



Raising team social capital with knowledge and communication in information systems development projects

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Abstract

Information systems development is a knowledge intensive collaboration project demanding high level of team social capital especially between business and technology experts. In this study, team social capital is conceptualized with three sub-constructs: social ties, trust and shared vision. Knowledge and communication by business and technology experts are hypothesized as critical antecedents of team social capital leading to team performance. A survey has been conducted collecting data from pairs of business and technology experts in 126 project teams. Data analysis largely confirmed the research model. Social ties seem to precede shared vision and trust. Trust seems to have a stronger association with the performance compared with shared vision. Knowledge and communication of both parties are found to be important, but, interestingly, business professionals' knowledge and communication seem to have a stronger influence in forming the team social capital. Implications and further studies are discussed with limitations.

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1. Introduction

Information systems development (ISD) project teams continue to face various and difficult challenges as ISD process involves the seamless integration of business details with technologically sound solutions serving the needs of business operations as well as strategic demands. In ISD project teams, business experts are working very closely with technology experts sharing their knowledge and expertise in order to collaboratively build and implement systems for business organizations. ISD projects demand interdisciplinary collaboration and sharing of knowledge between business and technology.

As this type of knowledge based collaboration is difficult, ISD projects are susceptible to failure. Though the failing cases can be defined in various ways, such as missing deadlines, going over budget, or impaired implementation of functions and features initially specified, the failure rate of ISD projects remains high compared to other projects. Only 16% of ISD projects are classified as success (Yeo, 2002), while general project success rate in business is more than 80% (IBM, 2008). Prior studies reveal that there failures of ISD projects are ascribable to a variety of factors, such as difficulties in knowledge sharing across domains, inherent complexity of information systems different from other physical systems, misinformed goals and objectives among different stakeholders, complexity of the relationship across disciplines, and so on (de Brabander and Thiers, 1984; Greenwood et al., 2010; Tesch et al., 2009).

Social capital is an intangible asset that evolves from social structure and relationships, and it cannot easily be replaced or obtained in a short period of time, unlike traditional capital such as

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labor, land, facilities, technologies or transportation (Bourdieu, 1986). The way it is formed and accumulated and how its functions are different from other types of tangible capital. In social capital theory, it is established that social ties, trust and shared vision are critical components of social capital (Chiu et al., 2006; Clopton, 2011; Mehra et al., 2006; Tansley and Newell, 2007; Thompson, 2005). As ISD projects are critically knowledge-intensive collaboration projects in which knowledge concerning business operation and strategy continuously infused and integrated with knowledge concerning information and communication technologies, team social capital raised and maintained among team members are the baseline for sharing knowledge and working together to solve problems at hand.

Concerning the raising of team social capital in ISD projects, it is noted here that academics and practitioners alike have highlighted that securing and coordinating the appropriate knowledge levels of participating members who make collaborative decisions present major challenges in successful ISD (Pee et al., 2010). Mismatched or unbalanced knowledge level among project members across different domains makes it difficult to build trust among collaborative members (Patnayakuni et al., 2007). While similarity in the stock of knowledge held by members can improve communication and share values among team members, the diversity of knowledge enhances the chance of solving problems creatively (Patnayakuni et al., 2007). Knowledge seems to be important in raising team social capital among ISD project team members as they are involved in collaborative knowledge sharing. The other critical factor in raising team social capital in ISD projects is the high level of communications among team members. High level of team social capital presupposes exchange of knowledge among team members through effective and efficient communication. However, communication is not only a method of exchanging information, but also a type of social interaction that may increase the level of knowledge sharing for successful ISD projects (Park and Lee, 2014; Park et al., 2012). In other words, adequate knowledge and continuous communication among professionals from different domains are required to raise appropriate level of team social capital that may lead to successful collaboration within the limited time and resources. Considering the complexity and knowledge-intensive characteristics of an ISD projects (Greenwood et al., 2010; Tesch et al., 2009), the team social capital raised by appropriate knowledge and communication seems to be the most important factors that determine successful project completion (Pee et al., 2010).

In this regard, studies of team social capital and related antecedents with the roles played by these constructs would be of significance from a theoretical and a practical standpoint, in the field of ISD. While social capital has been the topic of studies in various fields, a limited number of studies are conducted with regards to ISD project teams (Ghosh and Scott, 2009; van den Hooff and de Winter, 2011). Moreover, most of these studies are focusing upon the impact of the raised social capital on knowledge sharing and performance. Instead, in this study, a research model is posited and theorized with antecedents for raising the team social capital in ISD projects: knowledge and communication. This model is empirically tested with the dataset collected by a

survey of business and technology expert pairs in 126 ISD project teams.

2. Theoretical background

This study primarily draws upon the theory of social capital which is known to compose routinized relationships and solid ties in interpersonal friendships or acquaintances (Lee et al., 2013). According to Hanifan (1916), the notion of ‘social capital’ describes “features of social life-networks, norms and trust, which enable participants to act together more effectively to pursue shared objectives” (Putnam, 1995). A number of studies support the idea that social capital in teams can account for achieving high levels of team performance and cooperation among members of a team (Chow and Chan, 2008; Di Vincenzo and Mascia, 2012; Karahanna and Preston, 2013; Lee et al., 2013). The team social capital would play important roles among team members of ISD projects, as they require knowledge-intensive and voluntary collaboration to solve complex problems in building information systems for organizations.

2.1. Team social capital

ISD project teams base their performance on collaboration between technology and business experts (Pee et al., 2010). Hatzakis et al. (2005) approached the issue of change management as a means of improving collaboration between project members from the perspective of social capital. In general, technical professionals come from outside on a consulting capacity and business expertise are recruited internally within the business organization. Tasks conducted in ISD projects are based on heterogeneous and often complex sets of knowledge and information exchanged between these two parties (Patnayakuni et al., 2007). Success of ISD projects depends on integration and sharing of explicit and tacit knowledge that allows members of a project team to learn and access the experiential knowledge and methods developed by team members in different domains (Tiwana and Mclean, 2003).

In order to integrate knowledge up to the level of collaborative problem solving across different domains using different expertise, effective and efficient exchange relationships among members of a team need to be built so as for team members to share important knowledge regarding tasks without hesitation real-time when necessary. These relationships are not easy to build and demand self-identities to be nurtured and grown into social identities, group emotion, and group mood so that group intelligence can be activated (Adams and Anantatmula, 2010). Team social capital raised among members of a project team is likely to provide access to a valuable set of intangible resources, which may not be discovered without team social capital. These intangible resources may not be shared voluntarily if there is no trust or faith — team social capital. As the level of team social capital increases, knowledge sharing becomes more effective, routine and tacit (Ghosh and Scott, 2009). The cognitive aspect of social capital – shared vision – is known to have an impact on the level of knowledge sharing (Mäkelä and Brewster, 2009).

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