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Social Media in B2B Financial Services: A Matter of Trust and Responsiveness?

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Abstract

This study explores satisfaction with Virtual Communities in a Financial Services setting. It presents an empirical exploration that seeks to explain how external variables, such as information quality and system quality of a VC, affect beliefs, such asusefulness, ease of use, responsiveness, and trust, which in turn shape satisfaction. As such, it contributes to the growing body of knowledge on Social Media, in particular addressing the relatively unexplored domain of Business-to-Business (B2B) when individuals act on behalf of a company instead of their own interests.

Keywords: Social Media, Business to Business, Financial Services, Adoption, Trust

1 Introduction

After the collapse of Lehmann Brothers in the USA in 2008, the eruption of the Euro-crisis in Europe as well as the consequences of the resulting global recession, Financial Institutions see themselves confronted with intensified regulatory requirements on their required liquidity positions, making capital scarcer than ever. At the same time, international standardization of payment systems, most notably the Single Euro Payments Area (SEPA), will diminish geographical constraints and enable (large) corporate clients to source their banking services from a few international banks instead of a wide range of local banks.

The result of these developments mean that banks have to find ways to improve their liquidity positions on one hand while reducing their risk exposure and their operational cost base on the other. Client satisfaction and keeping long-term partnerships is therefore key for commercial banks today and is being recognized as such in the industry, both in the consumer and the corporate arenas1.

In the same time-frame, the term 'Social Media' has become a common-used term and found its way into board room discussions. Social media can be seen as online platforms, which are used by individuals to share, create, and discuss insights, experiences, and opinions with one another (Kietzmann et al. 2011). The need and ability to share information globally, become increasingly more present to everyone (Smith 2010). One thing all social media have in common is co-creating value by mixing technology with social interaction. (Di Gangi et al. 2009).

Under growing pressure to expand in an increasingly competitive global marketplace, companies explore the opportunities of new business and sense there is an untapped potential offered by social media and the communities it cultivates (Kaplan et al. 2010). In a Business-to-Consumer (B2C) setting, engagement in these communities is rapidly emerging. Companies service and market their customers via Twitter (Bulearca 2010), employ Facebook for brand imaging (Schaffer 2009) and set up community forums that allow for product innovation (Füller et al. 2006). If social media in general and virtual communities (VCs) in particular can indeed be used to improve the relationship between a company and its customers, could this be an important contributor to client-satisfaction and improved (long-term) relationships in B2B Financial Services as well?

The majority of studies on relationship marketing are in a B2B relationship context (e.g. Morgan et al., 1994). This does add credibility to the view that networks of inter-organizational relationships that are supported by technology could also be conceptualized as Virtual Communities (VCs) (Porter 2004). Porter recognizes that communities aggregate individuals and business partners. However, past research studying the commercial potential of VCs focused mostly on the individual, e.g., B2C perspective (Kozinets 1999; Rothaermel et al. 2001; Kardaras et al. 2003). Empirical studies on the use of B2B-VCs are scarce (Li 2004).

The underlying assumption is that Financial Service providers who offer and/or participate in a VC that is used and liked by their professional customers will also experience a positive influence on the overall customer satisfaction with their company, which in turn will positively contribute to a long-term relationship. Initial evidence does

1 Banks refer to "Retail Banking" when servicing consumers and SMEs, and "Commercial Banking" when referring to servicing (large) corporate clients and financial institutions.

suggest that the development of stronger relationships and interactions between entities are general objectives of virtual communities which are similar for a business customer and/or partner context to that of the individual consumer context (Cothrel 2000). Unfortunately, at this stage experiences with virtual communities in B2B Financial Services are very limited and longitudinal studies are (yet) impossible.

Our main research question is therefore: "What are the determinants of member satisfaction of a Business-to-Business Virtual Community of financial services professionals?". In particular, we are interested in the role that trust and perceived responsiveness play in satisfaction of B2B VC members. We will assume that a high level of overall perceived service quality influences satisfaction through trust, responsiveness, usefulness and ease of use. This study then draws on theory of human acceptance of technology (i.e., VC) and system and information characteristics that explain enhanced usage.

The outline of this paper is as follows. The next chapter presents the theoretical framework by explaining the potential of VCs in general as well as some specific characteristics of B2B services (versus B2C). We then delineate models from two main IS research streams, technology acceptance and user satisfaction. Based on these theoretical foundations, the research question, model and hypotheses are presented. We then discuss the research methodology and we present the results and interpretation of the analysis. We conclude with a discussion on the scientific and practical relevance, the limitations of the study and further research interests.

2 Literature review

In this section we will discuss the key concepts from literature and how we apply them to develop our theoretical model.

2.1 Business-to-Business relations in Financial Services

Hennig-Thurau et al. (1997) state that the exchange of services is the fundamental feature of a B2B relationship. A basic activity supporting these long-term B2B exchanges is the sharing of information (Boyd et al. 2004). For instance, qualified professionals providing services acquired from organizations interact closely and frequently with managers from the receiving organization (Hausman 2003). These extended and intimate exchanges among professionals are essential for achieving successful outcomes, since the expertise and skills determine the quality of the service provided (Yorke 1990).

The development of a profitable and long-term relationship is a primary goal in a B2B environment (Achrol 1996). In addition, personal relationships can contribute to satisfaction with the service, even when technical performance may not be up to standard (Ennew et al., 1999). When considering satisfaction of a B2B client, it is necessary to evaluate the satisfaction of the different constituents of the organization (Parasuraman et al. 1988). Even though the individual members are guided by the organizations objectives, they have their own motivations and evaluate the quality and performance of the service according to their own reference standards.

With satisfaction playing such a vital role in customer loyalty and long-term relationships on one hand and the role of individual motivations on the other, our belief

is that social media in general, and VCs in particular, can play an important role for financial institutions. After defining the VC concept more precisely, we will investigate how customer satisfaction can be influenced by the use of a VC.

2.2 Virtual Communities

Web 2.0 technologies serve the human need for social connectedness, information and knowledge (Jang et al. 2008) and have brought about new channels of communication and participation (Valtakoski et al. 2010). Kaplan et al. (2010) have studied social media and provided a classification among different types of social media. According to them, concepts such as weblogs, social networking sites, and (virtual) communities existed long ago before the term 'social media' gained popularity. These are the early ancestors of today's social media applications and have led to the era of social media, as we understand it today (Kaplan et al. 2010). The continuous development of information technology and use of the Internet, has led to the unprecedented emergence of VCs (Johnson et al. 2010).

The first VCs tended to focus on members' social interests, however more recent VCs focus on commercial interests (Kannan et al. 2000). The most-cited definition of a VC is by Rheingold (1993), which includes the terms "social aggregation and personal relationships" (p. 3). Referring to traditional, offline communities, this and other definitions put more emphasize on their social nature and describe a VC as a gathering of individuals that share social interaction and ties. Individuals share common interests and practices and communicate in an organized way (Ridings et al. 2002). In a VC however, the communication processes are facilitated by technology, such as the Internet, and lack face-to-face contact (Yoo et al. 2001).

Barnatt (1998) claims that VCs "allow a wide range of global individuals to argue, share information, make friends, and undertake economic exchanges, in a flexible and socially-compelling common on-line arena". Their definition also takes into account the notion of value creation and sees communities as potential business models, since members that exchange valuable information and knowledge are in fact generating value. A VC allows businesses to interact with users and to form a new business communication channel. It provides an effective way of retaining or expanding a potential customer base since the geographical reach is increased (Armstrong et al. 1996). Another potential business opportunity comes from the possibility of informing potential customers about products and services. However, not only the company supplies customers with this information, existing users contribute and interact and become collaborators in value creation (Prahalad et al. 2004).

Therefore, we define a "business-to-business virtual community (B2B-VC)" as an aggregation of social relationships, based on Internet technology, where users communicate and develop connections to support their professional goals. In B2B-VCs these professional goals are pursued by individuals representing their company, by meeting people of the same profession, interacting on business-related issues, and carrying out transactions (Hummel et al., 2002).

2.3 Satisfaction

Studies have shown that satisfaction affects determinants of customer loyalty and the potential development of a long-term relationship (Ganesan 1994; Mittal et al. 2001). In this context, satisfaction relates to a positive affective state that follows from the

evaluation of the overall features of a business relationship with another business (Geyskens et al. 2000). It is a main element of the long-term relationship between provider and customer.

A deeper focus on the motivations of people joining VCs is needed to better understand the consequences thereof on their satisfaction within the professional relationship in general. Ridings et al. (2004) have identified three reasons why people join VCs: information exchange, social support and friendship were the key reasons for joining. Information exchange and social support were key in professional communities, while friendship is more relevant for personal interest and recreation oriented communities. Lin (2008b) empirically validated three measures of user satisfaction in a VC: social interaction, adequacy of the information content for user needs, and overall user satisfaction.

Hence, we suggest that the success of a *B2B*-VC depends on the overall satisfaction of professionals interacting and exchanging ideas, knowledge, contacts etc. The quality of the exchange and service is expected to influence users' beliefs of the VC, which in turn determines the overall perceived service quality outcome. The antecedents of this outcome are likely to be specific aspects, such as complete and easily accessible information, that create user perceptions of the presence of these characteristics, resulting in an assessment of the overall service quality. Influencing these dimensions as perceived by the corporate customer is expected to impact the overall quality outcome and therefore offers the provider of the service the means to develop B2B relationship satisfaction.

2.4 Trust

Since we are investigating B2B-VCs where achieving professional goals are the key driver to participate, there is a distinct possibility of opportunistic behavior between the different parties (Moorman et al. 1992; Fukuyama 1995). When members of the community experience such behavior, chances are that it impacts the trust between the affected members, other members as well as the provider of the community. Conversely, when members trust each other as well as the facilitator of the B2B-VC, they will consider the risk of opportunistic behavior low and will more enthusiastically participate in the interactions. As such, trust is proven to be of great importance in the B2B arena (Doney et al. 2007).

Trust can be viewed from a rational or social perspective (Jarvenpaa et al. 1998). The rational perspective focuses on the calculus of self-interest, while the social perspective focuses on the moral duty. They present an overview of trust concepts and the different approaches of defining trust in literature. From the rational perspective, trust has been studied as individual personality difference (Frost et al. 1978), as phenomenon (Lewis et al. 1985; Walther 1994), as cross cultural issue (Farris et al. 1973) and mostly in terms of interpersonal relationships (Morton 1958; Mayer et al. 1995).

This study adapts a rational perspective and studies trust in terms of interpersonal relationships between professionals participating in a B2B-VC. This view is supported by Ridings et al. (2002), who argue that trust in VCs can be understood in the context of interpersonal relationships, i.e. trust between people (Rotter 1971). This concept is also defined by Luhmann (1988) as personal trust. Similarly, Zaheer et al. (1998), studied trust and inter-organizational trust in the context of interpersonal trust. Interpersonal

trust concept has been also studied in entities such as virtual groups in the study by Jarvenpaa et al. (1998).

Trust is proven to be a multidimensional construct (Blau 1964; Giffin 1967; Butler 1991; Mayer et al. 1995; Ridings et al. 2002). A vast amount of literature argues that ability, benevolence, and integrity are the major dimensions of trust (Mayer et al. 1995; Jarvenpaa et al. 1998; Ridings et al. 2002). Ability is defined as the "skills or competencies that enable an individual to have influence in a certain area" and benevolence is "the expectation that others will have a positive orientation or a desire to do good" (Ridings et al. 2002).

Interestingly, the concepts of ability, benevolence, and integrity have often been proven to be interconnected concepts (Crosby et al. 1990; Ganesan 1994). According to Ridings et al. (2002), integrity and benevolence may mean the same thing in an online context. This is explained because integrity and benevolence in the VC context, may lead to the same behavior, since benevolent behaviors expected in the community, seem closely aligned with the notions of integrity (Ridings et al. 2002). Consistent with them, we conceptualize the concept of trust as a set of beliefs among two dimensions; ability on the one hand and the two dimensions of benevolence and integrity combined on the other. The combined dimension of benevolence/integrity will further on be addressed as trust in others' benevolence.

2.5 Perceived responsiveness

In contrast with "regular" information systems where the content and quality is fully determined by the organization(s) running the systems, the success of VCs to a high extent depends on their users to produce the right quality and content. In a B2B setting, this becomes even more important given the fact that users are trying to achieve a professional goal by joining and interacting in the community. We classify the willingness of community members to actively help each other with relevant and timely information as the "responsiveness" of the (B2B) VC, combining the definitions by Ridings et al. (2002) and the timeliness aspect from Lee (1995).

Responsiveness also has an impact on trust, in particular timely communication (Moorman et al., 1993) and repeated communication (Morgan et al. 1994). Furthermore, responsiveness can drive trust by behaving according to accepted social rules. Responsiveness is expected to positively influence trust in others' benevolence because behaving according to accepted social rules can indicate trustful beliefs. If others respond quickly and often, it may be that they have the skills and competencies to be able to exchange accurate and helpful information, thereby building trust in other's ability (Ridings et al. 2002).

2.6 Perceived Usefulness and Perceived Ease of Use

The TAM explains acceptance of technology with relationships between beliefs, attitudes, intention and behaviors. The original TAM studies the mediating role of perceived usefulness and perceived ease of use between system characteristics (external variables) and attitudes towards information systems (Lu et al. 2005). Davis (1989) argues that perceived usefulness and perceived ease of use represent beliefs that determine the attitude towards an information system.

While we adopt the classic definitions of the key constructs in TAM, the next section will discuss how we have adopted the model to include the "trust" and "perceived responsiveness" concepts and their influence on "satisfaction" in a B2B-VC.

2.7 Information Quality and System Quality

VCs are information systems and the quality of the VC is expected to play a role in the satisfaction that users will have. Following other studies in IT adoption, we distinguish between information quality and system quality. In the context of this study, information quality measures VC output, which is the content. The information quality of a VC includes: accuracy, completeness, timeliness, and the presentation's format of the content (Lin et al., 2006). System quality represents the quality of the information system processing itself and it is a measure of the extent to which the system is technically sound (Gorla et al., 2010). For our actual conceptualization of information quality and system quality, we follow the approach of Lin et al. (2007), who use these constructs in the context of VCs.

Table 1 summarizes the main sources on which the development of our theoretical model was based.

Construct	**Source**
Satisfaction	Lin (2008a)
Perceived Usefulness	Davis (1989)
Perceived Ease of Use	Davis (1989)
Trust	Gefen et. Al. (2003)
Perceived Responsiveness	Ridings et al. (2002)
Information Quality	Lin et al. (2007)
System Quality	Lin et al. (2007)

Table 1: Summary of constructs and literature source

3 Hypothesis development

In this section we will address the development of our hypothesis, connecting our key concepts information- and system quality to satisfaction with the VC via the trust and perceived usefulness, - ease of use and – responsiveness constructs.

3.1 Positioning satisfaction within the key constructs of TAM

Lin (2008b) has studied satisfaction within VCs and argues that satisfaction is eventually an attitude towards VCs. This view is also supported by Al-Gahtani et al. (1999) who conceptualize satisfaction as the affective reactions of individuals and thus as an attitude. Moreover, in the online environment, satisfaction as an attitude is significantly of higher importance, rather than in traditional information systems (Moore et al. 1991).

We therefore consider "satisfaction" the resulting attitude in the context of TAM in a comparable way to Verhagen et al. (2011) and will now discuss the relationship with the other key elements, perceived usefulness and perceived ease of use. A vast amount of

previous studies did indicate a direct effect of these constructs on satisfaction, although not specifically in a B2B-VC (Mahmood et al. 2000; Adamson et al. 2003; Liu et al. 2006; Lin 2008a; Kamel et al. 2009; Shih-Chih et al. 2009).

As discussed before, information exchange and social interaction are the most popular reason for joining a VC. Lin (2008b) suggests that satisfaction in VCs mainly entails covering information and social needs. The community's perceived usefulness therefore refers to the degree in which users believe that the VC will improve the exchange of information and believe that the VC will enable them to socialize through obtaining expected services and sharing experiences with others (Lin, 2007,2008b). Conversely, perceived ease of use indicates "whether the user found the VC easy to operate". It is important to prevent a useful system remaining under-used, due to the fact that users need a lot of effort on learning how to operate the VC (Lin, 2007).

Perceived usefulness of the VC is expected to have a positive effect on users' satisfaction, because satisfaction generally measures users' assessments or experiences (DeLone et al. 1992). When users perceive the VC as useful, it is expected that these measurements will be positive, having a positive influence on satisfaction.

An easy to learn and operate VC is expected to improve satisfaction because users will not need to spend significant effort on learning or operating the VC (Lin 2007). Perceived ease of use is therefore expected to have a positive effect on satisfaction because ease of use will in turn lead to exploration of the different features from the users (Teo et al. 1999). Users that explore the different features of the VC are expected to interact more and to exchange more information and thereby improve satisfaction. We thus hypothesize:

H1: Perceived usefulness positively affects satisfaction in the VC. H2: Perceived ease of use positively affects satisfaction in the VC.

In previous studies, perceived ease of use has been proven to have a positive effect on perceived usefulness (Teo et al. 1999; Chuan-Chuan Lin et al. 2000; Gefen et al. 2000; Moon et al. 2001; Chen et al. 2002; Lin 2007; Lin 2008a). If users need to spent significant effort on understanding and operating the VC, they won't perceive the VC useful (Lin 2007). On the other hand, an easy to use and understand community will lead to exploration of the different features from the users, thereby increasing perceived usefulness (Teo et al. 1999).

H3: Perceived ease of use positively affects perceived usefulness in the VC

DeLone et al. (1992; 2003) found that information- and system quality, as external components of TAM, affect the use or intention to use dimension and as a result of that usage, certain benefits will be achieved. User satisfaction results from the quality of system and information design characteristics and thus provides an explanation for long-term success. Wixom et al. identified 4 information quality dimenions and 5 system quality dimensions based on this work (2005), which were applied in to a VC setting by Lin (2007).

The information quality of a VC entails accuracy, completeness, timeliness, and the presentation's format of the content (Lin et al. 2006). In a VC, higher quality of information is expected to result in a greater perceived usefulness. However, higher quality of information does not contribute to the degree of ease of use perceived by the

user (Chuan-Chuan Lin et al. 2000). Information quality has been linked with usefulness in a B2B context by arguing that the information is useful only if the user considers the quality of the information acceptable (Perkowitz et al. 1999).

System quality in a VC represents the quality of the information system processing itself and is a measure of the extent to which the system is technically sound (Gorla et al. 2010) and the customers' perceptions of a system's performance in information retrieval, response time and delivery (Yang et al. 2005). Higher system quality may support the interaction and information exchange better by providing more effective technological properties and as such has a positive effect on perceived usefulness (Lin 2007). It is also expected to have an effect on ease of use, because higher system quality has been proven to make the interaction with the user smoother, leading to a higher perceived ease of use (Eighmey, 1997). Therefore:

H4: Information quality positively affects perceived usefulness in the VC. H5: System quality positively affects perceived usefulness in the VC.

H6: System quality positively affects perceived ease of use in the VC.

3.2 Positioning Trust

This study follows the research stream that conceptualizes trust as a set of general beliefs. This conceptualization is analogous to prior research studying trust in a business-to business context or business relationships (Schurr et al. 1985; Crosby et al. 1990; Ganesan 1994; Doney et al. 1997; Jarvenpaa et al. 2000; Gefen 2002). The connections between trust and TAM have been widely discussed in literature and there are many studies that have established relationships between trust and TAM model (Gefen et al. 2003; Pavlou 2003; Saeed et al. 2003; Wu et al. 2005). In particular, a model of trust and TAM is well defined in online setting (Gefen et al. 2003). Finally, according to Pavlou (2003) there is a theoretical and empirical support for integrating trust with TAM variables. We will now hypothesize how perceived usefulness and perceived ease of use interact with trust.

The usefulness of a technology depends on both the effectiveness of its relevant technological properties (Koh et al. 2007), and on the level of service delivered to the users of the technology (Hagel et al. 1997). When there is initially trust, users will believe the online service is useful (Gefen et al. 2003). Trust is recognized to have positive effect on perceived usefulness, since it ensures users that they will gain the expected useful information, interaction and service (Pavlou 2003). The belief in the ability of other members ensures the expected level of knowledge and information and is expected to have a positive influence on perceived usefulness as a belief which (Koufaris et al. 2004). The belief in others' benevolence is also expected to have a positive effect on perceived usefulness because it will convince users that they will get the expected interaction and service (Lin 2011). This leads us to the following hypotheses:

H7a: Trust in others' ability positively affects perceived usefulness in the VC

H7b: Trust in others' benevolence positively affects perceived usefulness in the VC

Perceived ease of use invites users to make an investment and commitment in a relationship, or conversely, prevent them from showing their ability in case the environment is difficult to operate (Ganesan 1994; Gefen et al. 2003; Lin 2007). Users that are willing to commit and invest in the relationship are expected to build trustful beliefs about others' ability and benevolence. This is explained because users constantly look for cues that will help them develop trustful beliefs such as ability and benevolence (Blau 1964). According to Gefen et al. (2003), some of these cues, in an online context, relate to behavior, while others relate to appearance. Especially the cues that relate to appearance can be provided by an easy to use and understandable environment (Koufaris et al. 2004). A well explained and easy to understand environment can lead to trust, especially in online business settings (Kumar 1996). Thus:

H8a: Perceived ease of use positively affects trust in other's ability in the VC

H8b: Perceived ease of use positively affects trust in others' benevolence in the VC

3.3 Perceived responsiveness

Perceived responsiveness is closely related to timeliness of information, which has been discussed in the communication area (Lee 2005). Fast response to users' request is regarded as timely information (Ridings et al. 2002). Information quality is expected to have a positive effect on perceived responsiveness because exchanging information of high quality may foster the interaction among the users. The purpose of a VC is to provide the technology that enables members to initiate online interaction and information exchange, over certain topics (Lin 2007). In this context, interaction is translated to posting and replying activity, which may be increased by high quality content. The reciprocal sharing of information, entailed in responsiveness concept (Ridings et al. 2004) may be driven by high quality of information because users are expected to participate more actively in the information sharing.

H9: Information quality positively affects perceived responsiveness in the VC.

According to Lin (2007), system quality provides effective means for exchanging information. Responsiveness indicates a willingness to help other community members through exchanging information (Ridings et al. 2002). Since system quality facilitates information exchange through providing more effective means of information sharing, it is expected that a system of high quality will foster interaction, which in this context is translated to posting and replying activity. Therefore, it is expected that system quality will positively influence perceived responsiveness.

H10: System quality positively affects perceived responsiveness in the VC.

In the context of VCs, an individual who posts messages, most often expects some type of response (Ridings et al. 2002). Usually, trust comes from repeated interactions over time (Rousseau et al. 1998). If an individual posts a message and there are no responses, trust in others' ability will not develop. Previous studies have shown that reciprocity in exchange relationships builds trust (Kramer 1999). In a VC setting, there is an information exchange relationship between the users, which is one of the salient motivations for joining one (Lin 2006). Posting and responding to postings is expected to build trust in others' ability (Ridings et al. 2002).

Reliability and dependability are usually needed for trust relationships to develop (Blau 1964; McAllister 1995; Rousseau et al. 1998). When users perceive responsiveness in a

community, they can rely and depend on answering their questions through posting activity from others, thereby developing trust in others' ability (Ridings, Gefen et al. 2002). Responsiveness has been associated with increased perception of cooperative intentions (Gefen et al. 2002). Cooperative intentions may foster trust in others' benevolence as well because trust, as it develops in a relationship, is determined mostly by the nature of the interaction (Gefen 2002).

H11a: Perceived responsiveness positively affects trust in others' ability in the VC.

H11b: Perceived responsiveness positively affects trust in others' benevolence in the VC.

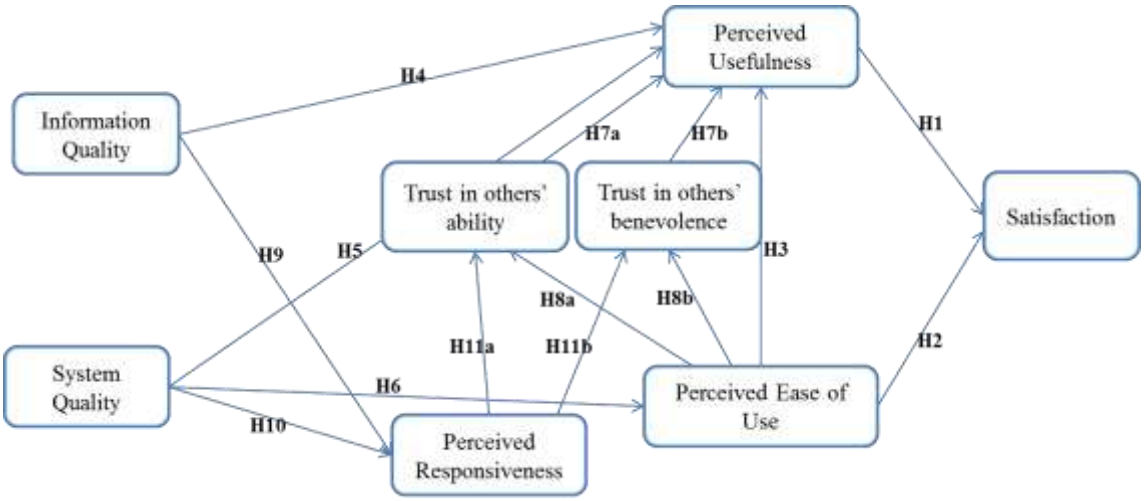

Figure 1: Research model

4 Research Method and Results

4.1 Research design

The focus of the analysis was an award winning B2B-VC in Europe, aimed at the financial services sector. The community[2] has approximately 5,000 members, with an average of 250 active users online every day and 20,000 unique visitors each month. A large financial institution facilitates the community, which is known to the users. The population consists of individuals from international corporates who are considered financial professionals, such as treasurers and cash managers. The central element is the community forum that facilitates exchange of knowledge and practical experience related to a subject area. The members post their thoughts, insights, and comments to specific topics posted by peers, organized in forum threads.

The community comprises of three sections: trade, cash and custody. Within trade, topics are discussed regarding the transactions involved in the financing of international trade, involving credit agencies, insurers, importers, and exporters across borders. The cash section addresses themes around the management of the value of assets, such as bank accounts, marketable securities, bonds and bankers acceptances. Custody focuses

[2] Retrieved online from community website (May 2011); the facilitators of the community have requested that the identity of the community and the company sponsoring it should remain anonymous.

on the area of securities trades, keeping financial assets safe and servicing the associated portfolios. In addition, members can interact through the communities.

Data to test our research model was collected by means of an online survey targeting the members of this VC. The community leader invited 2,600 members who subscribed to the community's newsletters to take the survey via a direct link, as well as an announcement on the central homepage and Facebook and Twitter links. The context in which this announcement took place and the explicit role being played by the community leader should make it evident to the (potential) respondents that they were asked to participate in their professional capacity, although this was not explicitly mentioned in the survey itself. The items in the survey and its measurements scale were developed by adapting only existing validated measures (the full survey is displayed in the Appendix). Halfway through the data collection period, the community leader readdressed the survey to its members. This resulted in a total of 138 completed and usable responses. Calculation of response rate is difficult as the researchers did not have access to data showing how many people viewed the post requesting participation and make a decision not to participate.

4.2 Results of the hypothesis testing

After validation of the measurement model (see details in Appendix) it was possible to proceed to the analysis of the structural model. The hypotheses were tested with Partial Least Squares (PLS) modelling using SmartPLS (Ringle et al. 2005). The resulting model was bootstrapped (500 re-samples) to determine the significance of the paths within the structural model (Tenenhaus et al. 2005). The resulting model after the path analysis is depicted in Figure 2.

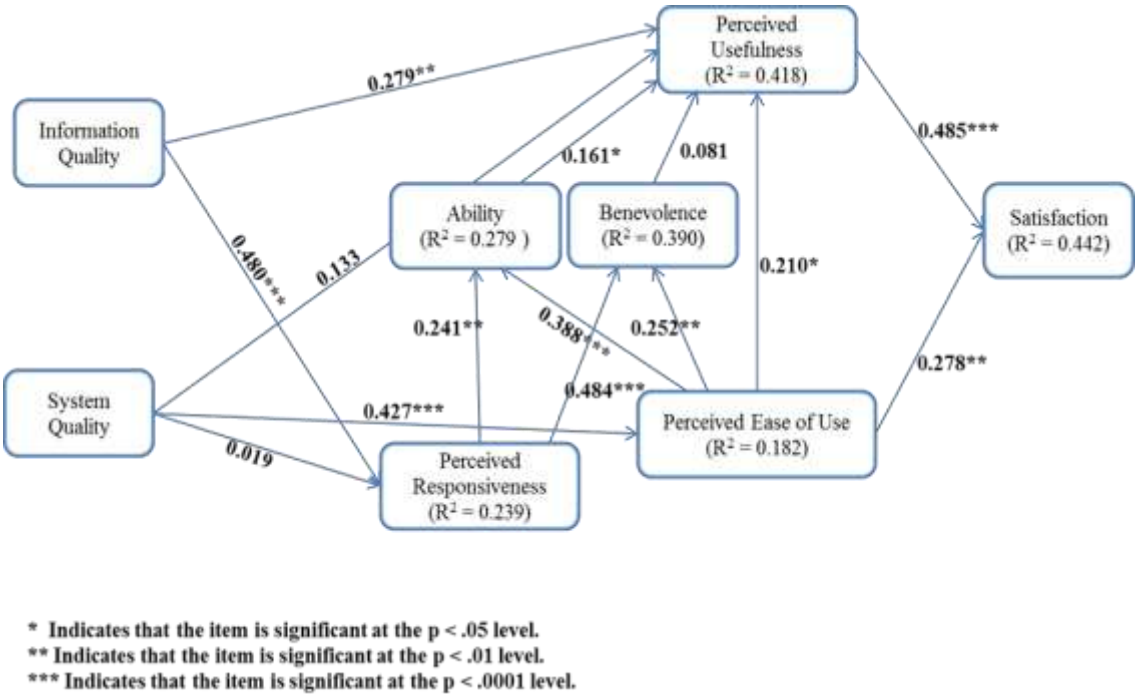

Figure 2: Research model after PLS path modeling analysis

Table 2 provides the summarized results of the hypothesis testing.

Hyp.	Path	β	t-stats	Sign.	Result
1	Perceived usefulness -> Satisfaction	0.485	7.329	< .0001	Supported
2	Perceived ease of use -> Satisfaction	0.278	2.889	< 0.01	Supported
3	Perceived ease of use -> Perceived usefulness	0.210	2.236	< .05	Supported
4	Information quality -> Perceived usefulness	0.279	2.975	< .01	Supported
5	System quality -> Perceived usefulness	0.133	1.692	n.s.	Rejected
6	System quality -> Perceived ease of use	0.427	6.221	< .0001	Supported
7a	Ability -> Perceived usefulness	0.161	1.967	< .05	Supported
7b	Benevolence -> Perceived usefulness	0.081	0.740	n.s.	Rejected
8a	Perceived ease of use -> Ability	0.388	5.304	< .0001	Supported
8b	Perceived ease of use -> Benevolence	0.252	2.625	< .01	Supported
9	Information quality -> Perceived responsiveness	0.480	6.587	< .0001	Supported
10	System quality -> Perceived responsiveness	0.019	0.206	n.s.	Rejected
11a	Perceived responsiveness -> Ability	0.241	3.084	< .01	Supported
11b	Perceived responsiveness -> Benevolence	0.484	6.476	< .0001	Supported

Note: All expected relationships are positive in nature; n.s. refers to non-significant

Table 2: Summary of the hypotheses test results

Initially, the analysis of the measurement model did not confirm reliability and items had to be dropped to achieve acceptability. The results of the initial analysis of the full measurement model are shown in Appendix Tables 2 and 3, presenting the model before and after dropping items respectively. The internal consistency reliability was confirmed since all constructs surpassed the composite reliability threshold of 0.7 (Hair, et al., 1998). Furthermore, all of the loading items in the model were greater than 0.60 confirming reliability of the indicators (Hair, et al., 1998), with most of the above 0.70, which also fits with the stricter criterion by Fornell (1982). The measurement model also showed acceptable convergent validity, since average variance extracted for all latent variables is above the 0.5 threshold.

The cross loadings in Appendix Table 4 confirm discriminant validity for the measurement model. Since the measurement model showed internal consistency reliability, reliability of indicators, and convergent/discriminant validity, it was possible to proceed to the analysis of the structural model.

4.3 Interpretation

This study confirms that perceived usefulness and ease of use have indeed a positive effect on satisfaction in the context of B2B-VCs. It also confirms the positive effect of information quality on perceived usefulness and the expected positive effect of system quality on ease of use. Regarding the role of trust in a B2B-VC context, we can confirm mediating role of "trust in others' ability" in the relationship between perceived ease of use and perceived usefulness. Furthermore, this study's findings indicate a strong effect of perceived ease of use on both dimensions of trust. Finally, perceived responsiveness has shown a positive effect on both trust dimensions.

However, not all hypotheses of this study were supported. In total, three of the hypothesized relationships were rejected:

First, trust in others' benevolence had no significant effect on perceived usefulness and therefore trust in others' benevolence did not mediate the relationship between ease of use and perceived usefulness. An explanation for the not significant effect of trust in others' benevolence on usefulness might be the following. According to Webster (1978), there are differences in the culture and mind-set between different

environments. The priorities and perceptions are also bounded to be different in a B2B context (Gounaris 2005). The findings of this study might indicate that when members of a B2B professional VC form a belief about the usefulness of the community, they give priority to trustful beliefs about others' ability, rather than others' benevolence. Prior research has shown that trust is a prime determinant of what people expect from a situation (Blau 1964). The results of this study indicate that members of a B2B-VC may be mainly expecting others to demonstrate abilities in the fields of discussion, so that they can possibly add to their knowledge.

Second, the hypothesized effect of system quality on perceived usefulness was not confirmed. Although this relationship is supported in prior research of VCs (Lin 2007), we did not find a significant effect of system quality on perceived usefulness. The explanation lies possibly in the nature of B2B context. In this context, the quality of information is the most important factor influencing beliefs regarding usefulness (Chuan-Chuan Lin et al. 2000).

Third, the findings of this study indicate that system quality does not influence perceived responsiveness. Although system quality makes the interaction with the user smoother (Eighmey 1997), according to the results of this study it has no significant effect on responsiveness. A possible explanation of that result might be again in the nature of the B2B-VC context. In this setting, the salient element is the exchange of knowledge, and responsiveness mainly entails the willingness to help other community members through information exchange (Ridings et al. 2002). According to the findings of this study, responsiveness in this context is primarily information quality driven, and a system of high quality cannot significantly influence perceived responsiveness beliefs.

5 Conclusion and discussion

We found that two important factors driving satisfaction in a B2B-VC are information quality and system quality. Information and system quality have a positive effect on satisfaction, through perceived usefulness and perceived ease of use, through perceived responsiveness and through trust in others' ability. However, results suggest that a second dimension of trust, trust in others' benevolence is not a factor that can drive satisfaction, at least not through the examined mediating variables.

5.1 Scientific Implications

The main contribution of this paper is the extension of VC research from the traditional Business-to-Consumer domain into the Business-to-Business domain. In order to do so, we have extended the established technology acceptance models with both trust and perceived responsiveness, while adopting information- and system quality as external factors. The only partial support of the mediating role of trust between perceived ease of use and perceived usefulness, expressed in the different dimensions of trust, is a different finding from other studies of trust in the context of TAM research (Gefen et al. 2003; Pavlou 2003). The difference between B2C and B2B communities might indeed be a key factor in this, in particular the focus on ability versus benevolence in a B2B setting. Another reason why benevolence may be more relevant for B2C communities may lie in the concept of anonymity. Most B2C communities do not provide any guarantees to the identity of the users, making the question of "benevolence" difficult to ignore. In a B2B setting there might still be a question of "benevolence" as to the

intentions of a specific user, but the fact that users are connected to an organization they represent there might be a higher level of intricate trust in the benevolence. This is a topic for further investigation.

The role of "perceived responsiveness" has also shown to be relevant for B2B-VCs. We primarily focused at the impact of perceived responsiveness on the trust factors and did find a significant role. Given the previous discussion on the role of trust in a B2B setting, similar mechanisms might be at work here as well regarding the importance of responsiveness. Given the specific professional goals of joining a B2B community versus a B2C community, the speed of response might play a bigger role in B2B. This however should be researched in more cases to be more conclusive.

The study further contributes to the Wixom et al. (2005) integration model by demonstrating that information and service quality have a significant and positive influence on the usefulness and overall satisfaction of a business-to-business VC.

5.2 Business Implications

The results of this study can be translated into some practical recommendations for B2B-VC operators. It should be noted that the study focused primarily on satisfaction of the users with the community itself, not whether the ulterior motives to set-up the community in the first place have been met.

For instance, there will be a difference between a company who sets up a B2B-VC to boost brand recognition and reputation versus a company who wants to reduce servicing costs by having customers help each other instead of calling a support desk. However, in all cases satisfaction with the community as such will be a key driver in the success of the community.

With this said, the main relevance of the research is the combination of information and system characteristics with trust and (perceived) responsiveness. While our study only showed (within all limitations discussed in the next section) that these factors are important, we can only speculate what measures can be taken to affect these factors.

The most important factor in a B2B setting is trust in each other's ability. The "trust in ability" element as such can be directly influenced by testimonials and/or third party validations of the outcome. Alternatively, the community can consider implementing a scoring system in which the users can evaluate the performance of individual contributors and objectively establish the ability of individual members. The role of a trusted moderator can also be vital here.

Indirectly, "perceived responsiveness" influences both trust elements (albeit a bit stronger on the "benevolence" part). Stimulating fast responses, in particular in sections of the community where users can ask questions and raise issues should benefit the overall satisfaction with the community via the trust and perceived usefulness constructs. This can be supported automatically and objectively by the VC systems that could for instance calculate an average response time by individual members and/or by the community as a whole ("on average it takes x hours to get your answer").

The factors of information quality relate mainly to content-based aspects, while system quality factors relate more to functionality-based aspects. Influencing both these variables impacts the overall satisfaction and therefore offers the provider of the service the means to serve the stakeholders better and develop a satisfactory B2B relationship.

This study suggests that the effect of information quality is stronger than system quality. Again, implementing a peer-review for the content, or having a knowledgeable moderator assess the content will enable the VC organizer to address this issue.

Finally, we have looked into a pioneering environment for the financial services industry. We can imagine that similar principles apply to other B2B communities, in particular where a high level of professional expertise is necessary to be in business. However, this is an area that requires further investigation.

5.3 Limitations and Further Research

In this study, as in every study, there are limitations that need to be addressed. The most obvious limitations are the relatively small sample size and the narrow domain in which the study was conducted. We are aware of this shortcoming, but given the relatively new discussion of the use of Social Media in B2B settings, we feel that there is a need to report such initial findings to further stimulate this research direction.

The fact that the participants have not been explicitly asked in the survey to reply in their professional capacity might have led to a mix of professional and individual responses. However, we feel that the context in which the survey was conducted, the type of questions asked and the use of the formal contact info (typically company email addresses) will have significantly limited this risk.

Furthermore, although antecedents of satisfaction in a VC were identified, other factors may also play an important role in explaining satisfaction in a B2B-VC. For instance, individual differences in the level of education, or in the position and role of the professionals within the company they are working for, may also affect user satisfaction in professional B2B-VC.

Finally, some elements that we would have liked to understand better were not possible within the set-up of this research. In particular, the role of the moderator of the VC and the effect of the explicit sponsorship by a financial institution could not be investigated via the survey research tool. We do recommend this to be further investigated, for instance through a laboratory setting or by making specific alterations to the VCs itself (for instance, having one of the topics with and another without moderation).

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Appendix

Satisfaction (Lin, 2008)	
SAT1	I am satisfied with my interaction with the virtual community
SAT2	The virtual community's information content meets my needs
SAT3	Overall, I am satisfied with the virtual community
Trust in others' ability (Ridings et al., 2002)	
AB1	I feel very confident about the skills that the members in the virtual community have in relation to the topics we discuss
AB2	The members of the virtual community have much knowledge about the subjects we discuss
AB3	The members of the virtual community have specialized capabilities that can add to the discussions
AB4	The members of the virtual community are very well qualified in the topics we discuss
AB5	The members of the virtual community are very capable of performing tasks in the topics we discuss
AB6	The members of the virtual community seem to be successful in the activities they undertake
Trust in others' benevolence (Ridings et al., 2002)	
BI1	The members of the virtual community are very concerned about the ability of people to get along
BI2	The members of the virtual community would not knowingly do anything to disrupt the conversation
BI3	The members of the virtual community are concerned about what is important to others
BI4	The members of the virtual community will do everything within their capabilities to help others
BI5	The members of the virtual community try hard to be fair dealing with one another
BI6	The members of the virtual community do not behave in a consistent manner (reverse coded)
Perceived usefulness (Lin, 2007)	
PU1	Using the virtual community enhances my ability to get information from community members
PU2	Using the virtual community enables me to share knowledge with community members
PU3	Using the virtual community helps satisfy my social needs
PU4	Overall, using the virtual community meets my needs
Perceived ease of use (Lin, 2007)	
PEOU1	Learning how to operate the virtual community is easy for me
PEOU2	My interaction with the virtual community is clear and understandable
PEOU3	It would be easy for me to become skillful at using the virtual community
PEOU4	Overall, using the virtual community is easy for me
Perceived responsiveness (Ridings et al., 2002)	
PR1	The members of the virtual community are very responsive to my posts
PR2	I can always count on getting a lot of responses to my posts
PR3	I can always count on getting responses to my posts fairly quickly

Information Quality (Lin, 2007)	
IQ1	The information provided by the virtual community is accurate
IQ2	The virtual community provides me a complete set of information
IQ3	The information from the virtual community is always up to date
IQ4	The information provided by the virtual community is well formatted
System Quality (Lin, 2007)	
SQ1	The virtual community operates reliable
SQ2	The virtual community allows information to by readily accessible to me
SQ3	It takes too long for the virtual community to respond to my requests (reverse coded)
SQ4	The virtual community can be adapted to meet a variety of needs

Appendix Table 1: Measurement Scales

	Loadings	**Composite**	**AVE**	**Remarks**
Ability				
AB1	0.7026	**0.8720**	**0.5321**	
AB2	0.6880			
AB3	0.7320			
AB4	0.7562			
AB5	0.7610			
AB6	0.7342			
Benevolence				
BI1	0.7826	**0.8230**	**0.4397**	
BI2	0.6506			
BI3	0.6112			*item dropped*
BI4	0.6661			
BI5	0.7006			
BI6	0.5427			*item dropped*
Information quality				
IQ1	0.6617	**0.8232**	**0.5401**	
IQ2	0.7600			
IQ3	0.8319			
IQ4	0.6730			
Perceived ease of use				
PEOU1	0.8466	**0.8514**	**0.5903**	
PEOU2	0.6963			
PEOU3	0.7240			
PEOU4	0.7972			
Perceived responsiveness				
PR1	0.8806	**0.9030**	**0.7564**	
PR2	0.8916			
PR3	0.8359			
Perceived usefulness				
PU1	0.7300	**0.7732**	**0.4758**	
PU2	0.3938			*item dropped*
PU3	0.6922			
PU4	0.8579			
Satisfaction				
SAT1	0.8191	**0.8546**	**0.6621**	
SAT2	0.8275			
SAT3	0.7942			

System quality				
SQ1	0.7463	**0.6637**	**0.3394**	
SQ2	0.5373			*item dropped*
SQ3	0.4233			*item dropped*
SQ4	0.5769			

Appendix Table 2: Measurement model (before dropping items)

	Loadings	**Composite Reliability**	**AVE**
Ability			
AB1	0.6973	**0.8720**	**0.5320**
AB2	0.6841		
AB3	0.7385		
AB4	0.7579		
AB5	0.7596		
AB6	0.7355		
Benevolence			
BI1	0.8081	**0.8230**	**0.5390**
BI2	0.6695		
BI4	0.6672		
BI5	0.7808		
Information quality			
IQ1	0.6607	**0.8231**	**0.5399**
IQ2	0.7624		
IQ3	0.8312		
IQ4	0.6716		
Perceived ease of use			
PEOU1	0.8460	**0.8514**	**0.5904**
PEOU2	0.6940		
PEOU3	0.7273		
PEOU4	0.7970		
Perceived responsiveness			
PR1	0.8815	**0.9030**	**0.7564**
PR2	0.8899		
PR3	0.8368		
Perceived usefulness			
PU1	0.7176	**0.8170**	**0.6004**
PU3	0.7173		
PU4	0.8785		
Satisfaction			
SAT1	0.8239	**0.8545**	**0.6620**
SAT2	0.8220		
SAT3	0.7947		
System quality			
SQ1	0.8235	**0.7695**	**0.6257**
SQ4	0.7572		

Appendix Table 3: Measurement model after dropping items.

	AB	BI	IQ	PEOU	PR	PU	SAT	SQ
PR1	0.384066	0.564957	0.453475	0.375792	***0.881537***	0.485081	0.482949	0.208620
PR2	0.304334	0.522142	0.429226	0.262516	***0.889883***	0.456588	0.476969	0.162291
PR3	0.314668	0.407515	0.385521	0.343109	***0.836752***	0.448182	0.443248	0.253513
AB1	***0.697335***	0.415642	0.311660	0.260213	0.320884	0.316914	0.466674	0.298295
AB2	***0.684145***	0.499399	0.342599	0.351408	0.371570	0.316466	0.453854	0.224847
AB3	***0.738515***	0.324756	0.285363	0.389171	0.194864	0.356942	0.432204	0.309570
AB4	***0.757932***	0.475863	0.399028	0.429543	0.313610	0.444844	0.477353	0.335561
AB5	***0.759626***	0.379819	0.314149	0.289241	0.257637	0.323781	0.474074	0.376178
AB6	***0.735524***	0.340056	0.357200	0.342929	0.228493	0.389098	0.418014	0.436347
BI1	0.399903	***0.808066***	0.410364	0.336914	0.501006	0.365464	0.487175	0.069980
BI2	0.397468	***0.669479***	0.286250	0.176461	0.352613	0.221804	0.347004	0.121994
BI4	0.357701	***0.667215***	0.203818	0.314671	0.383528	0.225143	0.380755	0.200800
BI5	0.490089	***0.780773***	0.321776	0.409892	0.443585	0.353401	0.414889	0.220853
SAT1	0.442528	0.415283	0.376836	0.399329	0.401607	0.560946	***0.823930***	0.403357
SAT2	0.578118	0.439533	0.404806	0.418166	0.398718	0.503020	***0.822004***	0.430769
SAT3	0.502386	0.521139	0.498671	0.431536	0.524554	0.438174	***0.794709***	0.418812
IQ1	0.293602	0.220551	***0.660742***	0.147581	0.284494	0.230737	0.284713	0.381348
IQ2	0.350853	0.315129	***0.762410***	0.172717	0.397184	0.437718	0.418144	0.258187
IQ3	0.332139	0.349047	***0.831188***	0.347325	0.427589	0.483082	0.452553	0.374418
IQ4	0.403982	0.351824	***0.671621***	0.371384	0.294034	0.322552	0.340653	0.358366
SQ1	0.383216	0.160989	0.396940	0.400306	0.160805	0.352134	0.451062	***0.823469***
SQ4	0.329863	0.165214	0.316035	0.266530	0.218413	0.342333	0.354646	***0.757187***
PU1	0.319185	0.237366	0.320142	0.317823	0.314582	***0.717599***	0.379789	0.244340
PU3	0.266944	0.257225	0.359758	0.207162	0.393627	***0.717255***	0.394024	0.225275
PU4	0.512633	0.414398	0.502396	0.517736	0.503730	***0.878476***	0.612060	0.481417
PEOU1	0.408234	0.394399	0.229627	***0.845977***	0.357016	0.335159	0.435460	0.404342
PEOU2	0.311901	0.251609	0.365291	***0.693976***	0.266536	0.451289	0.365177	0.247930
PEOU3	0.420860	0.223346	0.277705	***0.727278***	0.144803	0.370770	0.344031	0.317250
PEOU4	0.330392	0.445771	0.239517	***0.797020***	0.372483	0.330285	0.417873	0.329886

Appendix Table 4: Cross-loadings.