

CODIFICATION OF SOCIAL CAPITAL: THE IMPACT OF ICT

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ABSTRACT

CODIFICATION OF SOCIAL CAPITAL: THE IMPACT OF ICT

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This study aims to investigate the impact of information and communication technologies on social capital. This impact varies not only according to the technologies used but also according to the perception of social capital. Both concepts have wider applications and differentiated areas of implementation. This study evaluates ICT in terms of “knowledge sharing.” Similarly, social capital is taken into consideration in terms of organizational context. Within such a framework, constructs affiliated with these two concepts have been investigated: ICT has been evaluated in two constructs, and dimensions of social capital in eight constructs. By analyzing the relations between these constructs, this study mainly aims to measure the impact of ICT on social capital. In this context, the research shows that communication technologies and social media technologies do have similar as well as varied impacts on dimensions of social capital. The thesis suggests that these impacts stem from the developments in the social elements of ICT. By using these elements harmoniously, users are able to activate knowledge sharing. Variations in these elements are reflected as variations in the dimensions of developed social capital between communities with face-to-face interaction and the ones who have not yet achieved face-to-face interaction. This thesis reveals that the social capital observed in face-to-face interaction can as well be seen online communities.

Keywords: Social capital, Information and Communication Technologies, Social media

Öz

SOSYAL SERMAYENİN ÇÖZÜMLEMESİ: BİLGİ TEKNOLOJİLERİNİN ETKİSİ

Gürsoy, Serkan
Doktora., Bilim ve Teknoloji Politikası Çalışmaları
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Bu çalışma bilgi ve iletişim teknolojilerinin (BİT) sosyal sermaye üzerindeki etkisini araştırmaktadır. Bu etki kullanılan teknoloji türüne göre değişmekle kalmayıp, sosyal sermaye algısına göre de değişebilmektedir. Her iki kavramın da uygulama alanının oldukça geniş olmasından dolayı çalışmada bilgi ve iletişim teknolojileri “bilgi paylaşımı” açısından değerlendirmektedir. Aynı şekilde sosyal sermaye de örgütsel çerçevede ele alınmaktadır. Bu bağlamda her iki kavrama ait yapılar üzerinde çalışılmış, bilgi teknolojileri iki, sosyal sermaye boyutları ise sekiz yapıda ele alınmıştır. Çalışma esas olarak bu yapılar arasındaki ilişkileri inceleyerek bilgi teknolojilerinin sosyal sermaye üzerindeki etkisini ölçmeyi amaçlamaktadır. Bu anlamda, çalışma iletişim teknolojileri ve sosyal medya teknolojilerinin sosyal sermaye boyutları üzerinde benzer etkileri yanı sıra farklı etkilerinin de olduğunu ortaya koymaktadır. Bu etkilerin temelinde, bilgi teknolojilerinin sosyal öğelerinde görülen gelişmeler olduğu düşünülmektedir. Kullanıcılar bu öğeleri harmoni içerisinde kullanarak, bilgi paylaşımını ancak etkin hale getirebilmektedirler. Çevirim-içi toplulukların yüz yüze iletişimi bulunan ve bulunmayan topluluklar olarak iki ayrı bağlamda ele alınması sanal ortamlarda oluşan sosyal sermaye ile doğal ortamlarda oluşan sosyal sermaye kavramını birbirinden ayırmaktadır. Bu tez yüz yüze etkileşimde gözlenen sosyal sermayenin aynı zamanda çevirim-içi topluluklarda da gözlediğini ortaya koymaktadır.

Anahtar Kelimeler: Sosyal Sermaye, Bilgi ve İletişim Teknolojileri, Sosyal Medya



#toMyParents
28.05.2013

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CHAPTER 1

INTRODUCTION

“Social capital may turn out to be a prerequisite for, rather than a consequence of, effective computer mediated communication.”

— Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community*

Social capital has become increasingly critical in a variety of research fields. However, the ideas about social capital can be traced back to classic scholars who considered social capital as empathy and trust getting people together. The concept of social capital has gained its modern form in the 1980s and 1990s with the approaches referring to network ties of goodwill, mutuality, shared norms, trust, and a sense of community that people can derive value from being a member of a society or community (Bourdieu 1985; Coleman 1990; Portes 1998; Putnam 2000; Burt 2001). By being a member, individuals can access community resources that are not available to others because social capital is widely stressed as the resources embedded in social networks for the mutual benefit of parties within the networks. Although the concept of social capital has a much longer existence, it has become a prominent topic of discussion over the last two decades especially because of the rapid improvements in information and communication technologies. Emergence of online communities has become a threat for traditional business practices in the sense of managing, controlling the processes as well as interacting with others without the help of ICT tools. Like every aspect of our daily life, social capital also has to be adapted to the new era of communication. In order to utilize expected benefits for knowledge sharing in an organizational context, traditional dynamics and relations between ICT and Social Capital may need to be renewed in line with the changes in individuals and community.

Although the most of the work on social capital has been grounded on the relationships among individuals in a networked structure, Putnam (1993, 2000) conceptualized it in a level of civic engagement in general. He links the concept of social capital to cities, regions, and whole nations. On this basis, social capital must be understood as the set of properties (i.e. norms, levels of trust, or social networks) associated with a social entity that enables joint activities and cooperation for mutual benefit. In other words, social capital is considered as the glue that holds together social aggregates such as networks of personal relationships, communities, regions, or even whole nations (Huysman and Wulf, 2004). Since the relationships among individuals have been presented in a concept of community, social capital has gained such other aspects emerged in interdisciplinary research fields such as knowledge management (Nahapiet and Ghoshal, 1998; Lesser, 2000; Cohen and Prusak, 2001; Adler and Kwon, 2002). In this sense, social capital investments inherently serve to motivate members who are interconnected in an organizational network to share knowledge (Huysman and Wulf, 2006). Furthermore, Huysman and Wulf (2006) state that creating the space for these members to share facilitates the development and dissemination of social capital, which enhances efficiency and effectiveness of knowledge sharing. These statements on social capital and environment enabling knowledge sharing carry the concept to a point handled in community base platforms which foster member's motivations to build social capital and to share knowledge (Huysman and De Wit 2004; Ackerman, Pipek, and Wulf 2003). Within this sense, communities are seen as the valuable source of commitment, mutuality and trust (Wenger, 1998). On the other hand, evaluating knowledge sharing not only requires individual's abilities in a community, but also such technological aspects providing ability to interact as the tools for knowledge sharing. According to Wasko and Faraj (2005), individuals tend to use information and communication technologies (ICT) when they are motivated to share knowledge with others and when they have the opportunity in terms of availability of ICT tools.

Within the improvements in ICT, the relationships between ICT and social capital in communities have drawn researchers' attention (Norris, 2002; Quan-Haase and Wellman, 2005; Uslaner, 2004; Lin et al., 2001; Huysman and Wulf, 2006; Ellison et al., 2011; Yang et al., 2009; Lee and Lee, 2010; Castells, 2011; Hampton et al., 2011). However, debates on communities handling ICT tools for interacting are still part of newly developed literature in sense of utilization of online tools to share knowledge especially in geographically dispersed communities.

On this basis, the impact of internet on communities as a communication technology in building and accumulating social capital has been assessed (DiMaggio et al., 2001; Hampton, 2002; Nie, 2001; Wellman, 2001; Quan-Haase and Wellman, 2004; Uslaner, 2004) by conducting on more specific internet technologies (Anderson, 2004; Drentea and Moren-Cross, 2005; Pasek et al., 2009; Penard, and Poussing; 2010; Ellison et al., 2011; Hampton et al., 2011) to understand the net effect of online ICT applications on interpersonal interactions. From a conceptual viewpoint, social capital may be both negatively and positively affected by the Internet. On one hand, when the Internet is mostly used by users as entertainment media and a transaction tool such as interactive banking, it may reduce social participation (Frozen 2003). On the other hand, when it is used as information source, Internet may facilitate individual's social engagements by providing asynchronous and synchronous connectivity (Penard and Poussing, 2010). Even though the availability of empirical results are highly limited in sense of identification of the drivers in online community, one of the common facts which can be derived from these discussions is that the Internet decreases the costs of communication and increases access to information by interpersonal coordination. However, as an informative tool, the essence of the interactions on internet still seems unresolved in the sense of facilitating social capital such as structure, cognition, norms and trust (Huysman and Wulf, 2006).

Beyond the use of Internet, the rise of new online tools makes traditional communities in physical world to become online communities both in physical and

virtual world. Due to their characteristics, these tools allow individuals to connect with others virtually and to facilitate the creation of networks of individuals who have similar purposes. It also provides opportunities to meet other users, who have such differences in background, beliefs, and norms (Lee and Lee, 2010). In parallel with the rising amount of online ICT interactions over Internet and improvements in tools and platforms offered by ICT, the concept of the online community as a group of people who interact online and share common interests, goals, ideas and values has evolved through the online realm (Lee and Lee, 2010). Individuals transfer the norms of real-life social relations into online relations and create new norms, which make it easier for people to know how to behave online and to gain a sense of belonging in communities (DeSanctis and Poole, 1994; Haythornthwaite, 2005; Wellman et al., 2001). In this sense, the use of online tools may facilitate social capital in an online community with the base of traditional assets. However, Yang et al. (2009) point that existing theories about the use of ICT and social capital do not account the emergent processes and do not have consistent results for professional communities.

Social capital is a multidimensional concept, which includes diverse aspects of social structure. The basics of the concepts can be grouped in network structure and its content. Network in social capital identifies the structure of social relations and the content, which operates within these structures (Portes, 1998). On this basis, despite the fact that online communities enable new linkages to access external resources and make knowledge exchange quick and diverse by assisting knowledge flows in online communities (Ahuja, 2000; Resnick, 2004; Huysman and Wulf, 2006), there is little commonly accepted view about the blurred issues of social capital enabling participation and sharing. These issues mostly come from the highly interrelated (Huysman and Wulf, 2006) dimensions of social capital and changing nature of communities in parallel with the advancements in ICT.

1.1. Background and Rationale for the Study

In the last decade, social capital has become one of the relevant notions for measuring the impacts of ICT in communities (O'Neil, 2002). Much of them focusing on the use of Internet in communities posit a term "online communities" where people meet, discuss, share and develop social capital (Lin et al., 2001; Schultze and Orlikowski, 2010; Alessandrini, 2006, Huysman and Wulf, 2006; Yang et al., 2009; Hampton et al., 2011). Online communities can be regarded as the new form of social organization in such basis as emerging new identities and inequalities (Castells, 2000) which may cause differences in individuals' behaviors. Within these social organizations evolved on Internet, individuals share a certain amount of knowledge through repeated interactions within some form of boundaries, which rely on the degree of the use of ICT (Preece, 2000; Porter, 2004) and create a sense of belonging to its members (Blanchard and Markus, 2004). However, it is difficult to say that there is a consensus on the role of ICT in building and disseminating social capital in online communities. One of the reasons lies behind the differences among tools used by individuals in an online community. For instance, based on the analysis of the impact of tools providing one way contact causes decline in social capital (Putnam, 2000) while interactive networking tools facilitate social capital creation (Hampton and Wellman, 2003). This fragmented views about the relationships between particular ICT tools and social capital indicates probable differences resulted by the attempts to measure the impact of ICT on social capital. Within the ongoing basis of these attempts focusing on the impact of the Internet as the main driver of online tools, social capital can be conceptualized in three main streams (Quan-Haase and Wellman, 2004) as the Internet diminishes social capital (Nie 2001; Nie, et al., 2002 cited in Quan-Haase and Wellman, 2004), the Internet supplements social capital (Quan-Haase and Wellman, 2002; Chen et al., 2002 cited in Quan-Haase and Wellman, 2004), and finally the internet transforms social capital (Wellman et al., 2001 cited in Quan-Haase and Wellman, 2004). According to Quan-Haase and Wellman (2004), the Internet diminishes social capital because it offers entertainment and information capabilities making people isolated from

others in location-based communities. On the other hand, it supplements social capital when people use online tools for interacting with others in order to have new contacts or to maintain existing contacts. Finally, they argue that the nature of online tools providing low cost of communication and asynchronous interaction enhance people to participate in interest-based social networks of individuals in globally-dispersed communities. Even though they have different results, all these studies evaluating the impact of specific online tools have a common acceptance that tools of ICT have a function in reducing, maintaining and building social capital.

In parallel with the improvements in online ICT, the concept of social capital has also been adopted within the fields of ICT research (Kumar et al., 1998; Wellman et al., 2001; Norris, 2003; Hardin, 2004; Quan-Haase and Wellman, 2004; Resnick, 2004; Uslaner, 2004; Huysman and Wulf 2004; Wasko and Faraj 2005; Yang et al., 2009) and knowledge management (Nahapiet and Ghoshal, 1998; Lesser, 2000; Cohen and Prusak, 2001; Adler and Kwon, 2002; Ackerman and Halverson, 2004; Chiu et al., 2006; Ferguson et al., 2010). These research streams emphasize knowledge sharing in a network structure as the result of utilizing social capital and technological opportunities. For instance, Wasko and Faraj (2005) underline three attributes utilized by individuals to use ICT for sharing: opportunity, motivation and ability. These three attributes are mainly considered as the critical ingredients of social capital in communities (Adler and Kwon, 2002) and they are based on Nahapiet and Ghoshal's (1998) influential statements as the dimensions of social capital. According to Nahapiet and Ghoshal (1998), the structural dimension includes network's assets and their features (strength of ties, position and degree of closeness) while the cognitive dimension relates to common cultural decoding tools between members (shared norms, goals, interests). Finally, the relational dimension, relates to common values (trust, reciprocity, identification, reputation). The contribution of Adler and Kwon (2002) to these dimensions is noted here with regard to their attributes enabling knowledge sharing as an opportunity for structural dimension, motivation for cognitive dimension and ability for relational

dimension. These approaches are used in measuring social capital at individual and collective levels to analyze the relationships between ICT and social capital. Despite the attempts using these dimensions confirm the existence of the interplay between ICT and social capital, they do not explain the process lies behind this interplay (Spence and Schmidpeter 2003; Steinfeld et al., 2008). Furthermore, there is little evidence supporting these dimensions in online communities (Reich and Kaarst-Brown, 2003; Hsieh and Tsai, 2007) or there are partially-supporting ones (Riemer and Klein, 2004; Hatzakis et al., 2005; Chou et al., 2006). Differences among these research attempts not only come from used constructs to measure the dimensions, but also from continuous changes in networks and ICT (Huysman and Wulf, 2004).

To sum up, despite the fact that the popularity of social capital in such research disciplines vary from sociology to engineering, there is lack of agreed definition in sense of measurement, sources and outcomes of the concept (Yang et al., 2009). Even though the definitions of social capital adopted by particular research depend on discipline and the level of investigation, the most central one is to be the resources embedded in a network for the mutual benefit of its members (Bourdieu 1985; Coleman 1990; Portes 1998; Putnam 2000; Burt 2001). The importance of having and utilizing social capital in a network structure facilitates such opportunities for knowledge sharing. Within the existence of globalization and changes in societies, communities, technologies (Castells, 2000), the concept of social capital become popular among researchers who are engaged in the analysis of the relationship between online communities and social capital created in those communities (Uslaner, 2004; Huysman and Wulf 2004; Wasko and Faraj 2005; Yang et al., 2009). Within the phase of rapid improvements in ICT, members of the social networks are also becoming a part of online communities in order to meet and share with others who are mostly geographically-dispersed. This evolving nature of communities and uninterrupted improvements in ICT force researchers to revisit basic theories in order to assess the impact of ICT on social capital and vice versa.

On the other hand, collective social capital associated with communities (Putnam, 2000) has many different attributes and it leads researchers to develop multidimensional measurement (Grootaert et al., 2002) for the most stable definitions and dimensions of social capital. However, attempts in these research fields are still in their early stages and have not produced consistent results.

1.2. Purpose of the Study

This study aims to explore the relationships between the use of ICT and the social capital in online communities. The inconsistent results of previous research on the use of ICT and social capital may imply how difficult it is to measure the effects of ICT on social capital. However, conclusions of the previous studies may also be utilized for reframing the contents by focusing individual specific needs and tasks in online communities. According to Preece, (2002), one of the basic needs of individuals is to interact with others within the availability of various technological features, such as e-mail, instant messaging, chat rooms, personal and community blogs, forums, wikis and so on. These features provide individuals a valuable platform to interact and participate in online communities where members may build, extend and maintain their social capital. As mentioned before, because of the lack of clear understanding about individual specific choices and purposes in previous studies which are mainly focused on common network aspects of social capital Norris (2002), this study conducts on social capital by examining the specified online relationships among members and framing a specific concept in order to present some definitive answers within the world of highly diversified conceptualizations. On this basis, these specified relationships are framed by activities for knowledge sharing and social capital utilized in organizational networks.

Due to its dependency on network relationships (Adler and Kwon, 2002), the analysis of online knowledge sharing tools needs to take into account the degree of social capital in a community. Furthermore, assessing these tools also needs to

focus on the interplay between them and knowledge sharing assets of social capital introduced by Adler and Kwon (2002) as structural opportunities, cognitive abilities and relational motivations. Exploring these concepts may also provide better understanding about the creation and accumulation of social capital in online communities. From this perspective, the study focuses on the use of ICT for knowledge sharing and the dimensions of social capital by attempting to explore the effect of ICT tools on specified constructs of social capital dimensions. By addressing these concepts and frames, the research question can be defined as:

What are the relations between the use of ICT for knowledge sharing and the constructs of social capital in an online community?

1.3. Major Areas of Contribution

This research contributes to the literature in three ways. The major areas of contribution can be given as: (1) An analysis for the user specific use of ICT, (2) an involvement of new ICT advancements, with regard to definitions of virtual social capital, (3) a parallel evaluation of location based and dispersed communities, representing differences between strangers who have face-to-face contact or not.

1. Within the absence of sufficient explanations on the use of online ICT to utilize social capital for knowledge sharing, this study revisits basic social capital theories to gain valuable perspectives about building and accumulating social capital in an online community which offers user specified selections. It aims to provide an insight for applicability of the theories for a new era of interaction by extending the proposition through some major outputs of ICT in social and organizational context. For instance, by investigating one particular technology such as television, mobile phone or internet, studies mostly provide supportive arguments on the relationships about ICT and social capital (Norris, 1996; Putnam, 2000; Hampton, 2002; Hampton and Wellman, 2003; Wellman, 2011). Together with the arguments supporting the positive relationships

between particular ICT and social capital, these studies also suggest that the effect of ICT on social capital may differ by conducting on the type of technology selected by users.

2. This study also covers recent ICT platforms such as interactive forums, wikis, web-based chat rooms working online on Web 2.0 technology, which is now available not only to computers but also to smart phones. These technologies enable users to participate, collaborate and interact by putting them at the center in network (Levy, 2009). Bughin and Chui (2010) report that the use of new ICT tools offers significant changes in using internet and leveraging the assets of online community such as improvements in efficiency on knowledge sharing. In other words, the convergence of information and communication technologies in stable and mobile tools facilitates wider and more integrated methods for distribution of knowledge (Yang et al., 2009). By addressing new platforms, this study attempts to determine commonalities across different tools of ICT which are used for knowledge sharing.
3. Some part of literature argues that social capital has new forms and dimensions -called as virtual social capital-emerged in online communities (Liff, 2005; Alessandrini, 2006; Valenzuela et al., 2009; Steinfield et al, 2009; Penard and Pussing, 2010; Ellison et al., 2011; Shih and Huang, 2012; Shen et al., 2012). In parallel with online communities having face-to-face meetings (location-based communities), geographically-dispersed communities considered in the study propose to present the differences between these two communities. By addressing virtual social capital which is built without having face-to-face meetings, the analysis in the study attempts to provide better understanding of the effect of ICT on social capital for both online communities.

Within a conceptual framework, the research aims to offer a map for the relationships between the constructs of ICT and the constructs of social capital dimensions. By giving explanatory powers of measures validated in online community, the research may contribute to future research evaluating the latest advancements in ICT for knowledge exchange in an organizational context. Furthermore, the results may support ICT developers in terms of individual specific choices for sharing.

1.4. Outline of the Study

The concept of social capital has been utilized in such diversified context and it has been commonly defined as the collective resources embedded in social community networks (Putnam, 2000). However, it has gained a crucial importance for economic competitiveness in sense of the composition of intangible assets associated with learning and knowledge sharing. One of the most dominant viewpoints introduced by Nahapiet and Ghoshal (1998) was the dimensional view with regard to the nature of resources which are enabled by social capital in an organizational context. These dimensions (structural, cognitive and relational) are supplemented by Adler and Kwon (2002) to drive the functions of social capital for knowledge sharing (opportunity, ability and motivation). In parallel with the changes in organizational management and social capital, the advancements lived in ICT shift traditional communities to online communities which can be defined also as virtual communities in which members exist online. With regard to Wenger (2006), online communities can be framed in an organizational context as online communities of practice (online CoP) in which members get together in an online environment to share and learn. On this basis, the way of interaction among members in an online CoP which has been served by ICT.

Within the new era of online interaction, numerous studies (Wellman et al., 1996; Blanchard and Horan, 2000; Kraut et al., 1998; Putnam, 2000; Nie, 2001; DiMaggio et al., 2001; Wellman et al., 2001; Wellman, 2001; Norris, 2002; Hardin, 2004;

Riemer and Klein, 2004; Alessandrini, 2006; Ellison et al., 2011; Lee and Lee, 2010; Hampton et al., 2011; Ellison et al., 2011; Muller et al., 2012) have been conducted to understand the dynamics of these online interactions related with creation, maintaining and accumulating social capital. Despite these sort of attempts on describing and measuring social capital in online communities, the consistent viewpoints have not been reached especially because of the fast changing nature of technology, inconsistent definitions and measures in traditional approaches about social capital and the level of analysis in terms of focus, perception, purpose and research fields. With regard to the existence of such shortcomings about the measurement, the level of consideration, the lack of generalizability, this study conducts on specified organizational contexts and ICT tools while attempting to evaluate basics of social capital in online communities. As a result, this study aims to indicate the relationships between newly emerged tools of ICT and constructs of social capital utilized in knowledge-sharing activities. The result of this study may become tentative but it puts forward current research trying to employ some other context and technologies to rectify the related findings.

The thesis consists of five chapters and brief definitions of these chapters can be listed here as:

Chapter 1: **Introduction** presents the concept of the study by giving background which is based on previous studies and viewpoints and the rationale for the improvements in current state of related research streams. The purpose and significance of the study are also given in this chapter in terms of presenting the contributions to the literature. This chapter also provides an overall view about the environment of ICT and social capital in organizational context.

Chapter 2: **Literature review** focuses on the theoretical basis of the concepts. These concepts are social capital and ICT. This chapter covers these concepts in an organizational context of knowledge sharing by presenting basics and ongoing debates about the relationships among ICT and social capital. In line with the

purpose and intentions of the study, related conceptualizations about the constructs used in the study are elaborated and discussed in order to access empirical base by setting and representing hypotheses of the research.

Chapter 3: **Methodology and Basics of Empirical Research** describes the research methodology used in the research. The measures and the constructs evaluated in the analysis are reported in this chapter. Design of the analysis, population and sample are also described and elaborated here in line with the procedure of the methodology. Moreover, the instruments used in the research for collecting and evaluating data are given in this chapter by representing validity and reliability of them.

Chapter 4: **Findings** of the research are presented by giving statistical inference about sample profile, demographics and valuable descriptive. Then, the results of Exploratory Factor Analysis (EFA) are given here together with the reliability and validity scores. The constructs which are derived by EFA have been served up as regression equation in this chapter.

Chapter 5: **Conclusion** is devoted to the discussions about the results and implications which are mostly derived from Chapter 4. Then, evaluation of the purpose and contributions of the study are presented. In line with the findings, the overall discussions about the whole research are reported in this chapter together with the suggestions for future research attempts.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

Social capital is a relatively new term for the era of virtual life. Even though the concept has a much longer existence, the modern face of social capital has been introduced in laws for two decades. In the last twenty years, it has been made the object of various studies and has been discussed in thousands of academic papers and it has lately become one of the popular topics for research about online environments. For instance, researchers conducted the role of social capital in organizational context (Coleman, 1988; Nahapiet and Ghoshal; 1998; Adler and Kwon, 2002), in economic performance (Sabatini, 2006; Schuller, 2007), in knowledge networks (Cohen and Prusak, 2001; Lesser, 2000; Adler and Kwon, 2002), in developing regions (Putnam, 1993) and in virtual knowledge networks (Quan-Haase and Wellman, 2004; Resnick, 2004; Uslaner, 2004). Despite such importance, there is no commonly agreed upon definition. With regard to these considerations, the social capital can be understood as a set of informal norms and values, common to the members of a specific group that allows the cooperation among them.

Society and social changes have always been associated with the development of technology (Castells 2000). In parallel with the rising attention to the concept of social capital, the skills and capabilities of individuals have been increasingly noticed in terms of their ICT competencies (Bresnahan et al., 2002). The ability to use ICT is no longer just important for practitioners in the ICT sector, but has become fundamental for the everyday working practices. ICT have blended into the rhythms and routines of everyday working life. The skills needed here are not only technical,

but - more importantly – informational: skills that enable individuals to access, to process and to interpret information in useful ways (Brynjolfsson, and Hitt, 2003). Even though the rapid diffusion of online community into business and daily life, the research attempts about the dynamics seem to be in their early stages and have not produced concrete results. For instance, Putnam (2000) argued that electronic technology (e.g. television) contributes to a decline in social capital, whereas others (Wellman et al., 2004) argue that ICT (e.g. Internet and its advanced tools, such as social networking sites) facilitates social capital building. Nowadays, great efforts are being made to explore the influence of ICT on society. Together with the participation of information society researchers, the concept of social capital has gained its socio-technical form in sense of the developments in technology development and knowledge sharing processes (Riemer and Klein 2004).

This chapter can be seen as a particular review of the literature which covers how online communities of practices externalize and use knowledge by capturing ICT based activities that occur in a social context. Within this frame, the contribution of this chapter to the research is its synthesis of previous literature in line with the assessments on social capital-related ICT studies. This chapter involves sections about the foundations of social capital in organizational context and the conceptualization of information and communication technologies within the frame of knowledge sharing activities.

2.2. Social Capital

Theory of social capital can be linked to the thinkers exploring the relationship between social cohesion and civic life. In history, it was evaluated as a social exchange phenomenon by Durkheim, Marx and Weber who stressed the conditions of associational life and democracy by mentioning the early concepts of social capital (Watson and Papamarcos, 2002) as well as the integrated concepts of social cohesion and connectedness underlined by Tocqueville in 18th century (Ferragina, 2010). Even though the foundation of the concept is traced back to the historic

times of philosophers such as Aristotle and Burke, who criticized the power of community governance (Brewer, 2003), the socio-economic character became assigned to the concept in the late 17th century and the beginning of 18th century (Bowles and Gintis 2002). Together with the introduction of Homo Economicus of rational choice theories, the concept was tackled with the complex set of relationships in society. For instance, in 1759, Adam Smith pointed out commonality and potential negative spillovers of group activities (e.g. cartel conspiracies against the public) as an aspect of the social capital debate (Knack, 2002).

From the beginning of 19th century, the notion of social capital has gained great attention especially in understanding the determinants and structures of community development. Even though it is a term that is commonly used, the concept is poorly defined and characterized. After the first grounded explanation of the term introduced by Lyda Judson Hanifan (1916 cited in Coleman, 1988), who described social capital as the role of community participation in shaping local educational outcomes the concept did not receive much attention until Jacobs (1961), who asserted the importance of social networking in community development (Adler and Kwon, 2002). The academic interest on social capital has not been interrupted since the beginning of 1970s when Pierre Bourdieu, James Coleman, Barry Wellman, Glenn Loury's engaged in individual and network oriented intensifications of Hanifan's and Jacob's arguments.

The modern face of the concept emerged in 1980s with several seminal works introduced by Pierre Bourdieu, James Coleman and Robert Putnam, who are known as the three key players in this field. In 1980s, together with the propositions about the role of social capital in civil society and social connectedness, it was also referred to social relationships between people enabling productive outcomes (Carroll and Stanfield, 2003). Bourdieu (1985) characterizes social capital in line with the Marxist framework concerning social capital as a process for class formation and creation of elites' class in which way of unequal access to resources. Coleman

(1988) characterizes social capital in line with the communitarian view concerning it as the feature of social structures that facilitates certain actions of individuals within this social structure by defining functions and ways to build social capital within a space of entities facilitating certain actions among members. Finally, Putnam (1995) perceives social capital as property of individuals who are not isolated but connected with each other within a community offering embedded capital (social capital) for reciprocity, shared norms and trust and vice versa.

After Putnam's conceptualization, the concept of social capital has been elaborated by many scholars (Burt, 1997; Knack, 1997; Portes, 1988; Woolcock, 1988; Paxton, 1999; Fukuyama, 1999; Burt, 2001; Grootaert and Bastelaer, 2002; Narayan and Cassidy, 2001; Adler and Kwon, 2002; Lin, 2002; Sobel, 2002; Ostrom, 2000; Inkpen and Tsang, 2005) in a variety of disciplines. By following these elaborations and conceptualizations, three basic assumptions can be underlined within the existence of vague and expanding concept of social capital. These basics are (1) social capital as a resource that is available to members of a social network, (2) social structure is often the type of capital that all members of a group can access to promote their interests and (3) social capital plays an important role in generating trust and supporting cooperation leading to some sort of economic outcomes (Guiso, Sapienza, and Zingales 2004). As a broad formulation, within these varieties of relationships and networks, social capital is maintained by the members of the networks triggered by social norms, a sense of commitment, reciprocity and common understanding. In other words, it is a relational and cognitive resource (Bourdieu, 1985; Coleman, 1988; Putnam, 1995; Burt, 1997) which is embedded in network relationships possessed by individuals (Nahapiet and Ghoshal, 1998) and organizations as well as the goodwill available to an individual and group (Adler and Kwon, 2002). It is also an ingredient of organizational performance in the sense of learning, because of that the driving forces of knowledge sharing within communities are not only the shared interest, but also mutual trust, norms and obligations (Lesser and Prusak, 2000; Preece, 2004; Huysman and Wulf, 2006). On

these bases, the idea of defining the dimensions of social capital as structural, cognitive and relational (Nahapiet and Ghoshal, 1998) has become one the most influential approach with regard to nature and dynamics of knowledge sharing. When these three dimensions were combined with the features of networks introduced by Adler and Kwon (2002), the approach has become an appropriate conceptualization in sense of the utilization of knowledge sharing-in and between organizations. These features are opportunity, with regard to the structural dimension; ability, with regard to the cognitive one; and motivation, with regard to the relational one.

In the last decade, we witnessed the rise of ICT and social networking and the exponential growth of research and practices on social capital, with some notable statements from Woolcock and Narayan (2001), Adler and Kwon (2002), Dasgupta (2003), Lin (2002), Sabatini (2009) and others (Norris, 2003; Anderson, 2004; Quan-Haase and Wellman, 2004; Resnick, 2004; Uslaner, 2004; Drentea and Moren-Cross, 2005; Lin et al., 2006; Huysman and Wulf, 2006; Ellison et al., 2007; Yang et al., 2009; Pasek et al., 2009; Lee and Lee, 2010; Penard, and Poussing; 2010; Castells, 2011; Hampton et al., 2011) in a variety of fields and conceptualizations. Broadly speaking, theories introduced after the beginning of 2000s express social capital as a stock of capital arising from repeated interactions and cooperation turning into an organizational asset for sustaining competition and cooperation. It is mainly theorized as an embedded resource in an individual's network which provides access through the ties (Granovetter, 1985; Bourdieu, 1985; Putnam, 1995; Burt, 1997; Coleman, 1990; Uzzi, 1997; Woolcock, 1998; Lin, 1999).

Despite the fact that the theories on social capital have been evolving over time, the concept still maintains its fuzziness and varieties. As it is mentioned, the concept are taken into consideration by not only economists, but also sociologists, political scientists, academicians of organizational studies because of interdisciplinary use of the concept (Aldridge et al. 2002). In the literature, there is more variety of

conceptualization efforts (Adam and Roncevic, 2003) over the term of social capital. Because of these varieties and problems on definition, discussions follow particular paths as the dimensions of social capital, its levels, types, measurement techniques, determinants, benefits and hazards. Not surprisingly, these different conceptions result in considerable disagreement in the concrete definition of social capital (Adler and Kwon, 2002). In parallel with this lack of clarities, economic conditions, practices and theories developed in the last couple of years naturally focus on the conceptualizations about the mechanism and analysis of social capital in a virtual environment and community. According to Collier (1998), a conceptual model for social capital should identify the concept within the complexity of the social world, as defined by the dynamic relationships between its components, rather than what at present often appears to be a disparate collection of circumstantial variables.

2.2.1. Definition of the Social Capital

The use of the phrase 'social capital' does not refer to the usual term of capital which is assigned as a personal or physical property, but rather it refers to an intangible asset in terms of capital derived by social intercourse among peoples in a social unit (Daniel et al., 2003). This capital can also be accumulated in the community (e.g. organizations) when an individual interacts with one another within a shared space, norms, purposes, etc. In this way, benefits of this accumulation can be directed towards the general improvement of units and/or organizations.

In general, social capital is traditionally based on two factors: the formal and informal networks of affiliations and norms which rely upon in establishing, maintaining and utilizing those network affiliations (Putnam, 1995; Burt, 1997; Lesser, 2000; Prusak, 2001; Lin, 2002; Grootaert, 2004; Burt 2001). While the former involves groups, units, communities, families and organizations (Woolcock and Narayan, 2001; Prusak, 2001; Dasgupta and Serageldin, 2000; Portes, 1998; Lin, 2002), the latter involves reciprocity, trust, solidarity, etc. (Putnam, 1995; Portes,

1998; Adler and Kwon, 2002; Knack, 2002). However, social capital has no clear meaning and legitimacy in the sense of being capital, which must be transformative, investable, durable and eligible for opportunity cost (Akçomak, 2008) as well as measurable and manageable. With regard to debates on these characteristics, definitions of social capital and its nature are relatively uncontested and straightforward, mostly because of substantive and ideological reasons as much as diversities in disciplines and levels of investigations (Robinson et al., 2001). Because of these conceptual problems, some research (Putnam, 1995; Woolcock, 1998; Portes, 1998; Coleman; 1988; Sabatini, 2009) focuses on social capital by discussing its intellectual origin, diversities and unresolved issues instead of explaining the definition of the concept. On the other hand, some other strands of research (Nahapiet and Ghoshal, 1998; Adler and Kwon, 2002) identify sources, effects and consequences of social capital within a multidimensional perception.

In this lack of clarity, there are numerous definitions of social capital which can be found in the literature. A considerable number of influential definitions have been listed in Table 1. As a ground for these definitions, some sort of well known attempts for defining modern concept of social capital are about the development of trust, cooperation and collective actions, which are necessary to survive and to have well-functioning community (Jacobs, 1961; Loury, 1977). From this view point, it can be derived that social capital provides a strong sense of community in urban areas by developing a sense of identity and belonging. In this frame, people can utilize and mobilize their social capital more willingly and effectively when they have a sense of community (Kilpatrick and Field, 2003) offering such intangible resources as shared values and/or trust in daily life. In parallel with these conceptualization efforts, the emergence of the concept within the field of political science and sociology has started as a major contribution to analytic perspective on economic activities introduced by Granovetter (1973), who also worked on embeddedness in social actions without using the term of social capital (Granovetter, 1985). However, the contributions of Granovetter (1973, 1985) do not

involve functional properties of the concept even though he provides one of the basic foundations of social capital in the sense of social embeddedness. The functional conceptualizations are offered by three key players (French sociologist Pierre Bourdieu, US sociologist James Coleman and US political economist Robert Putnam) and mostly elaborated by other scholars (Burt; 1992; Knack, 1997; Woolcock, 1998; Portes; 1998; Lin; 1999). Figure 1 presents the scholars who attempt to develop these conceptualizations.

Bourdieu (1985) conceives social capital as a resource derived from belonging to a group. According to him, individuals need to invest to acquire social capital and both individuals and groups produce required conditions in the relationships that characterize their society.

Table 1: Influential Definitions of Social Capital

Lyda J. Hanifan (1920)	<i>Social capital is derived from some tangible assets of people's daily lives. These are goodwill, fellowship, sympathy and social intercourse among individuals and families which can be defined as social units or communities.</i>
Glenn Loury (1977)	<i>Social capital represents the consequences of the social position in facilitating acquisition of the standard human capital characteristics.</i>
Glenn Loury (1992)	<i>Social capital emerges in social relationships among persons and it promotes acquisition of skills which have value in the marketplace.</i>
Pierre Bourdieu (1985)	<i>Social capital is the sum of resources, actual or virtual, and it emerges in networked or less institutionalized relationships of mutual recognition. According to Bourdieu (1985) the concept has two critical elements as the social relationship with its resources and the quality of these resources. He also posits social capital as a collective asset of the network.</i>
Robert Putnam (1993)	<i>Putnam (1993) states social capital as the features of social organization such as trust, norms and networks that can improve efficiency by facilitating coordinated actions among entities. He expands social capital to the community level by referring to social capital with dense and horizontal social networks, leading to high levels of trust and reciprocity. Dense networks under this description can improve the</i>

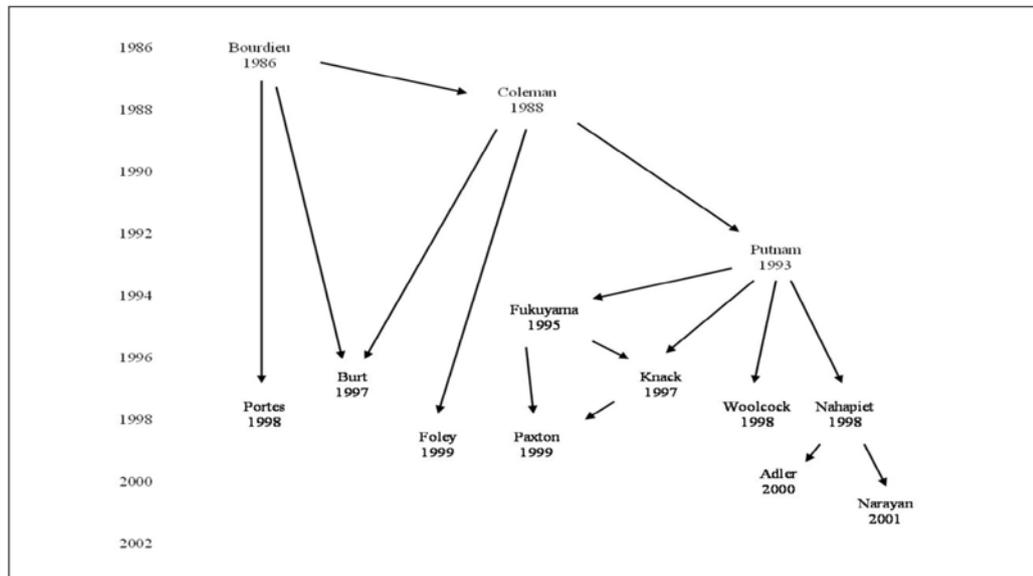
Table 1: Influential Definitions of Social Capital (Continued)

	<i>solidarity among members in a network and can built robust norms of reciprocity and social trust, which means having the confidence to trust other individuals who are not known.</i>
James Coleman (1990)	<i>Coleman (1990) focuses on the relationship between social capital and education. He explores the relationships between social capital and human capital by arguing that they are complementary resources. According to him social capital can be defined as coming from a variety of entities. Like Bourdieu, he sees social capital as resource gaining from social structure which facilitates certain actions and individuals in this structure.</i>
Janine Nahapiet and Sumantra Ghoshal (1998)	<i>Social capital can be defined as the sum of the actual and potential resources embedded within, available in and derived from the network of relationships possessed by an individual or social unit. According to them social capital consists of both network structure and assets mobilized via networks.</i>
Michael Woolcock (1998)	<i>Social capital is the combination of information, trust and norms of reciprocity which is offered by a social network.</i>
Francis Fukuyama (1999)	<i>In contrast to Woolcock, Fukuyama (1999) posits the necessity of trust to build social capital. He states that high level of trust creates more social capital offering better economic performance. Within low levels of trust, society goes through family-owned business and depends on family members instead professionals. It also describes of one of the negative effects of social capital as the tendency to exclude outsiders.</i>
Elinor Ostrom (2001)	<i>Social capital is the shared knowledge, understandings, norms, rules, and expectations about patterns of interactions that groups of individuals bring to a recurrent activity.</i>
Robert Putnam (2001)	<i>Networks and the associated norms of reciprocity have value. They have value for the people who are in them, and they have, at least in some instances, demonstrable externalities, so there are both public and private faces of social capital.</i>
Paul Adler and Seok-Woo Kwon (2002)	<i>Social capital is the goodwill available to individuals or groups. Its source lies in the structure and content of the actor's social relations making available information and solidarity an actor.</i>
Francis Fukuyama (1999)	<i>Social capital is what permits individuals to band together to defend their interests and organize to support collective</i>

Table 1: Influential Definitions of Social Capital (Continued)

	<i>needs.</i>
Elinor Ostrom and Toh-Kyeong Ahn (2003)	<i>Social capital is an attribute of individuals and their relationships that enhances their ability to solve collective action problems.</i>
Grootaert, et al. (2004)	<i>The groups, networks, norms and trust that people have available to them for productive purposes.</i>
Ronald Burt (2004)	<i>Social capital is a closure within the group and brokerage beyond the group.</i>
Fabio Sabatini (2006)	<i>The "structural" components of social capital, as identified with social networks: informal networks of strong families ties (bonding social capital), informal networks of weak bridging ties connecting friends and acquaintances (bridging social capital), formal networks connecting members of voluntary organizations (linking social capital) and formal networks of activists in political parties.</i>
Antoci, Sacco and Vanin (2007)	<i>It is an accumulated externality.</i>
Ahn, Toh-Kyeong and Elinor Ostrom (2008)	<i>Social capital is a set of prescriptions, values and relationships created by individuals in the past that can be drawn on in the present and future to facilitate overcoming of social dilemmas. Trustworthiness, networks and institutions as three basic forms of social capital.</i>
Nan Lin (2008)	<i>Social capital is defined as resources embedded in one's social networks, resources that can be accessed or mobilized through ties in the networks.</i>
Fabio Sabatini (2009)	<i>Social capital is a resource that is connected with group membership and social networks. It is a quality produced by the totality of the relationships between actors.</i>

Bourdieu (1985) defines social capital as the “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition”. According to Portes (1998), this definition introduces two critical aspects which are social ties as a way of accessing resources embedded in network, as well as quantity and quality of these resources.



Source: socialcapitalresearch.com (<http://www.socialcapitalresearch.com/literature/contemporary-authors.html>)

Figure 1: Key authors in the field of social capital

In line with Bourdieu, Coleman’s (1988, 1990) intention is to introduce a framework to characterize social relations within a social structure in which individual acts are also a resource for the individual. In his viewpoint, social capital is a way to reconcile individual action and social structure in the creation of human capital. The relationship between social capital and access to resources was underlined by Coleman’s (1988) definition of social capital as “the set of resources that inhere in family relations and in community social organizations and that are useful for the cognitive or social development of a child or young person”. On the other hand, in *Foundations of Social Theory*, Coleman (1990) highlighted the distinction between human capital and social capital. According to him, while the former is an individual-related resource, the latter can be found in relationships (linkages) between individuals. This distinction also represents the difference between social capital and private resources; social capital can be viewed from a public good perspective.

Even though Bourdieu and Coleman similarly consider social capital as a resource of network, there is a distinction on creation of social capital within the network.

While Bourdieu regards social capital as a resource gained via individual links to the group (nodes), Coleman regards it as a resource derived from links between groups or networks. This distinction also presents one of the main distinctions in the Marxist tradition versus Communitarian tradition. According to Bourdieu (1985), like all forms of capital, social capital has its own capitalist who accumulates social capital in the form of relationship, networks and contacts. According to him, “the network of relationships is the product of investment strategies, individual or collective, consciously or unconsciously aimed at establishing or reproducing social relationship, which are directly usable in the short or long term” (Bourdieu, 1985). On the other hand, a communitarian standpoint regards the source of social capital as the community, instead of individual or organization, by insisting on the necessity of community rather than satisfying individual needs (Coleman, 1988). This communitarian perspective is also covered by discussions on community of practice, which eliminates the power of the individual. At that point, another theoretical origin of social capital can be given as an anecdote of democratic strain, which deals with the actions to be utilized for the community benefit. Since these theoretical origins are not in the scope of this study, it is kept as an untouched field in the research. However, it is important to derive from these origins that conceive social capital as an output of generalized trust and social norms which facilitate cooperative actions. Briefly, Bourdieu’s and Coleman’s approaches to situate social capital have a critical difference, reflecting social capital as an economic capital that tends to exist within groups (Coleman) rather than individuals (Bourdieu).

The general awareness of the concept is provided by Putnam’s (1993) work on the causes of differential performances of democratic institutions across Italian regions. There are some common points with Coleman’s definition; Putnam (1993) defined social capital as “features of social organization, such as networks, norms, and trust that facilitate coordination and cooperation for mutual benefit”. He also regards social capital as a kind of public good. Putnam’s success is to adapt Coleman’s views of social capital to his own purposes by adding more cultural interpretations and

the embodiment of civic/actors. According to him, social capital has a social aspect, as an informal social organization, and a capital aspect, as a productive resource (i.e. factor) for one or other actors. The social aspect refers to informal relationships for non-economic purposes but for economic consequences. Individuals may rationally invest in social capital, and the formation of friendships and acquaintanceships can be seen as just such investments.

Conceptualizations developed by these authors make social capital more useful for empirical research and renewed academic interests especially in social science engaged in intangible resources in industrial networks (Ferragina, 2010). Nonetheless, these works do not account multi-dimensional and particular nature of social capital. These highly fragmented dimensions are: Trust (Coleman, 1988, Putnam, 1993, Collier, 1998), norms (Coleman, 1988, Portes, 1998, Collier, 1998), network structures (Burt, 1997, Putnam, 1995). Even though the definition of social capital may vary from particular research to another, there is an agreement that social capital is derived from relations with other people in a social structure, which allows social relationships among individuals and helps them create a competitive advantage to achieve their social goals. Members in a network structure may build and use social capital if they interact with each other (Portes, 1998). From this perspective, social capital refers the social structures and relationships, which promote shared norms and reciprocity among people (Coleman, 1988; Putnam, 2000).

2.2.2. Dimensions of Social Capital

Based on the definitions during the seventies (Loury, 1977), the eighties (Bourdieu, 1985; Coleman, 1988), the nineties (Putnam, 1995; Burt, 1997; Knack and Keefer 1997; Coleman, 1998;) and the last decade (Dasgupta and Serageldin, 2000; Portes, 1998; Lin, 2000; Putnam, 2000; Woolcock and Narayan, 2001; Grootaert, 2004; Dasgupta, 2003; Esser, 2008) social capital has network-embedded resources, variety of dimensions and features. With regard to this stream, embeddedness

(Granovetter 1985) can be defined as resources embedded in one's social networks, resources that can be accessed or mobilized through ties in the networks Lin (2001). However, traditional conceptualizations of social capital determine only partially the process of economic growth and overlook the way in which the economic actors interact and organize themselves to potentially generate growth and development (Huysman and Wulf, 2006). Beyond its usefulness for growth and development, social capital is also an important ingredient for knowledge development in and between organizations (Cohen and Prusak 2001; Lesser 1999). On this basis, researchers mentioned the importance of acknowledging social capital when investing in knowledge management (e.g. Lesser 2000) as well as the knowledge benefits derived from high levels of social capital (Cohen and Prusak 2001, Nahapiet and Ghoshal 1998). As an emerging research field of knowledge management with regard to social capital makes researchers to focus on communities (Snyder and Wenger, 2000; Lesser, 2000; Lee et al, 2012; Chiu et al, 2006) instead of individuals (Lin and Lee, 2004; Szulanski et al, 2004; Lin, 2002). Communities are seen as the prime source of a sense of membership and commitment, the source of mutuality and trust and the places in organizations (Wenger 1998). Within this framework, Nahapiet and Ghoshal (1998) often stress the significance of a collectivist approach as the sense of community. The central argument of them is that a collectivist norm in a network, which means that network members let collective goals prevail over their individual interests, positively influences other members' willingness to share (Adler and Kwon 2002; Nahapiet and Ghoshal 1998; Tsai and Ghoshal 1998).

Nahapiet and Ghoshal (1998), in their comprehensive review of the conceptual literature on social capital, provide a framework for understanding social capital's main elements. According to them, social capital involves three distinct dimensions which are structural (network ties, network configurations and organization), cognitive (shared codes and language, shared narratives), and relational (trust, norms, obligations, identification). These dimensions are highly interrelated and difficult to segregate in practice (Huysman and Wulf, 2004). According to Huysman

(2004), when the level of social capital low in sense of the structural dimension, this would mean that its members of the community lack the opportunity to share knowledge through network ties. When it is low for the cognitive dimension, this means that the group lacks a shared cognitive frame, and consequently is not able to understand and develop new ideas with each other Huysman (2004). Finally, this becomes even more problematic when the level of social capital is low in terms of having relational dimension; there would be no motivation to share knowledge because of a lack of trust and norms of reciprocity Huysman (2004). In order to utilize social capital for knowledge sharing practices impose the features of social capital introduced by Adler and Kwon (2002). As mentioned before, these features were opportunity, ability and motivation.

According to Huysman and Wulf, (2004) both the opportunity and structural dimension refer to the analysis of 'who' shares knowledge and 'how' they do that. It concerns the existing or lacking opportunity to connect with each other. In combination, the two dimensions refer to the 'structural opportunity' dimension. The authors claim that both the cognitive and the ability dimension correspond to the analysis of 'what' is shared. This 'cognitive ability' dimension concerns the ability to cognitively connect with each other in order to understand what the other is referring to when communicating. Finally, the relational and the motivational dimension both refer to the question 'why' and 'when' people share knowledge. It concerns the motivation to share knowledge based on the socially-attributed characteristics of the relationship, such as trust, mutual respect and generalized reciprocity (Putnam 2000 cited in Huysman and Wulf, 2004). Table 2 presents the conditions for knowledge sharing within the frame of dimensions and features of social capital.

Table 2: Conditions for knowledge sharing

Knowledge-sharing research questions	Who shares knowledge and how is knowledge shared?	What knowledge is shared?	Why and when is knowledge shared?
Dimensions (Nahapiet and Ghoshal, 1998)	Structural dimension	Cognitive dimension	Relational dimension
Features (Adler and Kwon, 2002)	Opportunity	Ability	Motivation
Content	Network ties, position, closeness	Shared codes, interests	Trust, reciprocity, identity
Conditions for knowledge sharing	Structural opportunity to share knowledge	Cognitive ability to share knowledge	Relation-based motivation to share knowledge

Source: Huysman (2004)

2.2.2.1. The Structural Dimension

The structural dimension refers to the pattern of social ties for a given individual. Members are embedded in a network of ties, which can function as conduits to needed information and resources. Nahapiet and Ghoshal (1998) conceptualize this dimension within three constructs as network ties, network configuration and appropriable organization. According to them, network ties provide access to resources, network configuration provides channels for information and finally, appropriable organization provides potential network access to the network resources through its relational and cognitive dimension. Inkpen and Tsang (2005) elaborate the concept of appropriable organization by linking with the opportunities of changes in the network. For instance, a highly unstable network may limit opportunities for the creation of social capital, because when an actor leaves the network, ties disappear (Inkpen and Tsai, 2005). In line with Adler and Kwon (2002)'s conceptualizations, **network ties** (Ahuja, 2000; Reagans and Zuckermann, 2001; Papakyriazis and Boudourides, 2001; Hampton, 2002; Matzat,

2004; Reagans and McEvily, 2003; Burt, 2004; Obstfeld, 2005; Uzzi and Spiro, 2005, Fleming et al., 2007) can be assumed as the composition of external and internal ties. According to them, having external ties provide an opportunity to leverage other members' resources while internal ties provide an opportunity to act together. Therefore, these constructs compose organizational and inter-organizational relationships of individuals who are able to make weak and strong ties to others within a network (Nahapiet and Ghoshal, 1998). According to Granovetter's (1973), networks ties can be structurally categorized as strong ties or weak ties. He posits more reciprocal and frequent interactions as the source of strong ties while less reciprocal and less frequent interactions as the source of weak ties. Additionally, these ties are established through intense and repeated interaction among members who are developing shared social mechanisms (Granovetter, 1973; Hansen, 1999). On these bases, the concept of the strength of tie can be characterized as the composition of the frequency of interaction and the level of reciprocity among members. Within this context, leveraging network relationships (Nahapiet and Ghoshal, 1998; Gulati, 1999) through their structural embeddedness leads members to have a good **network position** (Burt, 1997; Walker, Kogut and Shan, 1997; Rowerly Behrens and Krackhardt, 2000; Koka and Prescott, 2002; Hampton and Wellman, 2003) in the network to secure more diversified and richer information (Koka and Prescott, 2002). When members in the network are situated in the hub or centrality of the network, because of the diversification and richness of network ties, they can reap the benefit of knowledge exchange in terms of accessibility and permanence (Burt, 2000). Finally, Nahapiet and Ghoshal (1998) mention that members access to other members' resources through their relational and cognitive capitals emerging from trust, similarities, shared necessities and solidarity in network. These aspects are treated in this study with the term **network closeness** (Knack and Keefer, 1997, Wellman, 1998; Tsai and Ghoshal, 1998; Norris, 2003; Newell et al., 2004; Huysman and Wulf, 2006; Wang et al., 2006).

2.2.2.2. The Cognitive Dimension

The cognitive dimension of social capital refers to “those resources providing shared representations, interpretations, and systems of meaning among parties” (Nahapiet and Ghoshal 1998). Nahapiet and Ghoshal (1998) suggest that engaging in a meaningful exchange of knowledge requires at least some level of shared language and vocabulary and sharing of collective narratives. According to them, shared language influences the common perception while shared codes organize sensory data into perceptual categories and provide a frame of reference for observing and interpreting the environment. They also report that shared myths, stories, and metaphors also provide powerful means in communities for creating, exchanging, and preserving rich sets of meanings. In line with Nahapiet and Ghoshal (1998), Inkpen and Tsang (2005) see cognitive social capital as the composition of shared goals and shared cultures among network members. According to them, shared goals represent the level of common understanding while shared culture represents the level of common norms. Adler and Kwon (2002) evaluate this dimension by focusing on motivational factors. They state that members are identically motivated by self- interest and the cognitive dimension reduces the barriers to interactions among members by eliminating opportunistic behavior (Dyer and Singh, 1998) and by driving collective vision through collective goals (Adler and Kwon, 2002). Along with these explanations, cognitive dimension can be specified in a community context in which members are readily to conform to **shared norms** and **shared interests** enabling cooperative behaviors around collective goals (Nahapiet and Ghoshal, 1998; Lesser, 2000; Adler and Kwon, 2002; Inkpen and Tsang, 2005).

2.2.2.3. The Relational Dimension

The relational dimension of social capital refers to “the kind of personal relationships people have developed with each other through a history of interactions” (Nahapiet and Ghoshal, 1998). This dimension of social capital comprises the quality of social interaction among the members in the network

(Ahuja, 2000; Yli-Renko et al., 2001) and shapes the cooperative ambience between members (Ahuja, 2000). Within this cooperative ambience trust, norms of reciprocity and community identity make members willing to exchange and share their knowledge (Nonaka, 2000; Koka and Prescott, 2002). Studies (Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998; Lang, 2004; Chiu et al., 2006) on these constructs of relational dimension are particularly interested in these aspects which lead cooperation and knowledge sharing. For instance, **trust**, frequently cited (Grootaert and Bastelaer, 2002) as a critical element, can lead to enhanced cooperation, which in turn leads to increased trust (Ring and Van de Ven, 1994). Members in a community who share trust are more willing to share their knowledge by participating the knowledge exchange events in the community (Tsai and Ghoshal, 1998). Tsai and Ghoshal (1998) showed that trust has positive and significant impact on the resource exchange. Particularly, Chiu et al. (2006) reports the positive impact of trust on the knowledge sharing. Similarly, **reciprocity** can enhance the likelihood of further reciprocal exchange arrangements, if obligations are seen as being satisfactorily fulfilled trust (Ring and Van de Ven 1994). The effects of reciprocity on knowledge sharing were tested by Tohidinia and Mosakhani (2010) and they found significant and positive impact of reciprocity. Finally, through the **identification** process members develop sense of belonging to the community. Nahapiet and Ghoshal (1998) report that members' perceptions as associated with community act as a resource that affects the perception of benefit from knowledge exchange. Chiu et al. (2006) in their study found a positive relationship between identification and knowledge sharing.

2.3. Information and Communication Technologies (ICT)

Especially in the last decades, the skills and capabilities of individuals have been increasingly noticed in terms of their ICT competencies. The ability to use ICT is no longer just important for practitioners in the ICT sector, but has become fundamental for the everyday working practices. ICT have blended into the rhythms

and routines of everyday working life. The skills needed here are not only technical, but - more importantly – informational: skills that enable individuals to access, to process and to interpret information in useful ways. In this frame, there is a growing attention to the fundamental impact of ICT on social capital (Blanchard and Horan, 2000; Wellman, 1998; Franzen, 2000; Uslaner, 2000; DiMaggio et al., 2001; Hampton and Wellman, 2003; Quan-Haase and Wellman, 2004; Huysman and Wulf, 2006; Ellison et al., 2007). This attention to the impact of ICT on knowledge creation and skill diffusion makes clear that the ability to create, share and utilize knowledge is continuously upgraded by the advancement of ICT. While research communities are engaging in the clarification of blurred issues, fields of business have emerged to provide ICT services with the variety of solutions for organizational processes. ICT provides solutions for interaction, collaboration, learning and/or exploration as well as exploitation (Andersen and Foss, 2005; Gilsing and Nootboom, 2004; Nootboom, 2004). In parallel with these advancements in organization, ICT introduces some other opportunities for organizations in the sense of having and managing their social assets (Millen and Patterson, 2003). Use of ICT in a virtual environment, including online communities, builds social norms and assets in geographically-dispersed communities as well as location-based communities. Nowadays, instead of only a tool for interaction, ICT should be assumed as an actor of exchanging, codifying, storing, retrieving and delivering (Wang, 2012). Therefore, focus on social capital in sense of individual level turns to community level. At that point communities are seen as the prime sources of social capital (Wenger, 1998).

2.3.1. Online Communities: Location-based and Dispersed Forms

Together with the advances in information and communication technology, definitions of community which are focused on close-knit groups in a single location have shifted to “online community” which implies the intense feelings of companionship, empathy and support among individuals in the online spaces (Rheingold, 1993). Researchers’ studies to elaborate the term of online community

in terms of design and evolution by conducting the groups who come together for a particular purpose, and who are guided by policies (including norms and rules) and supported by software (de Souza and Preece, 2004; Preece, 2000).

In recent years, new forms of computer-mediated communication involving the Internet are providing opportunities to extend and re-combine communities in such ways by improving their capacities. While opening up opportunities, the use of computer-mediated communication in communities also creates new challenges (Diani, 2000). According to Steinmüller (2004), the formation and maintenance of practitioners' networks have been tied by the issues of interpersonal trust supported by face-to-face interaction as well as the formation of social hierarchies of expertise and specialization. The similar social structures can be created in the 'online communities of practices' made possible by the Internet.

Within the basis of communities of practice¹, communities of practitioners have traditionally been formed through direct personal association involving relatively frequent face-to-face meetings in which interpersonal trust is forged and provides a basis for the identification and filtering of knowledge that is worth exchanging (Lave and Wenger, 1991). In parallel with society and social changes, (Buchanan, 1995; Castells, 2000) communities of practices have always been associated with the

¹ Communities of practice have been used in the sociological literature, is to understand the conditions under which situated learning occurs, a key element in the exchange of knowledge (Wenger, 1998). Communities of practices have been described as "groups of people informally bound together by shared expertise and passion for a joint enterprise" (Wenger and Snyder 2000). They are different from teams and functional units as they are self-organizing systems whose lifespan is determined by its members, based on the intrinsic value that membership brings. Such communities are not constrained by time and space and therefore can span organizational boundaries (Wenger 1998). Steinmüller (2004) highlights the communities of practitioners as the social networks which are influenced by (and influence) the utilization of information and communication technologies, economic performance at various levels of aggregation and the localization and globalization of knowledge creation and exchange. These communities are able to retain dynamic and evolving knowledge within a real-time process that adds context to existing static repositories. Members identify and engage in each other within a common set of codes and language. The development of a strong network of likeminded individuals who share a common understanding is conducive to the development of an environment typified by high levels of trust, shared behavioral norms, mutual respect and reciprocity (Lesser and Storck 2001). Such an environment has been identified as being high in social capital, and has been linked directly with the processes of the creation and sharing of knowledge (Nahapiet and Ghoshal 1998).

development of technology. A specific reason for attention to communities in recent years is the new forms of online communication via the Internet which provides opportunities to extend and re-combine these communities in ways that might improve their capacities (Steinmüller, 2004). With regard to the communities of practice, online communities can be defined as the community which uses networked technology, especially the Internet, to establish collaboration across geographical barriers and time zones. An online community's main goal is to serve as a common ground for individuals who share the same interests as one another. Online communities exist according to the identification of an idea or task, rather than physical proximity. Members are organized around an activity, and they are formed when need arises (Squire and Johnson, 2000). Because the members cannot see each other, norms do not dominate as much as in traditional communities, thus allowing for greater individual control. Therefore, researchers pointed out online communities do not appear to be intimate social groups (Wellman 1997; Cummings et al., 2002) and this causes a decrease in social capital (Putnam 2000). On the other hand, they indicate that understanding an individual's full set of social behavior is crucial to examining their network relations, and building more effective software to support communication and social capital (Cummings et al., 2002; Preece, 2002). The value of the concept of social capital is to identify certain aspects of social structure by their function (Coleman 1988). In the same way, identifying certain functions of online social structure may be helpful to understanding the social phenomena.

Online communities can either be location-based, in which the electronic group is centered on the geographic locale, or dispersed, in which the electronic group is not (Blanchard and Horan, 2000). Location-based communities can also be defined as the individuals assembled around a central location and mostly communicated via intranet-based networks while the members of dispersed community mostly refer to the group of individuals from the outside of the organization such as partners and third party players (Blanchard, 2004). Members of the location-based

communities mostly have a chance to meet face-to-face when they need or regularly, and they mostly know each other directly or indirectly. Nonetheless, members of the dispersed community meet mostly online and they don't know each other in real-world. Blanchard (2004) stresses that most of the location-based community members mostly have both way of interaction as face-to-face and online and these communities are denser than the dispersed communities. The higher level of social capital can be found in locationbased communities when compared with dispersed ones in terms of the easy flow of norms and trust in densely connected networks (Coleman, 1988). Similarly, Blanchard and Horan (1998) mention that dispersed communities, may decrease the social capital in a location-based community because they may decrease the density of the social networks of relationships in that community. With regard to the isolation effect of online communities on individuals (Putnam, 1995), members of dispersed communities may develop their own social capital in their online communities instead of developing it in their location-based communities if they sustain their online relationships within the existence of socio-emotional rewards (Blanchard, 2004). On the other hand, Wellman et al., (2001) found a positive correlation between the participation in online communities and the participation in tradition communities. According to them, participation in a dispersed community may not decrease some forms of social capital. In particular, increased Internet use is associated with an increase in civic group participation and it is significant because it may show an increase in activity in location-based networks of relationships. Although it has been argued that dispersed communities can decrease social capital and location based communities can increase it, this is not an accepted fact because of the fuzziness about the individuals who are developing a sense of community by interacting online (Blanchard, 2004).

2.3.2. Online Tools for Knowledge Sharing

Within the existence of insufficient research attempts, there are some commonly accepted results about the relationship between ICT and social capital. For instance, Putnam (2000) argues that electronic technology contributes to a decline in social capital, whereas others argue that ICT such as the Internet and its latest applications, such as social networking sites facilitates social capital building (Hampton and Wellman 2003). In detail, Quan-Haase and Wellman (2004) state that the effects of the Internet on social capital has three results. First, it transforms social capital. Second, it diminishes social capital. Third, it supplements social capital. The first result can be explained by looking at the changes in social environment of individuals. With the advance of ICT, users tend to move from their local and group-based solidarities towards more spatially-dispersed and sparsely-knit interest-based social networks (Wellman et al., 2001). In these online social networks individuals may have different social capital from their social capital in their traditional social environment. However, Nie (2001) argues that individuals not only leave their local environment but also they leave their social capital because the entertainment and information capabilities of the Internet drive them away from their families and friends. On the other hand, the Internet may supplement social capital because it may facilitate existing social relationships as well as help build patterns of civic engagement and socialization (Quan-Haase and Wellman, 2002). Norris (2003) concludes that the Internet seems to widen the experience of community, and the other (Steinmueller, 2004) that social networks are influenced by (and influence) ICT however the results vary mostly because of divergent the user specific choices evaluated for the internet as a particular ICT and they show that the findings about the relationship between one particular technology and social capital cannot be directly applied to other technologies. For instance, one particular disagreement seems to be whether technologies such as web pages, e-mail, instant messaging, online gaming, social media and cell phones increase isolation, thus reducing social capital, or whether new communication technologies allow relationships to be enhanced by space and time, thus increasing social capital (Kennan et al., 2008).

Because of these divergent results, researchers (Wasko and Faraj 2005; Huysman and Wulf 2004; Preece 2002; Resnick 2001, Wellman et al 2001) conducted both specific ICT tools and dimensions of social capital. On this basis, the concept of social capital has been adopted in relations between ICT and knowledge management issues (Lesser, 2000; Cohen and Prusak, 2001; Adler and Kwon, 2002; Wasko and Faraj, 2005; Huysman and Wulf, 2004). As explained above, researchers are focused on the three dimensions of social capital (Nahapiet and Ghoshal, 1998) and features of these dimensions (Adler and Kwon, 2002). These are structural opportunity, cognitive ability and relational motivation. Huysman and Wulf (2005) posit the effect of information technologies on these dimensions. For instance, they expect that distributed communities with a high cognitive ability (i.e. a shared frame of reference) and motivation to share knowledge (e.g. a shared purpose), but with low structural opportunities to do so (i.e. a sparse network) will be in need for communication tools and over time the level of density of ties will increase (Brown and Duguid, 2001 cited in Huysman and Wulf, 2006). They also expect that the variance of these dimensions provide insight into possible IT support. For example, members who are individually motivated to contribute to the community might use reputation systems more than those members whose motivation is more collectively oriented.

On the other side, with regard to the dimensional approaches to social capital, Pigg and Crank (2004) consider the functions of ICT supporting both communication in various forms as well as information storage, retrieval, analysis and sharing. Each of these elements can be operationalized in software in a variety of forms with applications currently available in online communities. Bolisani and Scarso (1999) point that ICT facilitates knowledge transfer through the exchange of data. Nonetheless, this requires a double transformation process from knowledge to information and then to data, and back from data to information and finally, to knowledge. They also claim that the transfer of knowledge (especially the tacit form) often requires proximity between the transmitter and the receiver. For

instance, videoconferencing and virtual chat rooms may aid the transfer of tacit knowledge while the transfer of information (especially the codified form) can be distributed worldwide with the touch of a button. In line with these explanations, considering ICT in two forms as information tools and communication tools may become necessary especially because of the fact that social capital is built upon “instrumental” and “expressive” information forms (Briggs, 2003 cited in Pigg and Crank, 2004). Beyond information function, communication includes both cognitive and affective content. Therefore, the written message itself is meaningless without considering both content and context (Raber and Budd, 2003). Along with these matters, ICT tools need to be formulated in line with their formats and content that communicate both the affective and cognitive elements (Pigg and Crank, 2004). Researchers attempted to classify ICT applications in line with the relationships facilitated among users (Altheide, 1994 cited in Pigg and Crank, 2004). They think it is the format of ICT that structures social ties between persons and connects them to activities. Altheide (1994) illustrates the relevance of organizational IT and formats for societal activities in which IT formats and an organizational context creates an effective environment for problem solving which, in turn, creates a format and organizational solution in which societal context and activities in the entire process. According to him, different formats, but the same information and communication technologies brought together both “doing it” and “reporting it.” On this basis, the internet usage has created different formats for information technology that enables a flow of communication that isn’t passive, but is a two-way transaction such as: e-mail, chatting, and the use of social software. With regard to these classification DiMaggio et al. (2001) offer that the online communities interacting via the Internet has some differences when it is compared with earlier technologies. It offers different modes of communication (broadcasting, individual searching, and group discussion) and different kinds of content (text, audio, visual images) in a single medium. Within this basis, Quan-Haase and Wellman (2002) mention the use of social capital in two complementary meanings as social contact and civic engagement. They mention that social contact presents

interpersonal communication patterns, including visits, encounters, phone calls, and social events while civic engagement presents the degree to which people become involved in their community, both actively and passively, including such political and organizational activities as political rallies or book and sports clubs. Pigg and Crank, (2004) differentiate between the information and communication functions. They offer that **the communication function** is multi-faceted and interactive, including text, audio and video, as well it may be real-time (as in VOIP) or asynchronous or archival/historical. According to them, the communication function refers to the acts of transmitting information of different types, e.g., ideas and feelings, from one person to another. **The information function** is complex because Internet-based information transfer can take place using a variety of features of the network (Pigg and Crank, 2004). The information transfer can be “active” in that people share information using various communication features of the Internet including e-mail and video conferencing, or it can be passive, based on one person’s searching for resources on the Internet and using, for example, its archiving or knowledge management capabilities. Based on these challenges for classifying ICT in sense of its format and the role in users’ relations, Yuan et al., (2013) considers the role of ICT tools for knowledge sharing. For that reason, they collect ICT in three groups such as communication tools, social media and long standing tools².

Their research results in four **communication tools** enabling knowledge sharing. These tools (e-mail, instant messaging, telephone, and video-conferencing) are complementary to each other in supporting both synchronous (e.g. instant

² The authors also consider **long-standing tools** such as databases and digital archives that allow searching or communicating with document contributors; hence, their value for developing awareness of expertise distribution and social capital is limited. They report that more than half of their interviewees who use long-standing tools reported that their contributions to these databases were mandated by managers and hence may not contain as many details as when the contributions were more voluntary. According to authors, the lack of contextual information of knowledge stored in such databases calls for the integration of other ICT tools (Yuan et al., 2013).

messaging) and asynchronous (e.g. e-mail), as well as intrusive (e.g. telephone calls) and less intrusive (e.g. using instant messaging to respond to an urgent requests). They observed that most of the communications via instant messaging and telephone are used for informal discussions and cannot be used as formal supporting evidence when a disagreement happens (Yuan et al., 2013). They also report that half of their participants consider communication tools as very informative and more importantly, most efficient in providing up-to-date information. Best and Krueger (2006) demonstrated the problems with relying solely on the type of Internet service as a proxy for online interactions with previously known and unknown individuals. According to them, chat rooms, multiplayer games, and message boards' users report a higher percentage of interactions with previously unknown individuals. They found that time spent on the Internet with existing offline ties is unrelated to the measure of social capital, yielding a coefficient that is statistically insignificant while time spent with new online ties positively predicts social capital and can be confidently differentiated. In line with these arguments, they report that time spent with new online relations is a significant positive predictor of generalized trust and integrity; the time spent with new online relations coefficient in the generalized reciprocity model has positive sign and statistical significance (Best and Krueger, 2006). Therefore, these tools connect users (transmitter and receiver) directly and they may help build stronger connections between them and thereby make providers more motivated to share knowledge (Yuan et al., 2013).

Authors also conduct **social media tools** as the generator of knowledge sharing among community members. They claim that these tools are observed as wikis, blogs, social networking and bookmarking tools, communities, and forums, and common platforms which involve all functions. Yuan et al., (2013) report that social media users think social media tools are better at supporting social interactions than long-standing knowledge databases. It may build social capital due to the way technologies like distribution lists, photo directories, and search capabilities support

online linkages with others (Resnick, 2001). Additionally, Ellison et al. (2007) theorized that the use of social media tools helps users turn latent contacts into real connections, often by reducing the barriers. Social media can also fulfill the informational needs of users, a key ingredient for strengthening weak ties and promoting collective action in the community (Kenski and Stroud, 2006). Additionally, users can be strengthened by opportunities of social media to create and to join groups based around common interests and activities by incorporating their profiles (Hargittai, 2007). At the same time, increased participation in online and offline groups typically enable users to build trusting relationships in the community, further enhancing the potential of social media to increase social capital (Kobayashi et al., 2006). On the other hand, Yuan et al. (2013) state that social media can better address challenges to knowledge sharing because using social media helps users to develop better awareness of both other users' expertise (e.g., from employees' profiles) and their personal lives (e.g., from status updates). Moreover, it helps users to utilize network resources more effectively because the users' self-reported interests or posts inform other users in terms of better understanding about the interests and expertise of them (Yuan et al., 2013).

To sum up, the communication tools and social media may lead to basic changes in users' opportunities, motivations and abilities in sense of building, maintaining, and/or expending social capital. According to Shih et al., (2005), users' preferences for ICT are changing the face of civic participation. While individuals may be less engaged in their offline community, they are actually still engaged as they utilize the Internet for exchange of information, ideas, and opinion in their online community. With regard to the advances in ICT, Kennan et al., (2008) claim that users have expectations about how to create, maintain, and expand social capital in context based on their prior experience and personal evaluations of efficacy.

2.3.2.1. Communication Tools

Based on the given discussion, it is important to understand the impact of online communication tools used by individuals to share knowledge. According to Boase et al. (2006) these tools are going to emerge mostly as a synchronous messaging which are integrated with other knowledge sharing tools (web-based platforms). They also report the phenomenon of “media multiplicity”; the more people see each other in person and talk on the phone, the more they use the communication tools on the Internet. Because, these tools provide channels for an easy means of reaching out to tap into this form of “social capital” in organizational context by substituting the part of face-to-face exchanges (Field, 2003). The means of online communication are many and varied. The popular communication tools for knowledge sharing on the Internet refer to applications such as e-mail, instant messaging, video-conferencing, voice over internet protocol (VoIP), Internet relay chat and chat rooms (Kreijns et al., 2003; Boneva et al., 2006; Steinfield and Scupola, 2006). According to these authors, these tools provide such different communication channels and they enable the degree of social presence possible (the perception of being in communication with another individual, for example, facial expressions, tone of voice etc.). With communication tools, members in the community can share and exchange knowledge, discuss thoughts and brainstorm new ideas. The media used can vary from audio, to text, to video, and can be synchronous (e.g. videoconferencing) and asynchronous (e.g. e-mail). Table 3 presents popular communication tools and their puposes.

Table 3: Popular communication tools over Internet

E-mail	Write, store, send, and receive asynchronous messages electronically; can include attachments of word documents, pictures, audio, and other multimedia files.
Instant messaging	Allows the synchronous exchange of private messages with another user; messages primarily are in text but can include attachments of word documents, pictures, audio, and other multimedia files.
Chat rooms	Synchronous conversations with more than one user that primarily involve text; can be either public or private. Internet Relay Chat (IRC) is a protocol for live interactive Internet text messaging (chat) or synchronous conferencing. It is mainly designed for group communication in discussion forums, called channels, but also allows one-to-one communication via private message as well as chat and data transfer, including file sharing.
Videoconferencing	A set of telecommunication technologies which allow two or more locations to communicate by simultaneous two-way video and audio transmissions.
Voice over Internet	A methodology and group of technologies for the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet.

Source: Subrahmanyam (2008)

For instance, **e-mail** is one of the first computer-mediated communication channels to be widely embraced by both business and personal users (O'Reilly, 2005). Individuals on different sides of the community can read the same codified knowledge embedded in a document delivered to them simultaneously through e-mail. Haythornthwaite et al. (1998) mention that people who visit and phone frequently contact also via e-mail frequently. Similarly, Boase et al., (2006) stress that e-mail may be seen as the tool for maintaining existing social capital instead of building new ones. It may also serve as a supplement to face-to-face and phone contacts among members who already know each-other. Boase et al., (2006) found that using e-mail increases users' social networks if they have strong ties from the previous relationships among them. It facilitates linkages in an expanded community by increasing the number of personal contacts among users while the size of network remains constant (Boase et al., 2006). On the contrary, O'Reilly (2005) argues that e-mail enables users who have different backgrounds not only to develop their existing relationships but also to build new ones. This proposition suggests that e-mail is especially useful for keeping in touch with those who are far

away because of its low cost, which does not increase with distance. As an asynchronous communication tool, e-mail makes contact easy for people living in other time zones (Quan-Haase and Wellman 2002). On this basis, Uslaner (2004) propose that the relationships between individuals communicating via e-mail are not strong. Uslaner (2004) also posits that the use of online communication tools (e.g. e-mail) make individuals get involved in their communities and are significantly more likely to trust other individuals compared to users who are engaged in other online activities. These discussions about e-mail shows how more efficient the harmonized use of communication tools may be in terms of building and maintaining social capital for knowledge sharing. Because individuals may not able to share (tacit) knowledge effectively without the help of other online communication tools providing more social context such as videoconferencing, instant messaging. Fogel (2000) argues that collaborative projects rely on communication tools for communicating about the project. With regard to e-mail, asynchronous tools are favored due to the involvement of large, geographically-dispersed communities, and face-to-face meetings are rare. Therefore, maintaining social capital requires the active use of communication technology. It helps to create a sense of community and supports work (Ackerman and Halverson, 2004).

At this point, one other communication tool, **instant messaging** provides opportunities for higher immediacy and greater social presence when it is compared with e-mail. Unlike e-mail, instant messaging enables synchronous conversation and does not capture the conversation for archival works. Because of these attributes enabling flexible environment for online conversation, it has emerged as one of the primary medium for communication (Flanagin, 2005). Lee and Perry (2004) found that the use of instant messaging (among students) is more often than the phone, e-mail, and face-to-face communication because it can fulfill many of the functions that more traditional methods could fulfill, such as updating others about their day, planning spur of the moment events and discussing shared problems (Grinter and Palen, 2002). Blanchard (2004) mentions that MSN –an

instant messenger- creates and exchanges a great deal of social capital within the community. Beyond serving the exchange of socio-emotional support, MSN also serves availability for exchanging more informational support such as advices, experiences about particular events and etc. Blanchard (2004) also posits that MSN provides strong norms in active communities by extending norms about appropriate behavior into on-line group behavior. Therefore, instant messaging can lead to increased work productivity by offering members not only appropriate norms but also common interests or work problems and the opportunity to connect without having to worry about space or time (Quan-Haase et al., 2005). In parallel with Fogel (2000) arguing the necessity of synchronized communication tools for collaboration, Quan-Haase et al. (2005) found that collaboration increases through the use of instant messaging to check facts and ask questions. Yet, Kennan et al., (2008) states that forming community strictly through instant messaging can be limiting as only those individuals who are on buddy lists become part of the social network connection while others are excluded.

With regard to this limitation, online **chat rooms** offer some hope that people of different backgrounds might get together and learn to trust one another (Uslaner, 2004). Through chat rooms and subscribing to or linking in with email networks, it is also possible to establish new contacts and networks of relationships around common interests, including support groups (ABS, 2004). This form of communication is particularly important to those who may be excluded from meeting others due to physical difficulties and other limitations mentioned for instant messaging. According to Uslaner (2004), users of chat rooms who want to make friends online often anonymously, feel uncomfortable with meeting other strangers in face-to-face environments. Frequent users of chat rooms seem to trust only users like themselves and fear people with different views (Uslaner,2004). Chat rooms may provide the opportunity to share experiences, inspiration and hope with others in similar circumstances in a safe and secure setting. ABS (2004) reports that open, immoderate chat rooms do not build community, trust or subsequent social

capital. Without the boundaries, people can come and go too easily without any sense of responsibility. Yet, the boundaries can be developed through a registration system, the guidelines for interaction and the moderators' input. Therefore, these factors contribute to a sense of the site as a safe place for users to interact and share. Whether the chat room is moderated or not, there is a positive impact of it on knowledge sharing. It reveals that individuals are more likely to express an opinion than individuals in face-to-face discussions (Ho and McLeod, 2008). Presented discussions posit the fact that moderated spaces for chat room users may support social capital among members in online community by enabling the perception of honesty (Shah et al., 2001).

Even though the concept of **videoconferencing** is originated over thirty years ago (Egido, 1988), it is still one of the online communication tool in that videoconferencing groups are nearly as good as face-to-face ones (Bos et., 2002). Videoconferencing refers to a set of telecommunication technologies which allow two or more locations to communicate by simultaneous two-way video and audio transmissions which are also used as voice over IP. **Voice over IP** (voice over Internet Protocol, VoIP) is a methodology and group of technologies for the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks. These solutions aimed by business partners enable low cost of communication and efficient knowledge sharing in their community. Bos et al., (2002) argue that videoconferencing and VoIP are the result of new improvements in text-based communication over internet and they serve as an environment which is almost similar to the face-to-face environment. However, these communication tools provide delayed trust (slower progress toward full cooperation) and fragile trust (vulnerability to opportunistic behavior). According to them, users communicating with these communication tools need longer time to build up social capital within the threat of opportunistic behaviors (Bos et al., 2002). On the other hand, teleconferencing and VoIP may impact participation, collective action, norms of reciprocity, and trust within communities (Mignone and Henley, 2009). The

common use of these technologies is related to group activities as well as individual activities. According to Mignone and Henley (2009), different modes of utilization may have differing impacts on social relations. For instance, online discussion groups, within and across communities, is one of the simple forms of participation. These online groups can facilitate member's involvement in a number of activities that, particularly in dispersed communities, may not have been possible before. Online discussions can also galvanize involvement and support for collective action initiatives by building social capital. Beyond building social capital, these communication tools can be utilized by users to maintain previous social capital in dispersed communities. For instance, individuals tend to use videoconferencing as a way to connect with friends or people who are already known (Mignone and Henley, 2009).

Individuals who collaborate with others and participate in collective action via using online communication tools are likely to feel themselves as the part of community (Lin, 2011). Oliva (2003) mentions that the use of online communication tools makes individuals have stronger social capital in sense of strengthening their ties. Within the frame of continuous interaction with others who are new or old contacts enable them to move in stronger network position. In addition to having a good network position, individuals' network ties that reflect online structural capital to a certain degree are relevant for the amount of social support available to individuals within online communities. Bryant et al. (2006) found that online communication tools enable individuals to communicate with their existing contacts and to create and reinforce their social ties. In parallel with these statements, Shiau (2008) states that the pre-occupation with the existing interpersonal network, the users of such communication tools such as instant messenger are more likely to confine themselves in a small nutshell, seldom looking beyond the network. In contrast to the confinement, the open nature of communication tools such as chat rooms are more likely to attract people from diverse backgrounds instead benefits from supporting weak ties (Shiau, 2008). These phenomena offer a significant

relationship between the use of online communication tools and the constructs of social capital and the hypotheses are derived as follows:

H1: The use of communication tools has a positive impact on the network ties -the construct of structural dimension of social capital-

H2: The use of communication tools has a positive impact on the network position -the construct of structural dimension of social capital-

H3: The use of communication tools has a positive impact on the network closeness -the construct of structural dimension of social capital-

The cognitive dimension of knowledge sharing has received less attention when it is compared with the other two dimensions. Because of the cognitive barriers, the difficulty of expressing the tacit dimension of knowledge (Hinds and Pfeffer, 2002), the most of the members rely on their offline communities instead of online ones (Leonard and Sensiper 1998). However, the use of communication tools might mandate users to develop shared codes and interest in time by sharing stories, meanings and etc. in an online community (Lin, 2011). As a form social support, meaningful sharing among individuals facilitates some level of cognitive social capital (Wasko and Faraj, 2005). Therefore, individuals are likely to develop cognitive social capital in their meaningful conversation for knowledge sharing. This leads to the following hypotheses:

H4: The use of communication tools has a positive impact on the shared codes -the construct of cognitive dimension of social capital-

H5: The use of communication tools has a positive impact on the shared interests -the construct of cognitive dimension of social capital-

Finally, relational dimension of social capital, characterized by trust, reciprocity and identity (Nahapiet and Ghoshal 1998), can be found in online communities as delayed and fragile trust (Bos et al., 2002) if they have sustained their online communication. Reciprocity reflects the expectation of users to have feedback, to have respond from the remote contact (Wasko and Faraj 2005) and to share their interests. Quan-Haase and Wellman (2004) found that online participation to provide social support may intensify reciprocity. With regard to the discussions presented above, hypotheses are designed as follows:

H6: The use of communication tools has a positive impact on the trust -the construct of relational dimension of social capital-

H7: The use of communication tools has a positive impact on the reciprocity -the construct of relational dimension of social capital-

To sum up, each communication tool serves different advantages and features for knowledge sharing and social capital. There is little evidence about the use of these online tools which creates or destroys communities. Most of the relationships via online communication tools are setting up weak ties and there are no significant relationships between harmonized use of these tools and any dimension of traditional social networks (Uslaner, 2004). For instance, e-mail provides persistence (saved, archived communication logs) and is universally accepted as a mostly formal way of communication in business environment. The major defect of e-mail with regard to social capital is that it is often asynchronous, and it is not a particularly rich medium, usually not rich enough to provide sufficient context for the knowledge to be shared. Users turn to use instant messaging to have some social context for knowledge sharing. Capabilities and emotional features of these tools enable users to share their knowledge in a flexible and socially supportive environment. However, this environment is limited because of the closed friend list kept by users. Chat rooms serve open participation for users and make them

available to discuss and share with unknown (or new) members in the community. Nonetheless, if these tools are not moderated or controlled by an authority, the communication goes on mostly within the absence of trust and honest among users. On the other side, teleconferencing and voice over IP systems serve as an advanced communication opportunity for the users in terms of enabling trust and honesty for moderated groups and individuals. Yet, users only have the level of trust –delayed trust- if they sustain their interaction in the long term. Even if they sustain the interaction, they may have trust –fragile- together with the risk of opportunistic behaviors. Finally, communication tools seem to support existing social contact, yet it does not become a substitute for phone and face-to-face communication. Thus, the capabilities of these tools heavily depend on interactions with other media. In other words, users need to use various communication tools together if they want to build social capital and exchange knowledge in an online community. Along with this basis, the stronger the relationship, the more media are used, and the more types of information are exchanged.

2.3.2.2. Social Media Tools

Together with the advance of ICT with the introduction of Web2.0³, the recent trends in social networking sites, blogs, wikis and forums become valuable platforms for knowledge sharing. The term, ‘Web 2.0’ has come to signify a range of Web development techniques that facilitate knowledge sharing and online collaboration (O’ Reilly, 2009). New ICT possibilities such as distribution lists, photo directories, and advanced search engine capabilities can support online linkages with others and thus build new forms of social capital (Resnick 2001). Kaplan and Haenlein (2010) define social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content. Some of the important

³ The term Web 2.0 was coined in 1999 to describe web sites that use technology beyond the static pages of earlier web sites.

properties⁴ of social media making these platforms different than traditional media can be listed here as quality, space, frequency, accessibility, usability, immediacy and permanence. Beyond these properties, Vossen (2009) defines Web 2.0 in four dimensions. These are the social dimension, infrastructure dimension, functionality dimension and the data dimension. These dimensions technically are related with the Nonaka's (1994) process of knowledge sharing as socialization, externalization, combination and internalization.

With regard to Nonaka's (1994) statement about **socialization** - process of creating tacit knowledge through shared experience- social dimension, is described as the software for sharing user-generated content or collaborative use of it (Vossen, 2009). These description of social media tools -**Social Networking Sites (SNS)**- refers to the applications for the interactions among users in which they create, share, and exchange information and ideas in online communities and networks. Another process of knowledge sharing is **externalization** -the conversion of tacit knowledge to explicit knowledge- (Nonaka, 1994), make **Wikis** a conversational technology within the frame of meaningful dialogues (Andreano, 2008) externalizing practitioners experiences for submitting it to the Web 2.0 platforms (McAfee, 2006). According to Andreano (2008), wiki technology allows users to directly interact with the content they encounter. If a user using a best practices manual, for

⁴ **Quality** - In industrial(traditional) publishing—mediated by a publisher—the typical range of quality is substantially narrower than in niche, unmediated markets. The main challenge posed by content in social media sites is the fact that the distribution of quality has high variance: from very high-quality items to low-quality, sometimes abusive content. **Space** – both industrial and social media technologies provide scale and are capable of reaching a global audience. Industrial media, however, typically use a centralized framework for organization, production, and dissemination, whereas social media are by their very nature more decentralized, less hierarchical, and distinguished by multiple points of production and utility. **Frequency** - the number of times an advertisement is displayed on social media platforms. **Accessibility** – the means of production for industrial media are typically government and/or corporate (privately owned); social media tools are generally available to the public at little or no cost. **Usability** – industrial media production typically requires specialized skills and training. Conversely, most social media production requires only modest reinterpretation of existing skills; in theory, anyone with access can operate the means of social media production. **Immediacy** – the time lag between communications produced by industrial media can be long (days, weeks, or even months) compared to social media (which can be capable of virtually instantaneous responses). **Permanence** – industrial media, once created, cannot be altered (once a magazine article is printed and distributed, changes cannot be made to that same article) whereas social media can be altered almost instantaneously by comments or editing (Morgan et al, 2012).

example, comes across a problematic or inaccurate piece of information, he or she can immediately edit the wiki to reflect his or her own recent experience. If another user finds something wrong with this edit, this other user can similarly change what appears on the wiki. The process of **Combination** -the reconfiguration of existing information for having new knowledge by sorting, adding, re-categorizing, and re-contextualizing- (Nonaka, 1994), appears as **forums** in Web 2.0 technology (McAfee, 2006). Forums allow the users of the organization to arrange information and describe it in a way that makes sense to them and will aid them in their future discovery of relevant knowledge artifacts. It also serves better search functionality and the use of user-created tags (Andreano, 2008). The final process defined by Nonaka (1994) is **internalization** -conversion of explicit knowledge into tacit knowledge-. For this process, Web 2.0 serves as **blogs** allowing users to express themselves through storytelling and narrative (Du and Wagner, 2006). According to them, the process of expressing knowledge via blogs actually helps content owner to construct knowledge because the conversation serves to refine and make clearer knowledge of which the knower might have been unaware.

As a collaborative online tool, social media enables and encourages socialization, conversation, creation and openness in a community of users (Panahi et al., 2012). Social media also encourages, supports, and enables members to share their knowledge easily and effectively through different mechanisms. These characteristics of social media can be categorized into four features: User generated content, peer to peer communication, networking, and multimedia oriented forms. Panahi et al., (2012) defines these features as:

User generated content: Co-creation of the content is one of the main characteristics of social media. Users are no longer just simple readers, but rather they can contribute in creating, editing, commenting, annotating, evaluating, and distributing original contents in social media space.

Peer to peer communication: Connectivity is the main feature of social media, enabling people easily to stay connected with each other in real-time. Social media have provided an effective channel for social interaction and real-time conversations between users in forms of chatting, videoconferencing, etc.

Networking: It has enabled people with common interests to gather together in an online space, locate each other, share their profiles, brand themselves, develop relationships, discuss freely about their everyday issues, and transfer their knowledge and experiences. Establishing a knowledge community and expert locating services in social media helps implicit knowledge sharing among individuals.

Multimedia orientation: Another main characteristic of social media applications is enabling users to store and share multiple content forms such as text, image, audio, video, and other formats in an interactive and easy way. This provides opportunity for users to easily share their own created multi-media files, tag, and comment on them in social web sites.

The combination of those features and associated tools (wiki, forum, blog, SNS) have made social media a good channel for knowledge sharing activities (Panahi et al., 2012). These tools make members available to get connected, to communicate with others, to build relationships, to develop trust, and to share their knowledge. It also supports knowledge creation, distribution, and visibility of knowledge more effectively compared to traditional knowledge management systems (Panahi et al., 2012). For this purpose, the social media tools include a variety of applications making users available to develop personal or community blogs, to share sound, picture or video, to communicate via internal messaging or web-based instant messaging. These applications shift social media to a new unlimited way of sharing by enabling social presence, media richness, source of news about others.

When these social media tools and applications are considered in line with the process of knowledge sharing introduced by Nonaka (1994), the composition of social media appears as wikis, forums, blogs and social networking sites (SNS). The differences among these types are becoming to disappear because virtual platforms are upgraded by adding new properties of other online platforms, the core assets of social media come from being a social networking site for sharing variety of text and media (Dickerson, 2004). According to Kietzmann and Hermkens (2011), these social media tools provide some functions⁵ (identity, conversation, sharing, social presence, building relationship, reputation, participate in groups) to build an online community. These functions enable users to have identity, conversation, availability to share, present, establish and maintain relationships and reputation, and get together with groups of other members. Wikis, forums, blogs and SNS are the websites which allow people to add, modify, or delete the content via a web browser working with Web 2.0 technology by using a simplified markup language or a rich-text editor. Even though Dickerson (2004) mentions that social media, especially blogs and wikis, are often considered as the same platforms, they may serve such different purposes in sense of facilitating knowledge sharing. The major

⁵ **Identity:** The identity block represents the extent to which users reveal their identities in a social media setting. This can include disclosing information such as name, age, gender, profession, location, and also information that portrays users in certain ways. **Conversations:** The conversations block of the framework represents the extent to which users communicate with other users in a social media setting. Many social media sites are designed primarily to facilitate conversations among individuals and groups. These conversations happen for all sorts of reasons. People tweet, blog, et cetera to meet new like-minded people, to find true love, to build their self-esteem, or to be on the cutting edge of new ideas or trending topics. Yet others see social media as a way of making their message heard and positively impacting humanitarian causes, environmental problems, economic issues, or political debates. **Sharing:** Sharing represents the extent to which users exchange, distribute, and receive content. The term 'social' often implies that exchanges between people are crucial. In many cases, however, sociality is about the objects that mediate these ties between people; the reasons why they meet online and associate with each other. **Presence:** The framework building block presence represents the extent to which users can know if other users are accessible. It includes knowing where others are, in the virtual world and/or in the real world, and whether they are available. **Relationships:** The relationships block represents the extent to which users can be related to other users. By 'relate,' we mean that two or more users have some form of association that leads them to converse, share objects of sociality, meet up, or simply just list each other as a friend or fan. **Reputation:** Reputation is the extent to which users can identify the standing of others, including themselves, in a social media setting. Reputation can have different meanings on social media platforms. In most cases, reputation is a matter of trust, but since information technologies are not yet good at determining such highly qualitative criteria, social media sites rely on 'mechanical Turks': tools that automatically aggregate user-generated information to determine trustworthiness. **Groups:** The groups' functional block represents the extent to which users can form communities and sub-communities. The more 'social' a network becomes, the bigger the group of friends, followers, and contacts. (Kietzmann and Hermkens, 2011)

differences between forums, blogs, wikis and SNS are about the content development (Table 4) and the possibility of collaboration. In a forum the only way to co-operate is to discuss about a certain topic. In blogs, the only form of collaboration is to comment on the posted items. In a wiki, on the other hand, users can genuinely collaborate by creating new knowledge and enhancing existing content with the help of all the users. This is one of the main reasons why the wiki is considered to be a proper tool for transferring tacit knowledge. Finally SNS can be seen as the composition of blog and forum.

Table 4: Differences between wiki, forum and blog

SNS	Wiki	Forum	Blog
Socialization	Externalization	Combination	Internalization
Personal and community supply	Community supply	Community supply	Personal supply
Mostly developed by authenticated users and the owner	Mostly developed by authenticated users	Mostly developed by anonymous users	Mostly developed by the owner
Content publishing consisting of text, video or audio	Displays text and graphic content contributions	Content publishing consisting of comments and descriptions of entries	Content publishing consisting of text, video or audio
Pushes content to subscribers	List of edits to entries	Shows others with similar entries	Pushes content to subscribers
Notification to owner or commenter's when the new comment have been made	Notification when changes have been made	Displays number of people who bookmarked same content	

Source: Treem and Leonardi (2012)

Studies (Donath and Boyd 2004; Resnick 2001; Wellman et al. 2001; Ellison et al., 2007; Steinfeld et al., 2009; Phulari, 2010) about Social Media indicate that the use of social media tools has the potential to create social capital. Since its inception in 1990s, there are now hundreds of social media tools such as Wikipedia, Wikianswers, Deviantart, Orkut, Facebook, Twitter, LinkedIn and so on, around the world. Moreover, most of the organizations develop their own tools to facilitate internal sharing among members. The popularity of social media is likely due to the fact that this technology enables users to maintain a number of weak ties cheaply

and easily, as well as create and maintain larger, diffuse networks of relationships from which they could potentially draw resources (Donath and Boyd 2004; Resnick 2001; Wellman et al. 2001).

Williams (2006) noted that the type of relationships within social networks can predict different kinds of social capital. These social media tools can fulfill the informational needs of users, a key ingredient for strengthening weak ties and promoting collective action (Kenski and Stroud, 2006). Moreover, it may reinforce existing ties and communities by keeping users constantly updated about what is going on with their contacts (Hargittai, 2007). On this basis, Steinfeld et al. (2009) report that using social networking sites provide closer ties in a network structure if it is used to keep existed connections updated. On the other hand, it provides new contacts if it is used for searching new connections. Weak ties in community produce social capital because they connect members from different backgrounds. These weak ties broaden the set of information and opportunities for users in the community. These members may not utilize the knowledge sharing (especially tacit) via their weak ties because of the absence of emotional support which emerges from strong ties (Steinfeld et al., 2009). However, the new connections with weak ties cause an increase in social capital for members who are in a favorable position to gain and provide emotional support (Phulari, 2010). Therefore:

H8: The use of social media tools has a positive impact on the network position -the construct of structural dimension of social capital-

Donath and Boyd (2004) empirically tested that online social networks may not increase the number of strong ties a member may have. Instead, a member's weak ties may increase because the technology is suited to maintaining these links cheaply and easily. Ellison, Steinfeld, and Lampe (2007) found that the use of SNS has strong association with maintaining or solidifying existing relationships, as opposed to meeting new members. With regard to these propositions, social media

may help to build new connections as well as it helps to maintain existing ones. DiMicco et al. (2008) state that employees of a large company used their internal social network to build stronger relations with their weak ties and to get in contact with co-workers they did not know. These discussion leads to the following hypothesis:

H9: The use of social media tools has a positive impact on the network ties - the construct of structural dimension of social capital-

Users of social media tools have also larger networks of heterogeneous relations (Steinfeld et al., 2009) and not just that, more intense use of these social media are related to closer relationships with contacts. In line with this statement, one of the outcomes of the use of social media is closeness in the community by enabling users to contact with their direct and indirect relations such as relations with friends and friends of friend and by enabling similarities, solidarities and friendships (McQail 2005). Hansen et al. (2005) also found that practitioners tend to expand their contact by linking themselves with other practitioners' contacts. Therefore,

H10: The use of social media tools has a positive impact on the network closeness -the construct of structural dimension of social capital-

One other aspect of those relationships is about the cognitive dimension of social capital. Hansen et al. (2005) found that a large percentage of members in organizations share their knowledge primarily with strong ties when they participate in community. Regular interaction among members not only contributes to a shared knowledge base, but also to shared interests and codes. According to Hansen (2005) practitioners that strongly identify with their group and share beliefs with the group might be less inclined to engage with members from outside. It is therefore hypothesized as:

H11: The use of social media tools has a positive impact on the shared codes -the construct of cognitive dimension of social capital-

H12: The use of social media tools has a positive impact on the shared interests -the construct of cognitive dimension of social capital-

Finally, increased participation in online communities may help to build trusting relationships among members. Kobayashi et al., (2006) found that enhancing the participation in Facebook groups increases social capital by creating opportunities for collective actions (McQuail, 2005). When users feel connected to a community, they meet their sense of belonging, which is the basis for conversation and social interaction. By offering opportunities for the necessity of integration and utilizing community knowledge, social media tools may cause the norm of reciprocity among members. These aspects are closely associated with the relations between individuals. Without sustainable involvement in online groups, they do not exist (Steinfeld et al., 2008). The features of social media tools for creating and maintaining ties influence users' relational satisfactions. These findings lead to the following hypotheses:

H13: The use of social media tools has a positive impact on the trust -the construct of relational dimension of social capital-

H14: The use of social media tools has a positive impact on the reciprocity -the construct of relational dimension of social capital-

2.4. Conclusion

The emergence of the Internet opens a new era of interaction by offering not only communication technologies but also new social aspects for daily life and business environment. Together with the various communication and social media tools, the Internet has extended the way of interaction among people to the era of interaction among users in such communities. With the rapid development in technologies and tools, first it became a mediator of real world relations but later it defined these relations with its own dynamics. For instance, Web 2.0 enabled social media tools for communicating, sharing, learning as well as socializing. With the advance of Web

2.0, new tools provide huge variety of ways to interact. Each of these tools has a different impact on societal activities in an organizational context (Altheide, 1994). Within the frame of this statement, it can be supposed as users transform these tools by customizing them, modifying them and experimenting with them towards the purpose of the action. Conducting ICT as the communication and social media tools may provide to comprehend the multi-faceted nature of interactions including text, voice, video, picture and so on. Moreover, these shared materials may be synchronous or asynchronous. Combined use of these tools may offer some opportunities for creating and maintaining social capital among users. Communication tools refer to the acts of synchronous transmitting (except e-mail⁶) information or knowledge by using the various media such as instant messaging, chat rooms, video conferencing and VoiP. The conversation via these media can be from one to many or from one to one. These tools are generally considered to supplement face-to-face communication in location based communities while it is a substitute for dispersed ones. Researchers (Kennan et al., 2008; Wellman et al., 2002; Quan-Haase et al., 2002) mostly think that communication tools are utilized for maintaining the relationships mostly built on existed social capital. However, these relationships are mostly bounded by members existing in users' network. On the other hand, social media tools offer new connections from the virtual spaces by participating online communities. Having an account in social networking sites, wikis, and forums may bring the user to a central position to access new information via new contacts (Deitering and Bridgewater 2005). Utilizing these connections for knowledge sharing requires some level of social capital in such dimensions. Combined use of communication tools and social media tools may provide users to create, to maintain and to extend their social capital by favoring the tools in line with the nature of communication. The literature presents that the

⁶ E-mail which has both properties as a tool for synchronous communication tool and asynchronous media with its attachments. Boase, et al (2006) found that as one's network increases use of e-mail for contact with the network remains constant. According to the authors, e-mail may be seen as especially acceptable for online tools for those with which one does not have a strong tie because it fulfills a need for social capital maintenance without being intrusive or making significant time investments.

use of ICT may have different impact on social capital in sense of selected tools for interaction.

Previous research about social capital and ICT mostly conducts to investigate one particular technology, such as the Internet or e-mail. Recent findings about the impact of ICT on social capital tend to support positive relationships between the constructs by underlining the sense of community in virtual spaces and enhancing its offline relations (Hampton and Wellman, 2003). Along with these findings, it can be derived that the impact of ICT on social capital depends on the type of technology selected by individuals and tools for interaction. Yang et al., (2009) mention that results based on investigations of one particular technology cannot be generalized to other technologies without certain qualifications. Furthermore, the rapid advancements in online applications force researchers to conduct on blended use of ICT tools to facilitate knowledge sharing and creation of social capital. For instance, the convergence of web-based platform and communication software leads to new media working on computers, televisions or mobile phones. Without engaging in commonalities across the divergent use of ICT, it is highly difficult to comprehend the role of these technologies on social capital. Therefore, this study considers commonalities of ICT and the impact of them on the constructs of social capital dimensions.

CHAPTER 3

METHODOLOGY AND THE BASIS OF EMPIRICAL RESEARCH

The research methodology and procedures used in this study are presented in this chapter, which includes research design, sample selection, instruments of the study, analysis of the data, validity and a summary of the chapter.

3.1. Research Design

The purpose of this study is to investigate the relationships between the constructs of ICT and the constructs of social capital dimension. In order to have clear a insight into these relationships between ICT and social capital, the study is framed by conducting online tools for knowledge sharing facilitated among online communities of practices. Therefore, the constructs of the study are:

- Knowledge sharing tools of ICT are selected within the basis of literature (e.g. Best and Krueger 2006; Boase et al. 2006; Pigg and Crank, 2004; Yuan et al., 2013) adapted from the study, “a dynamic theory of organizational knowledge creation”, introduced by Nonaka (1994).
- Social capital dimensions by following the work of Nahapiet and Ghoshal (1998), “social capital, intellectual capital, and the organizational advantage”, suggesting three dimensions of social capital in an organizational context.
- The use of social capital for knowledge sharing in organizational context by considering features of knowledge sharing by following the work, “Social capital: Prospects for a new concept”, introduced by Adler and Kwon (2002).

Because of the difficulties in measuring the constructs of social capital dimension and the complexity of ICT tools, this research aimed to use principal component analysis (Cudeck, 2000; Jolliffe, 2002) to identify any underlying common factors across the different questions. In order to determine these questions, a questionnaire developed by the study was adapted from the previous works:

- By analyzing the results of pilot questionnaire including open-ended questions.
- By reviewing the literature focusing on the relations between ICT and Social Capital for knowledge sharing.
- By following the methodology introduced by Grootaert (2004) for measuring the constructs of social capital dimensions.

Respondents are selected from the community of media practitioners who are interacting via online and offline. Community is considered twofold as:

- Location based -availability of virtual and face-to-face contacts together-
- Dispersed communities of practices –just the availability of virtual contacts-

This separation contributes to the purpose of the study by giving opportunity to monitor the creation of social capital in an online environment. Each of the constructs used in the study are measured as factor scores which are used in multiple regression analysis. The constructs of social capital are considered as dependent variables while the constructs of ICT are considered as independent variables for the model. Hypotheses of the research are tested and the results are interpreted in line with presented debates on related topics.

3.2. Sample Selection

This research is conducted within the sector of logistics and practitioners working in such departments as public relations, institutional development, human resources, operation and other departments for the particular functions.

The logistics, in its simplest definition, is the set of activities that plans and executes the delivery of goods and raw materials from suppliers to end-users (Özdemir and Darby, 2009). The increased global exchanges and competition with the improvement of logistics infrastructure and system force logistics companies to use more advanced ICT for leveraging their supply-chain networks (Özdemir and Darby, 2009). Moreover, the countries in central position in terms of global logistics expand their online networks for ensuring effective and efficient transportation across the world. In line with these structural changes in the sector, logistics companies shift their ICT infrastructures towards advanced systems in order to improve their decision-making activities, collaborative works with their partners, communication activities with suppliers, produces, wholesalers, distributors, stores and customers. On the other hand, they utilize the advances of ICT for awareness raising, strategic alliances, learning, diffusing, informing and etc. Eliiyi (2011) underlines the situation of Turkish logistics sector as a gateway between Europe and Asia. Because of Turkey's strategic position as a hub between three continents, the effective use of advanced ICT is critically important for successful development and sustaining competitive forces. The implementation and development of ICT improves the performance of logistics companies especially by passing the information to different parties in the network and by decreasing the cost of overall system (Disney et al., 2004). The use of ICT also provide learning abilities, accessing faster and reliable services, increasing revenues and effective communication for the companies working in the sector (Feng and Yuan, 2006).

Within this sector, the sample population for the study consisted of managers, vice managers, specialists, experts, officers and consultants working for logistics companies located in Istanbul which is the most populous city involving 15% of the

Turkish population and 63% of foreign direct investment in the service sector (Özdemir and Darby, 2009).

The sample consists of 150 respondents and 120 of them were used for the analysis. In data collection process, the questionnaire was given to volunteer members and answers were collected by face-to-face interviews. These respondents are practitioners who are using online tools in their communities: location-based and dispersed. These practitioners are engaged in learning effective ways of operations, managing human resources, monitoring operations and third parties, adapting procedures to global situations involving such challenges as green house gases, negative effects on human health, land use and resource consumption. These practitioners are also responsible for social and environmental issues by concerning their business practices to work towards corporate sustainable development and learning.

3.3. Instruments of the Study

In this study, data were collected through 39 different instruments which consisted of a questionnaire. According to Jacobs and Chase (1992), an instrument's reliability deals with the consistency of measurements. The majority of the studies assessing reliability of the instruments have done so through the standard coefficient of internal consistency, Cronbach's alpha level. It was also used to verify reliability in this study.

3.3.1. Questionnaire

In this study, various data collection methods have been used including participant observations, interviews, and questionnaire. Together with the literature review, participant observations and interviews are utilized as the base of the questionnaire. The result of participant observation and interviews are derived as potential basis of the questionnaire as well as other basis coming from literature. The interviewees themselves chose the place to have questionnaire and each of

them lasted about one and a half hour. They filled up their own choices in questionnaire with the help of moderator explanations about the questions. For the pilot survey, interviewees were able to add their own answers to the choices if it was not listed. The main questionnaire was prepared with the help of these answers collected from open-ended questions.

The sample is purposive and it consists of 30 pilot interviews and 150 main interviews executed on practitioners in logistics sector from February 2012 to June 2012. The English and Turkish versions of the questionnaire can be seen in Appendices A and B. After the elimination of cases with missing data and outlier cases, 120 cases have been used in the analysis. The scales used in this study are the use of ICT in online communities and the dimensions of the social capital. The use of ICT is adapted from the literature in line with the knowledge sharing context as well as from the interviews and pilot surveys.

To measure the constructs of the use of ICT, all aspects of the ICT which are related with knowledge sharing activities were used in questionnaire by mentioning initiatives such as reading, responding, posting. The possible answers on a 5 point scale are ranged from 1 (low) to 5 (high).

To measure the constructs of social capital dimensions, theoretical basis in literature about the concepts, definition and measurement methodologies are used in questionnaire by collecting responses in a 5 point scale ranged from 1 (low) to 5 (high)

The questions in the survey contain the following parts and topics;

- **Demographic questions**
 - Age, position and duration at latest position, department, firm and sector.
- **The Use of ICT**
 - Items used by members for knowledge sharing.

In addition to the results of the pilot survey, and previously used questions were found in literature, the questions used in this part are mostly adapted from the work of Partnership on Measuring ICT for Development introduced by International Telecommunication Union (ITU)⁷, European Union Surveys on ICT usage and e-Commerce in enterprises (2011)⁸ and European Union Survey on "ICT usage in households and by individuals (2011)⁹. EurobaseTableName is ISOC_BDE15CUA. Table 5 shows the main indicators used by ITU for measuring the ICT activities in business environment. Moreover, Table 6 presents the indicators of ICT used in Eurobase household surveys which aims to measure ICT usage in households and by individuals.

⁷ The Partnership on Measuring ICT for Development was launched in June 2004, following the first phase of the World Summit on the Information Society (WSIS). Its current members are Eurostat, the International Telecommunication Union (ITU), the Organization for Economic Co-operation and Development (OECD), the United Nations Conference on Trade and Development UNCTAD, the United Nations Department of Economic and Social Affairs (UNDESA), the United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS), the World Bank, and four United Nations Regional Commissions (the UN Economic Commission for Africa, the UN Economic Commission for Latin America and the Caribbean, the UN Economic and Social Commission for Asia and the Pacific, and the UN Economic and Social Commission for Western Asia). For further information on the objectives and activities of the Partnership, see <http://measuring-ict.unctad.org>.

⁸ Access to database: European Union Survey on "ICT usage and e-Commerce in enterprises (2011) http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/data/comprehensive_databases
http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/documents/Tab/what%20is%20where%20on%20Eurobase_upd2012.pdf

⁹ Access to database: European Union Survey on "ICT usage in households and by individuals (2011) http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/data/comprehensive_databases

Table 5: The core indicators of ICT activities in business environment

Section B12 refers to Internet activities undertaken by in-scope businesses during the reference period. Activities defined per response category are in the model question below.
<ul style="list-style-type: none"> • Sending or receiving e-mail • Telephoning over the Internet/VoIP • Posting information or instant messaging • Getting information about goods or services • Getting information from general government organizations • Interacting with general government organizations • Internet banking • Accessing other financial services • Providing customer services • Delivering products online • Internal or external recruitment • Staff training

Source: Partnership on Measuring ICT for Development (2010)

Table 6: The indicators of the ICT used in Eurobase Households Surveys

Variables published in Eurobase table
<p>ISOC_BDE15CUA I_IUMAPP Internet use: making an appointment with a practitioner via a website</p> <p>ISOC_BDE15CUA I_IUNET Internet use: participating in social or professional networks</p> <p>ISOC_BDE15CUA I_IUNW Internet use: reading/downloading online newspapers/news</p> <p>ISOC_BDE15CUA I_IUPH1 Internet use: telephoning or making video calls</p> <p>ISOC_BDE15CUA I_IUPNET Internet use: participating in professional networks (creating user profile, posting messages or other contributions to LinkedIn, Xing, etc.)</p> <p>ISOC_BDE15CUA I_IUSE Frequency of Internet access: once a week (including every day)</p> <p>ISOC_BDE15CUA I_IUSNET Internet use: participating in social networks (creating user profile, posting messages or other contributions to facebook, twitter, etc.)</p> <p>ISOC_BDE15CUA I_IUUPL Internet use: uploading self-created content to any website to be shared</p> <p>ISOC_BDE15CUA I_IUWEB Internet use: listening to web radios and/or watching web TV</p> <p>ISOC_BDE15CUA I_IUWIKI Internet use: consulting wikis (to obtain knowledge on any subject)</p> <p>ISOC_CIAC_I I_ICOM Internet use: communication</p> <p>ISOC_CIAC_I I_IEDU Internet use: formalized educational activities</p>

Source: Eurostat (2012)

The questions which involve all the presented indicators of ICT are directed to the interviewees in the stage of pilot survey and the items got favorable response in knowledge sharing context (Andreano, 2008; Boneva et al., 2006; Blanchard, 2004; Kreijns et al., 2003; McAfee, 2006; Steinfield and Scupola, 2006; Uslaner, 2004; Vossen, 2009; Du and Wagner, 2006). Table 7 exhibits the ICT indicators in the thesis.

Table 7: ICT indicators measured in the study

Popular items responded by interviewees	
TOOLS	ITEMS
E-mail	Official mail address, gmail, hotmail and yahoo mail
Instant messaging	Skype, MSN, Facebook Messenger, iChat
Chat rooms	Web based chat rooms in community blogs
Videoconferencing	Skype, netmeeting, connect, ichat
Voice over IP	Special Softwares, Skype, GoogleTalk
Social Networking Sites	Facebook, Twitter, LinkedIn, MySpace, Google+
Wiki	Official wikis, personal wikis, community wikis
Forum	Discussion forums, community forums for accessing software, arts and etc.
Blog	Community blogs and personal blogs

The questions have been formulated to allow all respondents to interpret them in a similar way. 10 knowledge sharing tools are included in the second part of the survey questionnaire.

- **Dimensions of Social Capital**

This research considers social capital in three dimensions as structural, cognitive and relational (Nahapiet and Ghoshal, 1998) and its enablers for the knowledge sharing (Adler and Kwon, 2002). Table 8 presents the constructs of both approaches.

Table 8: Dimensions of social capital and its enablers for knowledge perspective

Nahapiet and Ghoshal (1998)	Adler and Kwon (2002)
<ul style="list-style-type: none"> ○ Structural social capital <ul style="list-style-type: none"> ▪ Network ties ▪ Network configuration ▪ Appropriable organization 	<ul style="list-style-type: none"> ○ Structural Opportunity <ul style="list-style-type: none"> ▪ Network ties ▪ Network position ▪ Network closeness
<ul style="list-style-type: none"> ○ Cognitive social capital <ul style="list-style-type: none"> ▪ Shared codes ▪ Shared narratives 	<ul style="list-style-type: none"> ○ Cognitive Ability <ul style="list-style-type: none"> ▪ Shared codes ▪ Shared Interest
<ul style="list-style-type: none"> ○ Relational social capital <ul style="list-style-type: none"> ▪ Trust ▪ Norms ▪ Identifications 	<ul style="list-style-type: none"> ○ Relational Motivation <ul style="list-style-type: none"> ▪ Trust ▪ Reciprocity ▪ Identity

The structural dimension of social capital is measured by monitoring the social structure in which individuals operate. Network ties (Granovetter, 1973), position (Burt, 1992) and closeness (Bourdieu, 1985) are considered within networks to

understand both the functioning and efficiency of the entire network and the range of benefits potentially available to individuals. The cognitive dimension is considered as the characteristic of shared norms linked with the level of shared codes (Ostrom, 2001) and interests (Inkpen and Tsang, 1998). Finally, the relation dimension is characterized as the composition of trust (Farrel and Knight, 2003), reciprocity (Koka and Prescott, 2002) and identity (Tsai and Ghoshal, 1998) by capturing the composition of generalized, individual and collective trust, reciprocity and identity which means belongingness of individuals to the community. Figure 2 is designed for these dimensions and Table 9 is for the use of these constructs.

3.3.2. Analysis of the Data

Having conducted the quantitative research, the questionnaires were analyzed in SPSS. First, frequencies and percentages were calculated to give an overview of the results. To test the validity and reliability of scales, besides obtaining full content validity through literature analysis, this study utilizes Cronbach's α^{10} to test each scale's reliability and the results show that all exceed 0.67, demonstrating that each scale in this study has good reliability. Then, Exploratory Factor Analysis (EFA) was used to deeply examine data in order to access determined constructs. The protocol adopted here for factor analysis is to use default settings initially (Principal Component Analysis - PCA) and to rotate the matrix of loadings to obtain orthogonal (independent) factors (Varimax rotation). The prime goal of factor analysis is to identify simple (items loadings >0.40 on only one factor) that are interpretable, assuming that items are factorable (the Kaiser-Meyer-Olkin measure of sampling adequacy tests whether the partial correlations among variables are small. Bartlett's test of sphericity tests whether the correlation matrix is an identity matrix, indicating that the factor model is inappropriate). Once clearly defined and interpretable factors have been identified (factor loadings \Rightarrow .10 are illustrated via

¹⁰ Cronbach's alpha scores range from 0 to 1. The closer the score gets to 1, the better the internal reliability of the construct is. Authors researching Cronbach's alpha do not always agree on the minimum outcome of the alpha score for it to be reliable, but it can be generally assumed that a score of at least 0.6 makes a construct considered to be reliable (Hair et al., 2006)

included tables even though only item loadings >0.45 are considered relevant to factor loadings), and responses related to these factors are saved in the form of factor scores. These Bartlett factor scores are equivalent to sub-scale or scale scores with means of zero and standard deviations of one (z-scores), and with participants credited with separate scores in relation to each identified factor.

Figure 2: Dimensions and the constructs of social capital

Table 9: Dimensional Measures of Social Capital

1	How often do you interact with other members?	<i>World Bank Institute - Dudwick et al. (2006)</i>
2	How many people, if any, are there with whom you can discuss intimate and personal matters?	<i>European Social Survey (ESS)</i>
3	Would you say that members of the community are mostly looking out for themselves?	<i>European Social Survey (ESS)</i>
4	Mutual confiding is one of the values among network members.	<i>World Bank Institute - Dudwick et al. (2006)</i>
5	How socially heterogeneous is the community?	<i>World Bank Institute - Dudwick et al. (2006)</i>
6	Rate level of duration of your contacts in the community.	<i>World Bank - Grootaert (2004)</i>
7	Rate level of volatility of the members in the community.	<i>World Bank - Grootaert (2004)</i>
How you define your community?		
8	The rules are strict.	<i>World Bank Institute - Dudwick et al. (2006)</i>
9	There are unwritten rules.	<i>World Bank Institute - Dudwick et al. (2006)</i>
10	Similarity is one of the factors getting people together in the community.	<i>World Bank Institute - Dudwick et al. (2006)</i>
11	Do members of this community typically assist one another in times of need?	<i>World Bank - Grootaert (2004)</i>
How would you characterize your community, in terms of addressing your ...		
12	Duties	<i>World Bank - Grootaert and Bastelaer (2002)</i>
13	Interests	<i>World Bank - Grootaert and Bastelaer (2002)</i>
14	Problems	<i>World Bank - Grootaert and Bastelaer (2002)</i>
How would you characterize your community, in terms of shared ...		
15	Understanding	<i>World Bank Institute - Dudwick et al. (2006)</i>
16	Level of Knowledge	<i>World Bank Institute - Dudwick et al. (2006)</i>
17	Vision	<i>World Bank Institute - Dudwick et al. (2006)</i>
18	Generally speaking, do you believe that most members can be trusted?	<i>Narayan and Cassidy (2001)- Grootaert and Bastelaer (2002)</i>
19	How much confidence do you have for the members of the community?	<i>Narayan and Cassidy (2001)- Grootaert and Bastelaer (2002)</i>
20	Do you think that in this community generally trust each other in matters of any conflict?	<i>Narayan and Cassidy (2001)- Grootaert and Bastelaer (2002)</i>
What characteristics are most valued among community members?		
21	Solidarity	<i>World Bank - Grootaert and Bastelaer (2002)</i>
22	Cooperation	<i>World Bank Institute - Dudwick et al. (2006)</i>
23	Participation	<i>World Bank Institute - Dudwick et al. (2006)</i>
24	Support	<i>World Bank Institute - Dudwick et al. (2006)</i>
25	How much respect do you have for the community?	<i>World Bank Institute - Dudwick et al. (2006)</i>
26	Do you consider yourself as belonging to your community?	<i>European Social Survey (ESS)</i>

3.4. Conclusion

This chapter included (1) research design describing the path of the study towards answering the research question. Because of the variety of disciplines and topics conducting and defining social capital, the study is framed in organizational context for knowledge sharing among online communities of practices. (2) A description of the sample and some definitive information were given about the case. The intensity of the logistics sector about the use of ICT makes this study more meaningful in terms of the utilization of the results. (3) The instruments considered in the study are derived from the literature by following the theoretical foundations of the social capital concepts. Within the era of rapid improvements and convergences in ICT applications, study takes latest and popular tools into account in order to contribute to the purpose. Description of the questionnaire and the basis of constructs were given in chapter together with the considered statements in the literature for each construct. Finally (4) the methodology followed for the analysis was presented by giving implications about the EFA. The next chapter will focus on the implementation of the methodology presented in Chapter 3 and main findings by using this methodology.

CHAPTER 4

FINDINGS

This chapter presents the findings of the study concerning the research questions and each sub-question stated formerly. It starts with descriptive statistics aiming to define a community interacting via ICT tools. Position of the practitioners, their ages and their duration at the latest position, company and sector are presented to define sample in order to give some clues about the level of social capital they have or do not have. Cross tabulations between age and position, age and permanency for work and sector and finally, position and permanency for work and sector are also given here to have insight about the situation of practitioners in the network. Then, each of the component used in study are defined by giving observed variables as predictors. The way of extracting these components is presented by exhibiting the results of Exploratory Factor Analysis. Reliability statistics of the measures are added to each result of analysis. These results are interpreted by referring to literature and expectation. Finally, given hypotheses are tested by regressing the factor score of each component to another in line with the purpose of the study. Results of the regression are printed and interpreted.

4.1. Descriptive Results for the Sample Demography

In this section, the analysis of the collected demographic data (Table 10) is presented in two descriptive parts. Part one presents the frequencies about the major demographic data such as age, position, duration at work in the company and duration at work in the sector. Part two shows cross tabulations among these major data.

Table 10 Descriptive Statistics for Demographic Questions

	N	Minimum	Maximum	Mean	Std. Deviation
Age	120	2	5	3,38	,891
Position	120	1	5	3,39	,973
Duration at work in the same company	120	2	5	2,68	,724
Duration at work in the same sector	120	2	5	3,35	,827
Frequency of changes in duties	120	2	3	2,73	,448
Frequency of changes in the department	120	1	3	1,69	,765
Frequency of changes in the firm	120	1	3	1,98	,860
Frequency of changes in the sector	120	1	3	1,69	,731
Satisfaction of working in the company	120	3	5	3,61	,584
Satisfaction of working in the sector	120	3	5	3,62	,568
Satisfaction of working in the field	120	3	5	3,66	,587
Valid N	120				

4.2. Frequencies

The results of the questionnaire revealed 96 (80%) individuals in the community are working as full time practitioners while 24 (20%) individuals are engaged in managerial and consultancy activities in parallel with their daily practices. Managers in organizations are mostly engaged in communication between organization and board members or owners. They are also working as executives for the relationship between organization and other business parties, organizations and state. Nine managers are observed in this study and they have overall responsibility for managing both productivity and cost elements of departments as well as the balance between income and outcome. They are also empowered for decision-making and using initiatives. Vice-managers follow daily operations such as planning, delegating, coordinating, organizing and limited decision-making for an organization. They are responsible for setting up linkages between other business parties and enabling cooperation between organizations. 40 experts are observed for this research and they are engaged in knowledge-intensive activities in particular fields such as planning and developing strategies, cooperating with other experts to develop new processes and products. Experts also deal with analyses and forecast economic, consumer, agency, media and market trends and developments for selected regions around the world. Additionally, they prepare charts, tables and commentary for reports and contribute to team discussions on the findings and recommendations. 56 officers are engaged in preparing and supervising the

production of publicity brochures, handouts, direct mail leaflets, promotional videos, photographs, films and multimedia programs. They are also responsible for organizing events including press conferences, exhibitions, open days and press tours and fostering community relations through events such as open days and through involvement in community initiatives. Finally, eight consultants participated in this research. Their duties in organization involves research and preparing media landscape and country overviews, including economic and other statistical data, media legislation and trends and agency developments for selected regions. They collect data from clients, clean and verify the data and prepare it for analysis using standard database softwares. Table 11 gives frequencies about this sample in organizations.

Table 11: Position (title) in organizations

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Manager	9	7,5	7,5	7,5
Vice Manager	7	5,8	5,8	13,3
Expert	40	33,3	33,3	46,7
Officer	56	46,7	46,7	93,3
Consultant	8	6,7	6,7	100,0
Total	120	100,0	100,0	

The profiles of the interviewed individuals for qualitative data purposes have very similar characteristics due to purposeful sampling with criterion technique used in quantitative sampling. Generally, they are between 28 and 47 years old (72.5%). As presented in Table 12, almost 16% of individuals are under 27 and almost 12% of individuals are more than 48 years old. While the first group involves experts, officers, and few consultants, the second part mostly involves managers, vice-managers and consultants. Table 12 gives frequencies about the age of interviewers. While all the managers are older than 38 years old, 71.4% of vice managers are 38 years old and older. 92.5% of the experts working in community is between 28 years old and 47 years old. The youngest part of the community is

working as an officer and their proportion is 32.1% for the group of individuals under 27 years old or younger. Another interesting descriptive statistic is about officers who are not older than 47 years old. This statistic presents the availability of promotion in the sector or short periods in the sector in sense of working as an officer. All these descriptive data can be seen at Table 15 showing cross tabulation frequencies between the age of the individual and the position.

Table 12: Age

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18 - 27	19	15,8	15,8	15,8
28 - 37	50	41,7	41,7	57,5
38 - 47	37	30,8	30,8	88,3
More than 48	14	11,7	11,7	100,0
Total	120	100,0	100,0	

As illustrated in Table 12, 44.2% of the community members have been working less than 3 years, and 47.5% of them have been working less than 5 years in the same company. These descriptive statistics show that the turnover in the sector is high in sense of working for a company. The average age in community is between 28 and 47 years old because 72.5% of the community is under 47 years old and older than 28 years old. These statistics can be seen at Table 13.

Table 13: Permanency at work in the same company

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid More than 1 year	53	44,2	44,2	44,2
More than 3 years	57	47,5	47,5	91,7
More than 5 years	6	5,0	5,0	96,7
More than 10 years	4	3,3	3,3	100,0
Total	120	100,0	100,0	

The profile of the sector in terms of member work duration seems impermanent because of the young practitioners employed in the company and the sector. 91.8% of the members who are between 38 and 47 years old, 100% of members who are between 18-37 years old have 5 years experience or less in the same company. However, 50% of the members who are older than 48 and 8.1% of the members who are between 38 and 47 years old have 5 years or more experience in the same company. Members in the sample having 5 years or more experience in the company are working as managers (100%) and vice managers (14,3%) while the other positions do not exist in the sample in terms of having 5 years and more experience. Because of the occupations which are transitive in terms of common duties in organizations as well as the sector and higher volatility in career opportunities, duration at work is relatively shorter. Parallel with duration at the company, statistics on permanency at the sector presents similar tendencies. On this basis, it is clear that most of the members are not leaving the sector (Table 14) if they have minimum one-year experience. The proportion of members working in the sector more than 10 years is going to 17.5% from 3.3% of the members working in the same firm.

Table 14: Permanency at work in the same sector

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	More than 1 year	21	17,5	17,5
	More than 3 years	42	35,0	52,5
	More than 5 years	51	42,5	95,0
	More than 10 years	6	5,0	100,0
	Total	120	100,0	100,0

While demographic information has no impact on the level of analysis in this research, this reporting provides a generalized view in terms of distributions among age, position, permanency at work. Table 15 shows that the sample is made up of mostly 28 years old or older respondents, experts, and officers. While the group of experts, officer and vice managers involve members who are between 28-48 years old (85.7% for vice managers, 92.5% for experts and 67.8% for officers), the

managers and consultants mostly involve members who are older than 48 years old (100% for managers and 87.5% for consultants). The group of officers involve relatively young members who are younger than 38 (89.2%). This may indicate that the respondents who belong to same generations relatively extend social capital if they share common platform or history (Alwin and McCammon, 2007). Robinson and Jackson's (2001) findings suggest that social capital has declined across generations. On this basis, it is expected that especially cognitive and relational dimension of social capital may emerge in the both location-based and dispersed community.

Table 15: Cross tabulation between age of respondents and their positions

			Position					Total
			Manager	Vice Manager	Expert	Officer	Consultant	
Age 18 - 27	Count		0	0	0	18	1	19
	% within Position		0,0%	0,0%	0,0%	32,1%	12,5%	15,8%
28 - 37	Count		0	2	16	32	0	50
	% within Position		0,0%	28,6%	40,0%	57,1%	0,0%	41,7%
38 - 47	Count		2	4	21	6	4	37
	% within Position		22,2%	57,1%	52,5%	10,7%	50,0%	30,8%
More than 48	Count		7	1	3	0	3	14
	% within Position		77,8%	14,3%	7,5%	0,0%	37,5%	11,7%
Total	Count		9	7	40	56	8	120
	% within Position		100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

On the other hand, positions in organization is also critical for building and maintaining social capital and it depends on the network position in the social structure. Ability to coordinate members, ability to identify opportunities in terms of getting right members together is a managerial activity in organizations (Burt, 1997). In this sense, relatively older and experienced managers in organization may indicate the existence of structural dimension of social capital in the community. In terms of the positions of respondents who are older than 48 years old, 77.8% of the members are working as managers and 14.3% is vice manager. Moreover, many of these members have minimum 5 years work experience in the same organization while they have 10 years or more experience in the sector. Table 16 and Table 17

demonstrate the frequencies of distribution of the sample in line with age and permanency at work/sector.

The interplay between human capital and social capital can be identified as the aspects of knowledge in sense of accessing sources and utilizing those (Brush et al., 2001). Human capital of an organization refers to having individuals who are qualified and experienced (Becker 1993). This research presents work experience with regard to indicating one of the bases of social capital. There are many researchers conducting the relationship between human capital and social capital by conducting work experience and business performance in a social environment (Davidsson and Honig, 2003; Hatch and Zweig, 2000). For instance, Colombo and Grilli (2005) members having more commercial experience are more likely to achieve growth in business performance when compared with members having technical expertise. Within this framework, it may be assumed that the experience and proficiency in management are typical factors of managers who are getting together. Table 18 and Table 19 give descriptive statistics on human capital in terms of their position, age and experience.

Table 16: Cross tabulation between age and permanency at work in the same organization

		Permanency at work in the same company				Total
		More than 1 year	More than 3 years	More than 5 years	More than 10 years	
Age 18 - 27	Count	10	9	0	0	19
	% within Duration at work in the same company	18,9%	15,8%	0,0%	0,0%	15,8%
28 - 37	Count	21	29	0	0	50
	% within Duration at work in the same company	39,6%	50,9%	0,0%	0,0%	41,7%
38 - 47	Count	18	16	1	2	37
	% within Duration at work in the same company	34,0%	28,1%	16,7%	50,0%	30,8%
More than 48	Count	4	3	5	2	14
	% within Duration at work in the same company	7,5%	5,3%	83,3%	50,0%	11,7%
Total	Count	53	57	6	4	120
	% within Duration at work in the same company	100,0%	100,0%	100,0%	100,0%	100,0%

Table 17: Cross tabulation between position and permanency at work in the same organization

		Permanency at work in the same company				Total
		More than 1 year	More than 3 years	More than 5 years	More than 10 years	
Manager	Count	0	0	5	4	9
	% within Duration at work in the same company	0,0%	0,0%	83,3%	100,0%	7,5%
Vice Manager	Count	3	3	1	0	7
	% within Duration at work in the same company	5,7%	5,3%	16,7%	0,0%	5,8%
Expert	Count	14	26	0	0	40
	% within Duration at work in the same company	26,4%	45,6%	0,0%	0,0%	33,3%
Officer	Count	29	27	0	0	56
	% within Duration at work in the same company	54,7%	47,4%	0,0%	0,0%	46,7%
Consultant	Count	7	1	0	0	8
	% within Duration at work in the same company	13,2%	1,8%	0,0%	0,0%	6,7%
Total	Count	53	57	6	4	120
	% within Duration at work in the same company	100,0%	100,0%	100,0%	100,0%	100,0%

Table 18: Cross tabulation between age and permanency at work in the sector

			Permanency at work in the same sector				Total
			More than 1 year	More than 3 years	More than 5 years	More than 10 years	
Age 18 - 27	Count		7	4	8	0	19
	% within Duration at work in the same sector		33,3%	9,5%	15,7%	0,0%	15,8%
28 - 37	Count		12	23	15	0	50
	% within Duration at work in the same sector		57,1%	54,8%	29,4%	0,0%	41,7%
38 - 47	Count		2	14	21	0	37
	% within Duration at work in the same sector		9,5%	33,3%	41,2%	0,0%	30,8%
More than 48	Count		0	1	7	6	14
	% within Duration at work in the same sector		0,0%	2,4%	13,7%	100,0%	11,7%
Total	Count		21	42	51	6	120
	% within Duration at work in the same sector		100,0%	100,0%	100,0%	100,0%	100,0%

Table 19: Cross tabulation between position and permanency at work in the sector

			Permanency at work in the same sector				Total
			More than 1 year	More than 3 years	More than 5 years	More than 10 years	
Position Manager	Count		0	0	3	6	9
	% within Duration at work in the same sector		0,0%	0,0%	5,9%	100,0%	7,5%
Vice Manager	Count		0	4	3	0	7
	% within Duration at work in the same sector		0,0%	9,5%	5,9%	0,0%	5,8%
Expert	Count		0	22	18	0	40
	% within Duration at work in the same sector		0,0%	52,4%	35,3%	0,0%	33,3%
Officer	Count		21	16	19	0	56
	% within Duration at work in the same sector		100,0%	38,1%	37,3%	0,0%	46,7%
Consultant	Count		0	0	8	0	8
	% within Duration at work in the same sector		0,0%	0,0%	15,7%	0,0%	6,7%
Total	Count		21	42	51	6	120
	% within Duration at work in the same sector		100,0%	100,0%	100,0%	100,0%	100,0%

4.3. Results of Exploratory Factor Analysis

As mentioned in the methodology chapter, the statistical method used is factor analysis, which is considered suitable to work with these types of data, sample size and research aims. Factor analysis used in this research describes the covariance relationships among observed variables in terms of a smaller number of unobserved latent variables, called factors. On this basis, factor analysis can be viewed as an extension of principal components analysis.

This research also uses the principal component factor analysis method in the estimation of the factor loadings and communalities, which uses the square multiple correlations as estimates of the communalities to compute the factor loadings. This procedure drops factors with eigenvalues below 1,00. Then it performs an orthogonal rotation of factors through the varimax method to simplify the factor structure. The goal of this method is to obtain factors with a few large loadings and as many loadings close to zero as possible. By the way of estimating parameters via principal-component factor analysis, this analysis obtain factor solutions for correlations of presented variables with KMO (KaiserMeyer-Olkin measure of sampling adequacy) mostly greater than 0.7.

4.4. Measures of the Constructs

Reliability of the questionnaire is presented by giving Cronbach's Alpha which is the estimated reliability of the whole items as 0.804 for ICT and 0.789 for social capital found in the location-based community while it is 0.680 for the dispersed community. After factor rotation was inspected, the number of items for ICT is reduced to 8 while items of social capital are reduced to 25 for each community. All of the factors yielded good reliability estimates ranging from 0.52 to 0.94 (Table 20).

Table 20: Reliability of Factors

Factors	Cronbach's Alpha		N of Items	
Information and Communication Technologies				
Factor 1	,748		4	
Factor 2	,847		4	
Overall Reliability	,804		8	
Social Capital				
	Location-Based	Dispersed	Location-Based	Dispersed
Factor 1	,941	,894	4	4
Factor 2	,895	,857	4	4
Factor 3	,830	,931	4	3
Factor 4	,891	,803	3	4
Factor 5	,847	,841	3	3
Factor 6	,797	,780	2	3
Factor 7	,584	,986	3	2
Factor 8	,525	,682	2	2
Overall Reliability	,789	,680	25	25

The factorability of the intercorrelation matrix is measured by two tests: Kaiser-Meyer-Olkin test of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity. The results obtained from the two tests revealed that the factor models are appropriate. Table 21 shows the results of KMO and Bartlett's test for ICT items while Table 22 shows the same results for social capital in location-based community and Table 23 involves the results for social capital in a dispersed community.

Table 21: KMO and Bartlett's Test for ICT Items

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,725
Bartlett's Test of Sphericity	Approx. Chi-Square	2016,566
	df	325
	Sig.	,000

Table 22: KMO and Bartlett's Test for Social Capital in a Location-based Community

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,725
Bartlett's Test of Sphericity	Approx. Chi-Square	1976,413
	df	300
	Sig.	,000

Table 23: KMO and Bartlett's Test for Social Capital in Dispersed Community

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,668
Bartlett's Test of Sphericity	Approx. Chi-Square	2203,501
	df	300
	Sig.	,000

The construct validity of the questionnaire is examined through Exploratory Factor Analysis (EFA). For the ICT items, PCA extracted 8 factors (Table 27) with eigenvalues greater than 1.0 which accounted for 65% of the variance (Table 26). For the social capital in location-based community, 25 factors are extracted (Table 31) with eigenvalues greater than 1.0 which accounted for 78% of the variance (Table 30). Finally, 25 factors are extracted (Table 35) for the social capital in a dispersed community with eigenvalues greater than 1.0 which accounted for 79% of the variance (Table 34).

Table 24: Total Variance Explained for the 9 Items of ICT

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,599	39,988	39,988	3,599	39,988	39,988	2,871	31,895	31,895
2	1,76	19,556	59,544	1,76	19,556	59,544	2,488	27,649	59,544
3	0,872	9,693	69,236						
4	0,843	9,367	78,603						
5	0,622	6,909	85,512						
6	0,544	6,046	91,558						
7	0,473	5,257	96,815						
8	0,164	1,824	98,639						
9	0,122	1,361	100						

Extraction Method: Principal Component Analysis.

Table 25: Rotated Component Matrix for the 9 items of ICT

	Components	
	1	2
Forum	,911	
Blogs	,872	
SNS	,788	
Wiki	,683	
E-Mail	,323	,304
Videoconferencing		,918
Chat Rooms		,860
Voice over IP		,706
Instant Message		,468

Table 24 presents total variance explained by 2 factors of ICT questionnaire. One of the items, e-mail, is not appropriate for any factor (Table 25). For that reason it is reduced from the analysis of construct validation and the analysis is repeated again without this item. The results can be seen at Table 26 and Table 27. Table 28 presents total variance explained by 8 factors of ICT questionnaire. However, one of the items, *“How would you characterize your community, in terms of shared vision?”* is not appropriate for any factor (Table 29). For that reason it is reduced from the analysis of construct validation and the analysis is repeated again without this item. The results can be seen at Table 30 and Table 31. Finally, Table 32 presents total variance explained by 8 factors of ICT questionnaire. One of the items, *“Rate level of duration of your contacts in the community”*, is not appropriate for any factor (Table 33). Table 34 and Table 35 present the result of this analysis.

Table 26: Total Variance Explained for the 8 items of ICT

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,45	43,124	43,124	3,45	43,124	43,124	2,786	34,831	34,831
2	1,759	21,992	65,116	1,759	21,992	65,116	2,423	30,286	65,116
3	0,856	10,697	75,813						
4	0,625	7,813	83,626						
5	0,544	6,802	90,428						
6	0,473	5,915	96,343						
7	0,165	2,06	98,403						
8	0,128	1,597	100						

Extraction Method: Principal Component Analysis.

Table 27: Rotated Component Matrix for the 8 items of ICT

	Components	
	1	2
Forum	,917	
Blogs	,873	
SNS	,791	
Wiki	,685	
Videoconferencing		,919
Chat Rooms		,868
Voice over IP		,707
Instant Message		,473

Table 28 presents how 76% of total variance is explained by 8 factors and 26 components. However, one of these components (How would you characterize your community, in terms of shared vision?) is not eligible since it has provided similar loading to two different factors (Table 29). Then this component is omitted and the analysis is repeated with the remaining components. Table 30 presents how 77% of total variance is explained by 8 factors and 25 components. Finally, the factors and components used by the study can be seen at Table 31. The procedures are also repeated for the dispersed communities (Tables 32-35).

Table 28: Total Variance Explained for the 26 Factors of Social Capital in a Location-based Community

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,460	20,998	20,998	5,460	20,998	20,998	3,601	13,851	13,851
2	4,250	16,346	37,344	4,250	16,346	37,344	3,210	12,345	26,196
3	2,924	11,245	48,590	2,924	11,245	48,590	2,872	11,047	37,243
4	1,781	6,851	55,441	1,781	6,851	55,441	2,655	10,213	47,455
5	1,659	6,380	61,821	1,659	6,380	61,821	2,598	9,994	57,449
6	1,486	5,715	67,536	1,486	5,715	67,536	1,820	6,999	64,449
7	1,261	4,849	72,385	1,261	4,849	72,385	1,701	6,541	70,990
8	1,072	4,123	76,507	1,072	4,123	76,507	1,434	5,517	76,507
9	,816	3,137	79,644						
10	,753	2,897	82,542						
11	,600	2,306	84,848						
12	,546	2,099	86,947						
13	,490	1,885	88,832						
14	,413	1,590	90,421						
15	,389	1,496	91,918						
16	,323	1,244	93,162						
17	,299	1,150	94,312						
18	,291	1,120	95,431						
19	,244	,937	96,369						
20	,214	,824	97,193						
21	,191	,735	97,928						
22	,177	,679	98,607						
23	,154	,592	99,198						
24	,122	,468	99,667						
25	,057	,219	99,885						
26	,030	,115	100,000						

Extraction Method: Principal Component Analysis.

Table 29: Rotated Component Matrix for the 26 Factors of Social Capital in a Location-based Community

	Component							
	1	2	3	4	5	6	7	8
How many people, if any, are there with whom you can discuss intimate and personal matters?	,926							
Mutual confiding is one of the values among network members.	,888							
Would you say that members of the community are mostly looking out for themselves?	,886							
How often do you interact with other members?	,753			,450				
Similarity is one of the factors getting people together in the community.		,852			,335			
There are unwritten rules.		,851						
The rules are flexible.		,843						
Do members of this community typically assist one another in times of need?		,831						
What characteristics are most valued among community members? Support			,847					
What characteristics are most valued among community members? Solidarity			,816					
What characteristics are most valued among community members? Participation			,796					
What characteristics are most valued among community members? Cooperation			,724					
Rate the level of duration of your contacts in the community.				,898				
How socially heterogeneous is the community?				,841				
Rate the level of volatility of the members in the community.	,318			,749				
How would you characterize your community, in terms of addressing your problems?		,328			,812			
How would you characterize your community, in terms of addressing your interests?					,807			
How would you characterize your community, in terms of addressing your duties?				,352	,670			
How would you characterize your community, in terms of shared vision?					-,495			,494
Do you consider yourself as belonging to your community?						,907		
How much respect do you have for the community?						,882		
How much confidence do you have for the members of the community?							,805	
Do you think that in this community generally trust each other in matters of any conflict?			-,301				,725	
Generally speaking, do you believe that most members can be trusted?			,317				,637	
How would you characterize your community, in terms of shared understanding?								,777
How would you characterize your community, in terms of shared level of knowledge?					,350			,716

Extraction Method: Principal Component Analysis.

Table 30: Total Variance Explained for the 25 Factors of Social Capital in a Location-based Community

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,405	21,620	21,620	5,405	21,620	21,620	3,577	14,307	14,307
2	4,213	16,852	38,472	4,213	16,852	38,472	3,163	12,651	26,958
3	2,914	11,654	50,126	2,914	11,654	50,126	2,874	11,498	38,456
4	1,780	7,119	57,246	1,780	7,119	57,246	2,654	10,617	49,073
5	1,569	6,277	63,523	1,569	6,277	63,523	2,501	10,005	59,078
6	1,309	5,236	68,759	1,309	5,236	68,759	1,759	7,036	66,115
7	1,225	4,900	73,660	1,225	4,900	73,660	1,689	6,757	72,871
8	1,070	4,282	77,941	1,070	4,282	77,941	1,268	5,070	77,941
9	,815	3,260	81,201						
10	,665	2,658	83,860						
11	,577	2,307	86,166						
12	,521	2,083	88,249						
13	,414	1,655	89,904						
14	,392	1,567	91,471						
15	,327	1,309	92,780						
16	,306	1,226	94,006						
17	,292	1,168	95,174						
18	,250	1,001	96,174						
19	,215	,861	97,035						
20	,191	,766	97,801						
21	,180	,720	98,521						
22	,161	,642	99,163						
23	,122	,488	99,651						
24	,057	,229	99,880						
25	,030	,120	100,000						

Extraction Method: Principal Component Analysis.

Table 31: Rotated Component Matrix for the 25 Factors of Social Capital in a Location-based Community

	Component							
	1	2	3	4	5	6	7	8
How many people, if any, are there with whom you can discuss intimate and personal matters?	,928							
Would you say that members of the community are mostly looking out for themselves?	,888							
Mutual confiding is one of the values among network members.	,886							
How often do you interact with other members?	,755			,455				
There are unwritten rules.		,861						
Similarity is one of the factors getting people together in the community.		,847			,347			
The rules are flexible.		,838						
Do members of this community typically assist one another in times of need?		,828						
What characteristics are most valued among community members? Support			,848					
What characteristics are most valued among community members? Solidarity			,816					
What characteristics are most valued among community members? Participation			,796					
What characteristics are most valued among community members? Cooperation			,723					
Rate the level of duration of your contacts in the community.				,904				
How socially heterogeneous is the community?				,841				
Rate the level of volatility of the members in the community.	,317			,755				
How would you characterize your community, in terms of addressing your interests?					,843			
How would you characterize your community, in terms of addressing your problems?		,304			,840			
How would you characterize your community, in terms of addressing your duties?				,327	,710			
Do you consider yourself as belonging to your community?						,929		
How much respect do you have for the community?						,888		
How much confidence do you have for the members of the community?							,798	
Do you think that in this community generally trust each other in matters of any conflict?			-,304				,730	
Generally speaking, do you believe that most members can be trusted?			,314				,639	
How would you characterize your community, in terms of shared level of knowledge?								,799
How would you characterize your community, in terms of shared understanding?					-,303			,753

Extraction Method: Principal Component Analysis.

Table 32: Total Variance Explained for the 26 Factors of Social Capital in a Dispersed Community

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,887	18,797	18,797	4,887	18,797	18,797	3,217	12,371	12,371
2	3,280	12,616	31,413	3,280	12,616	31,413	2,997	11,525	23,897
3	2,791	10,734	42,147	2,791	10,734	42,147	2,732	10,507	34,404
4	2,554	9,823	51,970	2,554	9,823	51,970	2,674	10,284	44,688
5	1,988	7,645	59,615	1,988	7,645	59,615	2,440	9,386	54,074
6	1,737	6,680	66,295	1,737	6,680	66,295	2,382	9,160	63,234
7	1,478	5,683	71,978	1,478	5,683	71,978	2,003	7,702	70,936
8	1,342	5,161	77,138	1,342	5,161	77,138	1,613	6,203	77,138
9	,831	3,198	80,336						
10	,781	3,004	83,340						
11	,701	2,696	86,037						
12	,554	2,130	88,166						
13	,507	1,949	90,115						
14	,399	1,534	91,649						
15	,389	1,496	93,145						
16	,320	1,231	94,376						
17	,287	1,102	95,478						
18	,253	,975	96,452						
19	,225	,864	97,317						
20	,188	,724	98,040						
21	,159	,612	98,652						
22	,130	,499	99,151						
23	,102	,394	99,544						
24	,061	,235	99,780						
25	,039	,149	99,929						
26	,019	,071	100,000						

Extraction Method: Principal Component Analysis.

Table 33: Rotated Component Matrix for the 26 Factors of Social Capital in a Dispersed Community

	Component							
	1	2	3	4	5	6	7	8
How often do you interact with other members?	,944							
Would you say that members of the community are mostly looking out for themselves?	,930							
How many people, if any, are there with whom you can discuss intimate and personal matters?	,893							
Mutual confiding is one of the values among network members.	,678				,344			
What characteristics are most valued among community members? Cooperation		,918						
What characteristics are most valued among community members? Solidarity		,904						
What characteristics are most valued among community members? Participation		,865						
What characteristics are most valued among community members? Support		,601						
Do you think that in this community generally trust each other in matters of any conflict?			,963					
Generally speaking, do you believe that most members can be trusted?			,942					
How much confidence do you have for the members of the community?			,902					
Do members of this community typically assist one another in times of need?				,880				
Similarity is one of the factors getting people together in the community.				,832				
The rules are flexible.				,830				
There are unwritten rules.				,608			-,330	
How would you characterize your community, in terms of addressing your interests?					,828			
How would you characterize your community, in terms of addressing your problems?					,784			
How would you characterize your community, in terms of addressing your duties?					,725			
Rate the level of duration of your contacts in the community.					,359			,349
How would you characterize your community, in terms of shared level of knowledge?						,912		
How would you characterize your community, in terms of shared vision?						,894		
How would you characterize your community, in terms of shared understanding?						,778		
Rate the level of volatility of the members in the community.							,920	
How socially heterogeneous is the community?							,913	
How much respect do you have for the community?								,873
Do you consider yourself as belonging to your community?								,814

Extraction Method: Principal Component Analysis.

Table 34: Total Variance Explained for the 25 Factors of Social Capital in a Dispersed Community

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,769	19,074	19,074	4,769	19,074	19,074	3,184	12,735	12,735
2	3,271	13,083	32,157	3,271	13,083	32,157	2,932	11,729	24,464
3	2,790	11,160	43,317	2,790	11,160	43,317	2,730	10,920	35,384
4	2,519	10,076	53,393	2,519	10,076	53,393	2,656	10,622	46,006
5	1,986	7,946	61,339	1,986	7,946	61,339	2,376	9,504	55,511
6	1,732	6,930	68,268	1,732	6,930	68,268	2,335	9,340	64,851
7	1,419	5,675	73,943	1,419	5,675	73,943	1,995	7,982	72,833
8	1,293	5,171	79,114	1,293	5,171	79,114	1,570	6,282	79,114
9	,791	3,164	82,278						
10	,740	2,960	85,238						
11	,563	2,252	87,490						
12	,516	2,065	89,555						
13	,413	1,654	91,209						
14	,399	1,595	92,804						
15	,327	1,310	94,113						
16	,287	1,149	95,262						
17	,254	1,015	96,277						
18	,225	,899	97,176						
19	,192	,767	97,943						
20	,159	,637	98,580						
21	,131	,523	99,103						
22	,105	,421	99,524						
23	,062	,247	99,771						
24	,039	,155	99,926						
25	,019	,074	100,000						

Extraction Method: Principal Component Analysis.

Table 35: Rotated Component Matrix for the 25 Factors of Social Capital in a Dispersed Community

	Component							
	1	2	3	4	5	6	7	8
How often do you interact with other members?	,949							
Would you say that members of the community are mostly looking out for themselves?	,932							
How many people, if any, are there with whom you can discuss intimate and personal matters?	,895							
Mutual confiding is one of the values among network members.	,677					,332		
What characteristics are most valued among community members? Cooperation		,923						
What characteristics are most valued among community members? Solidarity		,900						
What characteristics are most valued among community members? Participation		,873						
What characteristics are most valued among community members? Support		,609						
Do you think that in this community generally trust each other in matters of any conflict?			,963					
Generally speaking, do you believe that most members can be trusted?			,942					
How much confidence do you have for the members of the community?			,902					
Do members of this community typically assist one another in times of need?				,884				
The rules are flexible.				,834				
Similarity is one of the factors getting people together in the community.				,830				
There are unwritten rules.				,601			-,336	
How would you characterize your community, in terms of shared level of knowledge?					,912			
How would you characterize your community, in terms of shared vision?					,898			
How would you characterize your community, in terms of shared understanding?					,775			
How would you characterize your community, in terms of addressing your interests?						,833		
How would you characterize your community, in terms of addressing your problems?						,789		
How would you characterize your community, in terms of addressing your duties?						,730		
Rate level of volatility of the members in the community							,925	
How socially heterogeneous is the community?							,919	
How much respect do you have for the community?								,869
Do you consider yourself as belonging to your community?								,864

Extraction Method: Principal Component Analysis.

4.4.1. Constructs of ICT

The results (Table 27) indicated that the first factor consisted of 4 items. The second factor consisted of 4 items. Forum, Blog, SNS and Wiki are associated with the first factor (Factor 1) named as “Social Media Tools” in this study. Videoconferencing, Chat Rooms, Voice over IP, and Instant Message are associated with the second factor (Factor 2) named as “Communication Tools” in this study.

4.4.2. Constructs of Social Capital

4.4.2.1. Location-based Community

The results indicated 8 factors are associated with the constructs of social capital in a location-based community. Table 36 presents these factors and the related questions.

The first factor (Factor 1) consisted of 4 questions associated with the structural dimension of social capital. These questions mention 4 items, namely, intimacy, reciprocity, mutual confiding and frequency. These items are supposed to measure one of the constructs of structural dimension of social capital: network ties.

The second factor (Factor 2) consisted of 4 questions associated with the structural dimension of social capital. These questions mention 4 items, namely, flexibility (rules and norms), similarity, and solidarity. These items are supposed to measure one of the constructs of structural dimension of social capital: network closeness.

The third factor (Factor 3) consisted of 4 questions associated with the relational dimension of social capital. These questions mention 4 items, namely, support, solidarity, reciprocity and cooperation. These items are supposed to measure one of the constructs of relational dimension of social capital: reciprocity.

The fourth factor (Factor 4) consisted of 3 questions associated with the structural dimension of social capital. These questions mention 3 items, namely, network duration, heterogeneity and volatility. These items are supposed to measure one of the constructs of structural dimension of social capital: network position.

The fifth factor (Factor 5) consisted of 3 questions associated with the cognitive dimension of social capital. These questions mention 3 items, namely, interests, problems and duties. These items are supposed to measure one of the constructs of the cognitive dimension of social capital: shared interests.

The sixth factor (Factor 6) consisted of 2 questions associated with the relational dimension of social capital. These questions mention 2 items, namely, respect and identity. These items are supposed to measure one of the constructs of the relational dimension of social capital: identity.

The seventh factor (Factor 7) consisted of 3 questions associated with the relational dimension of social capital. These questions mention 3 items, namely, generalized trust, individual trust and collective trust. These items are supposed to measure one of the constructs of the relational dimension of social capital: trust.

Finally, the last factor (Factor 8) consisted of 3 questions associated with the relational dimension of social capital. These questions mention 2 items, namely, the level of knowledge, and understanding. The question associated with vision is omitted because of the inappropriate results of PCA. The items evaluated in this study are supposed to measure one of the constructs of the relational dimension of social capital: shared codes.

Table 36: Factors associated with the Constructs of Social Capital in a Location-based Community

Factor	Name	Questions
Structural dimension of social capital		
Factor 1	Network ties	Q1,Q2,Q3,Q4
Factor 2	Network closeness	Q8,Q9,Q10,Q11
Factor 4	Network position	Q5,Q6,Q7
Cognitive dimension of social capital		
Factor 5	Shared interests	Q12,Q13,Q14
Factor 8	Shared codes	Q15,Q16
Relational dimension of social capital		
Factor 3	Reciprocity	Q21,Q22,Q23,Q24
Factor 6	Identity	Q25,Q26
Factor 7	Trust	Q18,Q19,Q20

4.4.2.2. Dispersed Community

The results indicated 8 factors are associated with the constructs of social capital in a dispersed community. Table 37 presents these factors and the related questions.

The first factor (Factor 1) consisted of 4 questions associated with the structural dimension of social capital. These questions mention 4 items, namely, frequency, reciprocity, intimacy, and mutual confiding. These items are supposed to measure one of the constructs of structural dimension of social capital: network ties.

The second factor (Factor 2) consisted of 4 questions associated with the relational dimension of social capital. These questions mention 4 items, namely, cooperation, solidarity, participation and support. These items are supposed to measure one of the constructs of the relational dimension of social capital: reciprocity.

The third factor (Factor 3) consisted of 3 questions associated with the relational dimension of social capital. These questions mention 3 items, namely, generalized trust, individual trust, collective trust. These items are supposed to measure one of the constructs of the relational dimension of social capital: trust.

The fourth factor (Factor 4) consisted of 4 questions associated with the structural dimension of social capital. These questions mention 4 items, namely, solidarity, flexibility (rules and norms) and similarity. These items are supposed to measure one of the constructs of the structural dimension of social capital: network closeness.

The fifth factor (Factor 5) consisted of 3 questions associated with the cognitive dimension of social capital. These questions mention 3 items, namely, the level of knowledge, vision and understanding. These items are supposed to measure one of the constructs of cognitive dimension of social capital: shared codes.

The sixth factor (Factor 6) consisted of 3 questions associated with the cognitive dimension of social capital. These questions mention 3 items, namely, interests, problems, duties. These items are supposed to measure one of the constructs of the cognitive dimension of social capital: shared interests.

The seventh factor (Factor 7) consisted of 3 questions associated with the structural dimension of social capital. These questions mention 2 items as volatility and heterogeneity. The question associated with the network duration is omitted because of the inappropriate results of PCA. The items evaluated in this study are supposed to measure one of the constructs of the structural dimension of social capital: network position.

Finally, the last factor (Factor 8) consisted of 2 questions associated with the relational dimension of social capital. These questions mention 2 items, namely, respect and identity. These items are supposed to measure one of the constructs of the relational dimension of social capital: identity.

Table 37: Factors associated with the Constructs of Social Capital in a Dispersed Community

Factor	Name	Questions
Structural dimension of social capital		
Factor 1	Network ties	Q1,Q2,Q3,Q4
Factor 4	Network closeness	Q8,Q9,Q10,Q11
Factor 7	Network position	Q5,Q6,Q7
Cognitive dimension of social capital		
Factor 6	Shared interests	Q12,Q13,Q14
Factor 5	Shared codes	Q15,Q16
Relational dimension of social capital		
Factor 2	Reciprocity	Q21,Q22,Q23,Q24
Factor 8	Identity	Q25,Q26
Factor 3	Trust	Q18,Q19,Q20

4.5. Regression Results and Hypothesis Testing

The central argument of this research is to understand the above-mentioned relationships empirically. This section introduces the interpretation of the relationships between the constructs of ICT and the constructs of social capital. The simple regression model is used to predict these relationships. Ordinary least squares are employed to estimate parameters and ANOVA is used to identify the significance of the attributes associated with simple linear regression on the predictors on dependent variables. The list of dependent and independent variables is given at Table 38. Moreover, control variables were also measured by the questionnaire and added to Table 38.

Table 38: The List of Variables

Independent Variables		Dependent Variables	
Name	Label	Name	Label
ICT_ComT	Communication tools	Ssc_Nt	Network ties
ICT_SmT	Social Media tools	Ssc_Nc	Network closeness
		Ssc_Np	Network position
		Csc_Si	Shared interests
		Csc_Sc	Shared codes
		Rsc_Rc	Reciprocity
		Rsc_Id	Identity
		Rsc_Tr	Trust
Control Variables			
Specialist	Specialist		
Officer	Officer		

The basic regression model used in the study for the empirical analysis is as follows:

$$\gamma_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \varepsilon_i$$

γ_i represents a particular construct of social capital which results from the factor scores of each respondent, i . X_i represents the constructs of ICT which also results from the factor scores of each respondent. The error term is represented by ε . Finally, control variables for the use of ICT constructs are used as dummy and they include age position variable for the specialists and officers who are mostly engaged in knowledge sharing activities.

Table 39: The List of Hypotheses for the Impact of Communication Tools

H1: The use of communication tools has a positive impact on the network ties.
H2: The use of communication tools has a positive impact on the network position.
H3: The use of communication tools has a positive impact on the network closeness.
H4: The use of communication tools has a positive impact on the shared codes.
H5: The use of communication tools has a positive impact on the shared interests.
H6: The use of communication tools has a positive impact on the trust.
H7: The use of communication tools has a positive impact on the reciprocity.

Table 40: The List of Hypotheses for the Impact of Social Media Tools

H8: The use of social media tools has a positive impact on the network position.
H9: The use of social media tools has a positive impact on the network ties.
H10: The use of social media tools has a positive impact on the network closeness.
H11: The use of social media tools has a positive impact on the shared codes.
H12: The use of social media tools has a positive impact on the shared interests.
H13: The use of social media tools has a positive impact on the trust.
H14: The use of social media tools has a positive impact on the reciprocity.

4.5.1. The Impact of ICT on the Structural Dimension of Social Capital

For the location-based community, among three constructs representing structural dimension of social capital, network ties and network position are significantly and positively impacted by the use of social media tool. There is no significant impact of both constructs of ICT on network closeness in location based community. Thus there is a partial evidence to support H8, H9 and H10 while H1, H2 and H3 are rejected. The results of the linear regression can be seen at Table 44. Control variables (specialist and officer) do not change the significances of these

relationships. Table 50 presents same relations among these networks together with the effect of specialist and officer.

For the dispersed community, among three constructs representing structural dimension of social capital, network closeness is significantly and positively impacted by the use of communication tools. There is no significant impact of this tool on network ties and network position. On the other hand, the use of social media tools has significant and positive impact on all three constructs of social capital: network ties, network position and network closeness. Thus, there is a partial evidence to support H2, H8, H9 and H10 while H1 and H3 are rejected. Table 47 presents the results of linear regression model. Same regressions are repeated by adding control variable and results are given at Table 53. Adding control variables to the model did not affect the positive relations between the constructs.

Table 41 presents Rejected (X) and not rejected (√) relationships between the constructs of ICT and the constructs of structural dimension in both location-based communities (L) and dispersed communities (D). Those relationships can also be seen at the same table with the control variables for location based (l) and dispersed (d) communities.

Table 41: Rejected (X) and Not Rejected (√) Relationships between ICT and Structural Dimension

		L	D	l	d
H1	The use of communication tools has positive impact on the network ties.	X	X	X	X
H2	The use of communication tools has positive impact on the network position.	X	√	X	√
H3	The use of communication tools has positive impact on the network closeness.	X	X	X	X
H8	The use of social media tools has positive impact on the network ties	√	√	√	√
H9	The use of social media tools has positive impact on the network position	√	√	√	√
H10	The use of social media tools has positive impact on the network closeness.	√	√	√	√

4.5.2. The Impact of ICT on the Cognitive Dimension of Social Capital

For the location-based community, among three constructs representing cognitive dimension of social capital, the construct of shared interests is significantly and positively impacted by the use of social media tool. There is no significant impact of

communication tools, the other construct of ICT, on shared interests and shared codes. Thus there is a partial evidence to support H5 and H12 while H4 and H11 are rejected. The results of the regression are given at Table 45. After adding control variables, the positive relationship is found between communication tools and shared codes. Table 51 represents the results of the regression among constructs.

In dispersed community, except the impact of the use of social media tools on the construct of cognitive dimension of social capital, named shared interests; there is no significant and positive impact. These results can be seen at Table 48 with control variables (Table 54).

Table 42: Rejected (X) and Not Rejected (√) Relationships between ICT and Cognitive Dimension

		L	D	I	d
H4	The use of communication tools has positive impact on the shared codes.	X	X	√	X
H5	The use of communication tools has positive impact on the shared interests.	√	X	X	X
H11	The use of social media tools has positive impact on the shared codes.	X	X	X	X
H12	The use of social media tools has positive impact on the shared interests.	√	√	√	√

4.5.3. The Impact of ICT on the Relational Dimension of Social Capital

For the location-based community, among three constructs representing relational dimension of social capital, the construct, named trust, is significantly and positively impacted by the use of both social media tools and communication tools. There is no significant impact of communication tools, on reciprocity while it is impacted by social media tools. Thus there is a partial evidence to support H6 and H13 while H7 and H14 are rejected. These results are presented at Table 46. However, the positive relationships are found between all the constructs of ICT and all the constructs of relational dimension. All the hypotheses are accepted (Table 52).

For the dispersed community, the only significant and positive impact is found. It is the impact of communication tools on the construct named trust. There is no significant impact of communication tools or social media tools on the other constructs of relational dimension of social capital. Thus there is a partial evidence

to support H6 and H14 while H7 and H13 are rejected. Table 49 gives the results of regression model. Table 55 present same relationships together with the effect of specialist and officer.

Table 43: Rejected (X) and Not Rejected (√) Relationships between ICT and Cognitive Dimension

		L	D	I	d
H6	The use of communication tools has positive impact on the trust.	√	√	√	√
H7	The use of communication tools has positive impact on the reciprocity.	X	X	√	X
H13	The use of social media tools has positive impact on the trust.	√	X	√	X
H14	The use of social media tools has positive impact on the reciprocity.	X	√	√	√

Table 44: Regression Results between ICT and Structural Dimension (Location-based Community)

	Ssc_Nt	Ssc_Np	Ssc_Nc
Constant	0,252	1,29	-2,45
ICT_ComT	0,043	-0,04	0,022
ICT_SMT	0,335 ***	0,291 **	0,223 **
R Square	0,11	0,09	0,05
F statistic	7,535 **	7,537 **	3,116 *

*** p < 0,01 ** p<0,05 * p<0,1

Table 45: Regression Results between ICT and Cognitive Dimension (Location-based Community)

	Csc_Sl	Csc_Sc
Constant	-9,068	0,018
ICT_ComT	0,186 **	0,168
ICT_SMT	0,551 ***	-0,011
R Square	0,33	0,028
F statistic	29,914 ***	1,169

*** p < 0,01 ** p<0,05 * p<0,1

Table 46: Regression Results between ICT and Relational Dimension (Location-based Community)

	Rsc_Rc	Rsc_Id	Rsc_Tr
Constant	-0,825	4,766	-7,444
ICT_ComT	0,181	-0,022	-0,040
ICT_SMT	-0,143	0,174	0,231 *
R Square	0,025	0,031	0,055
F statistic	1,524	1,850	3,388 *

*** p < 0,01 ** p<0,05 * p<0,1

Table 47: Regression Results between ICT and Structural Dimension (Dispersed Community)

	Ssc_Nt	Ssc_Np	Ssc_Nc
Constant	-1,36	-4,96	9,044
ICT_ComT	0,08	0,291 **	0,138
ICT_SMT	0,252 **	0,267 **	0,166 *
R Square	0,07	0,15	0,047
F statistic	4,394 **	10,793 ***	2,854 *

*** p < 0,01 ** p<0,05 * p<0,1

Table 48: Regression Results between ICT and Structural Dimension (Dispersed Community)

	Csc_SI	Csc_Sc
Constant	-1,47	-7,234
ICT_ComT	0,054	-0,020
ICT_SMT	0,578 ***	0,052
R Square	0,33	0,03
F statistic	29,676 ***	0,181

*** p < 0,01 ** p<0,05 * p<0,1

Table 49: Regression Results between ICT and Structural Dimension (Dispersed Community)

	Rsc_Rc	Rsc_Id	Rsc_Tr
Constant	1,544	3,429	-8,051
ICT_ComT	-0,029	0,081	0,031
ICT_SMT	0,260 *	0,015	0,026
R Square	0,069	0,07	0,02
F statistic	4,308 **	0,399	0,095

*** p < 0,01 ** p<0,05 * p<0,1

Table 50: Regression Results between ICT and Structural Dimension and Control Variables (Location-based Community)

	Ssc_Nt	Ssc_Np	Ssc_Nc
Constant	0,119	-1,217	-0,400
ICT_ComT	0,136	0,049	-0,108
ICT_SMT	0,386 ***	0,197 **	0,058 *
Specialist	0,599 ***	0,728 **	0,005 *
Officer	0,173	2,089 ***	0,483
R Square	0,22	0,57	0,23
F statistic	8,286 ***	39,136 ***	8,855 *

*** p < 0,01 ** p<0,05 * p<0,1

Table 51: Regression Results between ICT and Cognitive Dimension and Control Variables (Location-based Community)

	Csc_Sl	Csc_Sc
Constant	-1,238 ***	-0,246
ICT_ComT	0,028	0,164 **
ICT_SMT	0,047 ***	-0,111
Specialist	2,041 ***	0,259
Officer	1,195 ***	0,343
R Square	0,58	0,035
F statistic	40,758 ***	4,841 **

*** p < 0,01 ** p<0,05 * p<0,1

Table 52: Regression Results between ICT and Relational Dimension and Control Variables (Location-based Community)

	Rsc_Rc	Rsc_Id	Rsc_Tr
Constant	-0,825 *	-0,206	-0,101
ICT_ComT	0,181 **	0,036 **	0,019 ***
ICT_SMT	0,403 **	0,256 **	0,191 **
Specialist	1,006 **	0,065	0,011
Officer	1,005 ***	0,175 ***	0,222 ***
R Square	0,21	0,24	0,33
F statistic	10,439 ***	12,321 ***	19,774 ***

*** p < 0,01 ** p<0,05 * p<0,1

Table 53: Regression Results between ICT and Structural Dimension and Control Variables (Dispersed Community)

	Ssc_Nt	Ssc_Np	Ssc_Nc
Constant	0,034	-0,66	-0,277
ICT_ComT	0,093	0,271 ***	0,101
ICT_SMT	0,266 **	0,240 **	0,205 **
Specialist	0,102 ***	0,170	0,284
Officer	0,726 ***	0,19	0,483 **
R Square	0,32	0,18	0,15
F statistic	13,042 ***	5,782 ***	3,467 **

*** p < 0,01 ** p<0,05 * p<0,1

Table 54: Regression Results between ICT and Structural Dimension and Control Variables (Dispersed Community)

	Csc_SI	Csc_Sc
Constant	-1,173 ***	0,215
ICT_ComT	0,004	-0,022
ICT_SMT	0,103 ***	0,139
Specialist	1,454 ***	0,200
Officer	1,476 ***	-0,318
R Square	0,45	0,01
F statistic	23,969 ***	0,884

*** p < 0,01 ** p<0,05 * p<0,1

Table 55: Regression Results between ICT and Structural Dimension and Control Variables (Dispersed Community)

	Rsc_Rc	Rsc_Id	Rsc_Tr
Constant	-0,685 **	0,065	-0,298
ICT_ComT	-0,032	0,092	0,003 **
ICT_SMT	0,537 ***	0,042	0,095
Specialist	0,689	-0,123	0,208
Officer	0,976 **	-0,052	0,163 **
R Square	0,35	0,08	0,11
F statistic	4,165 **	0,232	7,326 **

*** p < 0,01 ** p<0,05 * p<0,1

4.6. Conclusion

The causes inferred from the results in this chapter might be as follows. First; communication tools has a significant and positive impact on trust for both communities while they have a significant impact on network closeness in a location-based community.

As explored and presented in Section 4.4, network closeness was a factor derived from flexible rules, unwritten rules, solidarity and similarity in the community. Thus, the intention to use instant communication tools may rely upon the beliefs (Magni and Pennerola, 2008) of individuals who have strong social relations instead of strong requirements. In parallel, individual motivations may play an important role in the act of knowledge sharing. For instance, direct interaction between two users may not be associated with established rules. However, rules are generally associated with the users interacting with community instead of a person (Wasko and Faraj,2005).

On the other hand, if individuals have social support in the community, their network ties would be strong (Granovetter, 1985) and they facilitate solidarity and raise similarity in time (Granovetter, 1985). It seems that this statement works well for the members in online communities. Moreover, users tend to have trust and social support (Lin, 2011) before they meet other users via communication tools instead of social media. Finally, it should be noted that literature regards the use of these synchronous communication tools as associated with the belief of the user. For instance, Bryant et al., 2006 stated that communication tools provide availability and more importantly reinforce users to have new friends (Bryant et al, 2006) to have variety of social support.

One other inference from the results might be as follows. Interaction among members in traditional communities helps to build shared norms among individuals who already contain shared interests (Nahapiet and Ghoshal, 1998). In this case,

interacting via communication tools in both location-based and dispersed communities may minimize the social differences between users because of the absence of community-based norms arising from the isolation of individuals (Treem and Leonardi, 2012) when they have bilateral interaction. Finally, many researchers suggest that trust is a key aspect of relational social capital and facilitator of collective action (Coleman 1990). Trust is associated with others' ability and integrity and is related to the desire to give and receive information (Ridings et al. 2002). In traditional communities, members trust that their knowledge contribution effort is reciprocated in the community instead of an individual, thereby rewarding individual efforts and ensuring ongoing contribution.

On the basis of empirical results presented in Section 4.5, it can be stated that online community has its own characteristics and mechanisms. Even though the community has members who come together in online networks to learn from each other by sharing knowledge and experiences about the activities in which they are engaged in, there are such specific individual behaviors shifting traditional social capital theories towards different new dimensions. Compared statistics between location-based communities and dispersed communities makes these differences more clear. For instance, identity as an important attribute for successful interaction is challenged online, particularly in text-based platforms. Without any emotional support, developing thick trust and empathy may be difficult and complex. However, the structural dimensions of social capital offer valuable and significant aspects by enabling the productive utilization of the network position in both communities.

The other components in structural social capital “strength of ties” and “network closure” rely on specific relationship between members. In an online community, users tend to minimize the expected level of social capital in terms of cognitive dimension. Thus, this minimization causes higher level of volatility in an online network by utilizing the benefits of network position. For that reason, in order to develop the relational dimension of social capital, members do not have enough

time and sustainable interaction with the same individuals. In this scope, the trust between members is mostly based on institutional trust emerging from the community providing reciprocal sharing among members instead of between individuals.

CHAPTER 5

CONCLUSION

This research has involved a conceptual framework for the relationships among the constructs of ICT and the constructs of social capital. In order to monitor these relationships, an empirical analysis is designed in line with the literature analyzing each topic and their relations. The conceptual framework and the empirical methodology are elaborated to follow the answer of the research question mainly asking the impact of ICT on social capital in online communities. The research conducts on particular ICT tools facilitating knowledge sharing activities among individuals. Users of these tools are mostly engaged in online knowledge sharing via the Internet or intranet.

To address the research question and objectives, a comprehensive review of basic theories and related literature was presented by giving possible implications and discussions. Within this sense, the purpose of the study was clearly defined in Chapter 1 and review of the literature was given in Chapter 2. In Chapter 2, refinements of the studies were matched to the hypotheses of the study. Methodological design and basis of empirical research were presented in Chapter 3, which also elaborates on the constructs of ICT and each dimension of social capital. This chapter merged the stream in the literature to develop a quantitative model for measuring the constructs. Measures of these constructs and their theoretical basis were also represented in this chapter. Additionally, descriptions about sample, data, and statistical method were included. Chapter 4 was devoted the results of analysis including descriptive, exploratory factors analyses and finally regressions. Potential constructs presented in the study were extracted here in order to have

factors scores, in other words Barlett's scores¹¹, of each component associated with ICT tools and social capital.

Implications via summarized findings addressing the purpose of this study and contributions were given in this chapter in the following sections.

5.1. Summary of the Study

Today, it is almost impossible to imagine a society living without the use of technology. Technological advances gradually become an integral part of daily and business life by constituting required infrastructures for communicating, sharing, designing, collaborating, shopping and so on. These advancements have also been associated with the changes in the self-determination of individuals and community context. For instance, developments in information and communication technologies change peoples' attitudes in terms of the way of communication, sharing, participation etc. in a social context which is the source of an intangible capital, called as social capital.

The concept of social capital has become an important part of not only sociology but also variety of research fields such as economics and informatics. However, it has no commonly accepted definition because of the variety of use in different contexts. The most agreed conceptualization of the concept can be given as the network resources facilitating interaction among members (Putnam, 2000). More clearly, it is "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit." (Nahapiet and Ghoshal, 1998). This capital may also be mobilized through the network of relationships.

¹¹ "Barlett Score: With Bartlett's approach, only the shared (i.e., common) factors have an impact on factor scores. The sum of squared components for the "error" factors (i.e., unique factors) across the set of variables is minimized, and resulting factor scores are highly correlated to their corresponding factor and not with other factors. Bartlett factor scores are computed by multiplying the row vector of observed variables, by the inverse of the diagonal matrix of variances of the unique factor scores, and the factor pattern matrix of loadings. Resulting values are then multiplied by the inverse of the matrix product of the matrices of factor loadings and the inverse of the diagonal matrix of variances of the unique factor scores." (DiStefano et al., 2009)

This study has been conducted on the relationships between information and communication technologies and social capital. It has been assumed that an analysis of the functionalities of tools associated with knowledge sharing activities provides new insights into the conditions of social capital in online communities of practices in sense of managing knowledge (Ackerman et al, 2003). On this framework, Nahapiet and Ghoshal's (1998) and Adler and Kwon's (2002) conceptualizations are adapted for measuring the social capital in an organizational context. According to them, social capital is the composition of three distinct, but closely interrelated dimensions, which can be described as structural, cognitive, and relational. On the other side, knowledge sharing activities are derived from the work of Nonaka (1994) as socialization, externalization, combination and internalization and are adapted to the use of information technologies. Thus, the study framed those concepts as knowledge sharing constructs of ICT and the constructs of social capital dimensions.

Within this framework, structural dimension of social capital refers to the overall interactions among members in the network. This dimension also refers to network embeddedness which is associated with the network of ties, network configuration and appropriable organization (Nahapiet and Ghoshal, 1998). The study considers these constructs in line with the knowledge perspective (Adler and Kwon, 2002; Inkpen and Tsang, 2005) as network ties, network position and network closeness. Each of these constructs is critically important for knowledge sharing in that they provide channels and opportunity (Adler and Kwon 2002) for knowledge diffusion within and across organizations (Granovetter, 1973).

The cognitive dimension refers to network resources which provide shared meaning among members (Nahapiet and Ghoshal, 1998). Within the knowledge perspective, this dimension is evaluated as the ability of individuals to share (Adler and Kwon, 2002) and called as cognitive ability. An individual's cognitive ability depends on his/her ability to understand each group member and it can be measured by conducting shared stories, language, and culture. These shared assets are specified

as shared codes and shared interests (Adler and Kwon, 2002; Inkpen and Tsang, 2005) in that they enable collectivity and cooperation.

The relational dimension is related to social assets particularly emerged from continuing relationships among individuals. It is defined as “the kind of personal relationships people have developed with each other through a history of interactions” (Nahapiet and Ghoshal 1998). From the perspective of knowledge management, it implies that if a network has a high level of relational motivation (Adler and Kwon, 2002), members are intrinsically motivated to share their knowledge with others since they have willingness to contribute to the relationship and to the community. Therefore, this dimension is also called as relational motivation. The constructs of relational dimension of social capital are considered in this study as trust, reciprocity and identification. These constructs stimulate willingness to exchange (trust), arrangements (reciprocity) and belonging (identity).

The structural opportunities, cognitive abilities and relational motivations in the community have been continuously changing in parallel with the improvements in information and communication technologies. Therefore, this study attempts to contribute to the literature by assuming that the use of social capital in organizations is closely related to the design and functionality of ICT tools selected by members. Within the continuous evolution of both concepts, analysis of the relationships between the constructs of ICT and the constructs of social capital is important because it may cause some changes and improvements in organizational structures to support the continuous natural flow of knowledge. On the other hand, it may also be important for ICT designers to understand design requirements and to improve functionalities of their products. Because, as it is mentioned before, people will be more inclined to use electronic networks when they are motivated and able to share knowledge with others, and if they have opportunity (Adler and Kwon 2002). Therefore, by providing socio-technical insights, this research can be

assumed as a call for more advanced knowledge sharing application designs and fine-tuned organizational structures.

This research has evaluated literature base constructs and measures in order to find an accurate answer for the research questions. The general definitions of possible constructs were presented at Chapter 3 by referring to the base studies. The measures of these constructs are also presented by mentioning the previous research. The study used Exploratory Factor Analysis, to determine the constructs of each topic: ICT and Social capital. As a result of this analysis, two constructs for information and communication technologies were defined by the study. Similarly, eight constructs were defined for the dimensions of social capital. By using Cronbach Alpha, the reliability of each factor constructing the validated questionnaire was also examined. The constructs of ICT are used as independent variables in order to measure the impact on the constructs of social capital as dependent variables. Linear regression analyses with ordinary least square estimators were used in the study to determine the significant relationships which are hypothesized in line with the purpose of the research.

The result of regressions represented positive relationships among constructs. For instance, communication tools have a positive impact on network position on trust in location-based communities, similarly it has a positive impact on network position, network closeness and trust in dispersed communities. On the other side, social media tools have a positive impact on network ties, network position, shared interests, reciprocity and trust in location-based communities. In this set of positive relationships between social media tools and social capital, trust and reciprocity have not been significantly affected by social capital.

5.2. Implications

Improvements in information and communication technologies are faster than ever at present. ICT is not only growing with its' new functions, models, tools, but also converging towards a virtual reality offering social presence, communication, information, exchange, entertainment, social awareness more than we can see. This convergence shows itself not only in multi-functionalized software but also in other equipments or technologies which have become online such as mobile phones, televisions. Within the existence of online interactive environments, these blended technologies in terms of software and hardware may facilitate wider and successful diffusion of information and some part of knowledge by introducing more integrated ways of exchange. For instance, smart phones are capable not only of phones calls but also of surfing on internet, of teleconferencing one to one or one to many, of instant messaging supported by emotional elements, of accessing databases, of managing business, of shopping, of producing audio-visual arts and so on. However, all these advancements have been called as the advancements in information and communication technologies. Without determining commonalities across the variety of tools, it may be highly difficult to understand the overall impact of ICT on social capital. The literature mostly involves investigation on the impact of particular technologies such as Internet (Quan-Haase and Wellman, 2004), phone (Goodman, 2003), television (Norris, 1996; Uslaner, 1998), instant messaging and etc. The results of those works cannot be generalized to explain and predict the impact of ICT on social capital. Members of the organizational networks generally tend to use a set of ICT tools by converging them in purpose. For instance, they search for information on social networking sites and connect people through these sites. However, they mostly choose bilateral communication tools if they want to develop their relationships. They also tend use different tools to emotionally support their virtual relations: they share documents in social networking sites and they discuss issues open public, they communicate with chat applications by enabling instant response or they jump into teleconferencing

applications if they want to share their physical presence or to commit synchronized collective actions. Finally, it seems that most of the findings in the literature analyzing the impact of ICT on social capital may probably depend on what type of technology they conducted. Results may vary in sense of presenting different impacts on social capital. This study found that communication tools and social networking tools not only have similar impact on social capital dimensions but also different impacts. For instance, constructs of ICT and social capital has similar impact on network position and network closeness in dispersed communities while it has different impacts on other constructs. For location-based communities, the similar is just found for trust building.

The literature mostly suggests that social networking sites enable users to maintain and build some part of social capital (Ellison et al., 2007) and it is actually developed in offline connections (Alessandrini, 2006). These studies imply that ICT has a positive impact on structural and cognitive dimension of social capital in terms of accessing community networks for new ties and maintaining existing ties. On the other hand, they imply that ICT has no or less impact on the relational dimension in terms of trust building. They also assume that relational social capital emerged from previous offline relationships and was maintained in online networks (Borgida et al, 2002). This study conducted all dimensions for both communities, in which having face-to-face contact or not, and found that communication technologies have a positive impact on trust building in dispersed communities in which members do not meet face-to-face. This positive impact of communication tools may probably emerge from the recent advancements in communication applications involving more elements for social presence, user friendly spaces for exchange, collaboration not only for one-to-one communication but also for one-to-many or many-to many. For instance, Skype, one of the most popular online communication applications, provides not only VoiP but also calls to land-line phones, audio and video conferencing, SMS and instant messaging, and more within the base of strong security. It is organized as a hybrid peer-to-peer (P2P) network with central servers,

super-nodes, and ordinary client (Nappa et al, 2010) that they play an important role in the whole network. This application also offers variety of tools for social presence such as, audio-visual presentations and platform for collective and spontaneous designing or document development. On one hand, this software that comes with valid security and privacy policies creates positive sensations of trust and safeness to its users, encouraging the enlargement of the installed base (Nappa et al, 2010). Interestingly, according to the observation in the sample of this study, perception of this software, Skype, is a communication tool for professional purposes at work, personal purposes at home. It has never been perceived as an entertainment tool by users. Contrary to some studies arguing that using such ICT services for entertainment may lead people to increased disconnection from the real world (Rheingold, 2002), users tend to have a Skype contact before they bring this contact into their real world.

Research about computer-mediated communication proposes that individual-to-individual trust relationships may be mediated through technology (Olson and Olson, 2000). In parallel, previous literature posits that online participation to provide social support may intensify reciprocity and trust and members in organizations may also be dependent on trust-based relationships if they share cognitive elements (Quan-Haase and Wellman 2004). However, this study found trust-based relationships in both communities without mentioning the positive relationships between ICT and cognitive dimension of social capital. This result is mostly related to the use of social media technologies in such forms as forums, wikis, blogs and social networking sites. The observations of the study show that users do not go to a particular place on the Internet but they mostly rely on search engines to find information that could be located anywhere. Dutton and Blank (2011) reported that the proportion of users using search engines instead of using a specific URL has grown since 2005 but it had a decline in 2011 because of the rise in the popularity of social networking sites. In parallel with the observations in the study, they also mention that users are more likely to use search engines before

they go directly to particular forums, blogs or wikis. These arguments imply that relationships around shared interests may be served by search engines rather than shared codes such as vision. For instance, keywords, profiles, meta-tags defined by users who are trying to state their virtual presence can be assumed as a bridge for users who are searching for them with particular keywords. Changing policies in the result listing (popularity, keyword match, reliability and etc.) may change the social media sites users go in. It implies that building relational social capital on cognitive capital depends on the ability of social media sites to lock visitors in. Within the existence of thousands of search results offering better answers, it seems highly difficult to have relational capital via exploiting cognitive capital. This may be a good topic for future research engaging in the impact of ICT on cognitive social capital.

Finally, theoretical developments describing the arguments in the literature have been investigated in this study in line with the designed methodology. By combining the bases of theories and empirical research, the study attempts to develop a methodology for monitoring the relations between constructs of online communities of practice. The results show that basic arguments behind tested components are important to enhance developing new measures for monitoring the relations and reconfiguring existed measures for new communities. The results of the analysis imply that some of the identified determinants need to be redeveloped again in line with the base of interaction and individual specific behaviors. The theoretical implications of the study can be listed as:

Definitions of social capital seem insufficient to develop concrete measurement scales for the online community especially for dispersed groups. Results shows that individuals tend to have contact with other individuals who have social capital emerged from previous relationships. For instance, members in the network find and contact with other members if they know them via their personal relations emerged in the outside of the network. Mostly the reason behind this act is to maintain previous social capital but not develop for any productive reason. The theories are mentioning present social capital among individual as a factor to get

them together. There is no proof that members, knowing each other from their past experiences, still maintain their social capital without any interaction but keeping in contact. Within the environment of online community, another dimension of social capital may emerge because of the availability for accessing previous social capital.

Social capital is a complex construct that is a mixture of some solid constructs like trust, respect and identity. These kinds of constructs are not easily affected by online interactions if they are not based on long term virtual contact or relatively short term face-to-face contact. For traditional networks, this lack of clarity may become more understandable because of the emotional support emerged in face-to-face contacts. However, especially in dispersed online communities, individuals are accumulating their emotional support to other individuals. The lack of emotional support in online community causes the lack of relational and cognitive dimensions of social capital. Members interacting via online community tend to minimize requirements for common norms associated with the cognitive dimension and/or reciprocity associated with the relational dimension. The flexible and decentralized environment of the online network is mostly used for exploration by utilizing the strength of the social capital. On the other hand, proposed measures of cognitive and relational dimension of the social capital do not meet the requirement to understand trust relations based on repetitive interactions and settled norms based on the shared codes. When a network is closed or authorized, members of the network tend to have relational social capital because of the settled environment of cognition by authority. Obligations, duties or centralized management can be listed as determinants of these bounded online networks having cognitive social capital.

Scholars consider social capital emerging from interactions and it relies on the characteristics of individuals in the network. However, the variety of characteristics associated with individuals cause a variety of behaviors in online network if they have no or low level of cognitive and relational social capital. Differences between individuals' acts in location-based and dispersed communities in an unauthorized

and open network show this lack of identification clear. The space of online network requires real identity in a dispersed community or in a location-based community, characteristics of individual match to the supposed characteristic but in the other network without identical entry, members do not meet what it is expected. Trials to measure individuals' characteristics in these networks with the same measures cause insignificant results especially for relation-based social capitals. For instance, instead of reciprocity, the users need to be committed to the community and already have some other underlying motivation to participate actively. Reciprocity might probably be highly dependent on individual characteristics or some other elements provided by the environment.

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Appendix A: Questionnaire (English Version)

This questionnaire is designed for assessing the impact of information and communication technologies (ICT) on social capital. Within variety of applications, ICT are framed in line with the purpose of knowledge sharing between individuals.

Definitions of selected ICT:

E-mail	<i>A method of exchanging digital messages from an author to one or more recipients. e.g. Official mail addresses, personal mail addresses such as name@gmail.com</i>
instant messaging	<i>A type of online chat which offers real-time text transmission over the Internet. e.g. skype, msn, yahoo messenger, internal messaging systems</i>
Chat rooms	<i>Any form of synchronous conferencing, occasionally even asynchronous conferencing. Internet Relay Chat (IRC) is a protocol for live interactive Internet text messaging (chat) or synchronous conferencing. e.g. online and/or web based chat applications for person-to-person or person-to-group.(s)</i>
Video-conferencing	<i>A set of telecommunication technologies which allow two or more locations to communicate by simultaneous two-way video and audio transmissions. e.g. Skype, netmeet, connect and etc.</i>
Voice over Internet	<i>A methodology and group of technologies for the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet. e.g. Skype, Gtalk and etc.</i>

Communities

Location based community: Groups meeting online and offline.

Dispersed community: groups meeting just online.

DIMENSIONS OF SOCIAL CAPITAL

		Location Based Community					Dispersed Community				
1	How often do you interact with other members?	1	2	3	4	5	1	2	3	4	5
2	How many people, if any, are there with whom you can discuss intimate and personal matters?	1	2	3	4	5	1	2	3	4	5
3	Would you say that members of the community are mostly looking out for themselves?	1	2	3	4	5	1	2	3	4	5
4	Mutual confiding is one of the values among network members.	1	2	3	4	5	1	2	3	4	5
5	How socially heterogeneous is the community?	1	2	3	4	5	1	2	3	4	5
6	Rate level of duration of your contacts in the community.	1	2	3	4	5	1	2	3	4	5
7	Rate level of volatility of the members in the community.	1	2	3	4	5	1	2	3	4	5
8	How you define your community? The rules are strict.	1	2	3	4	5	1	2	3	4	5
9	There are unwritten rules.	1	2	3	4	5	1	2	3	4	5
10	Similarity is one of the factors getting people together in the community.	1	2	3	4	5	1	2	3	4	5
11	Do members of this community typically assist one another in times of need?	1	2	3	4	5	1	2	3	4	5
How would you characterize your community, in terms of addressing your ...											
12	Duties	1	2	3	4	5	1	2	3	4	5
13	Interests	1	2	3	4	5	1	2	3	4	5
14	Problems	1	2	3	4	5	1	2	3	4	5
How would you characterize your community, in terms of shared ...											
15	Understanding	1	2	3	4	5	1	2	3	4	5
16	Level of Knowledge	1	2	3	4	5	1	2	3	4	5
17	Vision	1	2	3	4	5	1	2	3	4	5
18	Generally speaking, do you believe that most members can be trusted?	1	2	3	4	5	1	2	3	4	5
19	How much confidence do you have for the members of the community?	1	2	3	4	5	1	2	3	4	5
20	Do you think that in this community generally trust each other in matters of any conflict? What characteristics are most valued among community members?	1	2	3	4	5	1	2	3	4	5
21	Solidarity	1	2	3	4	5	1	2	3	4	5
22	Cooperation	1	2	3	4	5	1	2	3	4	5
23	Participation	1	2	3	4	5	1	2	3	4	5
24	Support	1	2	3	4	5	1	2	3	4	5
25	How much respect do you have for the community?	1	2	3	4	5	1	2	3	4	5
26	Do you consider yourself as belonging to your community?	1	2	3	4	5	1	2	3	4	5

THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES

Rate the tools with regard to the level of use for knowledge sharing.

27	E-mail	1	2	3	4	5
28	Instant Messaging	1	2	3	4	5
29	Chat Room	1	2	3	4	5
30	Video Conferencing	1	2	3	4	5
31	Voice over IP	1	2	3	4	5
32	Social Networking Sites	1	2	3	4	5
33	Wiki	1	2	3	4	5
34	Forum	1	2	3	4	5
35	Blog	1	2	3	4	5

36. Age: 1. 0-18 2. 19-25 3. 26-35 4. 36-50 5. 51+

37. Sex: 1.Male 2.Female

38. Position/Title 1.Manager
 2.Vice Manager
 3.Specialist/Expert
 4.Officer
 5. Consultant

39. How long have you been working here?

	<u>Firm</u>	<u>Sector</u>
1. Less than 12 months	<input type="checkbox"/>	<input type="checkbox"/>
2. More than 1 year	<input type="checkbox"/>	<input type="checkbox"/>
3. More than 3 years	<input type="checkbox"/>	<input type="checkbox"/>
4. More than 5 years	<input type="checkbox"/>	<input type="checkbox"/>
5. More than 10 years	<input type="checkbox"/>	<input type="checkbox"/>
6. More than 20 years	<input type="checkbox"/>	<input type="checkbox"/>

Appendix B: Questionnaire (Turkish Version)

Bu anket bilgi ve iletişim teknolojilerinin (BİT) sosyal sermaye üzerine etkisini değerlendirmek amacıyla tasarlanmıştır. Bilgi ve İletişim Teknolojileri, bir dizi uygulama arasından, bireyler arasında bilgi paylaşımı çerçevesiyle sınırlandırılmıştır.

E-mail: *Bir kullanıcının bir ya da birden fazla alıcıya dijital ileti gönderme metodu. Örn. Resmi eposta adresleri, kişisel eposta adresleri isim@gmail.com gibi.*

Anlık mesajlaşma: *İnternet üzerinden eşzamanlı metin iletimi sağlayan bir tür çevrimiçi sohbet. Örn: skype, msn, yahoo messenger, iç mesajlaşma sistemleri*

Sohbet odaları: *Eş zamanlı olmayan örnekleri de bulunan her türlü eşzamanlı konferans biçimi.S özgelimi, IRC bir interaktif internet mesajlaşma protokolüdür. Örn: Kişiden kişiye ya da kişiden gruba mesajlaşma için çevrimiçi ve/veya internet tabanlı sohbet programları*

Videokonferans: *Bir ya da birkaç kullanıcının çift yönlü video ve ses iletimi yoluyla iletişim kurmasını sağlayan telekomünikasyon teknolojileri bütünü. Örn. Skype, netmeet, connect vs.*

İnternet üzerinden ses: *İnternet Protokol ağları üzerinden sesli iletişim ve çoklu ortam oturumlarının gönderilmesini sağlayan metodoloji ve teknolojiler toplamı. Örn. Skype, Gtalk vs.*

Topluluklar

Yerel Tabanlı Topluluk: Çevrimiçi ve çevrimdışı toplanan gruplar

Dağılmış Topluluk Sadece çevrimiçi toplanan gruplar

SOSYAL SERMAYENİN BOYUTLARI

	Yerel Topluluk					Dağınık Topluluk					
1	Üyelerle ne sıklıkta görüşüyorsunuz?	1	2	3	4	5	1	2	3	4	5
2	Grubunuzda eğer varsa, kaç kişiyle mahrem ve kişisel konular hakkında konuşabiliyorsunuz?	1	2	3	4	5	1	2	3	4	5
3	Grup üyelerinin genelde kendi çıkarları için orada olduğunu söyleyebilir misiniz?	1	2	3	4	5	1	2	3	4	5
4	Ağ üyeleri arasındaki değerlerden birinin karşılıklı güven olduğunu söyleyebilir misiniz?	1	2	3	4	5	1	2	3	4	5
5	Topluluk sosyal olarak ne kadar heterojen?	1	2	3	4	5	1	2	3	4	5
6	Toplulukla iletişim sürenizin düzeyinizi notlandırırsınız	1	2	3	4	5	1	2	3	4	5
7	Topluluğun üye değişkenliğini notlandırırsınız.	1	2	3	4	5	1	2	3	4	5
8	Topluluğunuzu nasıl tanımlarsınız? Katı kurallara dayalı	1	2	3	4	5	1	2	3	4	5
9	Yazılı olmayan kurallara dayalı	1	2	3	4	5	1	2	3	4	5
10	Benzerlik, toplulukta insanları bir araya getiren faktörler arasında yer alıyor.	1	2	3	4	5	1	2	3	4	5
11	Topluluk üyeleri ihtiyaç durumunda birbirlerine yardım ediyorlar mı?	1	2	3	4	5	1	2	3	4	5
Topluluk sizin için aşağıdaki hangi faktörlerle tanımlanabilir?											
12	Görevler	1	2	3	4	5	1	2	3	4	5
13	İlgi alanları	1	2	3	4	5	1	2	3	4	5
14	Problemler	1	2	3	4	5	1	2	3	4	5
Aşağıdaki hangi noktalardaki ortaklıklar topluluğunuzu tanımlar?											
15	Anlayış	1	2	3	4	5	1	2	3	4	5
16	Bilgi Düzeyi	1	2	3	4	5	1	2	3	4	5
17	Vizyon	1	2	3	4	5	1	2	3	4	5
18	Üyelerin çoğunun güvenilir olduğunu düşünüyor musunuz?	1	2	3	4	5	1	2	3	4	5
19	Topluluk üyelerine güveniyor musunuz?	1	2	3	4	5	1	2	3	4	5
20	Herhangi bir çatışma söz konusu olduğunda topluluk üyelerinin genellikle birbirlerine güvendiklerini düşünüyor musunuz?	1	2	3	4	5	1	2	3	4	5
Topluluk üyeleri arasında aşağıdaki hangi özelliklere değer veriliyor?											
21	Dayanışma	1	2	3	4	5	1	2	3	4	5
22	İşbirliği	1	2	3	4	5	1	2	3	4	5
23	Katılım	1	2	3	4	5	1	2	3	4	5
24	Destek	1	2	3	4	5	1	2	3	4	5
25	Topluluğa ne kadar saygı duyuyorsunuz?	1	2	3	4	5	1	2	3	4	5
26	Kendinizi topluluğa ait hissediyor musunuz?	1	2	3	4	5	1	2	3	4	5

BİLGİ VE İLETİŞİM TEKNOLOJİLERİNİN KULLANIMI

Aşağıdaki araçları bilgi paylaşımı için kullanım düzeylerine göre notlandırınız.

27	E-posta	1	2	3	4	5
28	Anlık Mesaj	1	2	3	4	5
29	Sohbet Odası	1	2	3	4	5
30	Video Konferans	1	2	3	4	5
31	İnternet üzerinden Ses	1	2	3	4	5
32	Sosyal Paylaşım Siteleri	1	2	3	4	5
33	Wiki	1	2	3	4	5
34	Forum	1	2	3	4	5
35	Blog	1	2	3	4	5

36. Yaş: 1. 0-18 2. 19-25 3. 26-35 4. 36-50 5. 51+

37. Cinsiyet: 1. Erkek 2. Kadın

38. Pozisyon/Ünvan 1. Müdür
2. Müdür Yardımcısı
3. Uzman
4. Ofis Görevlisi
5. Danışman

40. Kaç yıldır çalışıyorsunuz?

	<u>Firmada</u>	<u>Sektörde</u>
1. 1 yıldan az	<input type="checkbox"/>	<input type="checkbox"/>
2. 1 yıldan fazla	<input type="checkbox"/>	<input type="checkbox"/>
3. 3 yıldan fazla	<input type="checkbox"/>	<input type="checkbox"/>
4. 5 yıldan fazla	<input type="checkbox"/>	<input type="checkbox"/>
5. 10 yıldan fazla	<input type="checkbox"/>	<input type="checkbox"/>
6. 20 yıldan fazla	<input type="checkbox"/>	<input type="checkbox"/>

Appendix C

CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name: Gürsoy, Serkan
Nationality: Turkish (TC)
Date and Place of Birth: 22 August 1976, İstanbul
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EDUCATION

Degree	Institution	Year of Graduation
MS	METU Science and Technology Policy Studies	2002
BS	KTU Department of Economics	1997
High School	Yahya Kemal Beyatlı Lisesi, İstanbul	1992

WORK EXPERIENCE

Year	Place	Enrollment
2008 - Present	Beykoz Vocational School of Logistics	Lecturer
2002-2006	Mersin University	Research Assistant

FOREIGN LANGUAGES

Advanced English

Appendix D

TURKISH SUMMARY

SOSYAL SERMAYENİN KODİFİKASYONU: BİLGİ VE İLETİŞİM TEKNOLOJİLERİNİN ETKİSİ

D1. Giriş

Birçok farklı araştırma alanına konu olan sosyal sermaye kavramı her geçen gün önemini artırmaktadır. Bu kavram aslında duygudaşlık ve güven anlamında 18. Yüzyıldan itibaren kullanılmaktaydı. Modern anlamda kullanımı 1980'lerde başlayan bu kavram bugün bir ağ yapısında ortaya çıkan (Bourdieu 1985; Coleman 1990; Portes 1998; Putnam 2000; Burt 2001) çoğunlukla iyi niyet, karşılıklılık, ortak normlar, güven ve topluluk bilinci etrafında şekillenmektedir. Tarihi eski olmasına rağmen, özellikle bilgi ve iletişim teknolojilerindeki gelişme ile birlikte sosyal sermaye bir kez daha araştırmacıların yoğun ilgisini çekmiştir. Özellikle örgütsel çerçevede bilgi paylaşımının temel dinamiklerini harekete geçirmek ve bireyin çevirim-içi topluluklar ile yenilenen anlamı ile ilişkilendirmek için sosyal sermayenin yeniden ele alınması, günümüz iş yaşamı için sosyal sermayeden faydalanılması açısından bir ihtiyaç noktasındadır.

Bu bağlamda öncelikle iletişim teknolojilerinin topluluklar üzerindeki etkisi sosyal sermayenin oluşumu ve kullanımı anlamında bir çok araştırmacı tarafından değerlendirilmiştir (DiMaggio et al., 2001; Hampton, 2002; Nie, 2001; Wellman, 2002; Quan-Haase and Wellman, 2004; Uslaner, 2004). Bu araştırmacıların birçoğu bilgi ve iletişim teknolojilerinin (BİT) sosyal sermaye üzerindeki etkisini bireylerin

etkileşimi açısından ele almış ve birbirinden farklı sonuçlara ulaşmışlardır. Bu etkinin olumlu yönleri olduğunu savunan araştırmacıların (Wellman, 2002; Quan-Haase and Wellman, 2004; Uslaner, 2004) yanı sıra özellikle sosyal izolasyon yarattığı yönünde çıkarımlarla olumsuz olduğunu savunan araştırmacılar da bulunmaktadır (Frozen 2003). Ancak bu araştırmacıların en önemli ortak noktası bilgi ve iletişim teknolojilerinin bireyler arasındaki sosyal ilişkilerde etkin bir rol oynadığı yönündedir. Bilgi ve iletişim teknolojilerinin bu ilişkileri hangi yönde ve nasıl etkilediği halen birçok yönden tartışılmakta olan bir konudur. Bu tartışmalardan bir tanesi de sosyal sermayenin oluşumu ve kullanımı etrafında yoğunlaşmaktadır.

Geleneksel toplulukların yerini alan çevirim-içi ya da sanal topluluklar yeni kimlikleri ve geleneksel halinden farklı davranan bireyleri barındırmaktadır. (Castell, 2000). Bu bireylerin oluşturduğu yeni tip sosyal organizasyonlarda bireyler bir takım paylaşımlarda bulunmakta ancak bu paylaşımlar bilgi teknolojilerinin saptadığı olanaklar ile sınırlı halde olabilmektedir (Preece, 2000). Örneğin bireyin sanal topluluğuna aidiyet hissini geleneksel aidiyet hissinden farklı olması bireyi sınırlandırıcı bir rol oynayabilmektedir (Blanchard and Markus, 2004). Tüm bu sınırlandırıcı etkilerin yanı sıra özellikle zaman ve mekan konusunda bireylerin sahip olduğu serbesti, bireylere yeni ilişkiler kurma ya da kaybolmaya yüz tutmuş ilişkileri canlandırma gibi olanaklar da sunmaktadır. Bu ve bunun gibi nedenlerden dolayı bilgi teknolojilerinin bireyler arasındaki ilişkileri olumlu ya da olumsuz yönde etkilediğini söyleyebilmek son derece değişken dinamiklerden ötürü bir hayli güç bir durumdur.

Bu güçlüğü altında gerek sosyal sermayenin farklı disiplinler tarafından farklı biçimlerde kullanılarak kabul görür bir anlamdan uzaklaştırılması (Yang et al., 2009), gerekse bilgi teknolojilerinin son derece hızlı bir biçimde yenilenmesi ve tüketilmesi yatmaktadır. Bu anlamda her iki kavramı tanımlı bir çerçevede ele almak, kavramlar arasındaki ilişkileri anlayabilmenin bir yolu olarak görünmektedir. Her iki kavram için sınırlı da olsa ortak kabul görmüş bir takım unsurları takip ederek bu amaca ulaşılması olasıdır. Örneğin, sosyal sermaye kavramı için söylenebilecek en kabul

gören görüş, bu sermayenin bireyler arasındaki ilişkilerden ortaya çıkan karşılıklı faydalar olduğudur (Bourdieu 1985; Coleman 1990; Portes 1998; Putnam 2000; Burt 2001). Bu faydaların en önemlilerinden birisi bu sermayenin bireyler arasındaki ve topluluk içindeki bilgi paylaşımını sağladığıdır. Sanal topluluklar ile sosyal sermaye arasında oldukça çeşitlenen araştırmaları (Uslaner, 2004; Huysman and Wulf 2004; Wasko and Faraj 2005; Yang et al., 2009) bu kazanım etrafında değerlendirdiğimizde bilgi teknolojilerinin sosyal sermaye üzerindeki etkisini bilgi paylaşımı ekseninde izlemek ve değerlendirmek mümkün olabilir.

D1.1. Çalışmanın Amacı

Anlaşılacağı üzere bu çalışma bilgi teknolojileri ile sosyal sermaye arasındaki ilişkiyi bilgi paylaşım ekseninde ele almaktadır. Bu yaklaşım, önceki araştırmaların bir takım sonuçlarının da daha anlamlı bir biçimde değerlendirilebilmesine olanak sunacaktır. Bu araştırmalar arasında ortaya konan farklı görüşlerinde nedeni hakkında bir takım önermeler de bulunan bu çalışma konu edindiği her iki kavramı da bilgi paylaşımı ekseninde genelleştirilebilir sonuçlar üretmeye yönelik bir yöntem ile ele almayı amaçlamaktadır. Bu yüzden, bu çalışma sosyal sermayeyi birkaç boyutta ele alırken, teknolojiyi özel bir araç olmaktan ziyade kullanım gayesine hizmet eden araçlar topluluğu olarak ele almayı yeğlemiştir.

Topluluk içerisinde bilgi paylaşımının sahip olunan sosyal sermaye miktarına ve paylaşımında kullanılan tekniğe göre belirlenebileceği yönünde ki görüşleri (Adler and Kwon, 2002) baz alan bu araştırma bu teknikleri ve sosyal sermayeyi en iyi şekilde bir araya getirecek bir çerçeve tasarlamayı hedeflemektedir. Bu anlamda bilgi ve iletişim teknolojileri, bilgi paylaşımını sağlayan teknolojiler olarak ele alınırken, sosyal sermaye de yapısal, bilişsel ve ilişkisel boyutta (Nahapiet and Ghoshal, 1998) ele alınmaktadır.

Sonuç olarak çalışma BİT'nin bilgi paylaşımını sağlayan yapılarının örgütsel yapıda bilgi paylaşımı üzerinde etkili olan sosyal sermaye boyutları üzerindeki etkisini incelemeyi hedeflemektedir.

D1.2. Temel Katkılar

Tartışmaların sürdüğü ve açıklamaların yetersiz kaldığı bir alanda; bu çalışma sanal topluluklarda sosyal sermayenin rolü, kazanımı ve kullanımı konusunda tanımlı bir çerçeve sunarak, geleneksel bakış açılarını günümüz teknolojileri ve yapılarında değerlendirmektedir. Bu araştırmanın kurgusu ve bakış açısı çoğunlukla geleneksel topluluklara hitap eden önermelerin yeni tip sanal topluluklara uygulanması ya da uyarlanması anlamında bir fayda sağlamayı hedeflemektedir.

Bu çalışma BİT'ni televizyon, internet, cep telefonu gibi özel bir teknoloji tekeline ziyade bu teknolojiler aracılığı ile iletişimde bulunan kullanıcıların kullanım alışkanlıkları ve seçimleri olarak ele almaktadır. Bu bağlamda bu hizmeti sağlayan aletler de gelişmeler yaşansa dahi bu aletler üzerinde çalışan elektronik platformların kullanım amaçlarının aynı hızda değişmesi beklenmemektedir. Örneğin Web 2.0 platformları masaüstü bilgisayarlardan, dizüstü bilgisayarlara ve oradan da cep telefonlarına kadar ulaşan bir teknolojidir. Kullanıcıya sağladığı faydalardaki gelişim ve değişim bu çalışma tarafından dikkate alınmakta ancak bu platformun hangi elektronik alet üzerinde kullanıldığı ile ilgilenilmemektedir. Bu yüzden araştırma sonuçları elektronik araç ve gereçlerden bağımsızlaştırılmış ve seçilen platformlar kapsamında genelleştirilebilir bir yapıda sunulmuştur.

Sosyal sermayenin sanal topluluklarda ele alınışı bazı araştırmalarda da yüz-yüze etkileşimden doğan kazanımların varlığında olmakta (Liff, 2005; Alessandrini, 2006; Valenzuela et al., 2009; Steinfield, 2009; Penard and Pussing, 2010; Ellison et al., 2011; Shih and Huang, 2012; Shen et al., 2012) ve araştırmacıların bir çoğu bu kazanımların birçoğunu sanal iletişime değil yüz yüze iletişime bağlamaktadır. Bu kapsamda, bu çalışma iki farklı alan araştırmasını eş zamanlı olarak barındırmakta ve yüz yüze iletişim olan topluluklar ile olmayan topluluklar arasındaki farkları sosyal sermaye ekseninde gözlemektedir.

D1.3. Çalışmanın İçeriği

Bu beş bölüm içermektedir. İlk bölüm de çalışmanın amacı, gereği ve arka planı tanıtılmakta okuyucuya çalışmanın genel hatları tarif edilmektedir. İkinci bölümde konu ile ilgili literatür değerlendirilmekte ve kavramların tanımlamaları ile bu tanımlamalar etrafında yoğunlaşan tartışmalar sunulmaktadır. Değerlendirilen ve sunulan literatüre ve çalışmanın amacına dayalı olarak çalışma da ortaya konan hipotezler yine bu bölümde sunulmakta ve tartışılmaktadır. Üçüncü bölüm ise çalışmada kullanılan yöntem ve ampirik araştırma ile ilgili esasları belirlemekte ve okuyucuya açıklamaktadır. Bu bölümde ele alınan kavramların hangi yapılarla nasıl ölçüleceği ve amaç doğrultusunda nasıl kullanılacağı detaylı bir biçimde ele alınmaktadır. Ek olarak kullanılan ölçüm yöntemleri ve alan araştırmasına ilişkin bilgilere de yer verilmiştir. Çalışmanın dördüncü bölümü, bir önceki bölümde belirlenen esaslar doğrultusunda yapılan analizlerin sonuçları yansıtmakta ve tartışılmaktadır. Faktör analizi sonucunda elde edilen yapıların hipotezlerin test edilmesi ve ilişkilerin belirlenmesi amacı ile kullanımı bu bölümde gerçekleştirilmekte ve bulgular yorumlanmaktadır. Nihayet son bölüm bu analizler sonucunda elde edilen bulgular olası politikalar ekseninde tartışma sunmakta ve tüm çalışmayı hedef eksenin toparlayarak değerlendirmektedir.

D.2.Literatür Özeti

Sosyal sermaye sanal topluluklar için göreceli olarak yeni bir kavramdır. Geleneksel anlamda sosyal sermaye literatürünün oldukça eski bir tarihi olmasına rağmen sanal topluluklara ilişkin sosyal sermaye tartışmaları özellikle son on yılın konusudur. Her ne kadar sosyal toplulukların yapısı teknoloji ile değişiyor olsa da (Castells, 2000), bireylerin kabiliyetleri, algıları ve ilişkilerinde yaşadığı değişim bu teknolojilerin ona kazandırdığı becerilerle ilgilidir (Bresnahan et al., 2002).

D.2.1. Social Capital

Sosyal sermayenin teorik anlamda kavramsal tarihi sosyal uyum ve sivil yaşam arasındaki ilişkileri irdeleyen düşünürlerin söylemlerine kadar uzanır. Ancak bu kavram esas önemini ve etkisini 19. yüzyıl başlarında toplumsal yapıların gelişiminde belirleyici bir etken olarak rol almasına borçludur. Her ne kadar geniş bir kullanım alanı olsa da sosyal sermaye kavramı kullanımlarındaki tutarlılık açısından zayıf kalmaktadır.

1916 yılında Hanifan tarafından eğitimi ve öğrenmeyi şekillendiren topluluğu bir arada tutan etmen olarak adlandırılan sosyal sermaye kavramı 1961 yılında Jacobs tarafından sunulan sosyal ağ yapısına kadar pek dikkat çekmedi. 1980'li yıllarda literatürün üç önemli ismi olarak kabul edilen Pierre Bourdieu, James Coleman and Robert Putnam tarafından oldukça etkili bir biçimde ele alınır. Bourdieu (1985) sosyal sermaye kavramını sosyal sınıf formasyonunu oluşturan ve topluluk içindeki kaynaklara erişimi sağlayan ya da engelleyen bir olgu olarak tarif ederken, Coleman (1988) sosyal sermayenin kişiler arasındaki etkileşimi sağlayan sosyal yapı olduğunu ve topluluk içindeki ilişkilerin bu yapılar üzerinden kurulduğunu savunmuştur. Putnam (1995) ise sosyal sermayenin bireyin diğerleri ile ilişki kurabilme ve yürütebilme yetisi olarak tanımlamakta ve bireyi bu anlamda sosyal bir yapının içerisine bu yetisiyle konumlandırmaktadır.

Bu yazarların katkılarıyla sosyal sermaye kavramı özellikler endüstriyel ağlarda maddi olmayan değerlerin anlamlandırılması, ölçülmesi alanında çalışan araştırmacılar tarafından ilgi çekici bir hale gelmiştir (Ferragina, 2010). Artan akademik ve endüstriyel ilginin sonucunda ya da tetiklediği ihtiyaç nedeniyle sosyal sermaye kavramını tek bir boyuttan ziyade çok boyutlu olarak ele alınmaya başlandı. Elbette sosyal sermayenin bu boyutların temelinde ağ ilişkileri (Coleman, 1988), topluluk normları (Bourdieu, 1985) ve kişisel yetiler (Putnam, 1995) bulunmaktaydı.

D.2.2.1. Sosyal Sermayenin Boyutları

Bu temel yaklaşımlar çerçevesinde Nahapiet ve Ghoshal (1998) sosyal sermaye kavramını 3 ayrı boyuta değerlendirerek bu alandaki literatüre oldukça sık

başvurulan bir yöntem önermiş oldu. Bu yazarlara göre, sosyal sermaye birbirinden ayrı üç farklı boyut içermektedir ve bu boyutlar yapısal boyut, bilişsel boyut ve ilişkisel boyut olarak sıralanabilir. Yazarlar yapısal boyutu ağ bağlantıları, ağ yapıları ve uygun bir organizasyon yapısı olarak betimlemektedirler. Bilişsel boyut ise ortak dil, anlayış ve kod olarak belirtilmektedir. Son olarak ilişkisel boyut güven, bağlılık ve aidiyet olarak ele alınmaktadır. Bu boyutlar birbiri ile oldukça ilişkili bir yapıdadır ve pratikte ayrıştırılması oldukça güçtür (Huysman and Wulf, 2004). Huysman'a (2004) göre sosyal sermayenin yapısal boyutunda ortaya çıkan bir eksiklik ağ üyelerinin yeni bağlar kurma fırsatını ortadan kaldıracaktır. Aynı şekilde bilişsel boyutta oluşan bir eksiklik, toplulukta ortak anlayışın eksikliğine ve yeni fikirlerin doğmasında güçlüğüne neden olacaktır. Son olarak ilişkisel boyutta yaşana bir sosyal sermaye eksikliği, taraflar arasında güven ve karşılıklık eksikliğine işaret ettiğinden tarafların bilgi paylaşımı konusunda yeterince motive olamamalarına neden olacaktır. Bu açıklamalardan hareketle sosyal sermaye boyutlarını Adler ve Kwon (2002) tarafından sunulan yaklaşımla ele almak, bilgi paylaşımı ekseninde ele almak bu boyutları birbirinden ayrıştırma yönünde oldukça faydalıdır. Bu yaklaşım, fırsat, yapılabirlik ve motivasyon olarak sıralanabilir.

D.2.2.1.1. Yapısal Boyut

Yapısal boyut bireyin sosyal ağlar örüntüsüdür. Topluluk üyesi olan bireyler bu ağlar aracılığı ile diğer bireylere ulaşmakta ve bilgi paylaşımı gerçekleştirebilmektedirler. Nahapiet ve Ghoshal (1998) bu boyutu ağ bağlantıları olarak adlandırırken bireylerin ağ kaynaklarına ulaşım yollarını değerlendirmektedir. Bu yolların yapılandırılması topluluk üyeleri arasında bilgi paylaşım kanalları sağlamaktadır. Son olarak organizasyon yapısındaki uyarlamalar ile ağ kaynaklarının verimli kullanımı etkin hale getirilebilmektedir. Nahapiet ve Ghoshal'ın (1998) yaklaşımları Inkpen ve Tsang (2005) tarafından ağ fırsatları açısından yeniden ele alınmış ve uyarlanabilir organizasyon bireylerin ağdaki değişimlere verdiği tepkiler bazında nitelenmiştir. Örneğin, değişkenliği yüksek bir ağ yapısı bireyler arasında sosyal sermaye oluşumunu kısıtlayıcı bir etkiye sebep olabilir (Inkpen ve Tsang, 2005). Başka bir

deyişle, topluluktan ayrılan bir birey ile kurulan bařlarda yok olacaktır. Ancak yerine yeni bireyler ile kurulan bařların gelmesi olasıdır. Kısaca, Adler ve Kwon'un (2002) belirttiđi gibi topluluktaki ađ bařlantıları gerek yeni bařlar oluřturma gerekse var olan bařları gúçlendirme anlamında sosyal sermayenin yapısal boyutu ađısından oldukça önemli bir olgudur (Ahuja, 2000; Reagans ve Zuckermann, 2001; Papakyriazis ve Boudourides, 2001; Hampton, 2002; Matzat, 2004; Reagans ve McEvily, 2003; Burt, 2004; Obstfeld, 2005; Uzzi ve Spiro, 2005). Bu bařlar Granovetter (1973) tarafından zayıf bařlar ve gúçlü bařlar olarak adlandırılmaktadır. Zayıf bařlar yeni bilgiye ulařım için fırsat yaratırken gúçlü bařlar var olan bilginin kullanımı ve geliřtirilmesi anlamında önem teřkil etmektedir. Granovetter (1973) karřılıklılık ađısından zayıf ve etkileřim sıklıđı az olan iliřkileri zayıf bař olarak deđerlendirmekte, samimi ve yođun etkileřimi ise gúçlü bař olarak deđerlendirmektedir. Bu bařlamda alıřma etkileřim sıklıđını, karřılıklılık durumunu ve samimiyeti sosyal sermayenin yapısal boyutunun bir parası olan ađ bařlantıları için veri kabul etmektedir. Bu erevede, ađ iliřkilerinden etkin bir biimde faydalanabiřmenin diđer bir geređi ađ ierisinde iyi bir pozisyona sahip olmaktır (Burt, 1997; Gulati, 1999; Nahapiet ve Ghoshal, 1998). Bu sayede topluluđun sunmuř olduđu eřitli ve zengin kaynaklara eriřilebilmektedir (Burt, 1997; Koka and Prescott, 2002). Topluluk úyeleri ađda merkezi bir pozisyonda konumlandıklarında ađın sunduđu eřitliliđe eriřebilir ve bilgi paylařımını etkin halde gerekleřtirebilir durumda olurlar (Burt, 1997). Topluluk ierisindeki farklılıklar, topluluđun deđiřim hızı, iliřkilerin súrekliliđi, yeni iliřki sıklıđı ađ pozisyonunun niteliđi ađısından belirleyici bir etkiye sahiptirler ve bu nedenlerden ötürü bu alıřmada veri olarak kabul edilmektedirler. Son olarak bir úyenin bařka bir úye ile iletiřim ierisine girmesinde sadece ađ yapısının sunduđu olanaklar ya da bu olanakların kolayca elde edilebileceđi pozisyonlar dıřında, dayanıřma, benzerlik gibi unsurların tetiklediđi ađ yakınsallıđı da etkili olmaktadır (Nahapiet ve Ghoshal, 1998; Knack ve Keefer, 1997; Wellman 1998; Tsai ve Ghoshal, 1998). Bu nedenden ötürü anılan etmenler bu alıřmada ađ yakınsallıđı ađısından veri olarak kabul edilmiřtir.

D.2.2.1.2. Bilişsel Boyut

Sosyal sermayenin bilişsel boyut taraflar arasında ortak yönleri, yorumları ve anlamları ve bilişsel yakınlık sağlayan diğer kaynakları ifade eder (Nahapiet ve Ghoshal, 1998). Nahapiet ve Ghoshal (1998) bilgi paylaşımını anlamlı bir değişim haline getiren unsurların ortak anlamlandırma, ortak dil gibi algısal benzerlik sağlayan etmenler olduğunu düşünmektedir. Örneğin aynı dili kullanmak ya da aynı kodlarla hareket etmek, ortak algı oluşmasına ve olan bitenin aynı şekilde yorumlanmasına yol açar. Ancak bu anlamda bilgi paylaşımına örtülü bilginin de katılımıyla birlikte değişim daha faydalı bir hal alabilir. Paylaşılan hikâyeler, olgular, olaylar aslında bir anlamda bahsi geçen paylaşımın ve değişimin temel yürütücü öğeleridirler. Bu öğelere ek olarak Inkpen ve Tsang (2005) bilişsel boyutu etkileyen diğer öğeleri ortak amaçlar, ortak kültür kavramları ile genişletmiştir. Adler ve Kwon (2002) ise bilişsel boyutu bireylerin bilgi paylaşım motivasyonu ekseninde değerlendirmiş ve ortak ilgiler ve ortak kodlar olarak ele almıştır. Çalışma bu kavramsallaştırmayı seçmekte ve ortak ilgileri ortak görevler, ilgi alanları ve sorunlar ekseninde değerlendirmektedir. Bir anlamda ortak ilgiler üyelerin kodlayabildiği ve aktarabildiği unsurları içermektedir. Bilişsel boyutun diğer öğesi ortak kodlar ise vizyon, anlayış gibi kodlanması güç olan öğeler ile ilgilidir. Çalışma bahsi geçen bu yapıları ve bu yapıları etkileyen öğeleri bilişsel boyut için veri kabul etmektedir. Sosyal sermayenin bu boyutuna sahip topluluklarda fırsatçı davranışların ve kişisel bariyerlerin önüne geçilebileceğinden bilgi paylaşımı daha verimli bir halde gerçekleştirilebilir (Dyer ve Sing, 1998).

D.2.2.1.3. İlişkisel Boyut

Sosyal sermayenin ilişkisel boyutu bireylerin zaman içerisinde birbirleri ile gerçekleştirdikleri iletişimin bir çıktısı olarak değerlendirilebilir (Nahapiet ve Ghoshal, 1998). Bu ilişkilerin kalitesi topluluk içerisindeki bireyler arasında işbirliği ve değişim gibi unsurları olumlu olarak etkilemektedir (Ahuja, 2000). Bu anlamda güven, karşılıklılık ve bağlılık bireyler arasında bilgi paylaşımının yapılabilmesi için

gerekli unsurlar arasındadır ve ilişkisel bir hal teşkil ederler (Tsai ve Ghoshal, 1998). Örneğin, güven sıklıkla bahsedilen değişimin nedeni olarak kabul edilen önemli bir öğedir. Birbirine güvenen bireyler paylaşım ve değişime daha istekli olurlar (Tsai ve Ghoshal, 1998). Aynı şekilde karşılıklık bireylerin aralarında değişim kararı almalarında oldukça etkilidir. Bağlılık ise bireylere topluluk bilinci geliştirme olanağı sağlayarak topluluk içinde kaynakların hareketli olmasını ve bireylerin bu hareketlilikten faydalanmalarını sağlar.

D.2.3. Bilgi ve İletişim Teknolojileri

Günümüzde BİT yalnızca bir iletişim unsuru olarak tanımlanmamakta aynı zamanda değişim, paylaşım, depolama, aktarma ve dağıtım gibi unsurlarda da rol oynayan bir değer olarak düşünülmektedir (Wang, 2012). Bu nedenden ötürü, sosyal sermayenin oluşumu ve paylaşımı anlamında topluluklarda meydana gelen iletişimin ögesi olarak değerlendirilmektedir ki topluluklar bu değişimin en önemli platformu olarak düşünülebilirler (Wenger, 1998). Bilgi ve iletişim teknolojilerinde yaşanan gelişmeler ile topluluk üyeleri gerekmedikçe birbirleri ile yüz yüze iletişim kurma gereği hissetmemektedirler (Rheingold, 1993). Üyelerin aralarındaki etkileşimi gerçekleştirdikleri sanal ortamlara çevirim-iç ortamlar, topluluklara ise çevirim içi topluluklar denilebilir (Rheingold, 1993). Çevirim-içi topluluklar, ağ teknolojilerini, özellikle interneti, kullanarak zamandan ve mekândan bağımsız bir biçimde etkileşen bireylerin benzer bir amaç uğruna benzer eylemlerde bulunarak, ortak bir alanda toplanan bireylerin oluşturduğu topluluklardır (Wenger, 2000). Bu topluluklar aynı coğrafi mekânı paylaşan kişilerce yerel topluluklar halinde oluşturulabileceği gibi coğrafi açıdan birbirinden uzak kişiler tarafından dağınık topluluklar olarak da oluşturulabilir (Blanchard ve Hora, 2000). Yerel topluluklar çoğunlukla bir merkez etrafında toplanan, haberleşme paylaşım, değişim gibi ihtiyaçları için çoğunlukla kendilerine ait yerel alan ağlarını kullanan kişiler topluluğuna işaret etmektedir (Blanchard, 2004). Bu topluluklara örnek olarak aynı işletmede çalışan kişilerin çevresi ve yüz yüze iletişim içinde olduğu diğer çevreler verilebilir. Dağınık topluluklarda ise bireyler arasında yüz yüze iletişim

bulunmamaktadır. Hatta bu bireyler birbirlerini şahsen tanımazlar. Coleman'a (1988) göre yerel topluluklar dağınık topluluklara kıyasla daha fazla sosyal sermaye barındırmaktadırlar çünkü bireyler arasındaki yüz yüze iletişim bilişsel ve ilişkisel boyutun hızlıca oluşmasına olanak verir.

D.2.3.1. Çevirim-içi Araçlar ile Bilgi Paylaşımı

İnternet'in sosyal sermaye üzerindeki etkisi Quan-Haase ve Wellman'ın (2002) çalışmasına dayanarak artırıcı azaltıcı ve değiştirici etki olarak özetlenebilir. İnternet hâlihazırda var olan ancak coğrafi uzaklık içeren ilişkileri sunduğu iletişim kanalları ile güçlendirebilir. Bununla birlikte kullanıcıların yeni kişilerle tanışma olanaklarını da sunabilir. Öte yandan İnternet sadece bilgi sunmaz. Sunduğu eğlence kullanıcıların olağan çevrelerinden uzaklaşmalarına ve bir anlamda sosyal izolasyona neden olabilir (Nie, 2001). Bu çalışma internetin sunduğu bilgisayar-birey etkileşimine dayalı eğlence formlarını (bilgisayar oyunu gibi) kapsamamakta ancak bu platformların kullandığı birey-bilgisayar-birey iletişim altyapısını kapsamaktadır. Bireyler çevirim-içi iletişim kurmak için birçok aracı ve yöntemi kullanarak İnternet'in sunduğu sanal topluluk deneyimini edinebilirler (Norris, 2003). Kullanıcıların kullandığı iletişim aracı ile sosyal sermaye ilişkisini inceleyen çalışmaların (Steinmueller, 2004) sonuçlarının çoğunlukla seçilen araç özelinde değerlendirilmesi gerektiğinden genelleştirilmeleri zordur. Çünkü kullanıcılar araçları belli bir düzen ve amaç içinde değiştirerek kullanırlar. Örneğin birey tartışma forumunda yazıştığı kişi ile gerektiğinde anında mesaj yoluyla görüşme sağlamayı seçebilir ve sonrasında yine aynı şekilde tartışma forumundaki etkinliğini sürdürebilir. Bu gibi nedenlerden dolayı literatür, BİT araçlarının içerik, amaç veya etki yönünde formüle edilmesi gerektiğini belirten çalışmaları barındırmaktadır (Pigg ve Crank, 2004). Bu çalışmalar bireyler arası iletişimin seçilen araç ile değiştiğini belirtmektedirler. Örneğin, Pigg ve Crank (2004) BİT'ni iletişim fonksiyonu ve bilgilendirme fonksiyonu şeklinde iki ayrı yapıda ele almaktadır. Yazarlara göre iletişim fonksiyonu çok yönlü bir yapıda yazılı, sesli, görüntülü ve gerçek zamanlı etkileşimi sağlayan araçlar bütününden oluşur. Bilgilendirme fonksiyonu ise bir

bireyden diğere bireye ya da bireylere ve ya topluluktan bireye bilgi aktarımı ile ilgili etkinlikleri kapsamaktadır. Bu fonksiyon oldukça karmaşık bir yapıdadır çünkü çevirim-içi araçlar bu anlamda oldukça çeşitli ve niteliklidirler (Pigg and Crank, 2004). Bu çalışma bilgi paylaşımı için iletişim fonksiyonun yerine getiren iletişim araçlarını ve bilgilendirme fonksiyonu için kullanılan sosyal medya araçlarını değerlendirmektedir. İletişim araçları, e-posta, anında mesajlaşma, telefon, telekonferans, çevirim-içi sesli görüşme olabilir. Bu araçlar çoğunlukla eş zamanlı iletişim sağlasalar da zaman zaman arşiv amaçlı olarak kullanılabilirler. Sosyal medya araçları ise topluluk içinde bilgi paylaşımını harekete geçiren araçlar olarak belirtilmiştir. Bu anlamda, wiki, blog, forum, sosyal ağ örnek olarak verilebilir. Yine belirtildiği gibi kullanıcıların çevirim içi iletişimlerini bu araçlardan biriyle sürdürebildikleri gibi bunları belli bir harmoni içinde kullanarak sosyal sermaye kazanımı için çaba sarf edebilirler.

D.2.3.1.1. İletişim Araçları

Popüler çevirim-içi iletişim araçları e-posta, anında mesaj, görüntülü görüşme, çevirim içi sesli arama, sohbet odası ve sohbet kanalları olarak belirtilebilir (Steinfeld ve Scupola, 2006). Bu araçların her biri bireyin sanal dünyadaki sosyal temsiline farklı bir katkı yapabildiği gibi bir çeşit sosyal temsili de destekleyebilirler. Bu araçlar ile çevirim-içi iletişim kuran bireyler eş zamanlı paylaşabilir, tartışabilir ve ilişkilerini bilişsel ve ilişkisel boyutta anlatılan öğelerle destekleyebilirler. Uslaner (2004) bu araçlardan e-posta'nın diğer iletişim araçlarına göre bireyler arası güven oluşumuna daha fazla katkıda bulunduğunu belirtmektedir. Anında mesajlaşma ise e-posta ile kıyaslandığında daha yüksek bir sosyal temsil sağlamakta ve ilişkileri hızlı geliştirebilmektedir. Sohbet odaları ve sohbet kanalları ise bireylere yeni ilişkiler kurma yönünde imkânlar sağlarlar (Uslaner, 2004). İlginç bir şekilde tarihi 30 yıl kadar eski olan görüntülü konuşma araçları bu araçlar içinde sağladığı iletişimin niteliği ve barındırdığı duygusal öğeler (mimik gibi) nedeniyle yüz yüze iletişime en yakın araçlardır. Literatürde bu araçların kullanımı ile bireylerin var olan ilişkilerini kuvvetlendirdikleri ya da yeni ilişkiler kurdukları yönünde çalışmalar

mevcut olup çoğunlukla her iki durumda da pozitif etkiden bahsedilmektedir. Örneğin Shiau (2008), anlık mesajlaşmanın daha çok var olan bağları güçlendirdiğini ancak sohbet odalarının farklı geçmişlere sahip bireyler arasında yeni bağlar kurulmasını sağladığını söylemektedir. Bu çalışma iletişim araçlarının yapısal sosyal sermaye boyutu üzerinde etkili olduğunu düşünmekte ve sınamaktadır. Bu yüzden aşağıdaki hipotezleri tanımlamıştır.

H1: iletişim araçları kullanımı bireyin sosyal ağ bağlantısını (yapısal boyut) olumlu etkiler.

H2: iletişim araçları kullanımı bireyin sosyal ağ pozisyonunu (yapısal boyut) olumlu etkiler.

H3: iletişim araçları kullanımı bireyin sosyal ağ yakınsallığını (yapısal boyut) olumlu etkiler.

Bilişsel boyut yapısal boyuta göre daha az dikkat çekmiş olsa da bu konu ile ilgili araştırmalara bakıldığında bireyin bu araçları kullanarak bilişsel sosyal sermaye oluşturduğu yönünde ve aksi yönde söylemler bulunabilir (Hinds and Pfeffer, 2002). Bireylerin iletişim araçlarını kullanarak paylaşımına girmesi zaman içerisinde onlara ortak alanlar tanıyacak (Lin, 2011) ve bu alanlar ortak ilgiler ve kodlar olarak kendini gösterecektir. Bununla birlikte özellikle yerel topluluklarda bireyler çevirim-içi iletişim araçları ile görüşmek yerine doğrudan yüz yüze görüşme yoluna sıklıkla giderler. Bu sayede sanal ortamın kişisel unsurlar açısından olası bariyerlerini ortadan kaldırmış olurlar (Hinds and Pfeffer, 2002). Bu nedenlere bağlı olarak çalışma iletişim araçları ile bilişsel sosyal sermaye boyutu arasında aşağıdaki hipotezleri tanımlamıştır.

H4: iletişim araçları kullanımı bireyin ortak kod geliştirmesini (bilişsel boyut) olumlu etkiler.

H5: iletişim araçları kullanımı bireyin ortak ilgi geliştirmesini (bilişsel boyut) olumlu etkiler.

Son olarak iletişim araçları bireylere güven ve karşılıklılık gelişimini özellikle uzak ilişkiler içi olumlu olarak etkileyebilir. Wasko ve Faraj (2005) bu çerçevede gecikmeli güven ve geri besleme ve iletişim listesi gibi olguları güven, karşılıklılık ve bağlılık olarak ele almakta ve çevirim-içi iletişim araçlarının bu unsurları destekleyebileceğinden bahsetmektedir. Yüz yüze görüşme imkânının varlığında bu unsurların çevirim-içi araçlarla gerçekleşmeyeceği ve gerçekleşse dahi ancak görüşme sıklığı ile oluşabileceği yönündeki görüşleri de dikkate alarak çalışma aşağıdaki hipotezleri kurmuştur.

H6: iletişim araçları kullanımı bireyin güven geliştirmesini (ilişkisel boyut) olumlu etkiler.

H7: iletişim araçları kullanımı bireyin karşılıklılık geliştirmesini (ilişkisel boyut) olumlu etkiler.

D.2.3.1.2. Sosyal Medya Araçları

Web 2.0 teknolojileri ile birlikte ortaya çıkan bu araçlar çalışmada sosyal ağ siteleri, bloglar, wikiler ve forumlar olarak ele alınmaktadır. Bu araçların bilgi paylaşımında kullanıldığına ilişkin çıkarımlar Nonaka (1994) tarafından sunulan bilgi paylaşım aşamalarına bağlıdır. Nonaka (1994) sosyalleştirmeyi tecrübelerin örtülü bilgi olarak aktarılması ile betimlemiş ve Vossen (2009) sosyal ağ sitelerini içeriği ve birey odaklı yönetimi yüzünden sosyalleşme ve sosyalleştirme aracı olarak görmüştür. Aynı şekilde bilginin kodlanması ve aktarılmasına ilişkin Nonaka'nın (1994) bahsettiği diğer bir aşama dışsallaştırma aşamasıdır ve bilginin aktarılabilir halde kodlanmasına bağlıdır. Bu çerçevede wiki bu amaca hizmet eden iyi bir araç olarak düşünülebilir (McAfee, 2006). Bir diğer aşama birleşim aşaması olup var olan bilgi ile yeni bilginin harmanlanması sürecidir ki forumlar bu konuda işlevsel bir hizmet verebilmektedirler (McAfee, 2006). Son olarak içselleştirme aşamasında Nonaka (1994) bilginin edinimi sürecini ele almakta ve kişiselleştirilmesinden bahsetmektedir. Du and Wagner (2006) bu anlamda blog yapısını ele almakta ve kişiselleştirilmiş bilgilerin sunumu olarak görmektedir.

Sosyal medya araçları bireyin toplulukla ve diğer bireylerle etkileşimini sosyal sermayenin her üç boyutunda da etkileyebilmektedir. Bireyin yeni bilgi ihtiyacı için bu araçlara başvurması yeni ilişkiler geliştirmesine olanak tanımaktadır (Kenski ve Stroud, 2006). Bununla birlikte bireyler topluluğu kendileri ilgili bilgiler açısından güncel tutma eğilimindedirler (Hargittai, 2007). Bireyler bu araçları kullanarak geçmişe dayalı ilişkilerinde ağ yakınsallıkları oluşturabileceği gibi burada kurdukları yeni bağlantılar ile de zaman içerisinde bu yakınsallığa erişebilirler. Bu tartışmalara dayalı olarak bu çalışma tarafından aşağıdaki hipotezler sunulmuştur.

H8: Sosyal medya araçları kullanımı bireyin sosyal ağ bağlantısını (yapısal boyut) olumlu etkiler.

H9: Sosyal medya araçları kullanımı bireyin sosyal ağ pozisyonunu (yapısal boyut) olumlu etkiler.

H10: Sosyal medya araçları kullanımı bireyin sosyal ağ yakınsallığını (yapısal boyut) olumlu etkiler.

Sosyal medya araçları ile ağ üyeleri topluluk içerisinde oluşan normları diğer harici normlara nazaran kabul edebilir ve geliştirebilirler (Hansen, 2005). Bu bilginin ışığında sosyal medya araçları ile bilişsel sosyal sermaye boyutu arasında ilişki olduğunu düşünebilir ve bireyin bu araçları kullanarak zaman içerisinde topluluk ile benzeştiğini düşünebiliriz. Bu nedenle bu çalışma aşağıdaki hipotezleri önermektedir.

H11: Sosyal medya araçları kullanımı bireyin ortak kod geliştirmesini (bilişsel boyut) olumlu etkiler.

H12: Sosyal medya araçları kullanımı bireyin ortak ilgi geliştirmesini (bilişsel boyut) olumlu etkiler.

Son olarak kullanıcıların sosyal medya araçlarını kullanarak topluluklara katılımı birey ile topluluk arasında ya da birey ile birey arasında güven oluşumuna katkı

verebilir. Bununla birlikte birey katkılarının karşılığını kimi zaman diğer bireyden kimi zaman da topluluktan bekleyebilir (McQuail, 2005). Bu nedenle bu çalışma sosyal medya araçları ile sosyal sermayenin ilişkisel boyutu arasında aşağıdaki hipotezleri önermiştir.

H13: Sosyal medya araçları kullanımı bireyin güven geliştirmesini (ilişkisel boyut) olumlu etkiler.

H14: Sosyal medya araçları kullanımı bireyin karşılıklılık geliştirmesini (ilişkisel boyut) olumlu etkiler.

D3. Yöntem

Bu çalışma belirlenen araçlara ait BİT öğeleri ile belirlenen sosyal sermaye boyutlarına ait öğeler arasındaki ilişkileri araştırma hedefini güttüğünden belirtilen öğeleri aşağıdaki gibi el almıştır.

- Bilgi paylaşım teknolojileri
 - İletişim araçları (Best ve Krueger, 2006; Pigg ve Crank, 2004)
 - Sosyal medya araçları (Vossen 2009; McQuail, 2005)
- Sosyal sermaye boyutları
 - Yapısal boyut
 - Ağ bağlantıları
 - Ağ pozisyonu
 - Ağ yakınsallığı
 - Bilişsel boyut
 - Ortak kodlar
 - Ortak ilgiler
 - İlişkisel boyut
 - Güven
 - Karşılıklılık
 - Aidiyet

Bu öğeleri ölçebilmek için çalışma literatüre dayalı ölçüm yöntemleri yanı sıra özellikle BİT'nde yeni gelişmeleri de kapsayabilmek adına pilot uygulama yaparak kendi ölçümlerini geliştirmiştir. Bu nedenle bulguları Temel Bileşenler Analizi ile faktörleştirmiş ve bu faktörleri yukarıda belirtilen öğeleri kullanarak literatürden yaptığı çıkarsamalara paralel bir şekilde adlandırmıştır. Bu süreç hem yerel

topluluklar için hem de dağınık topluluklar için ayrı ayrı tekrar edilmiştir. Bu tekrarın neticesinde bireyin her iki toplulukla etkileşim arasındaki farklar gözlemlenmiştir. Faktörlerin her biri çalışmada verilen hipotezlere dayalı olarak doğrusal regresyon modellerinde kullanılmıştır. Çalışma örneklemini lojistik sektörü çalışanları arasından belirlemiştir. Lojistik sektörü bilgi teknolojilerini özellikle küreselleşen ticaret biçimleri birlikte en yoğun kullanan sektörlerden birisidir (Özdemir ve Darby, 2009).

D3.1. Çalışmada Kullanılan Araçlar

Bu çalışmada 39 adet ölçek geliştirilmiş ve ölçek güvenilirliği Cronbach alpha (Cornieles, 2003) ile test edilmiştir. Çalışma 30 adet pilot anket ve sonrasında 150 adet görüşme ile analizlerde kullanacağı verileri 2012 yılı içerisinde toplamıştır. Hatalı ve eksik anketlerin elenmesi sonucu 120 adet görüşme veri analizi için uygun hale getirilmiştir.

D.4 Bulgular

Çalışmaya konu olan bireylerin %80'i uzman ve memur statüsünde tam zamanlı olarak görev yapmaktadırlar. Bu kişilerin %72'si 28 ile 47 yaşları arasında olup %44'ü üç yıldan fazla %47'si de 5 yıldan fazla süredir görev yapmaktadırlar.

Faktör analizi sonucunda BİT için iletişim araçları: görüntülü konuşma, sohbet odası, anlık mesaj, ve çevirim-içi sesli görüşme olarak belirlenirken sosyal medya araçları, sosyal ağ siteleri, wikiler, bloglar ve forumlar olarak belirlenmiştir. E-posta, her iki faktörde birden etkili olmasından dolayı bu araçlardan herhangi birine katılmamıştır. Sosyal sermaye boyutları için yapılan analiz sonucunda ise yapısal boyutta belirtilen elamanlar, ağ bağlantıları, ağ pozisyonu ve ağ yakınsallığı tespit edilebilmiştir. Aynı şekilde bilişsel boyut için ortak kod ve ortak ilgiler belirlenmiş ancak ortak vizyon her iki faktöre birden etki ettiğinden dışarıda bırakılmıştır. Son olarak ilişkisel boyut için bahsi geçen güven, karşılıklılık ve aidiyet belirlenen faktörler arasında yerini almıştır.

Hipotez testleri hem yerel topluluklar (Y) için hem de dağınık topluluklar (D) için gerçekleştirilmiştir. Bu testlerin gerçekleştirilmesi sırasında uzman ve memur

kontrol deęiřkeni olarak modele eklenmiř ve analiz gerek yerel topluluklar (y) iin hem de daęınık topluluklar (d) iin tekrar gerekleřtirilmiřtir. Bu iřlemin neticesinde bazı hipotezlere iliřkin sonuların deęiřtięi gzlemlenmiřtir. Hipotez testlerine iliřkin sonular ařaęıdaki gibidir.

BİT ve Sosyal sermayenin yapısal boyutu arasında reddedilen (X) ve reddedilmeyen (√) hipotezler:

		Y	D	y	d
H1	iletiřim araları kullanımı bireyin sosyal aę baęlantısını olumlu etkiler.	X	X	X	X
H2	iletiřim araları kullanımı bireyin sosyal aę pozisyonunu olumlu etkiler.	X	√	X	√
H3	iletiřim araları kullanımı bireyin sosyal aę yakınsallıęını olumlu etkiler.	X	X	X	X
H8	Sosyal medya araları kullanımı bireyin sosyal aę baęlantısını olumlu etkiler.	√	√	√	√
H9	Sosyal medya araları kullanımı bireyin sosyal aę pozisyonunu olumlu etkiler.	√	√	√	√
H10	Sosyal medya araları kullanımı bireyin sosyal aę yakınsallıęını olumlu etkiler.	√	√	√	√

BİT ve Sosyal sermayenin biliřsel boyutu arasında reddedilen (X) ve reddedilmeyen (√) hipotezler:

		Y	D	y	d
H4	iletiřim araları kullanımı bireyin ortak kod geliřtirmesini olumlu etkiler.	X	X	√	X
H5	iletiřim araları kullanımı bireyin ortak ilgi geliřtirmesini olumlu etkiler..	√	X	X	X
H11	Sosyal medya araları kullanımı bireyin ortak kod geliřtirmesini olumlu etkiler.	X	X	X	X
H12	Sosyal medya araları kullanımı bireyin ortak ilgi geliřtirmesini olumlu etkiler.	√	√	√	√

BİT ve Sosyal sermayenin iliřkisel boyutu arasında reddedilen (X) ve reddedilmeyen (√) hipotezler:

		Y	D	y	d
H6	iletiřim araları kullanımı bireyin gven geliřtirmesini olumlu etkiler.	√	√	√	√
H7	iletiřim araları kullanımı bireyin karřılıklılık geliřtirmesini olumlu etkiler.	X	X	√	X
H13	Sosyal medya araları kullanımı bireyin gven geliřtirmesini olumlu etkiler.	√	X	√	X
H14	Sosyal medya araları kullanımı bireyin karřılıklılık geliřtirmesini olumlu etkiler.	X	√	√	√

D.5 Sonu

Sosyal sermayenin geliřtirilmesi iin evirim-ii aęların yeterli olamayacaęını savunan grřlerin aksine, sosyal sermayenin yz yze iletiřimi olmadıęı durumlarda da geliřtirilebildięi grlmřtir. Bunun nedeni gerek iletiřim aralarının gerekse sosyal medya aralarının her geen gn sosyal ğeleri daha fazla kapsayarak geliřmesi ve yaygınlařması olarak dřnlebilir. Bireyler ayrıca her iki ara gurubunu da amaları doęrultusunda deęiřtirerek ya da eř zamanlı kullandıkları iin

iletişimlerini etkin halde sağlayabilmektedirler. Bununla birlikte sosyal sermaye oluşumu için yüz yüze iletişimin gereği ancak özel bir teknoloji alanında yoğunlaşıldığı takdirde sadece o teknoloji için doğru bir genelleme olabilir. Yerel topluluklar ile dağınık topluluklar arasında iletişim araçları kullanımı yönünde ortaya çıkan bazı farklılıklar dikkat çekicidir. Örneğin ağ pozisyonu dağınık topluluklarda iletişim araçlarından olumlu etkilenmekte iken yerel topluluklarda bu konu ile ilgili anlamlı bir ilişki saptanamamıştır. Bununla birlikte yerel ve dağınık topluluklarda bilişsel sosyal sermayenin ögesi olan ortak kod iletişim araçları kullanılması durumunda geliştirilemezken, bu aracı kullana uzman ve memur ise sadece yerel topluluklarda geliştirilebilmektedir. Bunun başlıca nedeni ortak kodların bireyler arasındaki yakınlığa ve ortaklıklara bağlı oluşudur. Ortak ilgiye baktığımızda özellikle sosyal medya araçları kullanılarak gerek yerel gerekse dağınık topluluklarda bilişsel sosyal sermayenin geliştirilebildiğini görebiliriz. Ortak ilginin daha çok kodlanabilir bir biçimde olması ve bireylerin bu şekilde birbirlerini kolayca bulabilmeleri bu ilişkinin altında yatan nedenlerde birisi olabilir. Aynı şekilde sosyal medya araçları dağınık topluluklarda güven teşkil edici bir rol oynarken aynı rolü yerel topluluklarda sadece uzman ve memurlar arasında oynayabilmektedir. Bahsedildiği üzere sosyal sermayenin ilişkisel boyutu zaman içinde gerçekleşen iletişim sıklığına göre değişebilmekte ve sıklıkla yapılan iletişim sonucunda bu sosyal sermaye boyutu kazanılabilmektedir. Dağınık topluluklara BİT öğeleri ile ilişkisel sosyal sermayenin karşılıklılık ögesi arasında uzman ve memurların yerel topluluğu haricinde anlamlı bir ilişki bulunamaması büyük olasılıkla hızlıca değişen ve güncellenen çevirim-içi ortamlara bağlıdır. Örneğin bireyler sürekli ziyaret ettikleri sitelerden ziyade arama motorlarının kendilerini yönlendirdiği sitelere gitme eğilimi içerisindedirler. Bu çeşit bir eğilim ilişkilerin sosyal medya araçları üzerinde (özellikle forum, blog, wiki) devam edememesine neden olduğu gibi topluluk üyelerindeki hızlı değişim de ayrı bir tehdit oluşturmaktadır. Görüleceği üzere böyle bir durumda iletişim tekrarı ancak iletişim araçları ile sağlanabilmekte ve bireyler arasındaki bağlar tekrarlanan iletişimlerle güçlenmektedir. Bu nedenle iletişim araçları ile güven arasında olumlu ilişki belirlenmiştir.

Sonu olarak gerek sosyal sermaye boyutlarının tanımlamalarındaki farklılıklar ve boyutlar gerekse hızlı deęişen bilgi ve iletişim teknolojileri altyapısı ve araçları bu konudaki alıřmaları zorlayıcı bir rol oynamakta ve bulguların genelleřtirilmesi yönünde engel teşkil etmektedir. Özellikle ok eřitli olan bilgi teknolojileri arasında ortak noktaların belirlenmesi ve tanımlı bir erevede sosyal sermaye ile iliřkilendirilmesi bulguların genellenebilirlięi yönünde olumlu katkılar saęlayacaktır.

Appendix E

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü

Sosyal Bilimler Enstitüsü

Uygulamalı Matematik Enstitüsü

Enformatik Enstitüsü

Deniz Bilimleri Enstitüsü

YAZARIN

Soyadı :

Adı :

Bölümü :

TEZİN ADI (İngilizce) :

TEZİN TÜRÜ : Yüksek Lisans

Doktora

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir.

2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir.

3. Tezimden bir bir (1) yıl süreyle fotokopi alınamaz.

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: