Building Trust and Reputation in Communities and Virtual Enterprises

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Abstract

Virtual enterprises mostly renounce formal contractual guarantees as coordination mechanism in order to ensure overall flexibility. As a consequence, trust becomes a decisive coordination mechanism for this type of organizations. In the project TiBiD we are exploring communities as a basis for building trust and reputation in the initiation phase of virtual enterprises. This paper briefly presents our current results of how to support trust building and trust transfer through online communities.

Introduction

In the project TiBiD[1] we are looking at how virtual enterprises form and how this formation (initiation) can be supported. In this context the building of trust and the transfer of reputation are of major importance. Therefore, we aim at supporting both the direct exchange between potential partners and the search for people that are able and willing to communicate their direct experience with others in order to facilitate trust building between potential partners.

In this paper we will argue for the usefulness of communities for supporting the initiation of virtual enterprises. First, we will briefly touch the topic of what communities are and what they can be used for. Then we will present some basics about virtual enterprises before looking at the initiation phase and how it can be supported. At this point we touch the topic of trust and focus on support for trust building and trust transfer. Finally, we present the pilot area where we are currently setting up a support system.

Community Support

When looking behind the hype around the term “community” one can see communities as what they are: places that give people a context to communicate and to find like-minded people. In general a community is a group of people who share some interest or another common context, e.g. students in a university department or people interested in collaborative filtering. Thus, a community can be seen as a describing identity for a set of people. Mynatt et al. (1997) concretize further: *"[A community] is a social grouping which exhibits in varying degrees: shared spatial relations, social conventions, a sense of membership and boundaries, and an ongoing rhythm of social interaction*".

Basic Support Concepts

Community support applications usually provide one or more of the following functionalities:

- A medium for direct communication and for exchange of comments within the context of the community.
- Detection and visualization of relationships (membership in the same community, existence of common interests). This can help users to find potential partners for direct interaction (e.g., via matchmaking or expert finding).
- (Semi-)automatic filtering and personalization on the basis of knowledge about relationships. This helps to reduce the search effort and enables to deal with the information overload.

[1] The project TiBiD (Telekooperation in Beziehungsnetzwerken für informationsbezogene Dienstleistungen) is funded by the German Federal Ministry of Education and Research; FKZ 01HG9991/2. See: http://www.telekooperation.de/tibid/

Existing Community Support Tools

Several systems already implement some aspects of these basic support concepts. News- and Chat-systems provide a place to meet and a communication medium. Based on News-systems there are different types of so-called community networks which provide an exchange area for a local community, such as the inhabitants of a particular city. Buddy systems like ICQ or AOL Instant Messenger provide detailed awareness information (Michalski 1997). Online communities provide a place to communicate, awareness and a rich functionality for storing and retrieving (community) information. Recommender systems like Movie-Critic, Knowledge Pump or Jester do matchmaking on the basis of user profiles and then provide recommendations based on ratings of other community members. Other systems like Referral Web (Kautz et al. 1997) and Yenta (Foner 1999) focus on expert finding and explicit matchmaking.

Virtual Enterprises

Communities and community support platforms are used in the business context in several ways, from communities for marketing, communities for customer support to knowledge communities (communities of practice). In this paper, however, we will focus on another potential of communities: supporting the initiation of virtual enterprises, i.e. helping potential partners to find each other and to start collaboration.

Virtual enterprises are considered a counterbalance to traditional organizational forms with long-term internal and external boundaries, a fixed location, and relatively permanent resources. They develop through a network of physically dispersed people and organization units, participating in a coordinated value-added process. A multitude of diversely organized people work in professional core areas. These people accomplish their assignments internally or externally and, in addition, they themselves are associated with others through several cooperative arrangements. Thus, virtual enterprises manifest themselves as dynamic networks of organizational units. Single network nodes can be set up either by individuals, by organization units or by entire organizations. The connections among single nodes are established dynamically and in a problem-oriented manner. Therefore, task-oriented assignments determine the structure of a virtual enterprise at any point in time.

Organizational virtualization can be seen as one of the main strategies of organizational innovation in order to adapt to changing internal and external conditions (Reichwald et al. 2000). In this context, strategies of *virtualization* are said to be particularly well suited for tasks that are characterized by both their high level of complexity and a correspondingly high level of market uncertainty.

Initiation and Trust

However, before a virtual enterprise can start operation the partners first have to find each other and to initiate a relationship. Since this process includes a high level of uncertainty and risk, the need for trust between the potential partners arises (see Wigand et al. 1998).

According to Johnson-George and Swap (1982) and Mayer et al. (1995), trust can be defined as the willingness to take risks. When forming a virtual enterprise, the risk at hand is to engage in a relationship although the available information about a potential partner does not allow for definite predictions about his or her future behavior.

To minimize risk, uncertainty, and costs for relationship building, the initiators of virtual companies often limit their search for potential partners to those they already know and whom they trust because of their personal experience. However, the weakness of this strategy is that it restricts the number of possible partners, with the risk that the best partner for cooperation may be not be taken into consideration because (s)he is not a member of the pool.

Communities may help to overcome this restriction because they form large relationship networks of loosely coupled partners. However, as community members do not necessarily know each other, personal experience can not be used as a source of trust between potential partners in this setting. As a consequence, if communities are designed to be a pool for initiating virtual enterprises, the formation of trust between community members has to be supported explicitly. One way to do so is to assess and to communicate another potential source of trust: second-hand knowledge or a third party's experience with the potential partner (e.g. McKnight et al. 1998).

Support for Trust-Building

Reputation Indicators

Some recent work on trust-building in the net follows this strategy. Most notably are the reputation indicators used in several online systems (Kollock 1999; Koch et al. 2000). The idea behind them is to collect ratings about potential partners from other users who already have worked with them and to calculate a reputation indicator therefrom. This indicator then is made

accessible for potential partners to help them evaluate each other. Examples are online auction platforms like ebay or comment platforms like dooyoo.

The weakness of a reputation indicator as defined above is that it merely represents the aggregation of anonymous ratings, whereas valid information about the identity, competence, and trustworthiness of the raters as well as about the context and background of the ratings is lacking, even if the history – i.e. how the indicator is constructed, who contributed to the rating and how the contributors themselves are rated – is displayed to the users.

Relationship Networks

Presumably because of that, it is obvious that if risk increases, people tend to ask for direct confirmation, i.e. for personal statements about potential partners instead of anonymous ratings. As we argued above, it seems that trust is predominantly built from ongoing interaction in a common context, either through the partners' direct common history or through a third party's history with the potential partner.

Here is where communities come in. They are already used to collect information about relationships (e.g. buddy lists etc.) and might therefore make an ideal ground for initiation support in virtual enterprises. Our idea here is to support users not only in finding potential partners, but also in finding indirect links to potential partners via persons whom the users trust and who can be asked for an evaluation of the potential partner.

Conclusion and Future Work

In this paper we introduced communities as a support medium for trust building in the initiation phase of virtual enterprises. This viewpoint highlights the basic features of communities: a medium for communication and for finding partners. In the TiBiD project we are currently using these basic ideas and are designing a community platform that helps potential virtual enterprise members to find each other. One idea is to have a yellow pages service where users can search for potential partners as usual and where search results are annotated with information about network members who have already been in touch both with the user and with the potential partner.

As a specific field of application we have chosen the field of startups and of potential entrepreneurs or freelancers. This group needs partners for cooperation and is not yet bound in rigid networks. We are currently in cooperation with entrepreneurship initiatives at Technische Universität München (www.unternehmertum.com) and in Greater Munich (www.mbpw.de) and are building a community platform for potential entrepreneurs and startups originating from Technische Universität München. In this platform we are planning to provide both information services and communication and matchmaking functionalities within relationship networks as described above.

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