Indian IT vendor and a Danish financial company, we identify three main types of knowledge transfer challenges, as seen from the client's side. The challenges relate to *knowledge types and needs* and more specifically to challenges with tacit knowledge and identification of knowledge transfer needs; *physical distance* and choice of knowledge transfer mechanisms; and the Danish managers' and employees' *incentives and priorities* for taking the time to engage in knowledge transfer. The challenges indicate that a pro-active and management initiated approach to knowledge transfer could be useful.

We suggest a systematic approach conceptualized as five separate steps. (1) The manager identifies the knowledge gaps that are the most important to address. (2) Then, the manager selects appropriate knowledge transfer mechanisms. (3) The manager makes a detailed knowledge transfer plan. (4) The knowledge transfer plan is carried out. (5) Lastly, the effect of the knowledge transfer is evaluated.

The approach has been presented to Danske Bank employees and SourceIT project participants on several occasions to obtain feedback, i.e., to conduct proof-of-concept. In general, the feedback has been positive. Moreover, positive evidence for the usefulness of the concept is that the case company recently has developed and implemented a tool supported approach to knowledge transfer that is very similar to the one presented here.

Alongside the actual knowledge transfer plan and the quality and execution thereof, an important contribution of the suggested approach is that it creates awareness about and gives transparency and priority to the activities of knowledge transfer. Thus, by providing tool support and devising explicit plans, knowledge transfer receives attention as an activity in its own right and as something that takes time to plan, prepare, and conduct. In this way, knowledge transfer is put visibly on the agenda.

However, two contradictory concerns were also expressed with regard to the approach's incorporation of tool support. The dangers of over-relying on a "mechanistic" IT tool and its functionality to make decisions versus providing too few concrete recommendations. We have dealt with the first concern by emphasizing that at this initial stage the tool should primarily be designed to facilitate decision making, e.g., by letting the categories and scales of the tool serve as reminders about important topics requiring human judgement. Over time, the focus of the tool may be shifted towards providing recommendations, i.e., towards incorporating decisions instead of merely facilitating a thought and planning process. However, it will require a substantial amount of empirical data or theoretical grounding to substantiate such recommendations, e.g., about which knowledge transfer mechanisms should be applied for addressing a particular type of knowledge gap. Currently, both empirical data and theory that establish the relationship between the knowledge need, the most appropriate knowledge

transfer mechanism(s), and the effect on productivity are lacking. More research is needed to identify this relationship.

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