

# Social Capital Dimensions For Tacit Knowledge Sharing: Exploring The Indicators

*Perkongsian Pengetahuan Tasit: Meneroka  
Petunjuk Modal Sosial*

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## ABSTRACT

*The importance of social aspects of knowledge sharing has been emphasized in the literature on managing knowledge, with the recognition that knowledge is often tacit and embedded within particular social groups and situations. It is argued that the main dimensions of social capital relevant to knowledge sharing are structural, cognitive, and relational capitals. These dimensions, among other things, foster the exchange of knowledge and resources especially in settings where activity and learning are project-based. Since a project team is essentially tasked with integrating distributed knowledge, social capital of the team members is pertinent. However, understanding the relationship between social capital and knowledge integration within a project team requires that the dimensions of social capital be explicitly distinguished. Thus, the objective of this paper is to identify the dimensions and items of social capital in fostering tacit knowledge sharing among team members of projects. This study used grounded theory method and data were collected through in-depth interviews. Data were analysed using open, axial, and selective coding. This study proposes a list of social capital indicators for tacit knowledge sharing highlighting the categories and items of social capital dimensions.*

## ABSTRAK

*Kepentingan aspek sosial dalam perkongsian pengetahuan telah banyak diberi penekanan dalam literatur pengurusan pengetahuan, terutama apabila pengetahuan adalah berbentuk tasit dan tertanam dalam kumpulan sosial atau situasi tertentu. Kajian lepas telah membahaskan dimensi utama bagi modal sosial yang penting untuk perkongsian pengetahuan adalah modal struktur, modal kognitif, dan modal hubungan. Ini adalah kerana modal-modal ini menggalakkan pertukaran pengetahuan dan sumber terutama dalam keadaan di mana aktiviti dan pembelajaran berasaskan projek. Memandangkan ahli pasukan sesebuah projek diberi tugas untuk mengintegrasikan pengetahuan mereka, modal sosial mereka adalah penting. Bagaimanapun, untuk memahami hubungan di antara modal sosial dan pengintegrasian pengetahuan di dalam pasukan projek memerlukan dimensi modal sosial ini diperincikan dan dibezakan dengan jelas. Justeru itu, kertas ini bertujuan untuk mengenal pasti dimensi dan item-item modal sosial dalam menggalakkan perkongsian pengetahuan tasit di kalangan ahli pasukan projek. Kajian ini menggunakan kaedah teori 'grounded' di mana data dikutip menggunakan temu bual. Data kemudiannya dianalisis menggunakan cara pengekodan terbuka (open), paksi (axial), dan terpilih (selective). Kajian ini mengusulkan satu senarai kategori dan item yang terperinci bagi dimensi modal sosial untuk tujuan perkongsian maklumat tasit.*

## INTRODUCTION

Social capital is an important mechanism to give individuals access to crucial resources available in other people (Coleman 1988). As a key enabler for knowledge sharing (Brachos, Kostopoulos, Soderquist & Prastacos 2007; Chaminade & Roberts 2002), it encourages organisational members to form relationships, communicate with each other, and act together more effectively in achieving organisational goals (Adler & Kwon 2002; Burt 1997; Cohen & Prusak 2001; Nahapiet & Ghoshal 1998; Putnam

1995; Tsai & Ghoshal 1998). Besides, the creation and sharing of knowledge are also fundamental for organisations to gain competitive advantage (Argote & Ingram 2000; Grant 1996; Nicolas 2006) such as efficiency, quality (Bolwijn & Kumpe 1990) and enhance customer satisfaction (Love Edum-Fotwe, & Irani, 2003). Interestingly, research has suggested that most knowledge is created and shared in organisational projects (e.g., Bresnen, Edelman, Newell, Scarbrough & Swan 2003; Koskinen, Pihlanto & Vanharanta 2003; Newell, Tansley & Huang 2004).

However, despite the abundance of research on social capital, the dimensions of social capital are still difficult to distinguish as they are overlapping (Inkpen & Tsang 2005; Nahapiet & Ghoshal 1998). For instance, when discussing network structure, especially the closure and strengths of the network, there is a tendency to include elements of relational capital such as trust, obligation, and reciprocity. One of the reasons might be due to relational capital being embedded in structural capital (Tsai & Ghoshal 1998), thus, any unclear distinction on the dimensions of social capital may lead to confusion and perhaps misunderstanding of its effects. In order to effectively mobilise social capital for tacit knowledge sharing, Leana and van Buren (1999) have suggested that future research should empirically refine the dimensions of social capital and develop specific indicators for it so that these interactions or relationships can be explicitly understood. Thus, this paper aims to further define social capital dimensions and identify categories and items under each of the dimensions for tacit knowledge sharing.

## LITERATURE REVIEW

The research on social capital and knowledge sharing has recognised the pivotal role of social capital in affecting the behaviour and attitudes of organisational members in sharing tacit knowledge. Social capital theory, in particular, argues that firms have potentials for creating and sharing knowledge that improves their innovative capabilities through networks, interaction, and learning (Landry, Amara & Lamari 2002). It is important to note that although research on the concept of social capital has gained considerable attention from various fields, the concept is still evolving (e.g. Adler & Kwon 2002, Beugelsdijk 2006; Grootaert & van Bastelaer 2002; Inkpen & Tsang 2005; Leana & van Buren 1999; Nahapiet & Ghoshal 1998).

Theoretically, there is a lack of consensus on how to define social capital (Inkpen & Tsang 2005; Nahapiet & Ghoshal 1998), as is evident in the different uses and connotations in various scholarly perspectives found in the literature (Adler & Kwon 2002; De Carolis & Saporito 2006; Inkpen & Tsang 2005). Indeed, several disciplines have utilised the concept of social capital with partially varying definitions (Hitt, Lee & Yucel 2002), and operationalised these at different organisational levels of analysis (Kang, Morris & Snell 2007; Tsai & Ghoshal 1998) or applied them to different

social phenomena (Nahapiet & Ghoshal 1998). For example, the concept has been used to illuminate the influence of social capital in the development of human capital (Coleman 1988), organisations (Burt 1992; Liao, Fei & Chen 2007), geographic regions and societies (Putnam 1995), and nations (Fukuyama 1995). Table 1 summarises the definitions of social capital used in selected studies.

A review of these definitions shows that a large number of studies limit the definition of social capital to the relationship between the actors and values or assets embedded in that relationship (Baker 1990; Bourdieu 1986; Burt 1992; Putnam 1995). On the other hand, the definition of Nahapiet and Ghoshal (1998), that social capital 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” (p.243)*

focuses on the actors as well as the process involved in their deeds and the embedded nature of the networking in their thinking. Thus, this definition is most suited for the present study as it involves the behaviour and activities of the actors, their thinking and deeds, and the process of knowledge sharing in the project implementation. Additionally, it is also applicable in a project context where social capital is assumed to be developed and possessed by organisational members who are brought together from different work sites and backgrounds. The process, in the end, benefits the individual as well as the organisation at large.

## DIMENSIONS OF SOCIAL CAPITAL

The various definitions of social capital and the lack of consensus in the wider literature, have resulted in the recognition of different dimensions of social capital as highlighted by researchers (Flap & Volker 2001; Kang, Morris & Snell 2007; Leana & van Buren 1999; Nahapiet & Ghoshal 1998). Traditionally, social capital has been understood as a uni-dimensional concept, but recent researchers have adopted a multi-dimensional perspective of social capital (Huysman & Wulf 2005; Nahapiet & Ghoshal 1998). Leana and van Buren (1999) have described two components of social capital: strong associability and trust. Flap and Volker (2001) have identified another dimension of social capital: the position that someone has in the network of relationships that influences the willingness and

TABLE 1. Social capital definitions

Author	Definition
Baker (1990); Bourdieu (1986)	Aggregate of actual or potential resources that are linked to the actors of a durable network.
Burt (1992); Coleman (1988)	Social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspects of social structures, and they facilitate certain actions or actors - whether persons or corporate actor - within the structure.
Putnam (1995); Walker <i>et al.</i> (1997)	Features of social organisations such as networks, norms and social trust that facilitate co-ordination and co-operation to pursue shared objectives.
Inkpen & Tsang (2005); Burt (1997); Coleman (1990)	Asset that is embedded in relationships of individuals, communities, networks, and societies. A variety of entities having two characteristics in common.
Tsai & Ghoshal (1998)	Norms and values associated with relationship.
Nahapiet & Ghoshal (1998)	Actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit
Fukuyama (1999)	Informal norms that promote co-operation between two or more individuals by reducing transaction cost between them.
Lin (2001)	Resources embedded in a social structure that are accessed and/or mobilised in purposive action.
Leana & van Buren (1999)	Asset that benefits both the organisation and its members through collective goal orientation and shared trust which create value by facilitating collective action.
Cohen & Prusak (2001a)	The stock of active connections among people: trust, mutual understanding, shared values and behaviour that bind the members or human networks and communities and make co-operative action possible.
Adler & Kwon (2002); Hitt, Lee & Yucel (2002)	Relationships between individuals and organisations that facilitate action and thereby create value.
Newell, Tansley & Huang (2004); Bresnen <i>et al.</i> (2003); Ferne <i>et al.</i> (2003)	Resources or assets embedded in the relationship of the organisational members.

ability of others to provide help. Yli-Renko, Autio and Sapienza (2001) indicated three dimensions of social capital in their study, namely social interaction, relationship quality, and network ties. Landry, Amara and Lamari (2002) observed two dimensions of social capital and suggested six indices to measure social capital, but ignored the cognitive dimension highlighted by Nahapiet and Ghoshal (1998). A summary of the dimensions of social capital is presented in Table 2.

For the discussion on social capital, the framework offered by Nahapiet and Ghoshal (1998) is used for the purpose of identifying its dimensions. These dimensions of social capital appear more appropriate for this study since they encompass not only the network between the actors (structural) but also the embedded nature of the networking in their thinking (cognitive) as well as in their deeds

(relational), which accrue from the previous two capitals. Thus, these three dimensions have been selected because of their comprehensiveness in defining social capital.

#### SOCIAL CAPITAL AND TACIT KNOWLEDGE SHARING IN A PROJECT CONTEXT

The sharing of tacit knowledge among employees is one of the several processes within organizations that is a key to leveraging its most valuable asset (Jarvenpaa & Staple 2000; Nahapiet & Ghoshal 1998; Wasko & Faraj 2000). Knowledge sharing becomes an important process since it can result in shared intellectual capital, an important resource in today's modern organisation (Liao Fei & Chen 2007). Previous studies (Bock & Kim 2002; Connelly & Kelloway 2003) have identified factors

TABLE 2. Dimensions of social capital

Author	Dimensions	Structural	Cognitive	Relational
Nahapiet & Ghoshal (1998)	Three dimensions of social capital are structural, cognitive, and relational.	*	*	*
Leana & van Buren (1999)	Two dimensions of social capital are associability and trust.	*		*
Flap & Volker (2001)	One dimension of social capital is network structure but includes the position of the actor in the network.	*		
Yli-Renko, Autio, & Sapienza (2001)	Three dimensions of social capital are social interaction, relationship quality, and network ties.	*		*
Landry et al. (2002)	Two dimensions of social capital are structural and relational.	*		*

affecting knowledge sharing ranging from 'social' issues to employee characteristics. Social networks seem to be well suited to knowledge sharing (Boland & Tenkasi 1995; Chow & Chan 2008; Leonard 1998; Prusak 1997; von Krogh 1998). In line with this, Athanassiou and Maznevski (2002) found that social networks provide the vehicle for the indirect transfer of tacit knowledge, in their study on multinational firms. Davenport (1995: 32) also emphasised the relevance of social interaction in the creation of new knowledge. He further emphasised that for knowledge sharing to be successful, it must not involve computers or documents, but rather should be based on interaction between people. However, in case of online communities, the technology is used as a medium for the communities to stay connected provided that social capital has been developed overtime (Huysman & Wulf 2004, 2006).

As sharing tacit knowledge requires direct experience (Polanyi 1966), the actors must have frequent interaction, since through discussion and brainstorming, for instance, they can disseminate and acquire tacit knowledge. Since tacit knowledge is embedded in the human mind and is context specific, it can be shared when employees work together, for example, in an organisational project. Thus, knowledge sharing is defined in this study as a process of acquiring and disseminating knowledge that requires participation and consultation of the team members to achieve common goals and experience similar problems (Storey 2001).

Project teams are structured networks in which roles are clearly defined and common goals are clearly stated with deadlines (Inkpen & Tsang 2005; Koskinen, Pihlanto & Vanharanta 2003). However, since projects themselves are usually temporary and

unique in nature (Yu, Flett & Bowers 2005), and the team members are often brought together from diverse areas of expertise and different departments or subsidiaries (Koskinen *et al.* 2003), it requires the organisation particularly the project managers to develop appropriate methods of knowledge sharing (Fernie, Green & Weller 2003). Love, Edum-Fotwe and Irani (2003) suggest that the development and nurturing of social capital within a project team is crucial especially for tacit knowledge sharing.

## RESEARCH METHODOLOGY

Given the difficulty in distinguishing social capital dimensions and the dynamic nature of tacit knowledge sharing, grounded theory approach was adopted as the analysis can offer better insights as well as new explanatory themes for social capital (Edelman, Bresnen, Newell, Scarbrough & Swan 2004) in knowledge sharing, particularly in Malaysian information communication technology ICT companies. The grounded theory approach also enable the exploration of social capital development among the team members because it focuses on the context and process of the phenomena as well as the action of the subjects under study (Orlikowski & Baroudi 1991).

In this study, the presence or absence of social capital dimensions in project implementation activities in three Malaysian ICT companies (large, medium, and small-sized companies) were explored. Three Malaysian ICT companies were chosen based on their project-based activities. For two companies, two projects each were examined and for the remaining company only one project was studied, resulting in a total of five projects. All projects

were tacit knowledge-based (Rosenberg 1982) i.e. all the team members were knowledge workers and the projects led to creation of something new in the organisation. All of the projects investigated were concerned with the development of new IT products.

The study employed unstructured and semi-structured in-depth interviews in two phases. In the first phase, five interviews were conducted to further develop and refine the interview questions according to previous studies on social capital, knowledge management, and project management (Bontis 1996; Bresnen *et al.* 2003; Inkpen & Tsang 2005; Nahapiet & Ghoshal 1998; Newell Tansley & Huang, 2004). In the second phase, 55 actual interviews were conducted based on the refined interview protocols. In total there were 60 interviews conducted.

All interviews were tape recorded and the transcripts were analysed using open, axial, and selective coding (Strauss & Corbin 1990). The interviews were transcribed and analysis was done line by line to find categories and items that fit for theory generation. This iterative process began with pilot categorising based on the five interviews, which involved trying out categories (open codes) in all five interview transcripts to develop emergent new categories. Then, these emergent categories and existing ones were refined through reviewing extant literature to generate a list of categories and themes for the social capital. This follows Strauss and Corbin's (1990) suggestion that when examining the data, researchers are allowed to turn to the literature in order to get rid of the intervention of bias into interpretations and to stimulate thinking about the dimensions. This formed the basis for the interview protocol for the remaining 55 interviews.

In the present study, the open codes derived from the initial interviews were put back together in new ways by making logical connections and proposing relationships, and making comparisons between projects to find similarities and differences in the cases (axial codes). Although the coding procedures appear to be in order, this was an iterative process for comparison. When it is clear that one category is mentioned with a high frequency and is well connected to other categories, and to show connections to many of the other emerging categories, it is safe to adopt this as the core category (selective codes). The incidents and categories were then matched to the social capital dimensions derived from the three categories of social capital: structural, relational and cognitive, delineated by

Nahapiet and Ghoshal (1998), which served as the conceptual framework of the study. These three coding procedures interplay to develop new codes and working categories for further analysis through 'proposition' testing (Strauss and Corbin 1990). Table 3 summarises the steps taken in collecting and analysing the data.

Important to note that the assignment of one particular construct to the social capital categories and dimensions was based on the relationship between the dimension, category and the specific construct. For example, in this analysis, *Relationship* is categorised under Structural Capital, instead of Relational Capital dimension, because of the short-term nature of the projects, where relationships are fostered when the projects are formed, and rather than built upon personally closed connections prior to the formation of the project teams.

## FINDINGS AND DISCUSSIONS

This study was able to identify the differences among the three dimensions of social capital. Although it was difficult to identify the categories under each dimension, grounded theory method facilitated the effort of distinguishing the three dimensions of social capital that are categorised as structural, cognitive, and relational capital and develop specific indicators for each of the dimension pertaining to tacit knowledge sharing in a project context. The following discussion focuses on the dimensions, categories and items of social capital as found in this study.

### STRUCTURAL CAPITAL

This study identified five categories under structural capital dimension that support and foster the sharing of tacit knowledge in a project context i.e., meetings, relationship, interaction, position, and proximity.

#### MEETINGS

*Kick-off meeting.* The interviews revealed that all projects involved a *kick-off* meeting which was formal in nature. This was very important for focusing on the vision and mission of the project, deciding its objectives, introducing team members, and allocating tasks and responsibilities. It also facilitates the creation of 'initial identification' or shared identity, specifically among those team members who have network boundaries caused by dispersed locations (headquarters as opposed to the

TABLE 3. Summary of research design and methods

Research Objectives	Data Collection Methods	Data Analysis-Theory building procedure Identification of themes
1. To further define social capital dimensions and identify categories and items under each of the dimensions.	<p>Grounded theory utilised unstructured and semi structured interviews (Strauss and Corbin, 1998). Duration: 3 months from March-May 2004 Context: 3 Malaysian ICT companies. Level of Analysis: Project</p> <p><i>Research Activities:</i></p> <p>Phase I</p> <ul style="list-style-type: none"> <li>• Find companies</li> <li>• Initial interviews 5 key people in Company 2 and 3.</li> <li>• Find themes and categories.</li> <li>• Match with existing literature to refine questionnaire.</li> </ul> <p>Phase II</p> <ul style="list-style-type: none"> <li>• Actual interviews-35 interviews from company 2 and 3).</li> <li>• Develop more properties of categories.</li> <li>• Generate propositions to identify patterns.</li> </ul> <p>Phase III</p> <ul style="list-style-type: none"> <li>• Include another case—small company</li> <li>• Actual interview-20 interviews.</li> <li>• E-mailing and phone calls for confirmation.</li> <li>• Affirm pattern and propositions.</li> <li>• Refine items and categories under social capital dimensions.</li> <li>• E-mailing and phone calls for confirmation.</li> </ul>	<p><i>Qualitative analysis:</i></p> <ul style="list-style-type: none"> <li>• Utilize coding suggested by Strauss and Corbin (1998): open, axial, and selective coding.</li> <li>• Generate a list of themes of social capital</li> </ul>

subsidiaries), complexity (such as team diversity - differences in background and expertise), and project time limitation (project is one-off and short term).

*Formal meeting.* From the interviews, a *formal meeting* is seen as important because it creates the opportunity for the team members to share knowledge, as explained by the following interview response:

*"I don't want to be left out from the meeting. You know ... I am not from the HQ, so ... this meeting is very important for me because this is the only chance for me to meet the team members and discuss what to do."*

*Informal meeting.* Another type of meeting mentioned by the interviewees was *informal meeting*. This type of meeting is informal in the sense that it has no agenda and in most cases is not carried out purposefully, nor are the decisions arrived properly documented. The importance of informal meetings has been emphasised by many researchers as being crucial in knowledge sharing, particularly due to the tacit nature of the knowledge exchanged in those

meetings that makes it difficult to be formalised and transferred (Cohen & Prusak 2001).

#### RELATIONSHIP

*Formal relationship.* Relationship can be formal or informal (Hitt *et al.* 2002). Formal relationships exist through interaction that is based on purposeful interdependence among team members of a project.

*"Mr.A and I work in the same department, ... though, I am new here, he helps me a lot. This is my first time job after graduation and ... my first project."*

Relationships are developed through working in the same unit or department, job rotation or working on previous projects. Consistent with the previous studies (Koskinen *et al.* 2003; Newell *et al.* 2004), the findings from this study indicate that the team members can use existing social capital that has been built up over time through previous involvement in other projects, job rotation or other activities, such as short visits, to strengthen the relationship among them.

These findings also suggest that barriers to knowledge sharing in organisational projects can be avoided when friendships which are embedded from previous structural capital can be materialised before embarking on the project. It could be postulated that prior relationships created by the organisation for one purpose, could be factors for maintaining or strengthening the already established social capital. Nahapiet and Ghoshal (1998) also argued that network configuration such as connectivity or relationships that have been developed in one context, can be transferred to another setting. In contrast, developing a relationship with a new partner requires time and involves uncertainty due to lack of information and reliability of the team members (Tsai 2000).

*Similarity.* The findings also suggest that, having the same background or expertise may help to build the relationship among the team members. This is stated in the response below:

*“Although I am the only female in this group ... I find it easier to deal with and become close to the team members who have the same background. It is easier to understand one another. In this project, it does not require me to interact with other people often ... only with the software engineers.”*

Surprisingly, findings from the interviews also suggest that area of expertise inhibits the ability of the engineers to communicate beyond their boundaries and discipline. Moreover, they are reluctant to accept other members' opinions and suggestions. This is in line with Koruna's (2004) study that found that engineers tend to reject ideas from outside (those who are not engineers).

#### INTERACTION

*Face-to-face interaction.* The interviews revealed that most of the tacit knowledge sharing entailed a significant amount of face-to-face or at least telephone interaction. Below is the response of one interviewee:

*“I would prefer face-to-face whenever I interact with other members in the project. I don't prefer e-mail maybe I am an old fashion. Through direct communication [face-to-face] you can explain your problem or what you want in a clear way ... if they answer and you don't understand, you just ask back for clarification.”*

*E-mail.* The findings from this study suggest that apart from face-to-face interaction, the team members also prefer to use information technology tools such as *e-mail*.

*IB5 - “Sometimes, e-mail is preferred especially if I need info regarding the software programming ... because I can just read and then do or explore it myself. For me, e-mail is the fastest medium and easy to share especially regarding the technical problem. However, I would prefer to meet the person first before I could interact with him online”*

The finding from this study confirms that complex information is transmitted in an office face-to-face (Allen 2002). In addition, many researchers have confirmed that face-to-face meetings are the key driver for knowledge transfer and crystallization of new ideas, and are the best method for the manifestation of alternative opinion (Bennet & Gabriel 1999; Swan, Newell, Scarbrough & Hislop 1999). Information technology tools such as email is also preferred, however with a condition that they know the other party in person before they could be involved in online interaction. This is in line with (Huysman & Wulf 2004; 2006) who suggest that technology is used as a medium for the online communities to stay connected provided that social capital has been developed overtime. According to Hall and Wulff (2008), exchange and sharing of knowledge requires trusting relationship between two parties and this is further enhanced by proximity. In line with the media richness theory, the findings from this study indicate that preference for face-to-face interaction is due to a need for clarity, understandability, facial expression and feedback. Media richness theory also argues that people use less computer mediated communication (CMC) compared to face-to-face communication, especially if the required knowledge is complex.

#### POSITION

*Status.* Besides frequent interactions, another factor in structural capital that is important for the team members to be aware of is the position of the team members in the organisation. In line with this, Leonard and Sensiper (1998) strongly suggested that inequality in status among team members is a strong inhibitor to knowledge sharing especially when the differences in status is exacerbated by an epistemic struggle.

*“When we deal with the HQ, we must make sure we do all the best. They always look down on us ... probably because we are from the subsidiary ... that’s why you know ... the implication is quite big if we did not perform.”*

*Culture.* Szulanski (1996) suggested that one of the most important barriers to the transfer of best practice within an organisation is the existence of difficult relations between people (individualism vs. collectivism). Different cultural backgrounds might negatively affect knowledge sharing (Sackmann & Friesl 2007) and therefore emotional acceptance of team members can only be achieved if the members are considered as valuable contributors to the common task.

*“I will not make a decision myself; we have long discussions if we want to make decisions. I don’t want to make wrong decision. I listen to my subordinates. We decide based on consensus.”*

This is consistent with many researchers (Chen, Chen & Meindl 1998; Leanna & Van Buren 1999; Triandis 1995) who have found that members are willing to help others even strangers, simply because everyone is part of the collective and all have a collective goal orientation. Collectivism implies that the group (whether it be a friend, a team, an organisation, and a family) is more important than the individual, so naturally there would be a predisposition to work co-operatively and harmoniously for the good of the group.

*Obligation.* Despite differences in status and culture, interestingly, 45 interviewees indicated that they share their knowledge with their group members because they feel it is their obligation to do so.

*“Yes, we have to share knowledge with other group members because we are working in a team ... it is our obligation to make sure the project is successful. After all, it is your responsibility and surely you will feel bad if it is not successful because you are one of them.”*

*“I think everybody must share his or her knowledge. The management has appointed us because they know that we can do the job. So, we must do our best. It is our duty to perform our job and share our knowledge with other team members.”*

#### PROXIMITY

Sharing tacit knowledge requires close proximity and the opportunity to observe and participate in activities of practice (Hall & Wulff 2008; Leonard & Sensiper 1998; Von Krogh, Ichijo & Nonaka 2000). A shared context exists when the team members have access to the same information, tools, work processes, and work culture; which consequently can reduce the likelihood of misunderstanding (Hinds & Mortensen 2005).

*“I also have my office there, sometimes I need to be there quite often and I find that I get closer to the other team members as well.”*

#### COGNITIVE CAPITAL

This study identifies three categories under cognitive capital that support and foster the sharing of tacit knowledge in a project context i.e shared vision, shared objectives, and shared language.

#### SHARED VISION

The interviewees revealed that understanding the vision encouraged them to increase their performance in achieving targets.

*Clarity/obvious.* Interviewees stressed that when the vision is clear, it is easier for team members to work without any misunderstanding and resistance towards knowledge sharing.

*“Our CEO is a very cautious person .... He will make sure the vision is not only manifested but also clear to every team member. I believe every team member must be clear about the vision ... so it would not create any misunderstanding later on because different projects need different action. This is an international project. Its success is our success, it is so important; we are responsible to the whole nation. We must make sure we do what ever we can to ensure it success.”*

This is consistent with the finding of White and Fortune (2002) on the current practice of project management, and the study of Lynn (1998) that showed that team members should have a clear shared vision as this helps motivate them to accomplish the goals. Tsai and Ghoshal (1998) also agreed that if the team members have the same perception about how to interact, misunderstandings

can be avoided and hence, more opportunities arise to share resources and ideas.

*Shared identity.* Shared identity is the awareness of group membership and sense of belonging that arises from the understanding that now they (together) have a certain job to accomplish. Hinds and Mortensen (2005) argued that shared identity which is a dynamic property of a team, is significant as it may reduce ambiguity and conflicts. They further added that in the absence of shared identity, team members may evaluate other team members' behaviour negatively, for instance by assuming others as competitive rather than co-operative. The following quotes support the needs for shared identify.

*"We are working to achieve the same goals, so I think we should not distance ourselves from one another. We belong to a team ... the same team that must work and share any ideas and information to make sure the project is successful."*

Nahapiet and Ghoshal (1998) argued that to develop social capital, identification or shared identity that is embedded in the membership, is one of the processes that make the individuals see themselves as one with another person, group of people, or part of the group. Surprisingly, the findings from this study show that although identification is noteworthy in a project context, it is not what has been described by Nahapiet and Ghoshal (1998). They have described identification as a process which results from the group operations and thus, over time increases the chances of collective process and outcomes. On the other hand, this study indicates that identification is a result of the team members having a common purpose set for the project. This is in line with Kogut and Zander (1996) who found that a team member identifies himself as part of a larger group by recognising that he shares the same purpose. Since this feeling does not emanate from group operation but as a result of having a common purpose, it could be justified as 'initial identification'. However, it could be speculated that this 'initial identification' can die upon the completion of a project. Another explanation could be a contextual constraint such as the nature of a project created a situation in which team members did not have the time to build a distinct identity as a group. Thus, the possibility to

develop identification that is embedded in long-term relationships is almost impossible.

*Shared Objectives.* Interviews revealed that the team members who understood the objectives of the project were also willing to share knowledge. This is demonstrated by the following response:

*"In order to ensure the project success, all the team members must have same objectives ... we have discussed what we should do and also discussed our responsibilities. I think the team members should understand that to achieve the goal they must be willing to co-operate and share their knowledge."*

This is similar to the suggestion by Axelrod (2002) that for a team to be effective, the goals and roles of the team members must be clearly defined, agreed upon, and understood. A shared objective can serve as a bonding mechanism that can help diverse team members interact or combine resources. In a study of 190 managers in Hong Kong firms, it was found that social network that is build upon shared goals significantly contributed to a person's desire to share knowledge in the group (Chow & Chan 2008).

*Shared Language.* In terms of shared language, when the team members talk to one another either in formal or informal situations, the words that they used occasionally meant different things to different people. For individuals to efficiently communicate and share highly specialised technical knowledge, they need to possess some knowledge in common (Cohen & Levinthal 1990). These are manifested by the following response:

*"When I have a meeting with the government people, I'll make sure I understand what they say and also will try my best to convince them and explain to them in a layman term so that they fully understand what I mean."*

Consistent with Nahapiet and Ghoshal (1998), this study found that shared language may provide a common tool for better understanding other team members and hence evaluating the possible benefits of exchange and combination of tacit knowledge. The study also reveals that when the team members are people from different departments, or involve subsidiaries, and/or have diverse backgrounds, it can limit their understanding of one another.

## RELATIONAL CAPITAL

This study identifies five categories under relational capital that support and foster the sharing of tacit knowledge in a project context i.e., collaboration, co-operation, toleration, reciprocity, and sincerity.

*Collaboration.* Although collaboration is perceived as important to develop trust, the findings show that interviewees mentioned the need for team work and support from the organisation for them to collaborate.

*“No ... not really, for example myself ... I have been working with 2A4 in the previous project before, but ... it was a bad experience ... I know what to expect from her.”*

This is similar to Moran's (2005) findings that suggested personal experience and the quality of past interactions will often influence who a team member is likely to approach and engage, despite that person's knowledge. It could be speculated that people will share their knowledge with other whom they think are nice and helpful.

*Co-operation.* The interviewees' attitudes toward co-operation was characterised by their willingness to solve problems together and their openness to share and listen to each other's thoughts and ideas (Abrams, Cross, Lesser & Levin 2003), as a result of other team members' attitudes. Furthermore, recognition and positive feedback among team members, especially from the senior managers, can motivate people to co-operate with each other to generate more ideas and solve problems (Loogma, Umarik & Vilu 2004). When elaborating on co-operation, 42 interviewees mentioned the importance of discussions.

*“I find out most of the time if the seniors are flexible and easy to co-operate with the team members, it is much easier to talk and give opinions especially in making decisions and planning.”*

*Toleration.* Norms of interaction include willingness to value and respond to diversity, openness to criticism and tolerance to failure (Nahapiet & Ghoshal 1998). Under this category, effort and willingness to help others were mentioned when discussing on toleration. This was explained by the following response:

*“I am a senior compared to other team members. The approach is a bit different when you deal with the new member, you have to be subtle, humble and you must be willing to guide them.”*

In a project situation, the norm of toleration can establish a strong foundation for knowledge sharing. However, from the interviews, there was a strong indication that if there is no history of interaction, toleration does not arise as a result of an established relational capital.

*Reciprocity.* Surprisingly, interviews indicated that very few expected the other party to reciprocate when they help, as seen from some of the responses such as highlighted below:

*“I will help my team members if they need help. How could you disappoint those who need your help.”*

This is in line with the suggestion by Putnam (2000) that some people will help others “without expecting anything immediately in return and perhaps without even knowing you, confident that down the road you or someone else will return the favour.” The interviews revealed that the team members helped others in the team not because they expect something in return from the same person, but because they do not want to disappoint others and make them feel uncomfortable in that situation.

*Sincerity.* Trust plays a key role in the willingness to share (Inkpen & Tsang 2005). De Vries, Van den Hoof and DeRidder (2006) contended that when a person trusts the other party, he or she will be willing to disseminate knowledge without expecting anything in return, other than perhaps a feeling of satisfaction.

*“I didn't know most of the team members prior to this project. I don't think they help me because they trust me to help them in return.”*

This study also challenged the findings of Bartol and Srivastava (2002), who suggested that trust is a major facilitator of social exchange transactions. It could be presumed that lack of interaction, time and opportunity to strengthen the relationship, hampers the development of trust among the team members. To conclude, the study found that structural capital is one of the important determinants in the

development of social capital among project team members, since it fosters the relationship among them. Categories such as *meeting, relationship, interaction, position, and proximity* are pertinent in developing structural capital, which then becomes the basis for the creation of cognitive capital within a team. The *shared vision, goals, and language* used to facilitate the achievement of a common frame of reference are the attributes of the cognitive dimension of social capital.

Both structural and cognitive dimensions are important for the development of the relational dimension of social capital because this dimension requires time and a history of interaction in order to flourish. The categories for relational dimensions are *collaboration, co-operation, toleration, reciprocity and sincerity*. However, within a project context, this study found collaboration and co-operation to be more important than others. Nevertheless, all dimensions are generally important in knowledge sharing amongst project team members. A list of dimensions of social capital together with their categories and items related to tacit knowledge sharing in a project context is presented in Table 4.

#### IMPLICATION FOR RESEARCH AND PRACTICE

This study confirms the role of social capital is important in knowledge sharing particularly tacit knowledge sharing (Tsai & Ghoshal 1998; Yli-Renko *et al.* 2001). In this respect, the findings are consistent with earlier works on social capital and tacit knowledge sharing. In view of the differences between these dimensions and their possible implications for sharing tacit knowledge and knowledge creation in general, it is important to ascertain whether those theories, models and prescriptions based on Nahapiet and Ghoshal's are transferable to other contextual settings. Although researchers have argued that these dimensions are overlapping (Edelman *et al.* 2004; Inkpen & Tsang 2005; Nahapiet & Ghoshal 1998), the evidence from this study suggests that given the boundary of the study, these dimensions can be distinguished exclusively. Adopting qualitative approach and using grounded theory to explore social capital dimensions enhanced the investigation of the key dimensions in social capital for tacit knowledge sharing in a project context. Such analysis overcomes the

prevailing problems of insufficient definitions of social capital within the social capital literature. The findings of this study may also help to explain why the organisational members require more structural capital compared to other types of capitals in tacit knowledge sharing. This research contributes to an overall conceptual understanding of the nature and importance of social capital. Thus, implementing social capital concepts within project could be made more effective. Indirectly, this study also contributes to knowledge sharing theory.

Knowledge about the importance of social capital in encouraging tacit knowledge sharing may be used to help managers in dealing with the employees especially in an environment in which many aspects of the employment relationship have become individualised. Managers interested in managing the human capital should develop strategies or mechanisms to encourage the development of social capital among the organisation members. By understanding the different dimensions of social capital, managers will understand which dimension to be emphasised and developed first. For example, managers need to understand previous history of interactions that the team members may have. This study found that where team had not worked together previously, the development of social capital requires longer time. Thus, to strengthen and maintain the relationship among the team members, human resource managers, project managers, as well as the team members themselves must invest in more effort and resources to nurture social capital. Developing the relationship during the early phases for example through job rotation, trainings, and workshops can be important mechanisms for trust building. This is because, one way to build long-term relationship is to start the relationship as early as possible. Thus, project which has team members with established social capital are more likely to be more successful in tacit knowledge sharing.

In addition, the company should encourage frequent face-to-face interaction and encourage knowledge sharing for example by providing an open space for interaction to occur or through virtual communities. Managers also need to encourage the collective attitudes and behaviours to emphasise on closer relationships amongst employees. This in turn creates positive actions towards knowledge sharing.

TABLE 4. Comprehensive list of items and categories under the dimensions of social capital (Structural, Cognitive, and Relational Capitals)

Category	Dimensions			Relational Items
	Structural Items	Category	Cognitive Items	
Meeting	Formal	Shared vision	Obvious/clarity	Collaboration
	Informal		Motivation value	
	Frequency	Attributes/skills	Shared Knowledge	
	Place	Identity/Identification Norms	Shared	Feedback
	Urgency		Collective thinking	Commitment
	Time		Active Participation	
	Relationship	Job rotation		Assistance
Same department		Shared Objectives	Shared Understanding	Teamwork
Short visit			Shared Input	Favourite
Previous involvement		Shared Language	Exchanged knowledge	Cooperation
Training /workshop			Hard Work	
Interaction	Similarity		Jargon	Solving problem
	Face-to-face		Vocabulary	Discussions
	Telephone		Codes	Unity
	E-mail		Technical Word	Partner
	Black and White		Stories	Group
	Written Formal		Interpretation	Comfort
	Status			Ease
Position	Senior Experience			Effort
	Familiarity			Willingness
	Culture			Expectation
	Obligation			Reliable
	Office environment			Return
	Share equipment			Help
	Distance			Benefits
Proximity	Privacy			Tips
	Conducive			
	Partition			
	Comfortable			
				Reciprocity
				Sincerity
				Give and take
			Respect	
			Trust	

Category is an operationalisation of the social capital dimensions for instance structural capital is manifested in meeting, interaction, relationship, position, and proximity. Item refers to how each of the categories is being measured.

## LIMITATION AND SUGGESTION FOR FUTURE RESEARCH

This study has limitations. First, social capital and knowledge sharing were measured at the group level, the use of projects in one industry may bring limitation with it. Social capital and sharing of tacit knowledge may be experienced differently among the team members in organisational projects. As this study was only conducted in ICT companies, another extension of this work would be to apply this research to a broad cross-section of the knowledge-based industries, such as engineering. Second, this study only develop a list of indicators of social capital dimension for tacit knowledge sharing without identifying the most important dimensions and factors that foster tacit knowledge sharing. The precise definition of social capital dimensions would enable the determination of the most significant dimensions and their function in assisting the development of social capital.

## CONCLUSION

The aim of this paper is to further define social capital dimensions and identify categories and items under each of the dimensions for tacit knowledge sharing. In this study, three dimensions of social capital, namely structural, cognitive, and relational capitals (Nahapiet & Ghoshal 1998) were adopted to provide a platform for this research in identifying the development of social capital among team members working in a project. This study has enriched the discussion in the current social capital literature. Using grounded theory approach, the study uses social capital theory as a platform to explore tacit knowledge sharing in project implementation. This approach was able to overcome complexity resulting from the ambiguous nature of social capital and tacit knowledge sharing, and the diversity of the projects. The main contribution of this study is the development of a comprehensive list of categories and items under social capital dimensions related to tacit knowledge sharing in organisational project. The findings revealed that attributes, such as obligation and identification should be positioned under structural and cognitive capitals respectively, within the project context, rather than under relational dimension and these findings extended Nahapiet and Ghoshal's (1998) social capital framework.

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