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BEFORE, DURING, AND AFTER FACE-TO-FACE MEETINGS: THE LIFECYCLE OF SOCIAL TIES IN GLOBALLY DISTRIBUTED TEAMS

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Abstract

This paper explores the neglected area of social ties in globally dispersed teams. The paper proposes a framework in which three stages in the development of social ties in a globally distributed team are considered: before face-to-face (F2F), during F2F, and after F2F meetings. These stages constitute the lifecycle of social ties in globally distributed teams. Based on data collected at LeCroy and SAP, various activities and mechanisms at the individual, group, and organizational level that support the build-up and renewal of social ties between distributed teams are proposed. In applying these activities and mechanisms, the case firms shifted from investing in the introduction of remote counterparts to creating trust and rapport between remote counterparts and eventually to continuously renewing these social ties. The paper concludes by offering managers practical implications and making suggestions for future research.

Keywords: Face-to-face meetings, interpersonal ties, globally distributed teams

Introduction

In recent years, we have witnessed the globalization of many industries. Consequently, globally distributed collaborations and virtual teams have become increasingly common in many areas, for example in information systems development (Carmel and Agarwal 2002; Herbsleb and Mockus 2003; Sarker and Sahay 2004). Ongoing innovations in information and communication technologies (ICT) have made it possible to cooperate in a distributed mode. However, managing dispersed groups is far more challenging than managing colocated teams. Indeed, recent research in the IS field has focused on ICT in the context of globally distributed teams (e.g., Herbsleb et al. 2002; Mockus and Herbsleb 2002). Furthermore, research has suggested that the proper application of technical and operational mechanisms, such as tools, methodologies, and coordination mechanisms, is the chief factor that leads to successful dispersed IS projects (Battin et al. 2001; Herbsleb and Mockus 2003). Little is known about the human-related factors involved in supporting collaborative work in globally distributed teams and even less about their influence. In particular, the few studies focusing on human-related issues involved in globally distributed work have, so far, merely emphasized the role that face-to-face (F2F) meetings play in spurring interpersonal contacts (Child 2001; Orlikowski 2002). This paper explores in depth the complementary roles human-related factors play in supporting globally distributed collaborative work. Given the limited role that ICT plays in facilitating interpersonal relationships between remote counterparts and the important role that F2F meetings play in setting the conditions for socialization between remote counterparts, this paper will mainly focus

on activities and mechanisms that support the build-up of human-related factors (i.e., trust and rapport), before, during, and after F2F meetings.

Data were drawn from several globally distributed product development projects at SAP and LeCroy. The results of the case analysis suggest that indeed various mechanisms and activities applied before, during, and after F2F meetings supported the build-up and renewal of social ties between remote counterparts. Furthermore, these activities were at the individual, team, and organizational levels. As a conclusion, a framework that describes the lifecycle of social ties in globally distributed teams is developed and suggestions to managers are made.

Following this introduction, the next two sections provide reviews of the literature relating to the challenges that globally distributed teams may face in developing social ties. The subsequent sections describe and analyze two cases of globally distributed teams from LeCroy and SAP, placing an emphasis on the activities and mechanisms employed before, during and after F2F meetings. The penultimate section discusses the lifecycle of social ties and offers practical implications for globally distributed teams.

Globally Distributed Teams and Information Systems

Globally distributed projects consist of two or more teams working together to accomplish project goals from different geographical locations. In addition to geographical dispersion, globally distributed teams face time zone and cultural differences that may include, but are not limited to, different languages, national traditions, values, and norms of behaviour (Carmel 1999).

Traditionally, the main focus of IS literature on globally distributed teams has been on technical aspects related to product development projects. Past research in the IS field suggests that the proper application of technical and operational mechanisms, such as collaborative technologies, IS development tools, and coordination mechanisms, is the key to successful development projects (Carmel 1999; Herbsleb et al. 2002; Majchrzak et al. 2000). It has been claimed, for example, that a powerful ICT infrastructure is required to ensure connectivity and data transfer at high speed between remote sites (Carmel 1999). Additionally, generic collaborative technologies (e.g., Groupware) are needed to enable remote counterparts to connect and communicate. The most commonly suggested collaborative technologies are e-mail, chat (e.g., Instant Messaging), telephone/teleconferencing, video-conferencing, intranet, group calendar, discussion lists, and electronic meeting systems (Herbsleb and Mockus 2003; Smith and Blanck 2002). In addition to generic collaborative technologies, a number of specific tools for product development have been suggested to support globally distributed teams. These include configuration management and version control systems, document management systems, replicated databases, and CASE tools (Carmel and Agarwal 2002; Ebert and De Neve 2001; Smith and Blanck 2002). Recent studies have focused on integrating development tools (e.g., integrated development environment) with collaborative technologies (e.g., e-mail, Instant Messaging) in order to offer solutions that deal with breakdowns in communication and coordination among developers in dispersed development teams (Cheng et al. 2003/2004).

A related stream of studies has focused on issues pertaining to the geographical dispersion of work. Naturally, because of several constraints associated with globally distributed work, such as distance, time zone, and cultural differences, traditional coordination and control mechanisms tend to be less effective in global development projects (Herbsleb and Mockus 2003). Distance, for example, reduces the intensity of communications, in particular when people experience problems with media that cannot substitute for F2F communications (Smith and Blanck 2002). Cultural differences, expressed in different languages, values, working and communication habits, and implicit assumptions, may cause misunderstanding and conflicts. Time zone differences reduce opportunities for real-time collaboration, as response time increases considerably when working hours at remote locations do not overlap (Sarker and Sahay 2004). Recent studies have confirmed that social ties, represented by trust and rapport between remote counterparts, positively affect collaborative work (Child 2001; Kanawattanachai and Yoo 2002; Kotlarsky and Oshri 2005). Furthermore, research on virtual teams in the IS field has hinted about the factors that affect trust in virtual teams (Jarvenpaa and Leidner 1999; Panteli and Sockalingam 2005). Ridings et al. (2002), for example, claim that trust increases through perceived responsive relationships in the virtual community. Nonetheless, IS research has so far provided a limited account of the process through which trust and rapport can be created and renewed in the context of the globally distributed team. The following section discusses the challenges that globally distributed teams face in developing trust and rapport.

Trust, Rapport, and Social Ties: The Challenge

Indeed, one of the central challenges in distributed development projects is induced by geographical, time, and cultural differences that greatly reduce the extent of social ties that can be created. It has been suggested that social ties can be created through

socialization and personal contacts (Child 2001). In the context of globally distributed projects, such socialization activities, which often result in creating trust and rapport between remote counterparts (Kotlarsky and Oshri, 2005), are likely to take place during F2F meetings. F2F meetings, it has been argued, support teamwork and improve team performance (Govindarajan and Gupta 2001; Jarvenpaa et al. 1998). These meetings allow counterparts to get to know each other and set up the basis for collaborative work.

However, establishing trust and rapport in globally distributed teams through F2F meetings is challenging. Trust is defined by Child (2001, p. 275) as "the willingness of one person or group to relate to another in the belief that the other's action will be beneficial rather than detrimental, even though this cannot be guaranteed." Such trust is more likely to be developed if personal contact, frequent interactions, and socializing between teams and individuals are facilitated (Arino et al. 2001; Child 2001). In this respect, F2F meetings may serve as a venue in which socializing may take place and personal contact may be created. However, trust "is also the very quality that is most difficult to build at a distance" (Smith and Blanck 2002, p. 294). While colocated team members can meet incidentally (e.g., in a corridor, coffee corner, or by the water cooler) and formally or informally discuss issues, globally distributed members obviously lack this opportunity. In the latter case, F2F meetings have to be arranged well in advance and would hardly be entirely informal in nature. Furthermore, the limited social space offered by F2F meetings restricts the socialization process between remote counterparts, resulting in fewer opportunities to develop and renew trust and rapport between remote teams.

Additional concerns were expressed by Herbsleb and Mockus (2003), who claimed that (1) there is far less frequent communication in distributed social networks compared to same-site social networks, (2) people find it much more difficult to identify distant colleagues with necessary expertise and to communicate effectively with them, and (3) people at different sites are less likely to perceive themselves as part of the same team than people who are at the same site. These observations suggest that rapport between counterparts (Bradner et al. 2005) is less likely to be developed in the context of globally distributed teams. *Rapport* can be defined as "the quality of the relation or connection between interactants, marked by harmony, conformity, accord, and affinity" (Bernieri et al. 1994, p. 113). Indeed, rapport is likely to be developed between counterparts in colocated projects through formal or informal socialization processes (Gremler and Gwinner 2000). In the context of globally distributed teams, such formal or informal socialization activities will largely depend on the quality of communication tools and procedures. Teleconferencing, voice-over-IP and chat applications are some examples that may serve as communication tools to overcome geographical and cultural distances (Herbsleb et al. 2002; Smith and Blanck 2002). Existing research has suggested a number of activities that support the development of trust and rapport between counterparts in globally distributed teams, such as *personal contact*s (Arino et al. 2001; Carmel 1999), *socialization* (Child 2001), *informal and formal interactions and communications* (Kotlarsky and Oshri 2005), and *feedback* (Carmel 1999). Past studies have also acknowledged that these activities are best facilitated and indeed create rapport between counterparts when team members meet and interact F2F. In this respect, socialization may be created mainly through F2F meetings. Yet, some of the characteristics of F2F meetings in the context of globally distributed teams, such as these meetings being sporadic, short, and tending to focus on project procedures and technical issues, may eventually provide a limited space for socialization and for creating rapport between remote counterparts.

Table 1 summarizes the emerging challenges of globally distributed teams in the context of social ties. In particular, Table 1 illustrates that F2F meetings are insufficient in supporting the development and renewal of social ties.

While F2F meetings assist in acquainting counterparts of globally distributed teams with each other and addressing project and technical issues, these meetings, being *sporadic, short, selective*, and *formal* to a great extent, hardly support the long-term build-

Table 1. Trust, Rapport, and F2F Meetings: The Challenge

- Short and infrequent F2F meetings offer *sporadic* interpersonal interactions between remote counterparts that restrict the build-up of trust.
- F2F meetings are *short* and tend to offer only limited social spaces that accommodate cultural differences.
- Most time spent in F2F meetings is dedicated to project procedures and technical issues (i.e., they are *formal* to a great extent).
- F2F meetings are *selective* in the sense that not all counterparts are invited to F2F meetings.
- F2F meetings offer limited personal contact and social spaces.

up and renewal of trust and rapport between dispersed teams. Solutions that support collaboration in globally distributed teams have generally been technical in nature and involved little attention to the human-related factors that are key for collaborative work in globally distributed work (Doherty et al. 2003; Kotlarsky and Oshri 2005). Past research has recognized the risk of facing breakdowns in communications that may cause coordination and collaboration problems because of language barriers, cultural differences, asymmetry in distribution of information among sites, and lack of team spirit (Carmel 1999). Nonetheless, the existing literature has underestimated those aspects associated with human-related factors that may contribute to globally distributed collaborative work. The variety of solutions aiming to create social ties is limited to activities that require F2F meetings. To fill this gap, this study investigates the lifecycle of social ties in globally distributed projects before, during, and after face-to-face meetings. We explore this issue by addressing the following question: *Through what activities and mechanisms can social ties such as rapport and trust be created and sustained in globally distributed teams?*

Research Method

An in-depth case study of globally distributed software development projects is provided in this paper. A qualitative, interpretive approach is adopted. In line with much past IS research (e.g., Palvia et al. 2003), a case study method was selected for this research.

To correspond with the main interests of the research, only project teams at SAP and LeCroy that were globally distributed across at least two locations were considered for this study. Evidence was collected from interviews, documentation (e.g., project planning, project meeting minutes), and observation (e.g., video teleconferences), as suggested by Yin (1994) and Eisenhardt (1989). Interviews were conducted at two remote sites for each company: in India and Germany for SAP, and Switzerland and the United States for LeCroy. Interviewees were chosen to include (1) counterparts working closely at remote locations, and (2) diverse roles such as managers and developers. In total, 10 interviews (5 at each company) were conducted. Interviews lasted 1 hour and 30 minutes on average; they were recorded and fully transcribed. A semi-structured interview protocol was applied in order to allow the researchers to clarify specific issues and follow up with questions.

Data analysis followed several steps. It relied on iterative reading of the data using the open-coding technique (Strauss and Corbin 1998), sorting and refining themes emerging from the data with some degree of diversity (Miles and Huberman 1994). In particular, two themes, representing the concept *social ties* were carefully studied: *trust* (Arino et al. 2001; Child 2001) and *rapport* (Bernieri et al. 1994). Statements that were found to correspond with activities that support the build-up and renewal of trust and rapport were selected, coded and analysed using Atlas.ti–Qualitative Data Analysis (QDA) software (Miles and Huberman 1994; Weitzman 2000). These statements were grouped into four categories that emerged from the data: *before F2F*, *during F2F*, *after F2F*, and *tools*. The result of the coding and analysis process is both a qualitative and quantitative presentation of the statements that represent activities important for creating trust and rapport before, during, and after F2F meetings, and for developing collaborative tools.

Data Analysis: Cases at SAP and LeCroy

This section details the results of two case studies carried out at SAP and LeCroy (for company backgrounds, see Appendix A). Based on the empirical evidence presented below, we argue that dispersed teams in these companies developed and maintained trust and rapport through various activities that took place before, during, and after F2F meetings.

In order to support this claim, two levels of evidence will be outlined in the following section. The first level gives an overview of activities used in the case projects, accompanied by a qualitative presentation of statements made by interviewees about activities before, during, and after F2F meetings that contributed to the development of social ties between remote counterparts. The second level presents the calculation of number of statements about activities supporting trust and rapport in dispersed teams before, during, and after F2F meetings (see Table 2).

SAP: Before, During, and After F2F Meetings Activities

Background

The globally distributed team studied at SAP was collaborating on the Collaborative Tools project while located in three sites: Germany, India, and the United States. This team is composed of software engineers, architects, a project manager, and team

leaders. When the project was launched in September 2001, key players (managers and architects) and team members from remote locations did not know each other. This team did not have a history of working together and only some of the team members had previously worked as part of a globally distributed team. By the time the interviews in Germany were completed, the key players had been working together for 9 months.

Before Face-to-Face

During the initial stages of the project, the focus was on creating awareness about the composition of remote teams and their members. For example, the introductions of new team members were organized using videoconferencing (VC) sessions that involved managers and developers in all three locations. One member of the team, Akhilesh Mahto, describes this process:

> *Whenever a new colleague joins our team or any of the teams in the other locations, we make sure that in the next VC, we will introduce this person. We actually do a round like, "these are new colleagues that have joined." So, though you have not met them personally, you start learning about this person from that point in time.*

Furthermore, interviewees indicated that these virtual meetings between managers and key members from the three locations were organized in order to share the different perspectives about how the project should be run, and to create dynamics for collaborative work between remote counterparts through issues such as the vision of the projects and the main objectives.

Other activities reported at this stage were around the creation of mini-teams and contact people. Because team members did not know each other personally in the beginning and the process of getting acquainted took, in some cases, several weeks, management established mini-teams for each functional or technical area and a contact person for each each remote team was appointed. These contact people were the main contact point within the team and they ensured the smooth flow of information between remote teams. For example, Christoph Thommes from Walldorf describes how the communication between teams was managed:

> *What I did in the past was—this was in the very early phase of the project—I sent requests only to Sudhir [in Bangalore] and he would distribute the issues between people.*

This procedure, it was reported, reduced confusion and miscommunication with regard to who was supposed to deal with what. The contact people made sure that communications between counterparts, who did not know each other and were relatively unfamiliar with the roles within the teams, would still take place despite these challenges.

During Face-to-Face

There were numerous F2F meetings during this project. For example, managers from Bangalore and Palo Alto flew to Walldorf for a "kick-off" meeting. In addition to discussing project-related activities (such as product design and planning), team members made time for one-on-one interactions between remote counterparts so they could get to know each other and become familiar with communication styles. For example, Stefan Mueller, from Walldorf, described his experience with Sudhir Krishna, from Bangalore, in adjusting communication styles:

> *What I did with Sudhir in the very beginning, I told him: "I am explicit; I am forgiving—but you have to tell me that something is going wrong in the very beginning.…it is not just me having to deal with an Indian team and it is not just me who needs to adapt my style totally. I will try to adapt, but because of time constraints I am not going to adapt exactly to what you are expecting." This is what we discussed during the F2F meeting when he [Sudhir] was here in Germany. Sudhir said that this is clear, and now we need to see that it works.*

Furthermore, in the early stages of the project, key players from Germany and Palo Alto visited Bangalore to participate in a team-building exercise with the local team. Some key outcomes from the team-building exercise were described by Sudhir Krishna:

> *It* [the team-building exercise] *is also about getting to know the infrastructure and the environment in which we work, because in a situation when there is a problem, then it's easy to visualise what is happening. Even in a simple case when the VC stops working all of a sudden, after this exercise you can still imagine where people sit, what it looks like, you know what is going on.*

Furthermore, during the team-building exercise, team members from the three sites met and spent time together, something that gave the entire team and each site a feeling of belonging, being equally important, and being part of the Collaborative Tools project team. Stefan Mueller, who participated in the team-building exercise, summarizes the experience:

> *The team-building exercise was a way to show that we [headquarters] care about remote locations. The end result of that exercise was that the entire team [globally distributed] feels more comfortable to work together. Now we know each other and trust each other better.*

One interesting outcome of this team building exercise was that teams set up rules for communication and communication styles. Having discussed the direct style of communication exercised by the German team, the Indian team acknowledged this style and agreed to not take it personally.

After Face-to-Face

Interviewees noted that following the initial F2F meeting, communications became more informal and that it was not necessary to communicate through the contact person any longer. In term of activities, regular and frequent communications, such as teleconferences between software managers and developers, and VCs were carried out. Furthermore, short visits to remote locations were organized to share information and to maintain a "one team" spirit. Sudhir Krishna explained that managers of remote teams (Bangalore and Palo Alto) typically travelled at least once in three months to remote sites, because

> *Staying in Bangalore does not help. By staying here [in Bangalore] we may lose some information, mainly because people don't write every single piece of information in the e-mail. The best is to go out, work with your colleagues for one week to 10 days, keep asking a lot of questions, and make sure you get good answers and knowledge.*

The idea of individual trips was supported by other interviewees, who claimed that such activities were needed after F2F meetings. For example, developers were also encouraged to visit remote locations:

> *The idea was that every developer travels across [to Walldorf] and meets everybody at least once for the sake of getting to know each other in person rather than just by name.* [Sudhir Krishna]

Through these activities, this globally distributed team attempted to renew contacts between remote counterparts through individual trips, VCs, and teleconferences. Attention, in particular, was paid to interpersonal contacts between developers and managers who carried out globally distributed collaborative work.

LeCroy: Before, During, and After F2F Meetings Activities

Background

The project studied at LeCroy, called Maui, was located in two sites: Switzerland and the United States. The software team had a long history of working together, thus when this study was carried out it had already developed strategies for working together across distance. However, the Maui project introduced new challenges to the global software team at LeCroy. The project involved switching to Microsoft COM technology, which was very different from the approaches LeCroy software engineers used to develop embedded software for earlier products. Therefore, one of the dilemmas LeCroy faced while developing the Maui platform was how to collectively train embedded programmers located in different sites and yet ensure that this transition would not trigger disruptive communication problems and breakdowns.

Before Face-to-Face

As stated above, the majority of team members knew each other from earlier projects. Nonetheless, newcomers joining the project were "introduced" to remote counterparts through transatlantic VCs. During these VCs, team members were encouraged to communicate directly. To reduce language barriers, software engineers in Geneva, whose native language is French, were offered English language lessons. Furthermore, increasing awareness of communication styles rooted in cultural differences, and paying

attention to the style and content of communications, were part of the discussions between remote counterparts. Adrian Cake from New York explained:

> *I have had a lot of experience working with foreign cultures. In some cultures if you are on the phone explaining something to somebody and they don't understand it—they still say, "I understand." So the way I try to ensure that the information was received correctly is through a very detailed process of describing the issue. For example I say, "Open this Web link. What do you see?" So it is very specific, very detailed.*

The language lessons were reported to significantly improve the communication between remote counterparts. It also positively affected the feeling of belonging of the French- speaking team to the entire project:

> *In Geneva, all senior guys speak English very well. Some of the junior guys speak poor English. So at their request, we offered and paid for English lessons. The Geneva team kept speaking French locally but when we communicated with them, it was in English. Since then [the English lessons] it was very rare that teams would have language issues.* [Larry Salant]

Interviewees indicated that overcoming language barriers, in addition to the introduction of remote counterparts through VC, had been a key factor in creating direct and effective communication channels between dispersed teams.

During Face-to-Face

Numerous F2F meetings took place during this project. As software engineers at both locations were not familiar with the new Microsoft COM technology, at the very early stage of the project managers, from the Geneva and New York teams organized a meeting where the entire project team met in the Alps for an event that combined training sessions in Microsoft COM technology and some social events. Larry Salant from New York described this:

> *We all got together in the mountains of France and it was a real fun week. It had two purposes: one was to teach us all this new technology [Microsoft COM]. The other, which was equally important, if not more important, was to try to build relationships between people.*

The social events organized during this F2F meeting provided space for participants to get to know each other better. Anthony Cake from Geneva explained:

> *In fact, I would say that more valuable time spent is probably in the local bar than in the meeting room. Because getting to know someone happens over a few beers. And that develops into the professional* [area]. *I think that's an important thing, a very important thing. That was the idea behind the meeting in the Alps, to get people in an environment where there was plenty time for that. It was pretty important.*

This view was supported by other interviewees, who indeed argued that the meeting in the Alps was important from the professional viewpoint but was no less important from the social aspect.

After Face-to-Face

The team at LeCroy maintained frequent communications between the remote sites. While teleconferences were a matter of daily communications, VCs were held every few weeks to ensure that a team atmosphere was maintained. This method of communication was critical for the remote team in Geneva, as Anthony Cake explained:

> *What happened in Geneva is that among the guys there was a natural feeling that they are kind of unplugged from the rest of the company. Because it is an outpost! In order to handle that, we organized regular meetings to let people know what is going on in the company, what everyone else is working on. It was a big help. Every several weeks we would have a transatlantic VC between the software teams in New York and Geneva. It helps everyone, I think, to feel we are working as a team and that they are part of the LeCroy team.*

In addition, managers from Geneva and New York visited each other several times a year. Short visits and the temporary co-location of software engineers were offered by management so that counterparts could work and solve design problems together as well as improve interpersonal contacts. Larry Salant from New York explained this approach:

> *I am back and forth all the time, and Anthony as well. But occasionally, we do have people coming from Geneva here or from here going to Geneva for a week or two. We even have a few cases where we put someone over; we have one guy right now who is spending a year here from Geneva. And that is really useful, sharing experiences and knowledge*.

The relocation of experts between remote sites served also as a mechanism that accelerated the sharing of knowledge and technical expertise of the Maui platform. Gilles Ritter, who was involved in the Maui project from the very beginning and was initially based in Geneva, explained:

> *Initially only a few engineers from New York worked on the platform so they had always a lot of questions regarding the new platform. The New York engineers were constantly in touch with Geneva. When more and more people in New York started to work on the new platform, it [was decided that I would] come over here [to New York] for one year to be the contact person for those who started working on the new platform.…this is because I know all the basics, the background of the platform. So, that's why I am here [New York] for one year, to…teach all the other coworkers how to develop using the same tools.*

Indeed, the relocation of experts has assisted in the sharing of knowledge as well as in tightening the links between the Geneva and New York teams. Additional activities applied at LeCroy were the use of a wide range of collaboration technologies that allowed them to combine audio and visual cues (e.g., doing design reviews using application sharing and the telephone at the same time). These mechanisms, it was reported, reduced miscommunication and breakdowns in the design process.

Statement Frequencies: Before, During, and After F2F Meeting Activities

The above sections presented statements made by interviewees from LeCroy and SAP. To account for the numerous activities supporting the build-up and renewal of trust and rapport between remote counterparts at LeCroy and SAP, this section presents a calculation of the number of the statements relating to before, during and after F2F meeting activities (see Table 2). The activity that gained the highest count is underlined. For example, 27 statements that were made by interviewees from SAP were associated with communication issues before F2F meetings. Under this, the activity "contact person" was the highest calculated frequency.

Table 2 suggests that a larger number of statements from SAP were associated with before and after F2F meeting activities than those associated with during F2F meeting. This may imply that interviewees from SAP perceived activities before and after F2F meetings to be no less important than activities carried out during F2F meetings.

The highest proportion of statements made by interviewees from LeCroy was associated with after F2F meeting activities. This may imply that interviewees from LeCroy considered after F2F meeting activities to be no less important than those before and during F2F meeting activities.

Particular activities were mentioned more frequently than others. Awareness of team composition and context, and having a contact person, were two activities that gained particular attention from interviewees when before F2F meeting activities were discussed. Creating space for multiple and one-on-one interactions, and team-building exercises, stood out with regard to during F2F meeting activities. Finally, visiting remote locations, direct communication channels, and mixed audio and visual cues were the activities with the highest frequencies for after F2F meeting activities. The tools through which social relationships were created across different sites were mainly phone, e-mail, and groupware applications. Nonetheless, interviewees also indicated that the quality of messages, meaning the assurance that messages communicate the issue successfully and are understood and interpreted properly, is important for establishing social ties between team members.

We have presented evidence about activities carried out by LeCroy and SAP in an attempt to create and renew social relationships, in the form of trust and rapport, between remote counterparts. These activities were employed before, during, and after F2F meetings. The following section will discuss the implications for research and practice.

Table 2. Mechanisms, Activities, and Tools Supporting Social Ties Before, During, and After F2F Meetings

Mechanisms and activities that support trust and rapport between dispersed teams	Frequencies	
	SAP	LeCroy
Before F2F	**44**	**10**
• Holding initial (non F2F) introduction (e.g., virtual F2F, awareness of team composition and context, virtual mini- teams, shared cyber spaces)	17	6
• Addressing communication issues (e.g., language courses, contact person, newsletters, awareness of different communication styles, communication protocol such as calm reaction to harsh/unclear messages)	27	4
During F2F	**36**	**17**
• Holding formal introduction (e.g., kick-off meeting, short visit to remote locations, space for multiple and one-on-one interactions)	25	12
• Holding social activities (e.g., going out together, team-building exercise)	11	5
After F2F	**43**	**37**
• Routinized communications (e.g., regular reflection sessions, around the table discussions, project meetings, visits to remote locations, temporary colocation)	22	12
• Wide-open communication channels (e.g., direct, nonhierarchical communication channels, real-time communication such as telephone calls)	18	15
• Ensure message quality (e.g., detailed and clear e-mail, phone calls, mixed audio and visual cues)	3	10
Tools	**62**	**58**
• Various means of communications (e.g., phone, e-mail, Groupware tools, knowledge repositories, teleconference, videoconference, on-line chat)	54	48
• Practices (e.g., flexible working hours, common and standard methodologies and tools across sites)	8	10

Discussion and Implications

Our evidence suggests that activities planned to encourage social relationships between remote counterparts before and after F2F meetings are no less important that those that are widely applied during F2F meetings. In particular, this study confirms that trust and rapport can be created and renewed if certain activities are carried out throughout the lifecycle of social ties in globally distributed teams. More importantly, the evidence from these companies has provided an account of the mechanisms and activities that are key to creating and renewing trust and rapport in globally distributed teams.

From the research viewpoint, this study offers an insight into the neglected area of social ties in globally distributed IS teams. The study contributes to the understanding of how trust and rapport can be created and renewed despite the unfavourable conditions for such relationships in globally distributed teams. Furthermore, the study progresses from the traditional focus on F2F meetings as the main vehicle through which interpersonal relationships may be created and offers an outlook on how trust and rapport can be created and renewed as a continuous process that involves the application of various activities and mechanisms throughout the lifecycle of social ties in distributed teams. Based on our findings, we propose that the lifecycle of social ties consists of three stages: introduction, build-up and renewal (as shown in Figure 1). Each step represents an array of activities and mechanisms that a firm may apply in order to move from the introduction stage to the building up of social ties, and finally to the renewal phase in which social ties will be renewed through various mechanisms during and after F2F meetings. LeCroy, for example, invested in activities associated with the renewal stage in which mainly during and after F2F meeting activities were employed. SAP, on the other hand, advanced social ties by introducing activities associated with the build-up stage. Most companies will engage in activities associated with the introduction stage either for the sake of introducing newcomers or when a new project is assembled and the counterparts do not know each other.

Moreover, the understanding of how social ties can be created and renewed in globally distributed teams can be further enhanced if these activities and mechanisms are organized in a 3 × 3 matrix (see Table 3). Table 3 suggests that the observed activities and mechanisms, based on data collected at SAP and LeCroy, can be associated with the *individual*, *team*, and *organization* levels.

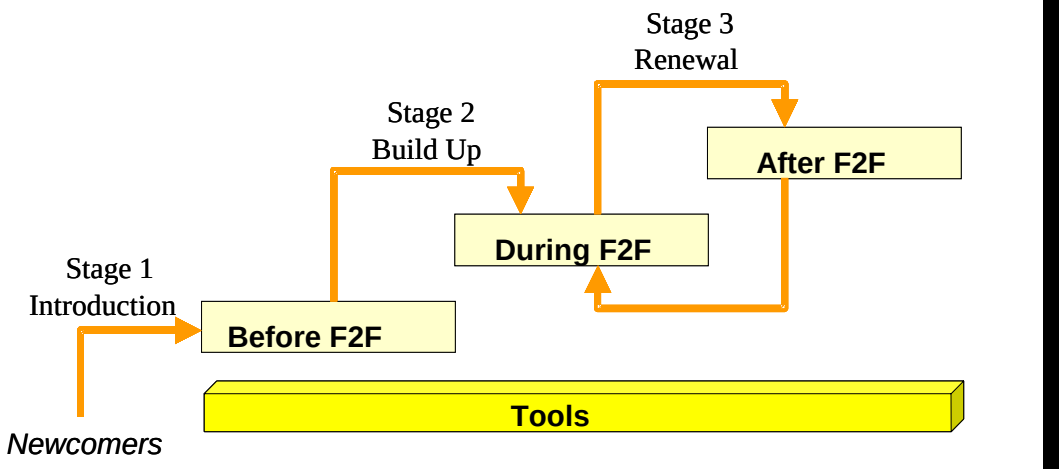

Figure 1. The Lifecycle of Social Ties Development in Globally Distributed Teams

Each level contributes to the development of social interactions across the entire organization. For example, language lessons offered before F2F meetings are likely to contribute to one-on-one interactions during F2F meetings, and these in return will support direct communications after F2F meetings. In other words, we argue that the array of mechanisms and activities in Table 3 is key to understanding the multiple channels through which social ties are created between remote teams.

Table 3. Individual, Team and Organizational Activities Supporting Social Ties Before, During, and After F2F Meetings

	Before F2F	During F2F	After F2F
Individual	• Offer language courses • Increase awareness of communication styles • Offer short visits of individuals to remote locations	• Create space for one-on- one interactions • Provide sense of importance of each member • Adjust communication styles	• Offer short visits to remote locations • Offer temporary co-location • Ensure real time communication channels • Ensure mixed audio and visual cues
Team	• Introduction of new team members • Increase awareness of team composition • Offer virtual F2F meetings • Increase awareness of communication protocol • Set up mini-teams • Appoint contact person per remote team	• Conduct kick-off meeting • Offer space for multiple interactions between counterparts • Offer team-building exercises • Organize social events • Discuss differences in national cultures	• Facilitate reflection sessions • Facilitate around-the-table discussions • Facilitate progress meetings
Organizational	• Distribute newsletters • Create and offer shared cyberspaces	• Discuss organizational structure • Discuss differences in organizational culture	• Ensure direct communi-cation channels
Tools	Phone, e-mail, groupware tools, knowledge repositories, shared databases, teleconference, videoconference, on-line chat, intranet		

While there can be numerous ways to enhance social ties between remote counterparts, this study observed two particular modes applied by SAP and LeCroy. SAP focused on before F2F meeting activities at the individual, team, and organization levels while LeCroy emphasized after F2F meeting activities. Based on these observations, we argue that when a high level of familiarity between remote counterparts exists, firms are likely to invest in after F2F meeting activities and mechanisms at all levels. A low level of familiarity between remote counterparts is likely to drive firms to invest in before F2F meeting activities at all levels. Most firms will invest in during F2F meeting activities and mechanisms.

From a practical viewpoint, we argue that in order to achieve successful collaboration in globally distributed teams, companies need to introduce organizational mechanisms that create social spaces between team members. Furthermore, this study suggests that firms should first assess the current stage of the dispersed team prior to embarking on introducing mechanisms and activities aimed at the development of social ties. Dispersed teams in stage 1 (introduction stage) require a different set of mechanisms that support the build-up of social ties from teams that are in stage 3 (renewal). One way to address this challenge is by staffing dispersed teams based not only on their set of skills but also on their shared past experience. With this suggestion, we align our approach with the concept of transactive memory. *Transactive memory* is defined as the set of knowledge possessed by group members coupled with an awareness of who knows what (Wegner 1987). Transactive memory positively affects group performance and collaboration by rapidly bringing the needed expertise to knowledge seekers (Faraj and Sproull 2000; Storck 2000). Through the consideration of transactive memory, firms may reduce the costs associated with the initial development of social ties and focus on activities that aim at renewing interpersonal relationships.

While the focus of this study has been face to face meetings, we acknowledge that not all globally distributed teams have the opportunity to develop social ties throughout the project lifeline. Financial and project planning constraints may impede face-to face meetings, thus resulting in lesser opportunities to develop interpersonal ties between remote counterparts. Despite these constraints, globally distributed teams can still consider activities described in Table 3 that will foster social ties without the support of face-to-face meetings.

Conclusions

Creating and renewing rapport and trust is important to achieving collaborative work in globally distributed teams. F2F meetings have been suggested as one key vehicle through which trust and rapport can be created between remote counterparts. This study argues that F2F meetings, being sporadic, short, and selective, offer a limited social space to ensure that trust and rapport are created and renewed between remote counterparts. Supplementary activities before and after F2F meetings are identified and reported based on data drawn from SAP and LeCroy. Consequently, we argue that before and after F2F meeting activities are no less important than F2F meeting activities for the build-up and renewal of social ties in globally distributed teams. An array of activities and mechanisms at the individual, team, and organizational levels is offered and recommendations to managers are made.

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Appendix A. Company and Project Background

Background of LeCroy and Studied Project

Founded in 1964, LeCroy Research Systems is recognized as an innovator in instrumentation. LeCroy specializes in the design and production of oscilloscopes and other signal analyzer equipment. LeCroy employs more than 400 people worldwide. In 2004, the company reported annual revenues of more than $120 million. LeCroy's teams are located in New York (headquarters, manufacturing, and software development) and Geneva (software development). The software development team, globally distributed between New York and Geneva, is described in this paper. There were between 10 and 15 people in Geneva and the same number in New York. In particular, the Maui project ("Maui" stands for Massively Advanced User Interface) was investigated. The Maui project is a software platform for new generations of oscilloscopes and oscilloscope-like instruments based on the Windows operating system. This case study covers the development of the Maui platform, and the development of the first products based on the platform. The project started in July 1997; in December 2001, when the data collection took place, LeCroy was launching a first product based on the Maui platform.

Background of SAP and Studied Project

Founded in 1972, SAP is a recognized leader in software solutions. SAP employs more than 32,000 people in more than 50 countries with software sales of 2,361 million EUR in 2004. This case study focuses on the Knowledge Management (KM) Collaboration Group, which is part of the Enterprise Portal Division. The KM Collaboration Group developed a collaborative platform to foster teamwork. This group consisted of four teams: two teams in Walldorf, Germany (10 people in each team), one team in Bangalore, India (6 people), and one team in Palo Alto, California (5 people). Each team worked on a different part of the collaboration project. The collaboration project started in September 2001. By June 2002, the first version of SAP collaboration tools was released and the group was working on the second release.