

Trust in Virtual Teams

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INTRODUCTION

In the past few decades, organizations have faced radical changes of their business environment. In order to meet the challenges of increasing global competition in a knowledge-based economy, traditional work forms have partly been replaced and complemented by more flexible organizational structures. Thereby, advances in information and communication technologies (ICTs) have created the means for interacting across boundaries both in space and time (Picot, Reichwald & Wigand, 2001; Townsend, DeMarie & Hendrickson, 1998). In this context, virtual teams have increasingly gained attention in theory and practice alike (Ahuja, Galetta & Carley, 2003; Kelley, 2001; Kirkman, Rosen, Gibson & Tesluk, 2002). This new organizational form aims to leverage advantages of the traditional team-based work structure while at the same time coping with the challenges of decentralization and geographical dispersion.

Traditional co-located teams have been studied by researchers of many disciplines, such as sociology, psychology, and business studies. Thereby, each discipline has its own focus. Consequently, there is an abundance of theories and no common definition of the term *team* (Stock, 2004). Generally, a team in any organization can be defined as a social system of three or more people, whose members perceive themselves and are perceived by others as team members, and whose members collaborate on a common temporary task (Guzzo & Shea, 1992; Hackman, 1987; Hoegl & Gemuenden, 2001).

Regarding *virtual teams*, this definition has to be extended by the issues of communication modes and location. Hence, in this article, a virtual team is

defined as a social system characterized by context, identity, and common contemporary task, and whose members rarely meet in person, but rather communicate primarily through ICTs, as they are geographically dispersed (Lipnack & Stamps, 2000; Lurey & Raisinghani, 2001; Maznevski & Chudoba, 2000).

With respect to the term *trust*, it has to be taken into account that this construct can be viewed from a rational or social perspective. While the rational perspective centers on the calculus of self-interest—for example, decrease in transaction cost due to less self-protecting actions—the social perspective centers on moral duty (Jarvenpaa, Knoll & Leidner, 1998). Taking an integrated view of both perspectives, the definition from Mayer, Davis, and Schoorman (1995) is adopted:

The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party. (p. 712)

FACTORS THAT SUPPORT TRUST IN A VIRTUAL TEAM

Research on traditional work teams has outlined trust as a critical antecedent for team performance (Costa, Roe & Taillieu, 2001; Erdem & Ozen, 2003; Politis, 2003). Establishing trust is therefore fundamental for the formation, growth, and performance of any work team. For a team to operate effectively, its members need to be sure that everyone will fulfill his or her obligations and behave in a consistent

manner. The teams studied, however, mainly worked together on a face-to-face basis, an interaction pattern which has been shown to support the development of mutual trust (Hallowell, 1999; Madhavan & Grover, 1998; Nooteboom & Six, 2003). In virtual teams, however, traditional ways of establishing bonds and socializing are absent or at best limited. Therefore, the emergence of trust in a virtual environment is difficult (DeSanctis & Monge, 1999; Handy, 1995; Holton, 2001). This raises the following questions: (1) Can trust be developed in a virtual setting at all? (2) Which mechanisms support the emergence of trust within a team of individuals working across distance, time zones, and cultures?

To analyze whether trust can emerge in a virtual team setting at all and how it might evolve, one needs to understand the antecedents of trust in dyadic relationships first. In such relationships trust arises from the attributes that are associated with a trustee and a trustor (Mayer et al., 1995). The trustee's attributes are his or her perceived *ability* (set of skills that enables a trustee to be perceived as competent in a specific domain), *benevolence* (willingness to do good to the trustor beyond ego-centric profit motives), and *integrity* (adherence to a set of principles thought to make the trustee reliable). On the side of the trustor, his or her *propensity to trust* is considered to be the key attribute. Looking at the team level, the development of 'collective' trust is more complex than 'dyadic' trust as there are multiple trustees with a different set of attributes (Cummings & Bromiley, 1996). Conceptually, the trustor needs information cues to assess the ability, benevolence, and integrity of the trustee. Co-located team members can exchange this information by face-to-face interactions. This type of interaction enables the trustor to gain rich, non-verbal information cues about a trustee based on several dimensions such as looks, gesture, facial expressions, and behavior.

In virtual teams, non-verbal information cues are rare. Therefore, virtual team members need to rely almost exclusively on written information cues such as e-mails. Can virtual team members develop trust in such an environment? Empirical research shows that trust does indeed exist in virtual teams, but it develops in a very different way than in a conventional team setting (Henttonen & Blomquist, 2004; Jarvenpaa et al., 1998; Jarvenpaa & Leidner, 1999).

Past studies on traditional co-located teams reveal that trust tends to evolve in three stages. Firstly, deterrence-based trust is developed as team members simply comply as they fear sanctions. Secondly, knowledge-based trust emerges as each team member becomes more familiar with each other and, thereby, is able to predict the behavior of other team members. Finally, identification-based trust is built on empathy and shared values (Lewicki & Bunker, 1995; Rousseau, Sitkin, Burt & Camerer, 1998). In virtual teams, however, this three-stage pattern could not be observed. Jarvenpaa and Leidner (1999) found that a form of swift, action-based trust evolved between the team members. It is based on the expert reputation that team members have from the beginning of the project and the willingness to trust in this expert knowledge. Other sources for swift trust in a virtual context are the identification of team members with the organization, a previous common work history, and the personal fit of team members (Henttonen & Blomquist, 2004).

Instead of evolving slowly through stages, trust in virtual teams tends to be established right at the outset. Thereby, the first messages "appeared to set the tone for how the team interrelated" (Jarvenpaa & Leidner, 1999, p. 810). Starting the cooperation with confidence, optimism, and a propensity to initiate or respond to electronic communication seems to be an essential basis for trust building in virtual settings. To maintain trust communication should focus on the project and related tasks; social communication complementing task communication can strengthen trust. To summarize, we conclude that trust in principle can evolve in virtual environments, although it is a different kind of trust.

But through which mechanisms does trust emerge in virtual teams? As the assessment of ability, integrity, and benevolence of virtual team members is rather problematic, any mean that contributes to an enhanced information base of each team member can be regarded as important enablers of trust in a virtual environment. In this context, three categories of factors and mechanisms can be distinguished: team process factors, individual characteristics of team members, and the technical infrastructure.

Team process factors refer to mechanisms that focus on increasing communication and commitment within the virtual team. Team-building exercises are

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