# SOCIAL CAPITAL AS AN ANTECEDENT IN PROVIDING TRUST, COMMITMENT, AND SATISFACTION IN ONLINE RELATIONSHIPS

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**Virtual Communities as a Tool for Relationship Management**


## Abstract

While previous marketing activities were primarily focused on increasing market shares in terms of a mass marketing based on single transactions, the past few years saw a paradigmatic switch towards relationship management. However, customer retention programs such as customer clubs were not as successful as expected and primarily seemed to have a selective function. Virtual communities are thus becoming increasingly significant for online customer relationship management. A major aspect of virtual communities is the concept of social capital. It will be shown that virtual communities that provide social capital are a key instrument to establish satisfaction, trust, and commitment within a business relationship.



## Keywords

Virtual Communities, Social Capital, Customer Relationship Management, Trust, Commitment, Satisfaction, LISREL.


## 1 The relevance of virtual communities for establishing a relationship with customers

New information technologies such as the Internet and the opportunities of computer-aided communication they provide have added a new dimension to the discussion on the effects of technological change on social and business contexts. Over the past 10 years, numerous groups of Internet users who exchange information and discuss experience in a virtual space have formed based on shared interests or needs. While these Internet communities were first studied from a primarily sociological point of view (cf. Kollock & Smith, 1999; Wellman & Gulia, 1999; Blanchard & Horan, 1998), research interest is now also focusing on the context of business administration (cf. Hagel & Armstrong, 1997).

As a response to changing market and environmental conditions such as stagnating consumer markets and a constantly increasing variety of offers, a new approach developed in marketing that was focused on retaining existing customer relations rather than winning new customers. The resulting relevance of managing relationships has been taken into account in numerous theoretical and empirical studies. The underlying theories originate from the widespread conclusion that cultivating relations with regular customers should be given greater priority, which requires turning away from purely focusing on transactions. The risk of "floating consumers" is to be reduced by increasing the differentiating potential of brands and enterprises.

However, customer retention programs such as customer clubs were not as successful as expected and primarily seemed to have a selective function. When it comes to establishing long-term customer relationships, the principal challenges were and are the consumers' growing need for interaction and integration of advanced technologies into a comprehensive marketing strategy. Even non-economic motives like the desire for social contacts may be decisive for maintaining a business relationship.

Virtual communities are becoming increasingly significant for online marketing in this context. Although this phenomenon is frequently thought to be a modern form of e-commerce (transaction communities), it has some relationship-building potential that can contribute to establishing a long-term relationship with customers.

It is the purpose of this paper to make theoretical assumptions about the contribution of virtual communities to customer retention and link these to an empirical study. We therefore introduce the concept of social capital which represents a major aspect of virtual communities and may explain the development of long-term customer relationships.

# 2 Theoretical fundamentals

## 2.1 The essence of the social capital concept

### *2.1.1 The concept of social capital*

Although the form and functionality of virtual communities has not been studied to any greater extent, it is to be assumed that they provide social capital and, through creating such use, result in customer retention (cf. Blanchard & Horan, 1998). The concept is the object of socio-anthropological network-oriented research and describes the support of individuals within a network of friends and acquaintances, which later on creates the basis for mutual trust (cf. Jacobs, 1961, p. 138; Hannerz, 1969). Social capital can be conceptualized and operationalized on various levels including individuals, organizations, interorganizational arrangements, and societies (cf. Tsai & Ghoshal, 1998, p. 465).

The concept of social capital was introduced by *Hanifan* as early as in 1920 and provided with a wider theoretical basis in the works by *Bourdieu* (1983) and *Coleman* (1988, 1990). Ever since, the term "social capital" describes a "key concept in sociology because it posits that social relationships form a resource that individuals can draw upon in their personal and professional lives" (Hofferth & Boisjoly & Duncan, 1999, p. 79).

*Haug* (1997) gives a comprehensive theoretical survey of the various disciplines that have made the phenomenon of social capital their object of study. They are all based on the assumption that this concept can be useful when modeling actions. There is a basic distinction to be made between the use a person with many and/or extensively maintained social relations may derive from social capital himself or herself, the use that people who do not take a great effort to maintain relationships can have by gaining access to useful resources through third parties ("weak ties"), and the use the entire team may draw from the existence of specific (small close-knit or large extensive) networks of relations and the capital associated with them.

For the purposes of this paper, social capital is to be viewed taking an individual and a network approach and thus defined as an instrumental and individual resource whose availability is

dependent on other people. Thus social capital results from the respective network of relations that individuals can use for themselves. In other words, the concept encompasses all community ties with friends and other persons of reference that provide social support (cf. Wellman & Wortley, 1990, p. 561).

### *2.1.2 Factors determining social capital*

(1) Quality of the social network

According to *Coleman* (1990), the building of social capital is primarily enhanced by person-to-person interaction in social networks. The decisive factor here is the quality of the social network, that is, the type of interhuman relationships (cf. Paxton, 1999, p. 98). Relations within a social network can be described as a result of exchange actions that require social capital, i.e. a trusting relationship. Social capital is both a consequence and a prerequisite of social exchange, and its quantity grows the more people help one another (cf. Coleman, 1990, p. 321). Networks as voluntary associations therefore represent horizontal relations of interaction that facilitate the flow of information on the people's trustworthiness and encourage norms of reciprocity (cf. Tsai & Ghoshal, 1998, p. 465).

*Flap* (1995) states that the strength of a relationship determines the type of social capital, and that there are strong ties and weak ties. Moreover, the size of the network is a resource, too. The ego can get esteem, respect and the most varied forms of assistance from people (social capital).

The interaction that takes place in social networks can be viewed as transactions that are given a reciprocal character in conjunction with norms. In this context, information is a resource that is available to each member of the community and thus has the nature of public property. Thus social capital is not limited to those who contribute to its accumulation but can be used by all members embedded in the social structure (cf. Coleman, 1990, p. 316).

(2) Norms

In relevant studies, the norm of reciprocity is the mostly frequently discussed among the norms compliance with which helps build social capital (cf. Coleman, 1990, p. 304). *Putnam* (1993) says that the norm of reciprocity is a highly productive component of social capital. It is this norm from which the community derives its belief that good acts or pro-social behavior will be reciprocated at a later point (cf. Blanchard & Horan, 1998, p. 294; Onyx & Bullen, 2000, p. 24). At the same time, the norm of reciprocity produces the belief that we are obligated to return to others the goods, services, and concessions they offer to us (cf. Wellman & Gulia, 1999, p. 177; Smith & Mackie, 2000, p. 410). *Polanyi* (1997) defines the concept of reciprocity as a form of exchange that frequently results from existing networks of social relations among peers based on blood relations or friendship. The goal of such exchange is not apparently material gain or profit. Social relations are formed by exchange. This even seems to be the primary purpose of exchange in some cases.

Reciprocity as a major element in a community strengthens the bonds that hold it together, building trust and commitment among its members (cf. Smith & Mackie, 2000, p. 410). Thus the norm of reciprocity is a prerequisite for trust, from which again social capital arises.

This norm of reciprocity constitutes itself in virtual communities primarily in the form of a mutual willingness to help each other and provide information. *Kollock/Smith* (1996) have found in their studies that the success of virtual communities first of all depends on their active members. Deviant and anti-social behavior such as lurking and flaming is to be prevented. Reciprocity emerges wherever the goals and interests of a community are clearly defined (cf. Kollock, 1999, p. 228). A clear-cut definition of objectives enhances the willingness to cooperate throughout the social network, resulting in a mutual exchange of resources (cf. Tsai & Ghoshal, 1998, p. 465).

(3) Trusting the community

Most relevant theories name social trust as the most important factor determining social capital, the concept of social trust being closely related to the norm of reciprocity (cf. Paxton, 1999, p. 98). Social trust can build in a community both with regard to specific members and the community as an institution. *Paxton* (1999) focuses on individuals' estimates of the trustworthiness of generalized others (aggregate trust) in her studies. Trust therefore describes the fact that an individual expects a community to be based on honesty, cooperation, and joint norms (cf. Onyx & Bullen, 2000, p. 25). Compliance or non-compliance with norms marks a major element of trust.

*Barber* (1983) defines social trust as socially learned and socially confirmed expectations that people have of each other, and of the organizations and institutions in which they live. Trust occurs in interpersonal relations when transactions are offset in time. Thus this concept indicates individual decisions where the trustor expects the trustee to justify the trust placed in him/her by executing an act the trustor gains from.

*Putnam* (1993) says that sanctioned norms and closed social networks are a prerequisite for building and maintaining trust. However, cooperative tendencies based on trust can be brought about by other group characteristics. What is generally needed is some kind of protection against defections that ensures that the gain of an act of cooperation benefits primarily the people who contributed something.

It can be assumed for a virtual community that the traced placed in the community is projected onto the supplier. In such cases the relationship of mutual trust that is primarily based on the members' willingness to help and provide information turns into a mediated relationship of trust between supplier and customer (Fig. 1). The customer receives added value through the social capital available in the community, which increases the customer's net benefit. This increased customer benefit, in conjunction with the trust-building element of virtual communities, represents an essential aspect of the bonding strategy. It can be assumed that the factors determining social

capital have a positive effect on the inner bond of members with the supplier. Our empirical study imagines a business relationship that, in a network approach, includes all groups of people outside an enterprise with whom there is a relationship of exchange.

- insert Fig. 1 here -

## 2.2 Fundamentals of the customer relationship concept

### *2.2.1 The concept of customer relationship*

Customer relations in general denotes the keeping-up of a business relation that is characterized by a non-accidental sequence of market transactions between supplier and customer. From the supplier's point of view, this means to try and retain customers using various marketing measures, while the customer is governed by an attitude towards that supplier as reflected in repeated sales, recommendations to others, and intentions to repurchase.

Marketing researchers that deal with the concept of customer relationship management generally agree that some theoretical pluralism is required here. Customer trust, satisfaction, and commitment are basic constructs in this respect. These determining factors have repeatedly provided the basis for integrative approaches to studying customer relations. We will explain the basic constructs of this key theoretical approach below.

### *2.2.2 Factors determining a customer relationship*

(1) Customer satisfaction

Customer satisfaction denotes a multidimensional behavioral construct that is based on past experience and closely interlinked with the customer's attitude. A customer regards a business relationship as satisfactory as soon as the net benefits received meets expectations.

In marketing literature, customer satisfaction is considered the result of a cognitive and emotional evaluation process in which a required or desired service is compared with the actual

service as subjectively perceived by the customer. Depending on this evaluation, the customer's expectations are either confirmed or not confirmed.

The Confirmation/Disconfirmation paradigm (C/D paradigm) is a common conceptualization of customer satisfaction. The confirmation process becomes a mediating variable between a pre-consumptive standard of comparison on the one hand and the actual service perceived or actual satisfaction derived. This standard of comparison can be determined by expectations, ideals, individual norms or other yardsticks.

(2) Customer trust

The trust a customer places in a supplier or the business relationship is mainly based upon this customer's own experience with the supplier or product so that the trust variable represents an emotional and future-oriented supplement to customer satisfaction. Trust is a multifaceted phenomenon that can be subdivided into individual trust (personal relationship) and trust in systems (e. g. individual – enterprise).

Marketing researchers quite often refer to *Luhmann's* (1989) theory who considers trust a reduction of complexity in relationship systems. *Richter-Mundani* (1999) think trust can help build customer retention very much like a catalyst helps a chemical reaction take place. As it reduces the customers' insecurity, a long-term business relationship requires a certain amount of trust. This brings about harmony and stability for the relationship, which in turn strengthen trust (echo effect).

*Moorman et. al.* (1993) define trust as a willingness to rely on an exchange partner in whom one has confidence. Trust is based on the belief of the parties involved that the respective other party will carry out such transactions only that will not adversely effect the business relationship (cf. Anderson & Narus, 1990, p. 45).

In customer relationship management, trust-relying strategies form a part of buyer-oriented competition strategies and can contribute towards maintaining the relationship by providing symmetry of information between an enterprise and its customers.

(3) Commitment

Commitment is the third element that greatly influences the quality of a supplier-customer relationship in terms of a bonding strategy. This construct originated from social psychology and describes "a desire to develop a stable relationship, and a confidence in the stability of the relationship" (Anderson & Weitz, 1992, p. 19). Commitment denotes a customer's inner readiness to stick to the business relationship and is expressed in the desire for a stable business relationship. Three main components can be distinguished: 1) Customer accepts temporary sacrifices to keep up the business relationship, 2) wishes to develop a stable business relationship, and 3) has confidence in the stability of the relationship (cf. Bauer et al., 2001). Summarizing, commitment can be considered the highest stage of a business relationship, and its emergence depends on relation structures experienced in earlier stages. The theoretical derivation of central variables for this study is completed. Now the connection between the dependent target and the independent variable should be empirically tested. The final section of this chapter is to provide the theoretical frame of reference.

## 2.3 Merger of the social capital theory and the customer relationship concept

First, a system of hypotheses is to be formulated from considerations made so far that can serve as the basis for the empirical study. This process is guided by the following questions.

- To what extent are the factors determining customer relationship management interdependent?
- What are the interdependencies of factors determining social capital?
- In what way do the factors determining social capital influence the constructs of customer relationship?

Satisfaction, trust and commitment have been repeatedly used as the basis for empirical studies that tested and confirmed their hypothetical connection (cf. Morgan & Hunt, 1994; Gruen, 1995). Thus this system of relations has a solid foundation. The following hypotheses can be formulated based on existing studies:

$H_1$: The more satisfied a customer is with a business relationship, the stronger this customer's trust in the business relationship.

$H_2$: The more satisfied a customer is with a business relationship, the greater this customer's commitment to the business relationship.

$H_3$: The greater a customer's trust in a business relationship, the greater this customer's commitment to the business relationship.

No empirical studies are available as yet on potential effects of virtual communities on customer retention. There are also no studies on virtual communities that empirically prove the relationships among factors determining social capital. However, additional hypotheses can be derived from the considerations described above.

$H_4$: The higher the quality of the network in a virtual community, the greater a person's trust in this virtual community.

$H_5$: The firmer the norms are embedded in a virtual community, the greater the trust in this virtual community.

While an exploratory study should not *a priori* exclude any relations, the causal connection between the factors determining social capital and those of a customer relationship mainly rests on the social trust construct. Thus this construct serves as an interface of both theories, which gives rise to the following hypotheses:

$H_{6a}$: The greater the trust placed in a virtual community, the greater a customer's satisfaction with the business relationship.

$H_{6b}$: The greater a customer's trust in the virtual community, the greater this customer's trust in the business relationship.

$H_{6c}$: The greater a customer's trust in the virtual community, the greater this customer's trust in the business relationship.

As the two trust constructs are presumably related, we assume a specifically strong interaction between social trust and trust in a business relationship. This results in the following hypothesis:

$H_7$: Trust in the virtual community has a stronger influence on trust in a business relationship than satisfaction or commitment have.

This system of hypotheses can be represented in a presumptive impact model (see Fig. 2) that provides the basis for the empirical study and determines the selection of a suitable statistical method.

- insert Fig. 2 here -

## 3 The empirical study

### 3.1 Data collection and database

In view of the focus of this study, an online poll seemed to be the most suitable method. The questionnaire was converted into an HTML document.

The objects of study were all virtual communities whose communication platform is implemented in the online presence of their service provider. The source list (sampling frame) is the member master of the *Puschkin Bar (www.puschkin.de)* online community set up by *Puschkin International GmbH.* The provider calls the offer a community designed as a platform for information that serves the purposes of information provided to and communication with, and among, Internet users. The *Puschkin Bar* was founded in 1998 and provides a vast amount of communication elements such as chat rooms, forums, mail center, list of members (top list), blackboards and guest books. It is an open community, which means there are no requirements for access. This explains the relatively great number of members (ca. 7000 at the time when the study was carried out) whose sense of community is to be boosted by annual meetings. In addition,

members are motivated using a points system which grants more privileges when a specific number of points is reached. At the time of the poll, ca. 25 supervisors called VIPs were responsible for compliance with rules of behavior (*netiquette*) within chat forums.

The poll was taken over a period of one month. As we only wanted to include community members in our study, reference to our questionnaire was made after login. Participation was promoted by a sweepstakes and animated applications, and the number of responses was high. Logfile analyses proved this. Only two out of 149 questionnaires filled in had to be rejected because of insufficient answers.

## 3.2 Findings of the empirical study

### *3.2.1 Selected sample characteristics*

Analysis of the sample showed that primary reasons for registration as a member are relationship (86.4%) and entertainment motives (81.6%). This observation is also reflected in the absolute size of the respective personal network within the virtual community. 67.3% of the respondents stated to be in regular contact with more than six people. A considerable portion (26.5%) even thought they established a circle of more than 15 acquaintances in the online community.

This basic motivational setting results in a close relation with other members (Ø 2.36 on a scale on which 1 indicates agreement and 5 disagreement to the stateement), which is mostly reflected in long online times. All members spend at least one to two hours per week in the *Puschkin Bar*, and 32% stated they spent more than 8 hours to cultivate their contacts.

The rapid growth in membership of the *Puschkin Bar* is primarily due to word-of-mouth advertising. 87.1% of the respondents stated to have heard about this virtual community from friends or acquaintances. This also explains the fact that some of the members have met in person

(Ø 2.07), however this does not automatically result in high attendance at members' meetings (Ø 3.4).

At first glance, there are no outstanding peculiarities regarding members' attitudes towards the provider or the product but the community members' ratings of design (Ø 2.01), concept (Ø 1.92) and satisfaction (Ø 1.92) are fairly good. These findings raise the question whether and to what extent a causal connection can be established between the characteristics of virtual communities (in this study: *Puschkin Bar*) taking into account the theory of social capital and the factors determining customer retention as identified above.

### *3.2.2 Measurement and recording of hypothetical constructs*

The factors determining social capital have not yet been conceptualized or operationalized for virtual communities. To obtain an image of the constructs described that is as complete as possible, we tried to utilize all characteristics of virtual communities based on existing theories that may comprise social capital. Table 1 gives a survey of indicators allocatable to each construct.

- insert Tab. 1 here -

Cronbach's alpha for the construct of **network quality** based on the nine indicators is 0.79. Although this key variable does not give cause for eliminating measurands, the exploratory factor analysis requires successive elimination of the *equality of members* and *homogeneous network* variables because of the explanation of variance contained in the variables (41.3%). The remaining seven variables yield a satisfactory 0.83 for Cronbach's alpha. The explained variance (50.9%) is only slightly above the setpoint value. Moreover, confirmatory factor analysis provides cause for eliminating the *attendance of member's meetings* and *offline acquaintances* indicators. The remaining five indicators show sufficiently good values both in the first phase (Cronbach's Alpha =

0.84; explained portion of variance = 60.4 %) and in the second phase; so the *network quality* construct is assumed to be reliable and valid (for the results of the second phase, see Tab. 3).

The latent **norms** variable was measured based on eight items. Cronbach's alpha is 0.79 for all indicators. Total explained variance, however, is only 43.42%, resulting in successive elimination of the *lurking* and *flaming* indicators taking into account the item-to-total correlation and factor loadings. Cronbach's alpha is 0.82% using the remaining seven variables. The portion of total variance explained by the factor is 53.73%. These values indicate that there is no cause for eliminating further indicators according to first-generation methods. This is confirmed using the quality measures of second-generation methods (see Table 3).

Measurement of **social trust** by four indicators has proven successful. The variables are highly reliable (Cronbach's alpha = 0.78). Total variance explained by the factor is 63.23%, which makes an elimination procedure seem unnecessary; this is confirmed by the second-generation methods (see Table 3).

A multiattributive poll to determine the **satisfaction, trust, and commitment** factors was not carried out because of the complexity of the causal analysis model. Also, the individual facets of these constructs are not as interesting as the potential influence of factors determining social capital on their global character. Moreover, causal connections among the constructs are to be explained based on an overall model, which requires a limitation of indicators to comply with the t rule. The three relevant factors determining long-term customer relations are operationalized using two indicators (see Table 2) that exceed all required reference values for first-generation methods. However, we cannot apply second-generation methods to check reliability and validity due to the small number of indicators.

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### *3.2.3 Interpretation of the posited model*

Our study has so far revealed that all constructs are sufficiently reliable and valid so that we can use the posited presumptive impact model as the starting point for the following rating procedure. In addition, the number of cases in the sample is sufficient to simultaneously check the whole structural model. The result does not reveal any consistency deficits of the model so that it is very likely or even a fact that the required condition is met.

When evaluating the results obtained using the ULS estimator of LISREL, none of the global quality measures is violated; instead, the values show a good match. Most of the detailed criteria also suggest a sufficient degree of reliability and validity. All in all, the posited model cannot be rejected, which means its conditional acceptance (see Tables 4 and 5).

- insert Tab. 4 here -

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The five indicators of the **network quality** factor all comprise sufficiently high loadings. A comparison of these values reveals that the significance of this construct is determined by the close relationships within the community and the bonding among community members rather than the number of known members or the duration of an acquaintance.

The **norms** construct (willingness to help and provide information) is operationalized by six indicators that all have an acceptable factor loading. It seems to be true that the relevance of this construct is mainly derived from norms of reciprocity.

The remaining indicators give equal proof of satisfactory factor loading, and there are no apparent weighting peculiarities. So we focus on our structural model to make statements about the hypotheses formulated. Let us first turn to the factors determining social capital.

The effect of network quality on the social trust construct is striking (standardized regression coefficient equals to +0.16). The effect of online acquaintances on confidence and trust in the virtual community is minimal, if any. The second exogenic variable, however, is completely different. The *LISREL*-interpretation reveals a strong influence of the norms factor on the social trust construct (+0.86). Thus a specific value system is required that can be traced back to the entire virtual community, and which in turn raises trust in all its members. Norms and social trust are the main components of social capital within the virtual community studied. The results of hypothesis testing therefore indicate a temporary rejection of hypothesis $H_4$ and a confirmation of hypothesis $H_5$. Hypotheses $H_1$, $H_2$ and $H_3$ can be rejected, which is in line with previous studies of the interaction of the satisfaction, trust, and commitment constructs although the direct impact on the commitment construct is comparatively low.

With a view to the potential influence of virtual communities on the relevant factors determining long-term customer relations, we also studied the extent to which this trust has a positive effect on the satisfaction, trust, and commitment constructs in the business relationship. The relationship of trust among members does not have any effect on the trust between provider and customer (+0.05). Thus no direct influence can be proved between the two trust constructs, and hypothesis $H_7$ has to be rejected.

However, trust placed in the virtual community does markedly increase customer satisfaction (+0.75%). This construct serves as an interface between social trust and the latent variable of customer retention. This observation is also reflected in indirect effects. The strong influence of the social trust construct on customer satisfaction results in a total effect of 0.63 for commitment and 0.7 for customer trust. Hypotheses $H_{6a}$, $H_{6b}$ and $H_{6c}$ cannot be disproved when indirect effects are included.

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## 4 Recommended action

### 4.1 Implications for marketing research

This study reveals that virtual communities can be a useful tool for establishing long-term customer relations. But before we refer to implications for the management, let us first mention some restrictions resulting from this study.

Although we can assume that latent variables were successfully operationalized, the abstract nature of the constructs requires ongoing research to check their validity and reliability. In particular, a comprehensive poll is needed that includes various embodiments of virtual communities. This first of all raises the question to what extent the respective product or service is suitable for setting up a community. On the whole, the posited model is capable of providing full explanations to a limited extent only.

Considering the various developmental stages of virtual communities may reveal additional information. These result from a strategy to establish an online community. It appears to be useful to observe this phenomenon in detail over a longer period of time. This approach also allows early detection of changes within the community and to draw conclusions on the acceptance of new communication tools.

### 4.2 Guidelines for managerial practice

The findings of this theoretical and empirical study provide a comprehensive basis from which recommendations on how to design a virtual community can be derived. The analysis supports the assumption that these communities provide social capital in the form of trust, norms, and personal networks. The first two constructs are particularly significant because norms increase trust placed in the community, and the latter construct in turn has a positive effect on relevant factors determining the establishment of long-term customer relations, first of all, on customer satisfaction. This exploratory study proved once again the interconnection of satisfaction, commitment, and trust that

has been the subject of many other studies. We can assume based on our observations that virtual communities promote an existing business relationship or establish such a relationship between a manufacturer and a consumer.

This means for management practice that social norms, a prerequisite for establishing and maintaining virtual communities, should be actively supported. This requires a structure that enables committed and cooperative employees to exchange informative contributions. Email, chats and web sites were named by our respondents as the most important means of communication. In addition, focused application of positive and negative incentives appears to be a useful measure to enhance active participation.

The hosts of such communities also play an important part in setting up a relationship between a supplier and a buyer. These hosts should be chosen from among the members and have some social competence. Thus a supplier has to identify lead users or opinion leaders by means of various methods of profiling that give an enterprise access to other buyers of a customer segment.

The very low effect of network quality on the social trust construct is probably due to the open structure of the community under review. In addition, the *Puschkin* community does not have any explicit focus of interest. This entails that a relationship of trust among members is not immediately projected onto the entire community or a supplier or service provider. Thus any supplier must try to find a bridge between the product to be marketed and the members' interests.

One way to do this is to apply automatic collaborative filtering that forms user clusters based on similar preference profiles. Knowing the members' fields of interest enables a provider to promote the development of subcommunities that are assigned to a host. New members should be given an opportunity to select their areas of interest. For example, members could be asked to assign their guest book or web site to an area of interest.

Let us conclude saying that virtual communities are sensitive social networks. They need the kind of management that is constantly aware of the members' needs and readily responds to structural change within the community.

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## Figures and tables

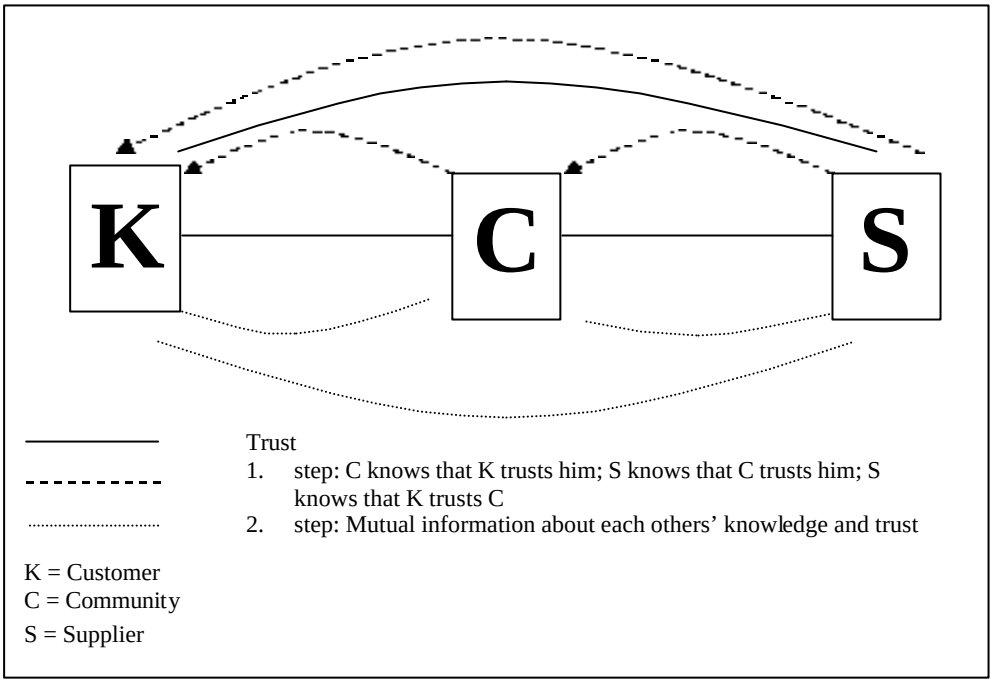



Fig. 1: Model of a mediated relationship of trust

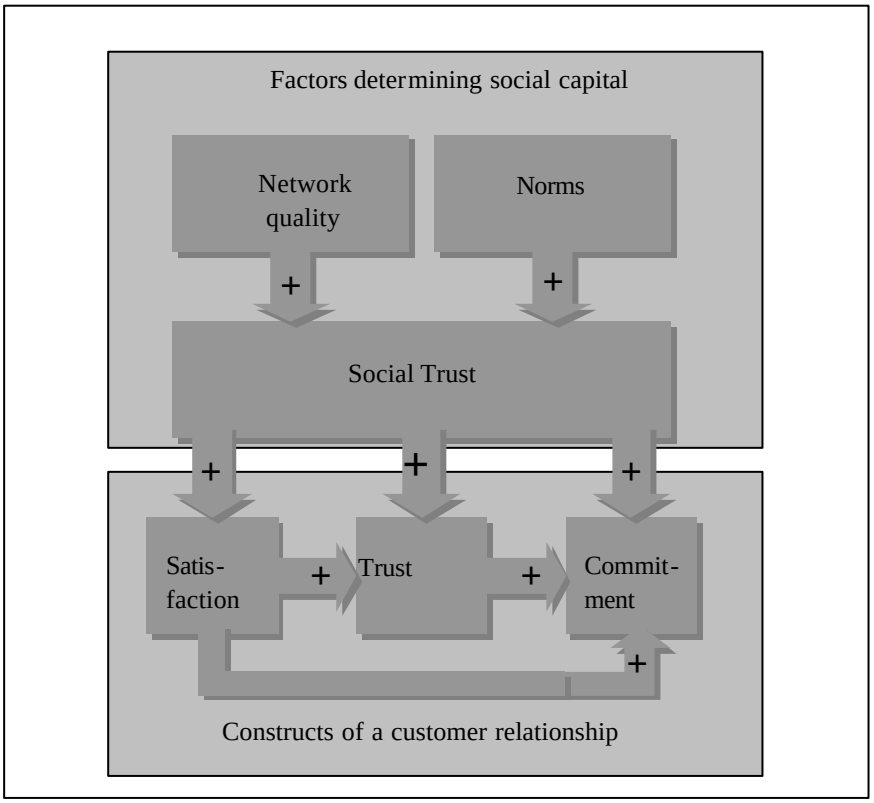
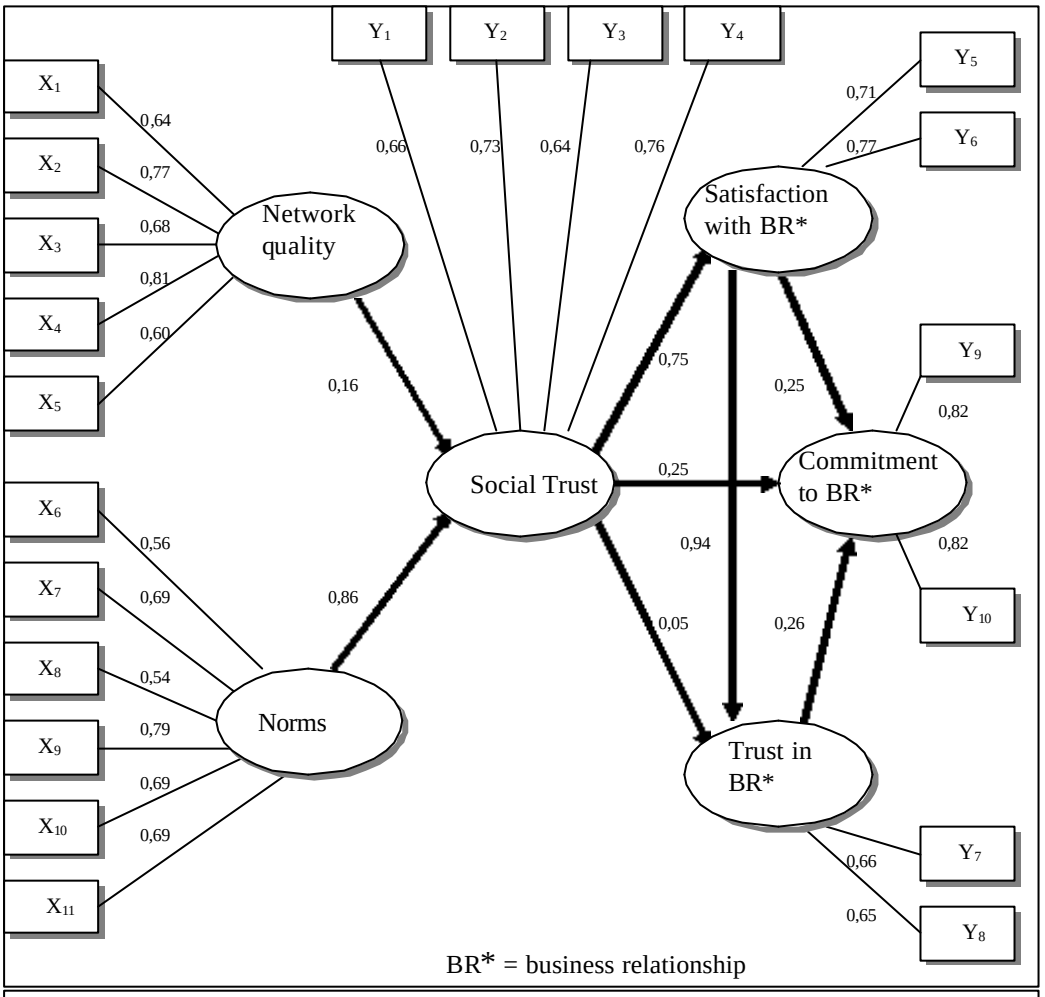



Fig. 2: Frame of reference for the influence of virtual communities on customer retention




Notes:

$X_1$: Know many members
$X_2$: Bond with others
$X_3$: Long-term contact
$X_4$: Feel as part of the community
$X_5$: Contact with many members
$X_6$: Rules of behavior
$X_7$: Friendly conduct
$X_8$: Members' willingness to respond
$X_9$: Members' informative contributions
$X_{10}$: Members' helpfulness
$X_{11}$: Cooperation among members

$Y_1$: Trust that members' information is reliable
$Y_2$: Trust in content
$Y_3$: We-feeling
$Y_4$: Trust in contributions
$Y_5$: Satisfaction with product/ service
$Y_6$: Confidencde in services
$Y_7$: Trust in supplier's information
$Y_8$: Supplier's credibility
$Y_9$: Identification with supplier
$Y_{10}$: Bond with supplier

Fig. 3: *LISREL* model to explain the effect of factors determining social capital on principal constructs of a customer relationship

| Construct | Indicators |
|---|---|
| **Quality of the social network**<br><br>**(Network quality)** | • Know many members<br>• Feeling a bond with other members<br>• Long-term contact<br>• Feeling oneself as part of the community<br>• Offline acquaintances<br>• Homogeneous network<br>• Equality of members<br>• Attendance at members' meetings<br>• Contact to many members |
| **Norms** | • Rules of behavior<br>• Friendly conduct<br>• Members' willingness to respond<br>• Informative contributions by members<br>• Flaming<br>• Members' helpfulness<br>• Cooperation among members<br>• *Lurking* |
| **Trust placed in the virtual community**<br><br>**(Social trust)** | • Trust that members' information is reliable<br>• Trust in the community's content<br>• Trust in member contributions<br>• We-feeling |

Table 1: Original set of indicators for measuring the constructs of social capital

| Construct | Indicators |
|---|---|
| **Satisfaction** | • Satisfaction with product/service<br>• Confidence in services |
| **Trust** | • Trust in information provided by supplier<br>• Supplier's credibility |
| **Commitment** | • Identification with the supplier<br>• Bond with the supplier |

Table 2: Indicators for measuring the constructs of a customer relationship

| | Indicators | Factor loading | Indicator reliability (>0.4) |
|---|---|---|---|
| **Network quality** | Know many members | 0,72 | *0,52* |
| | Feeling a bond with other members | 0,75 | *0,56* |
| | Long-term contact | 0,73 | *0,53* |
| | Feeling oneself as part of the community | 0,71 | *0,50* |
| | Contact to many members | 0,61 | 0,37 |
| | **Reliability of construct (>0.6):** | | *0,83* |
| | **Average explained variance portion (>0.5):** | | 0,45 |
| | **Convergence validity $M^2$ (>0.4):** | | 0,38 |
| **Norms** | Rules of behavior | 0,59 | 0,35 |
| | Friendly conduct | 0,79 | *0,62* |
| | Members' willingness to respond | 0,50 | 0,25 |
| | Informative contributions by members | 0,68 | *0,46* |
| | Members' helpfulness | 0,70 | *0,49* |
| | Cooperative members | 0,71 | *0,50* |
| | **Reliability of construct (>0.6):** | | *0,83* |
| | **Average explained variance portion (>0.5):** | | 0,45 |
| | **Convergence validity (>0.4):** | | 0,38 |
| **Social trust** | Trust that members' information is reliable | 0,70 | *0,49* |
| | Trust in the community's content | 0,67 | *0,45* |
| | We-feeling | 0,53 | 0,28 |
| | Trust in member contributions | 0,84 | *0,70* |
| | Reliability of construct (>0.6): | | *0,78* |
| | **Average explained variance portion (>0.5):** | | 0,48 |
| | **Convergence validity (>0.4):** | | 0,38 |

Table 3: Results of the confirmatory factor analysis for checking reliability and validity of the constructs of social capital

| | | | |
|---|---|---|---|
| **Global measures** | GFI | (>0,9) | *0,964* |
| | AGFI | (>0,9) | *0,954* |
| | RMR | (<0,1) | *0,10* |
| | NFI | (>0,9) | *0,94* |
| | CFI | (>0,9) | *0,99* |

Table 4: Global measures of the LISREL model

| | | | Indicators | Factor loading | Indicator reliability (>0.4) |
|---|---|---|---|---|---|
| Partial measures | Social capital | Network quality | Know many members | 0,64 | *0,41* |
| | | | Feeling a bond with other members | 0,77 | *0,59* |
| | | | Long-term contact | 0,68 | *0,46* |
| | | | Feeling oneself as part of the community | 0,81 | *0,66* |
| | | | Contact to many members | 0,60 | 0,36 |
| | | | **Reliability of construct (>0.6):** | | *0,83* |
| | | | **Average explained variance portion (>0.5):** | | *0,50* |
| | | Norms | Rules of behavior | 0,56 | 0,31 |
| | | | Friendly conduct | 0,69 | *0,48* |
| | | | Members' willingness to respond | 0,54 | 0,29 |
| | | | Informative contributions by members | 0,79 | *0,62* |
| | | | Members' helpfulness | 0,69 | *0,48* |
| | | | Cooperative members | 0,69 | *0,48* |
| | | | **Reliability of construct (>0.6):** | | *0,82* |
| | | | **Average explained variance portion (>0.5):** | | 0,44 |
| | | Social trust | Trust that members' information is reliable | 0,66 | *0,44* |
| | | | Trust in the community's content | 0,73 | *0,53* |
| | | | We-feeling | 0,64 | *0,41* |
| | | | Trust in member contributions | 0,76 | *0,58* |
| | | | **Reliability of construct (>0.6):** | | *0,79* |
| | | | **Average explained variance portion (>0.5):** | | 0,49 |
| | Customer relationship | Satisfaction | Satisfaction with product/services | 0,71 | *0,50* |
| | | | Confidence in services | 0,77 | *0,59* |
| | | | **Reliability of construct (>0.6):** | | *0,71* |
| | | | **Average explained variance portion (>0.5):** | | *0,55* |
| | | Trust | Trust in supplier information | 0,65 | *0,42* |
| | | | Supplier's credibility | 0,66 | *0,44* |
| | | | **Reliability of construct (>0.6):** | | *0,6* |
| | | | **Average explained variance portion (>0.5):** | | 0,43 |
| | | Commitment | Identification with the supplier | 0,82 | *0,67* |
| | | | Bond with the supplier | 0,82 | *0,67* |
| | | | **Reliability of construct (>0.6):** | | *0,8* |

| | | |
|---|---|---|
| | **Average explained variance portion (>0.5):** | *0,6* |
| | **Convergence validity (>0.4):** | 0,38 |
| Note: Quality measures printed in italics meet the required reference value | | |

Table 5: Local quality measures of the LISREL model