Roles and Trust in Interorganizational Systems

Kai Wehmeyer, Kai Riemer and Bernd Schneider

Muenster University, Department of Information Systems, Germany
{kai.wehmeyer|kai.riemer|bernd.schneider}@wi-ios.de
http://www.wi-ios.de

Abstract

While trust is widely acknowledged as to be important for the efficient operation of interorganizational business arrangements, the formation of trust remains challenging. In this paper we discuss the trust building potential of inter-firm coordination roles as organizational means in virtual organizations. Thus, we introduce the coordination role concept and proceed by defining three different dimensions of trust in dynamic business networks to explain the role's effects: (1) network trust, (2) trust in coordination roles, and (3) the specific interorganizational trust. The work of two sociologists - Coleman and Giddens – serve as a basis for our assumption that coordination roles positively influence overall trust in virtual organizations. We conclude with a discussion of factors contributing to the perceived trustworthiness of roles and their occupants, which is necessary for the functioning of the concept.

1   Introduction

The ongoing process of companies' specialization leads to a growing need of cooperation. In contrast to former times, where often only very few relationships to e.g. suppliers and wholesalers had to be attended, participation in complex inter-organizational systems (IOS) like business networks, alliances, value webs, virtual organizations etc. requires attention to a higher number of such relationships. Successful relationships involve the existence of several characteristics and it is widely acknowledged that *trust* is one of them.

The process of constituting trust in a relationship increasingly becomes a managerial task

that, driven by the nature of trust, can be rather complicated and time consuming. Thus, rare and expensive capacities are bound. With a rising number of relationships and especially short-time relationships as needed in e.g. virtual organizations conventional means to build trust in between business partners might prove to be inefficient. The implementation of trustworthy mediators appears suitable for reducing the complexity of intra-network relationships and the required trusting stances.

In this paper the well known coordination roles in virtual organizations according to Göransson/Schuh [Göransson and Schuh, 1997] are analyzed in respect of their effects on trust between the involved parties. By drawing on recent literature in marketing and interdisciplinary trust research, trust can be presumed to be a factor necessary for the success of any business relationship, so that a justification of the decision to examine it in the context of virtual organizations is not necessary.

2 Dynamic networks and coordination roles

The formation of interorganizational networks is driven by several partially overlapping objectives: (1) risk reduction, (2) economies of scale and/or scope, (3) technology exchanges, (4) co-opting or blocking competition, (5) overcoming government mandated trade or investment barriers, (6) facilitating international expansion and opening new (global) markets, (7) linking complementary contributions of the partners in a value system (vertical quasi-integration) and (8) achieving of synergy effects [Contractor and Lorange, 1998; Ring and Van de Ven, 1992].

The wide range of opportunities and potentials leads to a variety of interorganizational arrangements. Several concepts (like business networks, alliances, value webs, virtual organizations etc.) have been developed in order to describe new business trends and to illustrate the respective interorganizational arrangements. The terminology, however, is rather confusing. Countless concepts address certain aspects, but provide neither a comprehensive picture nor common classifications. Here, it is not intended to further classify such arrangements but to focus on the virtual organization as one type of dynamic network, which will be used to exemplarily illustrate coordination roles and their impact on trust between the different parties.

2.1 Virtual Organizations

Virtual organizations are one of the most popular interfirm arrangements. Typically they are networks of mostly small and medium sized companies collaborating to realize projects. In many cases these projects are too large and too complex for a single company. The members of a virtual organization intend to create "virtual size" by becoming partners but trying to preserve the flexibility of small companies at the same time.

The individual partners form an organizational structure, the so-called "pool". They ideally cover a wide range of competencies, while each company (or partner) concentrates on their particular core competencies. The virtual organization aims to provide individualized customer services. To fulfil a specific customer order, a specific network is set up ad-hoc building a value chain consisting of companies, which competencies fit optimally into the desired proc-

ess. So this specific value chain network, the so-called virtual factory [Göransson and Schuh, 1997], is limited in time and will be decomposed with finishing their mission.

Besides vertical cooperation where each partner concentrates on core competencies, a virtual organization can also have horizontal characteristics, as there might be several partners with the same competencies to guarantee sufficient capacities. This leads to a certain competition in the pool. Although the pool's formation is a strategic task with a long-term impact, the members can change over time.

The virtual factories have a short-term project-like character and their formation can change from one to another even if their missions are (nearly) identical. Therefore, the composition of virtual factories has to be fair and based on comprehensible reasons. The uncertainty of the other members' future behavior causes trust-based cooperation to play a key role in virtual organizations' value creation.

2.2 The concept of coordination roles

Göransson/Schuh state that a successful operation of a virtual organization as described in chapter 2.1 requires installing appropriate coordinators and, thus, five coordination roles fulfilling the necessary tasks in a virtual organization are identified (figure 1) [Göransson and Schuh, 1997]:

- The *network coach* is responsible for the entry management, infrastructure development and settlement of relationships between the partners of the pool.
- The *broker* takes care of the customer relationship management, order acquisition and other market specific tasks.
- The *task manager* configures the specific value chain, the virtual factory.
- The *project manager* is responsible for order transaction, process management and, if necessary, project planning and management.
- The *auditor* takes care of competition aspects, especially conflict management.

Another theoretical approach differentiates between two roles only, one role concerning the pool and the other role related to the value chain network [Hess and Schumann, 2000]. Consequently the first role, the *network coordinator*, assumes network development, infrastructure management, the broker role and the conflict management. In contrast to this, the second role named *order coordinator* has to adopt the configuration of the order network and order processing, as well as project management.
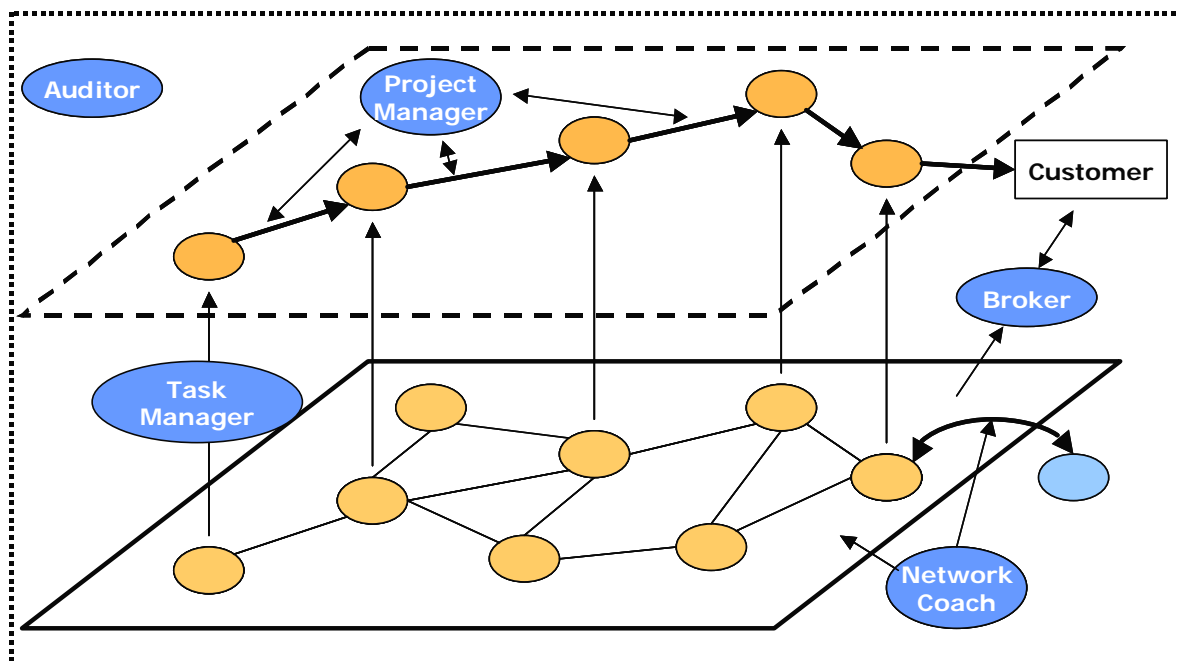
Figure 1: Interfirm roles in the virtual organization [Göransson and Schuh, 1997].

3   The role of trust in business networks

Interorganizational business relationships as those present in virtual organizations have been object of research in several scientific disciplines. This interdisciplinary interest has been triggered by the multidimensional and heterogeneous nature of factors influencing the success of business networks. Increasing attention has been paid to the role of trust as a crucial factor for the efficient operation of networks [Loose and Sydow, 1994; Wurche, 1994, Rousseau et al., 1998; McKnight et al., 1998].

Trust itself can be seen as a very complex and multidimensional construct and there have been numerous attempts to define and conceptualize it, its antecedents and outcomes [McKnight et al., 1998; Lewis and Weigert, 1985; Blomqvist, 1997]. The main goal of this paper is not to create a complete integrative view of trust between organizations with all its facets but to focus on the overall importance of trust as a means of simplifying and stabilizing cooperation of businesses within virtual organizations.

As stated before, there seems to be a clear consensus in the literature about the importance of trust in business networks, with the effect that a goal-directed trust management by the partnering businesses is considered as one important task necessary to ensure cooperation and thus the network's economic value [Klein, 1997; Wicks, 1999]. There is a direct dependency of a single business's outcome and the behavior of its partners [Dasgupta, 2000; Wurche, 1994]. So, companies often have to make significant (economic) efforts to install a trustful

relationship between themselves and one or more business partners [Arrow, 1980]. Ergo, means that potentially ease the emergence of trust in networks are feasible to contribute to their economic success. The installation of coordination roles according to Göransson/Schuh represents an approach to increase the efficiency of virtual organizations. As it will be seen later on, trust research and organizational theory deliver the results for the hypothesis that the coordination roles can have a positive effect on the participating businesses' trust in the network as a whole as well as in their business partners in particular.

4.   Relevant objects and dimensions of trust

As a first step it is necessary to identify the different objects of trust as well as the types of trust that consequently exist in interorganizational relationships.

From the perspective of a single business that is part of a virtual organization, the first category of trust objects are the other participating businesses of which each has to be seen as one distinct object. Secondly, trust can exist in the network as a whole, as one complex and abstract system. Thirdly, the coordination roles and eventually the person or institution that is responsible for fulfilling the role's tasks can also depict an object of trust.

Loose/Sydow [Loose and Sydow, 1994] state that the identification of trust objects usually leads to a distinction of interpersonal and institutional/system trust as two different types of trust which can both be the basis for the overall trusting intention of the trustor towards the trustee (see also [McKnight et al., 1998]). Drawing on the work of Giddens [Giddens, 1984] and Luhmann [Luhmann, 1989] they also argue that when talking about interorganizational relationships system trust is the one type that should primarily be taken into account since businesses are abstract systems. Thus, interorganizational trust is trust in between two abstract systems. However, in this paper trust between single businesses in a network is referred to as *specific interorganizational trust* and is seen as an aggregation of interpersonal trusting relationships since the points of contact in business partnerships usually develop at the interpersonal level [Anderson and Narus, 1990][1]. The antecedents of such interorganizational trust between two discrete companies can encompass the complete range of factors that have been examined in recent trust research. In this paper, for the sake of simplification and complexity reduction, the interpersonal level of interorganizational trust will not be considered. In fact, specific interorganizational trust as it is understood here differs from the system trust term that Loose/Sydow apply between businesses because abstract systems cannot be trustors. Trust can only be granted by individuals but placed in individuals as well as abstract systems or institutions. As well as the existence of interpersonal factors it is recognized that trust can be built on a cognitive, an emotional-affective basis or more likely a combination of both [McAllister, 1995; Castelfranchi and Falcone, 2000]. After all, for the purpose of this paper, companies create trust provided that eventually the trust is granted by persons that represent the interfaces

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[1]   Anderson/Narus [Anderson and Narus, 1990] state that this aggregation is not the only part of trust on the interfirm level. The perception of risk company representatives have when acting on behalf of their employers leads to a different behavior and attitude in interfirm relationships. Here, the extended complexity of interorganizational trust is accepted but not further taken into consideration.

of dyadic interfirm cooperation. The nature of this dimension of trust, however, exceeds the interpersonal level by the inclusion of specific interorganizational aspects.

As a second dimension of trust in business networks, one can identify *network trust* which is trust of a single business in the functioning of the network as a whole grounding on the existence of common beliefs, shared values and the respect of certain basic rules. As stated before, a company develops trust since it is a social system that consists of individuals that eventually develop the trust. In this case the term system trust as trust in abstract systems, institutions or other impersonal structures can be applied [Loose and Sydow, 1994; Luhmann, 1989]. Social systems like virtual organizations as business networks are known to be a possible object of trust [Lewis and Weigert, 1985; Luhmann, 1989; Bachmann, 2000; Sydow and Windeler, 2000]. There are certain common rules and values in such structures that are assumed to be mutually accepted and valid in any situation that might occur. The network with its own character and culture is capable of creating a trusting atmosphere or the context for interorganizational trust [Rousseau et al., 1998; Hallén and Sandström, 1991]. Network trust is a kind of "institution-based trust" [Zucker, 1986] or "system trust" [Giddens, 1990] that is based on the existence of abstract regulatory mechanisms. These kinds of mechanisms include not only legal norms but also social and quasi-legal norms, which might be of a very specific character due to a particular network culture and other social and cultural constraints that affect the virtual organization. Bachmann [Bachmann, 2000] depicts the perception of 'situational normality' as very effective in creating trust and thus reducing perceived risk by making unexpected behavior of network partners less likely (see also [McKnight et al., 1998]). Trust in the network is an integral part of a trusting atmosphere in which specific interorganizational trust develops and grows.

Finally, the third relevant dimension is the *trust in the coordination roles*. Roles as a basis for trust have previously been discussed in literature. They are considered to "lessen the perceived need for and costs of negotiating trust when interacting with others." [Kramer, 1999]. Therefore, the installation of roles can facilitate the development of cooperation in a perceived insecure environment. Since the coordination roles according to Göransson/Schuh are meant to be performed by one or few individuals the interpersonal level of the trust formation process tends to become more important. Thus, one can identify two main bases for trust in these roles: (1) the personal traits of the individuals adopting them, like attributed competence or motives, (2) the role-based trust which "…constitutes a form of depersonalized trust because it is predicated on knowledge that a person occupies a particular role…" [Kramer, 1999]. The mere function that each role has to accomplish serves as a donator of trust for parties of the virtual organization. Yet, without the interpersonal aspect, trust in the coordination roles would be a type of institution-based trust since the functionality that each role implies and its installation would only be perceived trustworthy if it was secured by a trusted institution.

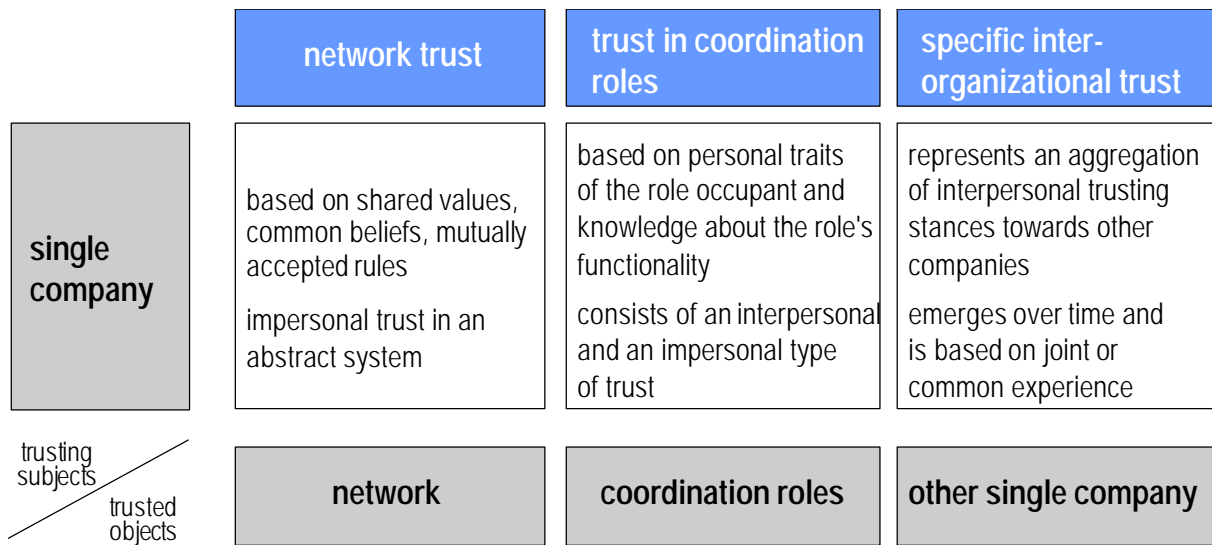| trusting subjects / trusted objects	network trust	trust in coordination roles	specific inter-organizational trust
single company	based on shared values, common beliefs, mutually accepted rules impersonal trust in an abstract system	based on personal traits of the role occupant and knowledge about the role's functionality consists of an interpersonal and an impersonal type of trust	represents an aggregation of interpersonal trusting stances towards other companies emerges over time and is based on joint or common experience
	network	**coordination roles**	**other single company**

Figure 2: Dimensions of trust in a virtual organization from a single company's perspective

The other relevant subject capable of granting trust is the coordinating system with the particular role occupants. Yet, the discussion of this perspective does not seem to be fruitful as the already depicted dimensions of trust with a single company as trustor do not significantly differ in content from the thereby created three new dimensions with the role occupants as trusting subjects. Although possible to distinguish, the role occupants' trust in the network and in single companies does not appear to be necessary for the purpose of this paper. In the same manner the trust amongst role occupants is not accentuated here although its relevance for cooperation within the coordination system is self-evident.

Regarding the formation of trust in each of the three dimensions it is acknowledged that interpersonal, psychological aspects often play an important part since the interfaces of organizational collaboration are always personal contacts. Organizational boundary role persons and their communication are catalysts of the interorganizational trust formation process [Curral and Judge, 1995]. The installation of coordination roles in business networks can have a significant effect on the amount of interpersonal trust needed for the efficient realization of interorganizational cooperation by substituting other (interpersonal) trusting relationships that would become necessary without them. In the following the coordination roles' trust building potential and their multilateral effect on the overall necessary amount of trust in the virtual organization will be discussed.

5   The trust building potential of coordination roles

The implementation of coordination roles can be seen as an organizational means of catalyzing cooperative relationships in between the members of virtual organizations. Their potential to ease the development of trust represents one way this reinforcement of network cooperation might be achieved. As stated in chapter 4, one has to distinguish between subjects acting as trustor and the trustees, objects in which trust is placed. Single companies and the individuals that fulfill the coordination roles can be trusting subjects. The virtual organization, however, can only be an object or a basis of trust since it is people who trust - not technology or abstract systems. In the following the coordination role's impact on mutual trust in a business network will be discussed. For these purposes, this chapter is divided into two parts. At first, the effects that trust in coordination roles has on network trust and specific interorganizational trust will be dealt with and, secondly, an examination of the reasons and crucial factors of role based trust will follow.

5.1   Established role-based trust and overall trust in a virtual organization

An adequate analysis of changes that the establishment of role-based trust in the coordination roles of Göransson/Schuh induces regarding the overall trust in a virtual organization requires a brief reflection of trust in such organizational structures without a coordinating system. Shortly: there seems to be a larger amount of trust necessary for the efficient mission performance and the network as a whole. As the companies in the 'pool' might be very numerous so that specific interorganizational trust between every company based on experiences from past cooperation is not given, the formation of specific value chains (virtual factories) and especially the selection of the right partners for one particular mission requires more trust because of decentralized coordination and the fact that single coordination tasks are executed by representatives of the companies. This delivers an additional need for trust because companies' interests regarding fulfillment of the mission and composition of virtual factories can differ. To ensure efficiency in the virtual organization, specific interorganizational trust has to be built up between as much of the pooled companies as possible whereas the formation of this trust is known to be challenging [McKnight et al., 1998].

Keeping in mind the rather short time that is given to form virtual factories and the time consuming nature of strong trusting relationships between organizations (as well as individuals) it becomes clear that especially in a virtual organization with its recurring temporary systems (virtual factories) trust takes up an important role and that a comparatively high amount of trust is necessary to ensure efficient operation. This involves a high amount of specific interorganizational trusting relationships as well as a high amount of network trust that is more or less the basis on which the former ground.

The coordination roles are a means to speed up and simplify the trust formation processes in a virtual organization. Giddens emphasizes in his "The Consequences of Modernity" the significance of "access points" for the development of trust in abstract systems [Giddens, 1990]. He states that individuals that occupy certain roles within e.g. an organization represent these interfaces at which trust can preferably be built up and maintained. Trust in abstract sys-

tems is considered not to be as psychologically satisfying as its interpersonal counterpart. This leads Giddens to his point that people are always seeking others to rely on and place trust in because interpersonal trust is the type of trust that is anchored in human nature whereas system trust differs from it. The contact of inter- and impersonal attachment at the access points leads to an interweavement in trust of the abstract system and its individual representatives that, after all, bears not only chances but also risks for the successful operation. From Giddens work one can conclude a general substitution tendency of trust in the role occupants and trust in the virtual organization as abstract system as a whole. However, it appears more plausible to expect an intensification of the above discussed network trust than a substitution of it with interpersonal trust in the role occupants, given that they prove to be successful coordinators. Yet, a loss of network trust's significance is imaginable in cases of a very high focus on the role occupants so that the virtual organization as basis for cooperation is not explicitly taken into consideration anymore.

A different functional aspect of coordination roles can be inferred by drawing on the work of Coleman [Coleman, 1990]. He examined the role of third parties in a potentially trusting relationship as "intermediaries in trust". The argument is that for certain types of cooperation not only the direct trust between trustor and trustee is essential but a chain of trust that involves the mediating function of a third actor without whom this core trusting relationship could not develop. The coordination roles in a virtual organization embody several aspects of the three different intermediary categories Coleman elaborates. He distinguishes between the "advisor", the "guarantor" and the "entrepreneur" each describing the role the intermediary adopts. Göransson/Schuhs' roles thereby comprise parts of the advisor role and the entrepreneur role. The former's trust inducing effect consists of the trustor and trustees mutual confidence in its judgment and advice. The latter's effect can be attributed to the same fact but the functionality is another: it aims at evoking trust of several trustors in order to combine their resources and placing them in the hand of another actor. In short, what Coleman describes is the reputation effect that helps to reduce parts of the insecurity existing between potential partners, which cannot revert to specific experiences with each other. Irrespective of the particular factors of trust development with the involvement of intermediaries (which are likewise not analyzed by Coleman in detail), Coleman explains clearly the trust enabling character of coordinating intermediary actors in cooperative relationships. The dominating cause of this phenomenon is the mutual positive estimation of this role's occupant, which has to be given or built up in the pool of companies in a virtual organization. Ergo, a positive effect on the formation of specific interorganizational trust can be assumed and by ongoing positive experiences with successful cooperation, network trust will be equally affected.

These two examples of results in sociological trust research depict the relevance of trust as a means to achieve the full functionality of coordination roles in virtual organizations. Giddens accentuates a quasi-personalization of the abstract organization, Coleman focuses on a reputation effect grounding on well-respected role occupants whose perceived trustworthiness is projected on the partner companies. Both identify the personal aspects as core factors for the promotion of trust development. However, the impersonal part of the coordination roles is also considered to be important for trust formation in network structures [Meyerson et al., 1996].

Especially in virtual organizations with a large number of participating companies and, therefore, a lesser probability of already established mutual trust, the short term characteristic of the virtual factories and rather occasional involvement in one of them leads to a higher significance of the known functional roles which are organized in the coordinating system. Too little time for intensive specific relationships to other companies as well as the role occupants is the reason why it is more the role than its occupant, which is trusted because the formation of interpersonal trust would take up too much time [Meyerson et al., 1996].

Furthermore, one can expect a mere reduction of necessary trusting relationships (or their intensity) within the virtual organization since the coordination roles lead to a bundling of communication. Coordination and negotiation are optimally solely conducted via them, additional interorganizational communication is reduced. However, this leads to a higher risk due to an augmented dependency of one particular communication channel that is represented by role occupants. Thus, an occupant's failure or mismanagement could decisively harm the operation of virtual organizations.

The argumentation in this chapter has shown so far that different aspects justify the assumption that there is a positive effect on specific and overall trust in a business network by implementing coordination roles. Although it often might be that the development of trust is not the primary reason why coordination roles are taken into consideration, it has been shown that their effect on trust in virtual organizations is a further legitimate rationale for their application (besides traditional economic or organizational reasons). Finally, the following chapter will briefly deal with some possible factors influencing the perceived trustworthiness of the roles and its occupants.

5.2   Ensuring coordination roles' trustworthiness

After having discussed the effects of already established trust in the coordination roles, in this chapter a step back in logic will be done by the examination of factors for the perception of the roles' trustworthiness. The multi-facet nature of trust certainly inhibits the completeness of these factors. The focus will be on only few of them, which were found to be considered as important.

Firstly, the reputation of the role occupants must be mentioned once more. The discussion in the preceding chapter and the work of Coleman stress its relevance in this regard. For a successful reputation effect in intraorganizational relationships the role occupants are to have a good reputation themselves, too. In the best case, this reputation is available and known by each company of the virtual organization.

Another factor is the clarity with which the single roles and their competencies are defined. Meyerson et al. state that perceived uncertainty about the behavior of others is reduced by an increase in role clarity [Meyerson et al., 1996]. A well-defined role appears trustworthier and so does its occupant. A similar effect on trustworthiness has consistent role behavior of the role occupants. Inconsistencies in behavior lead to a clear decrease in perceived trustworthiness because it makes the roles' actions unpredictable. In this regard, there is a high danger of

a negative effect on overall trust. Once a role occupant has lost his trustworthiness, all the benefits of a more centralized coordination process can turn and evoke an opposing effect.

There are certainly more factors that are relevant for the formation of a role occupant's trustworthy appearance, such as trust-inducing elements related to interpersonal communication and socially constrained human behavior. Much research in these theoretical sections has been done to illuminate what is to a great extend part of individual psychology, and therefore difficult to operationalize and measure [Petermann, 1996; Rotter, 1972; Swan et al., 1999]. Normative propositions can hardly be made but the positive effect characteristics like competence, self-confidence, cooperativeness or self-disclosure have been empirically examined and proved to be existent [Swan et al., 1999].

6   Conclusion

In this paper the coordination roles in a virtual organization that were introduced by Göransson/Schuh, have been examined with respect to their effects on overall trust in those networks as well as their trust building potential either as directly trusted object or as intermediary in trust. Different trust dimensions in virtual organizations have been described after trust's general relevance in network structures has been shown.

It has become clear that the implementation of coordination roles has positive effects on trust constitution in the dimension of network trust and specific interorganizational trust. This has been done on the theoretical basis of sociological research in trust and its role in network coordination. The roles, its occupants and organizational boundary role persons [Currall and Judge, 1995] shape the interface at which an increased trust building potential can be identified.

In order to achieve the coordination roles' optimal impact on trust in virtual organizations, role occupants and the functionality of the role itself have to convey trustworthiness. Perceived trustworthy coordinators are an integral prerequisite of cooperative relationships in organizational structures that are coordinated in this manner. Some antecedents of trustworthy perceptions like clarity in role definitions, behavioral consistency and reputation have been identified. However, the importance of interpersonal aspects in this area is apparent.

In the past, trust has enormously gained attractiveness among researchers in organizational theory. Its relevance for the success of organizations is well acknowledged. This paper aims to broaden the scope and tries to examine a particular means of coordination in respect of its effect on trust within the organization. Yet, future research will be needed to make it possible to better assess the trust impact of individual means of organizational design.

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