

---

## **The role of social capital in virtual teams and organisations: corporate value creation**

---

Ludmila Striukova\*

Department of Management Science and Innovation  
University College London  
Gower Street, London, WC1E 6BT, UK  
E-mail: l.striukova@ucl.ac.uk  
\*Corresponding author

Thierry Rayna

Internet Centre  
Imperial College London  
South Kensington Campus  
180 Queen's Gate  
London SW7 2AZ, UK  
E-mail: t.rayna@imperial.ac.uk

**Abstract:** The paper systematises the previous research on trust in virtual teams, by examining how trust and other elements of social capital can be created in virtual teams and where the value created by social capital resides. The study is guided by three main questions: What value can social capital create for virtual teams and organisations? How are social capital elements interlinked? What are the difficulties of developing social capital, and especially trust for virtual teams and how can these difficulties affect the process of corporate value creation?

**Keywords:** virtual organisation; virtual team; social capital; trust; value creation.

**Reference** to this paper should be made as follows: Striukova, L. and Rayna, T. (2008) 'The role of social capital in virtual teams and organisations: corporate value creation', *Int. J. Networking and Virtual Organisations*, Vol. 5, No. 1, pp.103–119.

**Biographical notes:** Ludmila Striukova joined UCL in 2004. Her previous experience includes working as a market analyst for a statistical agency and as a research fellow at King's College, University of London. Her research interests include intellectual property rights and social capital.

Thierry Rayna's research interests are related to the economics of the internet and digital goods and services. His current research investigates the economic consequences of the nature and particular characteristics of goods such as movies, music, software and information. He is currently a researcher at Imperial College London. He also was a European Research Fellow at the University of Cambridge.

## 1 Introduction

The number of organisations that use virtual teams, at least partly, is growing constantly (Townsend *et al.*, 1998; Duarte and Snyder, 1999; Hinds and Keisler, 2002; Gibson and Cohen, 2003). This growth is usually caused by recent economic and environmental changes such as globalisation and increased dependency on information technology. According to Duarte and Snyder (1999), over 80% of companies use virtual teams. Another study of managers conducted in Germany showed that about 20% of the managers were members of a virtual team on permanent basis, whereas 40% participated in virtual teams at least from time to time (Duarte and Snyder, 1999).

A number of academics (Handy, 1995; Lipnack and Stamps, 1997; Iacono and Weisband, 1997) emphasise the importance of trust for making virtuality work. Platt (1999), notes that the possibility of losing trust is much higher with virtual teams than with face-to-face teams, so it is important to have a high level of trust. Furthermore, trust can prevent geographical distances from becoming psychological differences (O'Hara-Devereaux and Johansen, 1994); other benefits of trust are pointed out by researchers (Snow *et al.*, 1996; Lipnack and Stamps, 1997; Mowshowitz, 1997; Townsend *et al.*, 1998; Cascio, 2000; Solomon, 2001; Hertel *et al.*, 2005). These studies, however, are very narrow and do not give credit to the variety of values that can be created in the virtual teams and organisations through the development of trust. Moreover, the emphasis of these studies is on the role of trust whether the effect of other elements of social capital was not addressed.

The paper systematises the previous research on trust in virtual teams, by examining how trust and other elements of social capital can be created in virtual teams and where the value created by social capital resides. The study is guided by three main questions: What value social capital can create for virtual teams and organisations? How social capital elements are interlinked? What are the difficulties of developing social capital, and especially trust for virtual teams and how these difficulties can affect the process of corporate value creation.

First of all, we analyse how the three dimensions of social capital (cognitive, structural, relational) can be developed within virtual teams and organisations. Secondly, we examine how different elements of social capital, including trust, create value for virtual teams and organisations. Thirdly a framework is developed to analyse the value created by social capital. In this context, this value is identified according to its position in terms of two dimensions:

- 1 whether it is embedded in either individual entities or systems and structures
- 2 whether it is embedded in market or non-market relationships.

Fourthly, as virtual teams are heterogeneous and have different dimensions of dispersion (such as spatial, temporal, cultural and organisational), the article examines the process of social capital development for different types of teams. Finally, the study focuses on the question of trust development for virtual teams and organisations, and on the role played by different types of trust in corporate value creation. The analysis emphasises the importance of developing social capital for virtual teams and organisations and the difficulties associated with this process.

## **2 Virtual teams and organisations**

According to Aris (1999), virtual organisation is a general term used for a task, project or organisation, which is characterised by dispersion (multiple locations), empowerment (division of responsibilities), restlessness (acceptance of change) and interdependence (the cooperation of all members is needed). A team is a simplest form of the virtual organisation (Okkonen, 2004).

There are different definitions of virtual teams, but in general they can be summarised as teams that rely on technology and have some constraints (*i.e.*, location, time). A team can be completely virtual or predominantly face-to-face, and partially dependent on communications technology. Usually, the degree of virtualness is affected by the extent to which a team is dependent on technology (Griffith *et al.*, 2003). In addition, virtual teams may be permanent or temporal (Panteli and Dibben, 2000).

Virtual teams can be also classified according to the type of dispersion. Shin (2005) identifies four types of dispersions: spatial and temporal dispersions when members mostly work without face-to-face interaction; cultural dispersion which refers to teams with members from different cultural backgrounds and organisational dispersion which in general covers team with members belonging to different organisations.

One of the main differences between traditional teams and virtual teams is the commitment to the team. Virtual team members are committed to themselves, not to the other members. The lack of loyalty, little shared vision and experience results in a lack of trust between the team members. The dispersions between virtual teams make the monitoring of the teams expensive and, because of the imperfect information, increase the risk of increase the risk of moral hazard and principle-agent problem to occur. Trust between the members decreases this risk and cuts down the cost of monitoring.

## **3 Social capital creation for virtual teams and organisations**

In this section, in order to fully comprehend the role played by social capital in creating value for virtual teams and organisations, it is important to consider what are the different dimensions of social capital and how these dimensions are created and interrelated.

According to Nahapiet and Ghoshal (1998) social capital is multidimensional and consists of three dimensions: structural, relational and cognitive. The *structural dimension* of social capital refers to the ability of individuals in the organisation to make connections to each other. These connections can help to reduce the amount of time and investment needed to obtain information (Nahapiet and Ghoshal, 1998). Also, the structural dimension makes it possible to determine whether there are network ties between actors, and, if so, what the configuration of these ties is. This dimension is important because ties are considered to be a fundamental aspect of social capital, as a network of social ties creates opportunities for social capital transactions (Adler and Kwon, 2002). Ties (or network relationships) are often categorised according to their strength. The strength of the tie depends on such factors as duration, intensity and reciprocity of interactions. Strong ties are created by intense and repeated interactions between actors. For this to be established, it is very important to ensure a high network stability or, in other words, a low turnover among members. Furthermore, the more contacts are made within the network, the more structural social capital is created. In

virtual teams, this could be done through the exchange of e-mails. In cases of unstable networks, some of the ties disappear when actors leave, which limits further creation of social capital.

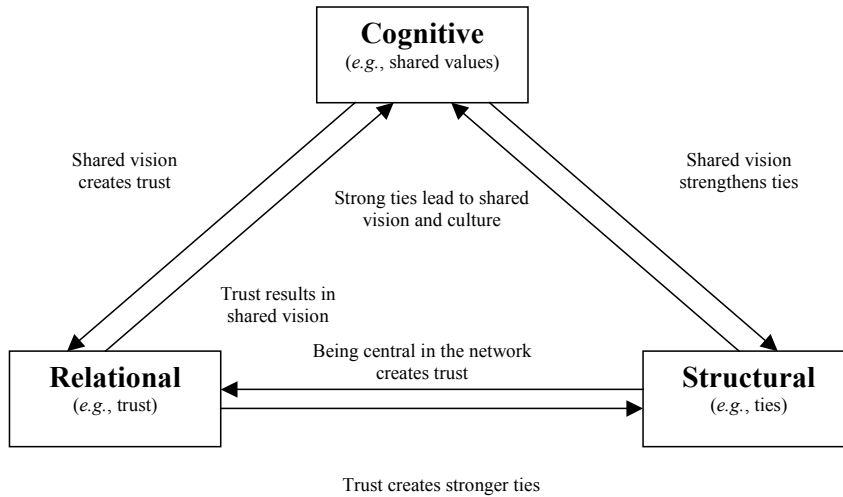
The structural dimension addresses the issue of making connections through networking. In contrast, the *relation dimension* concentrates on the development of the initial connections between individuals. Nahapiet and Ghoshal (1998) mention four components of this dimension: obligations, norms, trust, and identification. Obligations can be understood as binding oneself with social and moral ties. Norms consist of behaviours regarded by individuals as standard. Trust is more difficult to define and there exist numerous definitions of trust; it can be said that trust refers to one individual relying on the integrity, ability or character of other individuals. Relational social capital is related to the ability to create new relationships and concerns gaining access to new resources. If a firm does not have these relationships or is unable to create them, it will not have access to other firms' resources. Relational social capital, such as reputation and credibility, may, however, compensate for a lack of such ties. Such elements can be developed within virtual teams. The member of a virtual team may be more eager to share the information with another member if the latter has a good reputation. Finally, the formation of effective and stable relationships depends on the existence of relational social capital. Relational social capital is built over time (Tsai, 2000), but can be quickly destroyed by trust-breaking behaviour, therefore it can only be maintained through long-term relationships. One of the challenges of virtual teams when developing this type of social capital is thus to maintain long-term relationships in spite of the dispersion inherent to their structure.

The *cognitive dimension* of social capital is related to the development of shared context between several parties. This may include shared representations, interpretations and systems of meanings (Nahapiet and Ghoshal, 1998). Augier *et al.* (2001) argue that shared context emerges through the process of interpretation and is used to interpret new situations. Cognitive social capital helps actors to understand collective goals better and create a shared vision, which in turn can assist actors in cooperating.

All three dimensions of social capital can influence each other (as shown by Figure 1). For example, Tsai and Ghoshal (1998) show how the structural dimension of social capital can affect the relational dimension. It is easier for a firm (individual) to create trustful relationships with other network members, if this firm (individual) has a central location in the network. In his later work Tsai (2000) argues that relational capital, in its turn, can ease the creation of structural capital. Trust, reputation and credibility help to create new ties and strengthen old ones. In virtual teams trust and reputation can result in a more active participation of the team members.

As for the cognitive dimension, it may affect the relational dimension, as shared vision helps to create trust. Trust between parties, on the other hand, leads to the fact that the vision of one party will be accepted by the other party and will eventually result in shared vision. Furthermore, when individuals share the same values and goals, the ties between them become stronger, which leads to cooperation between these individuals. The existence of shared value and goals within virtual team can thus result in a stronger cooperation. Strong ties can also aid the development of shared values and culture. In this sense, there is also a link between cognitive and structural social capital. In other words, when the ties are already created (*e.g.*, several face-to-face meetings) it becomes easier to share values and/or to assure that the parties (team members) understand values in the same way.

**Figure 1** Relationships between the dimensions of social capital



Overall, in order to be able to generate value, social capital, should include some level of each dimension (structural, relational, cognitive). However, one type of social capital can never compensate for another type of social capital.

#### 4 Social capital elements and their value for virtual teams

We start our analysis of the value created by social capital for virtual teams and organisations by looking at how the different elements of social capital can be beneficial for them. The main elements the social capital discussed in literature are trust and trustworthiness (Coleman, 1988; Putnam, 1993), norms (Coleman, 1988; 1990; Putnam, 1993), cultural values (Fukuyama, 1995) and networks (Kogut and Zander, 1996; Nahapiet and Ghoshal, 1998; Stuart, 1999; Uzzi, 1999). Table 1 lists these four elements and also the values these elements create for virtual teams and organisations in both short and in long run.

It is possible to note that, first of all, social capital is embedded in cultural values and attitudes. When individuals share cultural values or try to understand the cultural values of their prospective partners, a trusting relationship is created. This relationship can then lead to cooperation. In cases where individuals have different cultural values, cooperation should be based on cultural compromise. Cultural compromise can positively affect the performance of many virtual teams and organisations, especially those located in different cultural environments. Furthermore, sharing and understanding of cultural values can create trust or increase the trust levels within a virtual environment.

Norms, rules and procedures are similar to cultural values in the sense that they also represent shared values and vision. They can make it easier to monitor the behaviour of individuals, which will lead to more productive behaviour. Norms, rules and procedures help make virtual teams and organisations more homogeneous and can be seen as the core of the team building.

**Table 1** Values generated by the different components of social capital

<i>Elements</i>	<i>Static value</i>	<i>Dynamic efficiency</i>
Cultural values, attitudes	Trusting relationships	Leads to cooperation
Norms, rules, procedures	Monitors and standardises the behaviour of individuals	Productive behaviour of individuals
Trust	Knowledge transfer and creation	Smooth, non-competitive interactions
	Easier cooperation between individuals and companies (resource exchange)	Firms are more likely to innovate
	Returning favours	Building social capital
Networks	Identification, collection and allocation of scarce resources	Competitive advantage over other firms
	Privileged access to information	

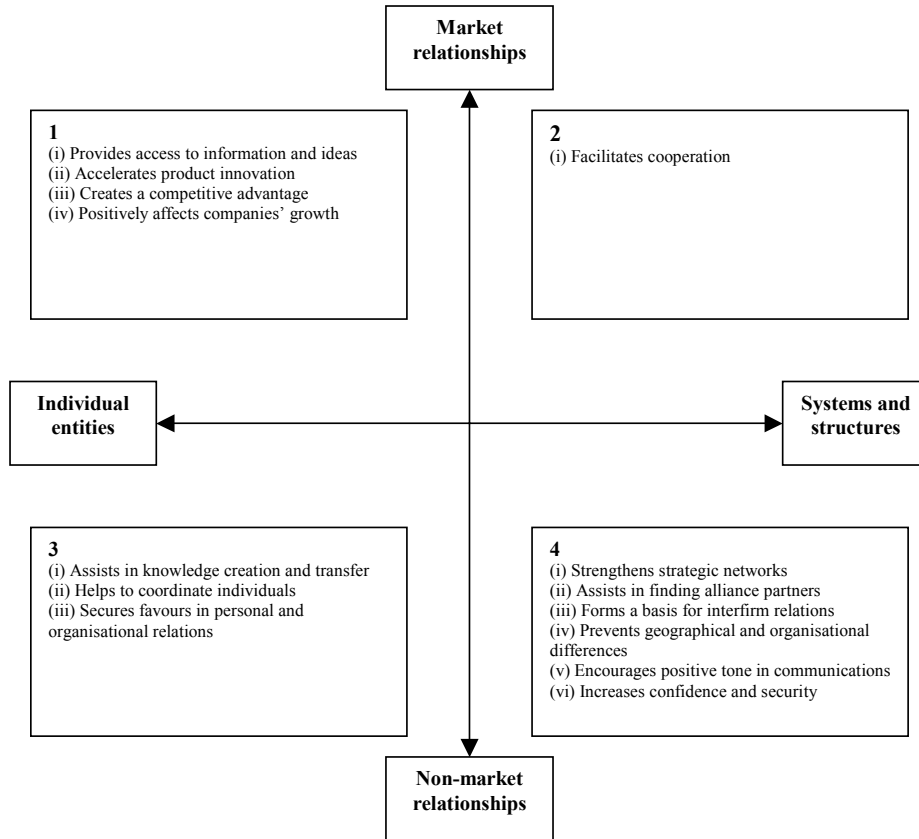
It is the third component of social capital – trust – that is argued to be the central component of social capital. First of all, trust is a critical factor affecting interfirm knowledge transfer and creation (Dodgson, 1993; Doz, 1996). Secondly, trust plays a key role in the willingness of network actors to cooperate, which in the long term, results in a higher chance of a company to innovate and grow. The presence of trust can be beneficial to virtual teams in many ways. Some of the most common advantages created by the high level of trust within virtual teams include information and knowledge exchange as well as easier cooperation. In the long term, high level of trust results in building stronger ties and leads to improved cooperation.

Another major component of social capital is involvement in networks. Networks help to identify, collect and allocate scarce resources. Moreover, networks assure privileged access to information and opportunities, which eventually helps gain competitive advantage. The strong ties created between the members of a virtual team are essential for company's successful performance. As to virtual organisations, networks are essential for their growth.

## **5 Taxonomy of value creation for virtual teams**

The value created by social capital in the case of virtual teams is not only created by separate elements of social capital, but by the combination of these elements. We will now analyse what type of value social capital creates for virtual teams and whether this value is market or non-market and whether it is embedded in individuals or in systems and structures. Figure 2 presents the typology of values that virtual teams can create by building and strengthening their social capital.

**Figure 2** Social capital taxonomy



**5.1 Market relationships and individual entities (Box 1)**

**5.1.1 Provides access to information and ideas**

Social networks and trust can be helpful in creating access to necessary resources. These resources include information and ideas. The ‘social’ of social capital emphasises that these resources are not personal assets as they are not owned by a single person, but reside in networks of relationships. Depending on the type of virtual team (with some face-to-face contact or no contact at all) and depending on the type of communications (e.g., e-mail, video conferencing) the exchange of information and ideas can be easier or more problematic. Teams that have some face-to-face experience can continue the exchange of ideas and information after some ideas are exchanged during face-to-face meetings. However, with ‘pure’ virtual teams, the initial exchange of ideas might take some time to begin. When exchanging ideas by e-mail, the exchange of ideas is expected to be much slower than during a face-to-face interaction. Also some people might be reluctant to put their ideas in writing either because they are afraid that they may be penalised because of poor ideas or because ideas maybe misinterpreted.

Video-conferencing is, in a way, similar to face-to-face communications. Therefore, it might be easier to organise and encourage the exchange of ideas for this type of virtual teams, when technologies allowing near face-to-face experience are used.

### *5.1.2 Accelerates product innovation*

There have been a number of studies aimed at investigating the role of social capital as a determinant of innovation. Supporters of social capital theory argue that social capital provides firms with an opportunity to create and share knowledge, and, therefore, to improve their innovative capabilities. Tsai and Ghoshal (1998) argue that shared vision creates trust and trust, in its turn, facilitates the exchange of resources. Finally, the exchange of resources leads to product innovation.

Maskell (2001) argues that social capital can help to accelerate innovation by reducing transaction costs (such as search and information costs between firms and between firms and other actors, bargaining and decision costs, and policing and enforcement costs). This is also the case with virtual teams. For example, presence of social capital helps avoid double checking the tasks within the virtual team, if the members trust other members. In addition, innovation literature emphasises the fact that close and frequent social interaction between relevant groups improves the effectiveness of the innovation process (Leonard-Barton and Sinha, 1993; Henderson and Cockburn, 1994). The problem with the virtual teams is, of course, the frequency and the intensity of the interactions. Email exchange for example can be time-consuming and not all team members may be motivated to have close and frequent contacts.

### *5.1.3 Creates a competitive advantage*

There are several ways to see sustainable competitive advantage. Barney (1991, p.102) believes that resources create competitive advantage when “other firms are unable to duplicate”. Dierickx and Cool (1989) also argue that sustainable competitive advantage can be achieved if resources are inimitable, non-substitutable and non-transferable. Social capital fits this criteria well, as its components (*e.g.*, trust, networks) are impossible to imitate. For example, the work of a virtual team with strong ties will be difficult to imitate and will be more effective and less time-consuming than the work of a virtual team with weak ties. Moreover, social capital is not transferable as if one member of the virtual team trusts his or her colleague it does not mean that he or she will trust a new person if this colleague is replaced. Finally, social capital is not substitutable, as for example when there is no trust, the teamwork will need to be additionally monitored and special measures will have to be used.

Social capital can be a useful resource both by enhancing internal organisational trust through the bonding of actors, (Adler and Kwon, 2002; Putnam, 2000).

Network relationships can also be a source of competitive advantage. First of all, networks provide firms with knowledge/information, which can allow firms to act faster than their rivals and, therefore, achieve competitive advantage (Gulati, 1999). The second way in which companies can use their participation in networks to create competitive advantage is through resource exchange. These resources may then be transformed into competitive advantage via enhanced technological distinctiveness, new product creation, and reduced transaction costs (McEvily and Zaheer, 1999).

To sum up, competitive advantage is created both through networks, that permit virtual teams and organisations to acquire additional resources through trust, and common vision, that help to utilise these resources effectively.

#### *5.1.4 Positively affects companies' growth*

Some of the studies of social capital are aimed at explaining how social capital can assist entrepreneurship and affect company growth. Baum *et al.* (2000) argue that social capital can affect a firm's performance growth. They point out that the young firms or start-ups are dependent on the density of ties both within the firm and with other firms. Virtual organisations are quite similar to these firms since they need to create a link with the outside world in order to grow and they also need a link between their members who might be highly isolated.

Overall virtual teams are created by companies as the means to increase their future profits through creating competitive advantage and increasing company's growth, therefore the creation of social capital within virtual teams can help the companies to meet this objective.

### *5.2 Market relationships and systems and structures (Box 2)*

#### *5.2.1 Facilitates cooperation*

Coleman (1988) and Putnam (1993) show that trust and emotional attachment to a group, society or association facilitate cooperation. Trust serves as a basis for cooperation; it facilitates the cooperation process and makes this process more productive. McEvily *et al.* (2003) suggest that social capital is the primary safeguard mechanism against opportunistic behaviour, since other mechanisms, such as monitoring and formal controls, are difficult and costly to establish. Essentially, successful cooperation can only be possible if individuals within the virtual team are performing according to each other's expectations.

Cooperation is important for virtual teams, as it helps to reduce transaction costs, to exchange knowledge and resources and to share risks. It is very important that partners develop ties with each other, otherwise, the benefits, associated with cooperation will lose their effectiveness. Moreover, if the level of trust between partners in a team is very low, the costs of monitoring each other's activities might be higher than the benefits of being a part of the team. In case of virtual teams the cost of monitoring each other's activity is especially high due to dispersion and that is why elimination of opportunistic behaviour is essential for the effective cooperation.

### *5.3 Non-market relationships and individual entities (Box 3)*

#### *5.3.1 Assists in knowledge creation and transfer*

Studies on social capital suggest that trust and shared vision can positively affect the knowledge transfer process (Tsai and Ghoshal, 1998). In other words, shared values and trust between parties facilitate knowledge transfer. Nahapiet and Ghoshal (1998) argue that shared norms increase the level of mutual understanding among organisational members, which leads to knowledge sharing. Similarly, according to Hewett and Bearden (2001), shared goals and values make it easier to disseminate knowledge within an organisation. Creation and dissemination of firm-specific knowledge can be ultimately a source of competitive advantage (Kogut and Zander, 1996).

Within a virtual organisation, knowledge transfer can take longer than in the face-to-face organisation. First of all, some knowledge can be tacit and therefore difficult to transfer. This may be a problem with the traditional teams but becomes even more complicated for virtual teams due to the lack of direct interactions between the members. Also in case when learning by doing takes place, some members may be reluctant to share their know-how due to the lack of trust. In order to ensure an effective knowledge transfer, virtual organisations should encourage shared values and strategically increase levels of trust between team members. Due to the complexity of knowledge transfer within virtual teams, a higher level of social capital has to be developed in comparison to the traditional teams.

### *5.3.2 Helps to coordinate individuals*

As well as promoting cooperation, social capital can help to assure greater coordination among individuals (Putnam, 1993). Efficient teamwork can enhance productivity in both small companies and multinational corporations. In virtual team social capital can help to self allocate the responsibilities among the members without the need of centralised allocation and control.

### *5.3.3 Secures favours in personal and organisational relations*

The issue of favours in personal and organisational relations was examined by Park and Luo (2001) when they studied the use of *guanxi* by Chinese firms, in other words, webs of connections with the implication of a continuous exchange of favours. This exchange can be both at an individual and a company level. *Guanxi* is different from friendship or simple interpersonal relationships, because it implies a relationship between individuals in which each can make unlimited demands on the other. It is argued that *guanxi* can bring a wide range of benefits: securing rare resources, obtaining necessary information, providing insurance against uncertainty and assistance when problems arise (Alston, 1989).

*Guanxi* is one example of personal relationships, which can take different forms depending on the cultural and organisational context. Uncertainty in virtual teams is very high due to the temporal, spatial, cultural and organisational difference. Once developed in virtual teams, *guanxi* can protect the team against uncertainty. However, as the face-to-face contacts within virtual teams are rare or non-existent it might be difficult to develop *guanxi*.

## *5.4 Non-market relationships and systems and structure (Box 4)*

### *5.4.1 Strengthens strategic networks*

The theory of ties in social capital states that the stronger the ties, the stronger the relationships between members of the network. It has been argued that a key factor in structuring networks is trust. Granovetter (1985), for example, views trust as a crucial factor for embedding social relations and ensuring future transactions. Trust is a critical aspect of network relations (Malecki, 1997): it simplifies the complexity of network interactions (Powell, 1990), and is a governance structure framing the social relationship between two individuals (Uzzi, 1997). Trust becomes apparent when intangible assets are transferred between parties (Uzzi, 1997), and this exchange of knowledge and intangible

assets often provides a better base for further cooperation than formal institutions. In this case, trust is especially vital when the cooperation is needed to be formed between two or more virtual organisations or between two or more members of the virtual team.

#### *5.4.2 Assists in finding alliance partners*

Finding an alliance partner is the first step in creating a network, and is, therefore important for both new ventures and established companies. Social capital assists in finding partners. For example, alliance partners often find each other via their social and business contacts. In addition, it is easier for prestigious firms to find alliance partners, as their prospective partners can improve their own status and credibility. The prestigious firms, in their turn, gain access to new knowledge. Finding an alliance partner may be more challenging for virtual organisations, than for traditional ones. If the ties between the members of the organisation are weak it might be difficult to identify a prospective partner and also to assess his or her credibility.

#### *5.4.3 Forms a basis for interfirm relations*

Corporate culture can play an important role in setting the character of interfirm relationships. Uzzi (1996), Powell (1990) and Gulati (1999) identify three key elements required for successful interfirm relations: trust, open communication, and joint problem solving. Trust helps to form the basis for effective interfirm relations by enabling organisations to exchange resources that are difficult to value. The success of the relationships then depends on open communication, which helps to clarify roles and to avoid misunderstandings. Finally, joint problem solving makes relationships more flexible and adaptable to change. It is more difficult to meet these three conditions for virtual organisations than for traditional ones. Therefore, when establishing interfirm relations, attention should be paid to developing trust, open communications and joint problem solving.

#### *5.4.4 Prevents geographical and organisational differences*

Trust can be useful in preventing geographical and organisational differences (O'Hara-Devereaux and Johansen, 1994). Shared values can be also useful in minimising these differences. As the level of dispersion within virtual teams is greater than within traditional team developing social capital in such a way that differences are prevented or minimised becomes very important.

#### *5.4.5 Encourages positive tone in communications*

Trust can also enhance communication and improve overall team performance (Jarvenpaa and Leidner, 1999; Sarker *et al.*, 2003). What is more, according to Lewis (1997), trust and shared vision within and beyond the firm, improve morale. By having regular encounters team members will develop stronger ties and strengthen cooperation, which eventually results in improved performance.

Regular communications are one of the characteristics of the traditional teams. These communications happen naturally, when people work at the same building, what is more these communications do not have to be direct since people also overhear conversations

and tend, naturally, to report elements that they think may be relevant to their colleagues. Communications within virtual teams, on the other hand do not happen spontaneously. Unless specifically designed procedures and mechanisms are established, communication will not take place between workers located in different locations and/or time frame. A preliminary effort is thus required to create initial communication that would naturally take place in a traditional environment.

Likewise, improving communication is more likely to be much easier/less costly in a traditional setting than in a virtual setting. Within a traditional organisation, simply adding a coffee machine in the building may lead to a sharp increase in communication. It is also very easy to set up meetings (both formal and informal, planned or unplanned) between workers located in the same building.

As it is more difficult to set up or improve communications within virtual teams additional mechanisms are required to encourage these communications. Social capital can be used as one of these mechanisms. Shared values and experience as well as common goals can help spontaneous communication take place.

#### *5.4.6 Increases confidence and security in relationship*

Trust can increase confidence and security in the relationship (Earley, 1986). If team members are sure that in case they make a mistake the other team members will still trust them they might be more eager to share their ideas and to cooperate. In addition to that a performance improvement may be achieved when team members know that they can rely on their colleagues during difficult times.

It is important to mention that in addition to all the advantages that social capital may bring to virtual teams, social capital can also be disadvantageous. For example, the fact that social capital maybe created with the wrong partners, can result in a loss of information, reputation and consequently of revenue.

## **6 Types of virtual teams and social capital**

Section 5 showed that numerous values can be created by social capital for virtual teams, however the effect of different social capital elements (shared values, ties, trust) is likely to be different according to the type of virtual teams. One of the reasons for that is that some elements of social capital are more difficult to create than others. Also, some social capital elements are more efficient with some types of virtual teams than others.

According to Shin (2005), there are four dimensions of virtual teams: special, temporal, cultural and organisational. It is important to note that spatial and temporal dimensions create physical dispersion, whereas cultural and organisational lead to psychological dispersion. Due to this difference, some of the elements of social capital are more difficult to develop within certain types of virtual teams than others.

Within spatial and temporal dimensions, the main dispersion is physical, leading to the fact that the members of the virtual team have no or limited face-to-face contact with each other. Therefore the initial ties between team members are likely to be quite weak. One of the way to strengthen these ties would be to bring people together for face-to-face communications which may be an option, but goes against the main idea of the virtual teams – virtual communications. The other option is to introduce shared values. When the dispersion is physical and not psychological it can be relatively easy to do, as the team

members by assumption already belong to the same group and have similar values and similar objectives. In this environment trust is the most difficult element to develop since it usually requires a face-to-face contact and/or intensive and frequent interactions. However, trust may still be developed due to the presence of shared values and goals provided that a sufficient number of interactions take place (*e.g.*, monthly face-face meetings, videoconferencing, chat rooms). The development of trust will in its turn reinforce the existing ties and lead to a positive loop of social capital creation.

Cultural and organisational dispersions are characterised by psychological differences between team members. The ties might already exist as the members usually have some face-to-face experience with their colleagues. However, there might be nearly no shared values or goals due to the cultural or organisational differences. So in order to develop trust, shared values should be introduced, which might be quite problematic without a certain trust being already present within the team because group and cultural identities of the group members may be strong. It may be therefore the case one can not introduce shared values unless there is certain degree of trust within the team. This implies that the trust can be developed when there are shared values but that would require a certain level of trust to be present first.

## **7 Cognitive versus affective trust for virtual teams**

These contradictory results suggest that the fact that there may be, in fact, different types of trust. According to Lewis and Weigert (1985), trust can be cognitive (*i.e.*, competence, responsibility, reliability, *etc.*) and affective (*i.e.*, based on social relationships). Kanawattanachai and Yoo (2002) argue that for an effective team the cognitive dimension of trust is more important than affective one. We argue that both types are equally important, however each type may be more or less difficult to create depending on the type of virtual team.

Cognitive trust, for example is easy to generate in the case of spatial and temporal dispersions. The members of the team set deadlines and when these deadlines are met the trust is created. This type of trust might not be, however, sufficient for generating certain values. For example, securing personal favours, can only be created with affective trust. Affective trust is more difficult to create, as face-to-face meetings are very limited or do not exist at all. As long as cognitive trust and shared values are present, affective trust is likely to emerge as the frequency/quality of interactions increases.

The interrelationship between cognitive and affective trust is more complicated within cultural and organisational dimensions. Both cognitive and affective trust may appear first depending on how groups and cultures feel towards each other. If there is a strong prejudice between the groups then first cognitive trust should be created through setting up goals and deadlines and make sure they are met. The following stages will involve creating cognitive trust, then shared value and then affective trust. On the other hand, when virtual teams belong to either cultural or organisational dimension, there is a certain amount of face-to-face communication so the affective trust may appear first. However, this type of trust may not be sufficient, if members of the team doubt about each other's skills and capabilities. The cognitive trust should then be created through making the team's tasks easily observable.

## 8 Conclusion and future research directions

The recent literature on trust in virtual teams and organisations has a very general focus and has rarely been applied within the context of corporate value creation. Furthermore, the role, played by other elements of social capital, such as shared values, norms and ties, in making virtual teams more successful, has not been addressed. The scarcity of this type of studies called for an analysis of how social capital can be created within virtual teams and organisations; how value is created with the help of social capital; and where this value resides.

The taxonomy, developed in this article, can be used by companies as guidance to using social capital for creating corporate value from a virtual team. In particular, it may help companies examine what type of value they already create with social capital and what value they might create in the future. The taxonomy, used as a guideline can change the way some virtual teams and organisations are managed, bringing the emphasis more on the development of certain elements of social capital.

The article also shows that trust is strongly interlinked with other elements of social capital, such as shared values and networks. Also, due to the structure of virtual teams, social capital, including trust, is more needed for this type of teams than for traditional teams. However, in case of virtual teams social capital and especially trust is more difficult to develop. This article shows how to avoid this problem within different types of virtual teams.

Our recommendation is that virtual organisations and companies that have virtual teams should develop an explicit social capital strategy to make the work of their teams more effective and to create corporate value.

The research could be taken further by examining how different elements of social capital can affect the productivity of virtual teams. For example, a study could be conducted to assess whether virtual teams with high level of trust perform significantly better than teams with low level of trust. A similar research could be done to test whether networks make virtual teams more successful or not.

## References

- Adler, P. and Kwon, S-W. (2002) 'Social capital: prospects for a new concept', *Academy of Management Review*, Vol. 27, pp.17–40.
- Alston, J. (1989) 'Wa guanxi, and inhwa: managerial principles in Japan, China, and Korea', *Business Horizons*, March–April, pp.26–31.
- Aris, J. (1999) 'Exploiting the wired-up world', *Business Strategy Review*, Vol. 10, No. 1, pp.47–52.
- Augier, M., Shariq, S. and Vendelo, M. (2001) 'Understanding context: its emergence, transformation and role in tacit knowledge sharing', *Journal of Knowledge Management*, Vol. 5, No. 2, pp.125–136.
- Barney, J. (1991) 'Firm resources and sustained competitive advantage', *Journal of Management*, Vol. 17, pp.99–120.
- Baum, J., Calabrese, T. and Silverman, B. (2000) 'Don't go it alone: alliance network composition and startups' performance in Canadian biotechnology', *Strategic Management Journal*, Vol. 21, pp.267–294.
- Cascio, W. (2000) 'Managing a virtual workplace', *Academy of Management Executive*, Vol. 14, No. 3, pp.81–90.

- Coleman, J. (1988) 'Social capital in the creation of human capital', *American Journal of Sociology*, Vol. 94, pp.95–120.
- Coleman, J. (1990) *Foundations of Social Theory*, Cambridge: Belknap Press.
- Dierickx, I. and Cool, K. (1989) 'Asset stock accumulation and sustainability of competitive advantage', *Management Science*, Vol. 35, pp.1504–1511.
- Dodgson, M. (1993) 'Organizational learning: a review of some literatures', *Organization Studies*, Vol. 14, No. 3, pp.375–394.
- Doz, Y. (1996) 'The evolution of cooperation in strategic alliances: initial conditions or learning processes?', *Strategic Management Journal*, Vol. 17, pp.55–83.
- Duarte, D.L. and Snyder, N.T. (1999) *Mastering Virtual Teams*, San Francisco: Jossey Bass.
- Earley, P.C. (1986) 'Trust, perceived importance of praise and criticism, and work performance: an examination of feedback in the United States and England', *Journal of Management*, Vol. 12, No. 4, pp.457–473.
- Fukuyama, F. (1995) *Trust: Social Virtues and the Creation of Prosperity*, London: Hamish Hamilton.
- Gibson, C.B. and Cohen, S.G. (Eds.) (2003) *Virtual Teams That Work. Creating Conditions for Virtual Team Effectiveness*, San Francisco: Jossey Bass.
- Granovetter, M. (1985) 'Economic action and social structure: the problem of embeddedness', *American Journal of Sociology*, Vol. 91, pp.481–510.
- Griffith, T.L., Mannix, E.A. and Neale, M.A. (2003) 'Conflict and virtual teams', in C.B. Gibson and S.G. Cohen (Eds.) *Virtual Teams That Work*, San Francisco: Jossey-Bass, pp.335–352.
- Gulati, R. (1999) 'Network location and learning: the influence of network resources and firm capabilities on alliance formation', *Strategic Management Journal*, Vol. 20, pp.397–420.
- Handy, C. (1995) 'Trust and the virtual organization', *Harvard Business Review*, May–June, pp.40–50.
- Henderson, R. and Cockburn, I. (1994) 'Measuring competence? Exploring firm effects in pharmaceutical research', *Strategic Management Journal*, Vol. 15, pp.63–84.
- Hertel, G., Geister, S. and Konradt, U. (2005) 'Managing virtual teams: a review of current empirical research', *Human Resource Management Review*, Vol. 15, pp.69–95.
- Hewett, K. and Bearden, W. (2001) 'Dependence, trust, and relational behaviour on the part of foreign subsidiary marketing operations: implications for managing global marketing operations', *Journal of Marketing*, Vol. 65, pp.51–66.
- Hinds, P. and Keisler, S. (Eds.) (2002) *Distributed Work*, Cambridge, MA: MIT Press.
- Iacono, C.S. and Weisband, S. (1997) 'Developing trust in virtual teams', *Proceedings of the 30th Hawaii International Conference on System Sciences*, Hawaii, January.
- Jarvenpaa, S.L. and Leidner, D.E. (1999) 'Communication and trust in global virtual teams', *Organization Science*, Vol. 10, No. 6, pp.791–815.
- Kanawattanachai, P. and Yoo, Y. (2002) 'Dynamic nature of trust in virtual teams', *Journal of Strategic Information Systems*, Vol. 11, pp.187–213.
- Kogut, B. and Zander, U. (1996) 'What do firms do? Coordination, identity, and learning', *Organization Science*, Vol. 7, No. 5, pp.502–518.
- Leonard-Barton, D. and Sinha, D. (1993) 'Developer-user interaction and user satisfaction in internal technology transfer', *Academy of Management Journal*, Vol. 36, No. 5, pp.1125–1139.
- Lewis, J.D. and Weigert, A. (1985) 'Trust as a social reality', *Social Forces*, Vol. 63, pp.967–985.

- Lewis, S. (1997) 'Family friendly employment and policies: a route to changing organizational culture or playing about at the margins?', *Gender, Work and Organization*, Vol. 4, No. 1, pp.13–23.
- Lipnack, J. and Stamps, J. (1997) *Virtual Teams: Reaching across Space, Time and Organizations with Technology*, New York, NY: John Wiley & Sons.
- Malecki, E. (1997) *Technology and Economic Development*, London: Longman.
- Maskell, P. (2001) 'Knowledge creation and diffusion in geographic clusters', *International Journal of Innovation Management*, Vol. 5, No. 2, pp.213–237.
- McEvily, B., Perrone, V. and Zaheer, A. (2003) 'Trust as an organizing principle', *Organization Science*, Vol. 14, No. 1, pp.91–103.
- McEvily, B. and Zaheer, A. (1999) 'Bridging ties: a source of firm heterogeneity in competitive capabilities', *Strategic Management Journal*, Vol. 20, pp.1133–1158.
- Mowshowitz, A. (1997) 'Virtual organization', *Communications of the ACM*, Vol. 40, No. 9, pp.30–37.
- Nahapiet, J. and Ghoshal, S. (1998) 'Social capital, intellectual capital, and the organizational advantage', *Academy of Management Review*, Vol. 23, No. 2, pp.242–266.
- O'Hara-Devereaux, M. and Johansen, B. (1994) *Global Work: Bridge Distance, Culture and Time*, San Francisco: Josey Bass.
- Okkonen, J. (2004) 'How virtuality affects knowledge work: points on performance and knowledge management', *International Journal of Networking and Virtual Organisations*, Vol. 2, No. 2, pp.153–160.
- Panteli, N. and Dibben, M.R. (2000) 'Repositioning interpersonal trust within virtual teams', *Paper Presented at the BIT'2000, Business Information Technology Management: E-futures, 10th Annual Conference*, Manchester, 1–2 November.
- Park, S.H. and Luo, Y. (2001) 'Guanxi and organizational dynamics: organizational networking in Chinese firms', *Strategic Management Journal*, Vol. 22, pp.455–477.
- Platt, L. (1999) 'Virtual teaming: where is everyone?' *The Journal for Quality and Participation*, Vol. 22, No. 5, pp.41–43.
- Powell, W. (1990) 'Neither markets nor hierarchy: network forms of organization', *Research in Organizational Behavior*, Vol. 12, pp.295–336.
- Putnam, R. (1993) *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton: Princeton University Press.
- Putnam, R. (2000) *Bowling Alone: the Collapse and Revival of American Community*, New York: Simon & Schuster.
- Sarker, S., Valacich, J. and Sarker, S. (2003) 'Virtual team trust: instrument development and validation in an IS educational environment', *Information Resource Management Journal*, Vol. 16, pp.35–55.
- Shin, Y. (2005) 'Conflict resolution in virtual teams', *Organizational Dynamics*, Vol. 34, pp.331–345.
- Snow, C.C., Snell, S.A. and Davison, S.C. (1996) 'Use transnational teams to globalize your company', *Organizational Dynamics*, Vol. 24, No. 4, pp.50–67.
- Solomon, C.M. (2001) 'Managing virtual teams', *Workforce*, Vol. 80, pp.60–64.
- Stuart, T. (1999) 'Technological prestige and the accumulation of alliance capital', in R. Leenders and S. Gabbay (Eds.) *Corporate Social Capital and Liability*, Boston: Kluwer Academic, pp.376–389.
- Townsend, A.M., DeMarie, S.M. and Hendrickson, A.R. (1998) 'Virtual teams: technology and the workplace of the future', *Academy of Management Executive*, Vol. 12, No. 3, pp.17–29.

- Tsai, W. (2000) 'Social capital, strategic relatedness, and the formation of intraorganizational linkages', *Strategic Management Journal*, Vol. 21, pp.925–939.
- Tsai, W. and Ghoshal, S. (1998) 'Social capital and value creation: the role of intrafirm networks', *Academy of Management Journal*, Vol. 41, No. 4, pp.464–476.
- Uzzi, B. (1996) 'The sources and consequences of embeddedness for the economic performance of organisations: the network effect', *American Sociological Review*, Vol. 61, pp.674–698.
- Uzzi, B. (1997) 'Social structure and competition in interfirm networks: the paradox of embeddedness', *Administrative Science Quarterly*, Vol. 42, pp.35–67.
- Uzzi, B. (1999) 'Embeddedness in the making of financial capital: how social relations and networks benefit firms seeking financing', *American Sociological Review*, Vol. 64, pp.481–505.