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TRUSTING ONLINE: NURTURING TRUST IN VIRTUAL TEAMS

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ABSTRACT

Internet-mediated virtual teamworking is increasingly becoming an integral part of the work life for many people in information societies. This paper reports an investigation on the development of trust relationships in virtual teamworking. The main objectives of this study are to identify forms of trust relationships in virtual teamworking and to understand how such trust relationships operate in this context. The study was carried out in a large company that uses internet-mediated virtual teamworking. This paper offers a theoretical account of trust relationships in virtual teamworking that considers trust as a property of both organizational members and abstract structures of organizations.

1. INTRODUCTION

Emerging information technologies are increasingly used in global organizations to enable geographically and temporally separated teams to work as though they are (virtually) collocated (Mark, Grudin, and Poltrock, 1999). Often referred to as "virtual teamworking" (*eg* Lipnack and Stampts, 1997), such technologies-mediated teamworking is increasingly becoming everyday work life for many people in information societies. Handy (1995) however claims that information technology alone is not adequate to make "virtuality" work but requires "trust" (Handy, 1995). Trust within and between teams is essential for effective teamworking (Lipnack and Stamps, 1997). We often assume, however, that trust relationships among members of virtual teams will correspond to those of physically collocated teams (*cf.* Jarvenpaa, Knoll and Leidner 1998). As teams become more 'virtual' or physically isolated and are thereby forced to communicate via technology, they may often have fewer opportunities to physically come together to share experiences or reciprocal disclosure, which have traditionally been seen as sources of trust relationships (Lewicki, Mcallister and Bies, 1998) between organizational members.

This paper reports an investigation on the development of trust relationships in internet-mediated virtual teamworking. The main objectives of this study are to identify the forms of trust relationships in virtual

teamworking and to understand how such trust relationships operate in this context. The next section discusses various perspectives of trust in organizations held by social theorists. The research study and the approach is then described. A detailed analysis and discussion of the findings is presented in the following section. Finally, the paper summarizes the findings by reflecting on the implications for theory and practice.

1.1. The Concept of Trust in Organizations

The concept of trust has recently received significant attention from management researchers (e.g. Kramer and Tyler, 1996; Rousseau, Sitkin, Burt and Camerer, 1998). The importance of trust and understanding how trust shapes social relationships has long been a central focus for sociologists (eg Misztal 1996), political scientists (Barber, 1983) and anthropologists (Ekeh, 1974). Researchers view trust as a foundation for social order. Many researchers however see the notion of trust as the most difficult concept to handle in empirical research because of the diverse definitions of trust used in each discipline and the multitude of functions it performs in the society (Misztal 1996).

Early research defines trust in terms of individuals' expression of confidence in others' intention and motives (eg Deutsch, 1958). More recently researchers perceive trust in terms of optimistic expectation of behaviour of another (eg. Mayer, Davis, & Schoorman, 1995), rather than in terms of intentions and motives of early research. Giddens (1990: 34) defines trust as "confidence in the reality of a person or system, regarding a given set of outcomes or events…". Rousseau, Sitkin, Burt and Camerer (1998: 394) however claim that there is "no universally accepted scholarly definition of trust". In our study we view trust in terms of Giddens's conceptualisation of trust in society.

Sociologists claim that trust performs a multitude of functions. For example, it can be a silent background, sustaining a smooth-running of co-operative relations (Misztal 1996). It can help individuals to reconcile their own interests with those of others. Trust is therefore seen as fundamental to all aspects of social life. Giddens however argues that with globalization and the restructuring interactions across undefined spans of time-space, trust which is traditionally secured by community, tradition and kinship is increasingly vested in abstract capacities characteristic of modern institutions. Trust within organizational groups and teams is a much more complex phenomenon as teams involve multiple, interdependent actors. It is because of this interdependency in team interaction, that some element of trust has to be present for its effective functioning (Jones & George, 1998). Rousseau, Sitkin, Burt and Camerer (1998) claim that there are different forms of trust. They argue that the "various forms trust can take – and the possibility that trust in a particular situation can mix several forms together – account for some of the apparent confusion among scholars".

2. RESEARCH STUDY AND THE APPROACH

The study described in this paper is part of a larger research program of study on technology-mediated communication and teamworking. This study was carried out in a large company (Xeon)1, on the implementation and use of internet-based communication technologies to foster teamworking among organizational members physically located in different locations.

Xeon has an annual operating revenue of over 100 billion dollars with operations in over 100 countries and around 90,000 employees world-wide. Xeon introduced the virtual teamwork project by the mid 1990s to encourage collaboration both within and among Xeon's business units and between their contractors and partners in joint ventures. The virtual teamwork facilities consisted of a high power desktop personal computer (PC) which included desktop video teleconferencing and scanning facilities, and multimedia email, shared whiteboard and groupware/ file transfer applications (VTPC).

During 1997, management of the virtual teamwork project was taken over by a newly formed group known as knowledge management group. By the end of 1997, virtual teamworking had also spread to senior

1 a pseudonym. Throughout this paper actual job descriptions of employees have been disguised to protect anonymity.

executives at Xeon. Although the initial intention of the virtual teamworking project was to improve communication among the workforce, by 1997 the desktop video conferencing facilities were seen as helping users to overcome the 'barriers' for collaboration and knowledge sharing. The VTPC technologies were integrated, delivered and supported as part of Xeon's information technology infrastructure. Users were trained to work with VTPC and to develop skills on virtual teamworking.

The research approach adopted was mainly interpretive (Walsham, 1993), employing qualitative data collection methods such as observations and unstructured interviews with virtual teamworkers to obtain detailed, qualitative data on virtual teamworking practices. The research specifically focused on participants of two virtual teams: members of the knowledge management group who were also the early adopters of virtual teamworking; and managers from a large construction project, who were seen as the 'champions' of virtual teamworking at Xeon. Between 1997-1998 over 40 interviews were conducted with team members. Many of the team members were interviewed several times over the research period to assess the changing interpretation of the events over time. Semi-structured interviews were tape recorded and subsequently transcribed. Time was also spent on interacting with team members and observing the actual practices of virtual teamworking by being with participants at Xeon. Documents have also been examined, including documentation on benchmarking, training manuals and internet-based support documents such as "frequently asked questions". During each visit detailed field notes were taken to record observations and events.

The study resulted in hundreds of pages of field notes from observations and interview transcripts. The large amount of qualitative data was analysed using procedures and techniques of grounded theory approach (e.g. Strauss and Corbin, 1990; Orlikowski, 1993). The field notes and interview transcripts were read and reread to identify 'concepts', capturing the virtual teamworking phenomena described by the quotations, incidents, opinions, events, and actions. The study focused on deriving theoretical interpretations from data (Orlikowski, 1993), rather than to test theory against data. The views of trust and the other theoretical conceptualisations of trust are therefore used as a sensitising device (Walsham, 1993) in this analysis.

In the next section we briefly discuss the key research findings. Extracts from the interviews are used as examples in this paper to illustrate the incidences, which led to the development of some of our interpretations.

3. RESEARCH FINDINGS AND ANALYSIS

Most of the organizational members at Xeon had some degree of awareness of the VTPC technologies before these were introduced in the organization. For example, the desktop video teleconferencing facilities were seen as enabling people to interact with colleagues in different locations as if they were in the same location. Multi-media email would add further facilities such as creating, sending, and storing video clips and voice messages to conventional e-mail. The scanner was seen as a useful tool for converting paper documents into electronic form. A shared whiteboard would allow actors to see and work with the same documents, spreadsheets, and diagrams in different work locations and to work on them simultaneously. Application sharing was seen as extending the similar features to other applications on their personal computer. Information-sharing databases would allow actors to store and access a variety of documents that were enriched by sound and videos in addition to text.

With the introduction of VTPC technologies, many of the organizational members began to take advantage of additional forms of communication. Initially the organizational members experienced the emergence of new forms of interaction around the VTPC technology. For example, three new forms of relationships were enacted around the use of new VTPC technologies: online sharing relationships; extending authority relationships; and task-based temporary relationships. Each of these three types of virtual teamworking is described below.

Team members began online sharing of documents such as contractual documents, presentations, planning documents, engineering drawings. For example, contractors from the construction site and other managers in other locations were able to work simultaneously on the same document held in a central repository in the headquarters. Such interactions allowed "simultaneous collaboration of designers, fabricators, construction

workers, and operation people in construction projects to get work done faster than conventional methods allowed". Many of the face-to-face routine management team meetings were also replaced by VTPC based video conferencing.

Senior managers were able to extend their authority over subordinates through such online interactions by for example, making their presence more visible in remote sites. Team members found it more difficult to contradict senior managers' idea when video conferencing was used to communicate with them. As the use of VTPC spread among the junior managers, many were using it for regular meetings and workshops. This also enabled senior managers to participate in these meetings from their location. Such participation of senior managers in team meetings and workshops gave high visibility and significance for such meetings and enabled the junior members to draw on senior managers' authority to legitimize decisions taken in such meetings.

VTPC also enabled them to form 'task-based' temporary teams of specialist consultants from the contracting companies to deal with engineering problems on remote sites, without having all the specialists permanently located on those sites. Many of such alliances were therefore formed temporarily as and when needed to resolve problems.

3.1. Forms of Trust Relationships

The knowledge management team saw VTPC technology as enabling participants to formulate "trusting relationships". Our observations also indicated that many temporary virtual teams formed to solve specific problems often exhibited behavior that presupposed trust. Many of these teams often depended on an elaborate body of collective knowledge and diverse skills for solving problems, however they had no history of working together. With a finite life span of the team the participants had little time to share experience or demonstrate warmth and openness. Trust relationships in this context were therefore not based on personal relationships or reciprocal sharing and disclosure. Rather these were mainly based on the abstract structures of Xeon such as abstract social orders, routines and a body of reflexive knowledge. Lipnack and Stampts (1997) also illustrate a similar form of trust relationship in many of their anecdotes of 'effective' virtual teamworking. We categorize this form of trust as an abstract form of trust.

The organizational members at Xeon however did not want to rely solely on such impersonalized trust, rather they actively sought to establish personalized trust relationships for continuous teamworking. They deliberately cultivated face-to-face relationships to establish personalized trust in online interactions. This was reflected in participants' repeated emphasis on the need to establish 'working relationships' in the conventional way before virtual teamworking. For example, one of the team members noted:

"…to start establishing a [trust] relationship I think you do need to have the physical contact more because you have this indefinable thing about relationships and body language and you don't get it in the same way….. so .. as you do the team building you need to have some physical contact"

Such reflections revealed that participants perceived the trust based on abstract systems as not providing emotional satisfaction and sought to establish trust relationships through face-to-face encounters.

Even if personal trust relationships were established, in the absence of co-location the team members might have found it difficult to maintain them. One member from the knowledge management group reported:

"we are having a global team meeting in two weeks time ….. the big joke is – 'can't you do this virtually?'- I say no we can't do it virtually, we can get so far virtually but until we have a real good drink and a good meal and a good social chat at length we are not going to be a 'real team'. …. We can then use technology to maintain it [relationship] and obviously its going to slide."

Such socialization processes enabled participants to get behind the 'official activities' and to participate in activities happening at the 'backstage' (Goffman, 1990) where participants exchanged and shared feelings and emotions. The participants saw such involvement as helping to develop attitudes towards the other as a trustworthy party.

The interactions enabled by VTPC were however seen as inadequate for providing access to the 'backstage' activities. In fact there were high levels of anxiety among the virtual teamworkers, especially among those who were stationed in remote locations and relied exclusively on VTPC technology for their interactions with other members. One of the team members noted:

"In my team some people [are] based in [town x], some people based in [town y] and then odd ones kind of all over…… slowly people started to migrate to the biggest center for the meetings. It was classic … instead of going to my base office which was in [town x], I would go to [town y] because I knew the boss was going to be there for a start, ….. but then there was the deep scare that if the [VTPC] broke down I will be where the action is … I'm not going to be left out."

Such claims indicated that participants perceived the modes of interaction enabled by the VTPC as 'unreliable'. This led to unpredictability of the continuity of their routine interactions and meetings. The participants therefore had a constant fear of isolation. In the absence of a shared daily working life together with the rest of the team, remote members found it hard to develop positive attitudes towards others and felt uneasy about the activities of the rest of the team. It was therefore difficult to maintain trust relationships using the interactions enabled by VTPC technologies. This particular virtual group was therefore gradually transformed towards a collocated team. This indicates that even if interpersonal trust relationships were established as in the case of temporary teams, in the absence of co-location the team members might have found it difficult to sustain the trust relationship. For effective virtual teamworking trust based both on abstract systems and on other people are important.

In the absence of mutual trust relationships among the virtual team members in remote locations due to lack of personal trust, team members had to look for ways of keeping formal records of every exchange. Team members raised concerns about the limitations of VTPC to maintain records or minutes of what was said during virtual meetings.

The lack of personal mutual trust also limited informal exchange between dispersed organizational members by using VTPC. Such informal exchange among collocated team members "around coffee machines and corridors" was seen as an important venue for exchange of ideas and to reproduce trust relationships, which was absent in dispersed teams. Participants were unable to secure trust in abstract structures for informal interactions, as they were able to do so temporary projects.

4. CONCLUDING REFLECTIONS

The above analysis indicates that trust is a property of both organizational members and abstract structures or systems of organizations. These abstract structures could include the systems of technical and professional expertise and routines social orders that are reliably drawn on in previous situations and the authority relations embedded in the context. The trust based on abstract systems therefore enables the stretching of the relationships from their respective local context across wide spans of time-space in virtual teamworking.

The analysis indicates that the confidence in the working of the expert knowledge seems to enable the formation of temporary task-based alliances with specialist consultants to deal with problems on remote sites. Similarly the confidence in systems of expertise and commitments contributes to stretching of formal authority relations and online meetings and document sharing, at least temporarily.

The evidence from the study suggests that for the continuous teamworking, however, the reliance on such abstract conditions should be actively re-grounded in personal relationships with others. Personalized trust relationships therefore are seen as supplement to trust in abstract systems. Such trust based on persons often results from socialization and participating in the activities in the 'backstage' where the exchange of feelings and emotions take place.

While many organizational members may form task-based temporary alliances based on abstract trust, any informal exchange between dispersed team members could be limited by the lack of mutual trust. In the absence of co-location, participants may lack confidence in sharing their informal points of views of organizations. In all three types of relationships identified, personalized trust relationships may be seen as

psychologically rewarding and helping to exchange favorable attitudes and positive expectations. Relationships with senior managers enable junior team members to draw on resources of authority to legitimize their activities. Personalized trust relationships may be seen as alleviating fears of isolation and anxieties of using VTPC, for continuous online teamworking. Table 2 summarizes the forms of trust relations identified at Xeon.

Forms of trust relations	Operation of trust relations in virtual teamworking		
	Online sharing relationship	Extending authority relationship	Temporary relationship
Trust based on abstract systems	Depends on the confidence in the existence of social orders and routines	Depends on the confidence in the legitimacy of power relations and hierarchical order	Depends on the confidence in the working of the expert knowledge
Trust based on person	Depends on kinship, physical contact and socialization	Depends on collocation and interpersonal interactions	Depends on familiarity and interpersonal relationship between experts and others

Table 2: *Operation of trust relationships on the internet-mediated virtual teamworking*

The continuity of the day-to-day interactions of the organizational members may help to routinely incorporate trust in the abstract systems. As routines are included in the abstract systems, trust in these systems is accepted as an existing condition. As the organizational members draw on these abstract systems in their virtual teamworking, indirectly, they may also help to sustain or transform the trust in the abstract systems.

Virtual teamworking often leads to unpredictability of the team members' routine practices, fear of isolation, and anxiety. They may be seen as 'forced' to live with trust in impersonal principles and anonymous experts during their work practices. Significant investments are often made into the maintenance of trust relationships through face-to-face interactions and socialization, to sustain reciprocal support and commitment for continuous teamworking.

The use of VTPC technologies however may be unable to contribute to nurturing of such interpersonal trust relationships. Personal trust needs to be actively nurtured by individuals opening out to others and access to backstage activities. These personal trust relationships also need to be continuously renewed through shared experiences.

The findings of this study appear to be rather different from those reported in earlier IS research on virtual teamworking. For example, Alavi, Wheeler and Valacich (1995) have shown that group members interacting at a distance demonstrated more commitment and attraction to their groups than face-to-face groups. Other work involving teams in educational settings suggests that trust may be developed in virtual and real groups in quite similar ways, in the sense that factors commonly associated with trust in face-to-face relationships predict trust in the virtual-team context (Jarvenpaa, Knoll and Leidner 1998). These discrepancies would seem to support the use in virtual team research of earlier field work in the area of computer-based meetings that showed how team differences were critical and must be accountable in internet-based team research (Jarvenpaa, Rao and Huber, 1988).

For practitioners involved in virtual teamworking or in managing such teams, the insights gained from this study are of value, for example, in broadening their understanding of trust relationships in virtual teams and in developing policies to foster and strengthen trust among virtual teamworkers in organizations. We found that trust relationships based on both abstract systems and other participants, are sustained by their continuing reproduction. These findings suggest that there is a need for organizational policies to create

conditions for socialization and construct opportunities for active interactions. Such conditions can be achieved, for example, by providing individuals with (1) the necessary resources to become effective contributors (in terms of expertise, time and skills) and (2) opportunities to become effective contributors (in terms of autonomy and authority).

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