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Is It What You Know or Who You Know? The Role of Social Capital in Information Technology Project Management

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ABSTRACT

Both anecdotal evidence and empirical studies have demonstrated the importance of a project manager's knowledge and experience as key success factors in information technology projects. What a project manager knows is certainly important and has been the subject of many research studies; however, who an information technology project manager knows is also important. In this paper, we introduce researchers to social capital theory, which has received some attention in the information systems literature, but not widespread notice in the information technology project management literature. To inform researchers about this theory, we offer suggestions as to how this theory has implications for both researchers and practitioners and provide suggestions for future research.

Keywords

Social capital theory, project management success, knowledge, experience

INTRODUCTION

Information technology (IT) project management is complex and knowledge-intensive. Considering this challenge, organizations prefer to rely on experienced IT project managers, particularly for their most critical and complex projects. For example, one study found that in 97% of successful IT projects, an experienced project manager was at the helm (Standish Group, 2001). The assumption is that these experienced project managers possess knowledge that inexperienced project managers lack.

One belief about the creation and development of knowledge is that individuals use experience for learning and developing knowledge (Nonaka, 1994) and connecting the past to the present (Davenport and Prusak, 2000). When individuals receive new information, the information is processed in light of one's past experience to understand the current situation and to create new knowledge (Davenport and Prusak, 2000). Because experience is an important component of knowledge, many organizations want personnel with experience rather than academic training alone (Davenport and Prusak, 2000).

Unfortunately, many organizations do not have the benefit of assigning "experienced" project managers to their IT projects. Many organizations then encourage their project managers to continue learning by leveraging different strategies to capture, store, and disseminate knowledge learned during projects. For example, organizations may capture and disseminate knowledge learned from projects using tools and techniques like post mortem analysis or knowledge management systems (Schindler and Eppler, 2003). However, some studies have shed doubt on the benefits of both experience and knowledge. A recent study examined how experienced project managers made decisions during a simulation and found that those managers with experience did not properly learn from their experience and even made serious mistakes in their management of projects (Sengupta, Abdel-Hamid and Van Wassenhove, 2008).

Other researchers have theorized that many individuals may rely on transactional memory for knowledge in which a person identifies other individuals that may possess needed knowledge (Wegner 1987). This belief suggests that the individual does not possess the knowledge themselves, but can access the needed knowledge from another person only when the content is needed. For a project manager that relies on the expertise of others within their project team (Faraj and Sproull, 2000) or other colleagues (Boh, 2003) as a source of knowledge, the project manager's knowledge is not only impacted by his/her own retention of information or by his/her own experiences, but also by his/her relationship to others. Research focusing on the knowledge management strategies of four organizations found that knowledge management systems were often not used as expected by IT project managers, but rather these individuals looked to their colleagues for information (Newell, 2004).

What these studies seem to suggest is that "what you know" may not be enough for a project manager to deliver projects on time, on budget, and with the required functionality and quality.

"What you know" is certainly important, but "who you know" may also have an important role in determining the success of a project manager. This idea, which is a key component to social capital theory, was originally developed with the sociology literature (Bourdieu, 1986; Coleman, 1988) and has also been used within the management and information systems literature (e.g., Kankanhalli, Tan and Wei, 2005; Wasko and Faraj, 2005). Social capital is defined as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (Nahapiet and Ghoshal, 1998, p. 243). This theory considers not only "what you know" but also "who you know and what they know." Therefore, this paper proposes that more research in IT project management consider the social capital of project managers when examining factors that predict a project manager's ability to manage IT projects successfully.

This paper is organized as follows. First, social capital theory is briefly introduced. Next, we provide a discussion of possibilities with which social capital theory could be useful to inform the IT project management literature. In this discussion, we offer some examples of implications to research and practice if this theory were embraced in the IT project management literature.

A BRIEF REVIEW OF SOCIAL CAPITAL THEORY[5]

Rather than focusing on what a person knows, researchers have proposed that who you know is more of a driving factor for creating knowledge within an organization (Nahapiet and Ghoshal, 1998). This theory, known as social capital theory, states that one's social networks (e.g. business, family, and other personal relationships) are resources that can be used for various aspects (e.g. career assistance, support, and work advice) of organizational knowledge (Adler and Kwon, 2002).

Social capital is comprised of three dimensions: structural, relational, and cognitive (Nahapiet and Ghoshal, 1998). These dimensions identify how social capital can generate new knowledge. It is possible for these different dimensions to relate to one another or to operate independently (Tsai and Ghoshal, 1998). Research has shown that social capital encourages the exchange of resources and ideas between people and units (Gabbay and Zuckerman, 1998; Tsai and Ghoshal, 1998), establishes intellectual capital (Nahapiet and Ghoshal, 1998), and improves overall team effectiveness (Rosenthal, 1997).

The structural dimension concerns the nature of the network and communication links among people within an organization. This dimension refers to the people a person knows or "the overall pattern of connections between actors – that is, who you reach and how you reach them" (Nahapiet and Ghoshal, 1998, p. 244). As people build relationships through social interactions, they begin to strengthen their social network. When a need for knowledge arises, individuals can consult members of their social network (i.e. friends, acquaintances, contacts) or referrals from members of their network (e.g. friends of friends) for assistance (Nahapiet and Ghoshal, 1998). This connection to the network requires a certain degree of maintenance to preserve social bonds and relationships (Adler and Kwon, 2002).

The relational dimension targets the interpersonal relationships among people that may influence their decisions and behavior. This dimension "focuses on the particular relations people have, such as respect and friendship, that influence behavior" (Nahapiet and Ghoshal, 1998, p. 244). Trust, expectations, and social norms all affect the relational dimension of social capital. Lack of trust, poor relationships, and organizational policies that discourage knowledge sharing are all detrimental to knowledge creation (Davenport and Prusak, 2000). This dimension suggests that while "who you know" is important for creating social capital, "what you think about who you know" plays a critical role as well.

The cognitive dimension describes a shared understanding and basis of interpretation amongst individuals. While diverse backgrounds among individuals can facilitate innovation, to share knowledge and develop social capital, people need to share a common language and vocabulary (Nahapiet and Ghoshal, 1998). The common language and vocabulary "reduces the

[5] Social capital theory has been in existence from the 1980's and there are many different definitions, measures, and nomological networks for this theory partly because of its use in many domains including sociology, political science, and management. For the purposes of this paper, we have focused our discussion of the application of this theory to management and information systems. Furthermore, we have simplified the discussion of this rather complex topic and tried to focus our discussion on social capital theory using some of the seminal articles in this domain due to the constraints of a conference paper.

barriers of understanding between the partners because they have similar mental models and knowledge regarding the context" (Ye and Agarwal, 2003, p. 310). If people do not have a shared language, then stories, metaphors, and myths can be used to transfer knowledge and its context (Nahapiet and Ghoshal, 1998). Essentially this dimension examines "how you communicate what you know with who you know."

CONSIDERING SOCIAL CAPITAL THEORY IN IT PROJECT MANAGEMENT

Context affects social capital in terms of the networks used, the organization of groups and information, and the information shared among people (Widen-Wulff and Ginman, 2004). Within IT project management, there are several different types of interactions and uses of social capital that could be examined. For example, IT project managers may interact with one another to solve problems that may arise during a project (Newell, 2004). The project manager and members of the project team will share information and knowledge throughout the project. Project managers and team members will work with users to obtain the needed content to develop requirements and complete the project to the users' satisfaction (Kirsch, 1996). Each of these interactions between the IT project manager and different groups of people could impact project success.

In the following section, we offer several propositions and research questions as part of an expandable research agenda for more closely investigating the impact of social capital on IT project management. While many propositions and research questions are proposed, clearly many more propositions, research questions, and issues could be suggested. We limited our discussion to three topics. First, we explore potential extensions to social capital theory. Next, based on recent research by Kankanhalli et al. (2005), we provide propositions and research questions to explore the willingness of a project manager to share knowledge to build and use social capital. Third, considering the research of Wasko et al. (2005), we identify potential methods to study how IT project managers may benefit from communities of practice (which are often informally used by IT project managers (Newell 2004)) in establishing social capital.

Proposed Research Agenda

Because the dimensions of social capital are likely to differ across contexts, it is important to study how knowledge sharing is affected based on the characteristics of the social group and domain (Widen-Wulff, Ek, Ginman, Perttila, Sodergard and Totterman, 2008). In the context of IT project management, a study could use qualitative methods to understand the general role of social capital among IT project managers. Using methods that capture rich data and allow for probing of informants would be useful in answering many types of questions. When posed in the form of a proposition, one inquiry could take the following form to consider an IT project manager's conscious or unconscious process:

PROPOSITION 1: IT project managers consciously consider social capital when seeking or giving advice.

In a similar fashion as with financial capital which can be amassed and used, we consider how social capital can be amassed and used (Preece, 2002) and offer the following proposition:

PROPOSITION 2: IT project managers actively develop and spend social capital.

Quantitative methods may also be useful to determine how generalizable social capital theory is to the domain of IT project management. In studies examining the experience of IT project managers in terms of their ability to manage projects successfully, the network of the IT project manager could certainly have impacted their effectiveness as a manager. Access to knowledge seems to logically be important to predicting success. Quantitative measures of the different dimensions of social capital theory have been developed and used in contexts other than IT project management (Tsai and Ghoshal, 1998; Wasko and Faraj, 2005); these measures could be adopted and used to measure the social capital acquired and used by IT project managers. Therefore, studies could examine research questions in the form of the following propositions:

PROPOSITION 3: The use of social capital impacts the success of an IT project manager (as perceived by the organization, team members, or users).

PROPOSITION 4: The use of social capital by an IT project manager impacts the success of an IT project.

If a study is examining success of IT projects, the following is offered:

PROPOSITION 5: The social network of the project manager should be measured or controlled.

Studies examining these aspects would be useful to determine the salience, relevance, and importance of social capital in IT projects. If social capital is indeed important for IT project managers, then many other interesting avenues of research in this domain would be available for study.

Social Capital Theory Development

The management literature examines social capital theory associated with the development or creation of knowledge (Adler and Kwon, 2002; Nahapiet and Ghoshal, 1998). In IT projects, knowledge creation also occurs in a variety of situations. Some projects are highly innovative that push the state-of-the art. Some of these projects may require creativity and strong leadership to keep the project on course for budget, schedule, and functionality targets. In addition, satisfying customer and business needs may also be particularly challenging on these types of projects. In this scenario, the IT project manager may be developing new knowledge for themselves and the organization. It is likely that social capital can inspire and aid in the development of knowledge for these types of innovative projects. Thus, it is possible:

PROPOSITION 6: Increased social capital increases project innovation.

Although there are common themes that carry across IT projects (Cooper, Lyneis and Bryant, 2002), knowledge creation also occurs in IT projects when an IT project manager is trying to identify a solution to a problem that s/he (or the organization) has never experienced before. The problem may be technical in nature or may be related to motivating a team or dealing with a troublesome user. In this situation, the project manager may have little knowledge and there may be limited knowledge formally captured within the organization's knowledge management system so that person must look to others for help. It may be that it is not necessarily the creativity or the "know-how" of the IT project manager that determines success, but rather his /her social network, social capital, and ability to use the knowledge gained via social capital that is a determinant of the project manager's success. Perhaps the following is true:

PROPOSITION 7: An IT project manager's social capital has more impact on his/her success than project knowledge.

Another interesting extension to social capital theory could be to evaluate the use of social capital in the context of knowledge reuse. Most of the literature on social capital theory focuses on knowledge creation; therefore, the concept of applying previously-generated knowledge is outside the boundaries of the current theory. Since social capital theory focuses on creating knowledge, rather than reusing knowledge, this could be an important extension to the general theory. IT projects seem to be an ideal domain to study the effects of social capital in knowledge reuse. For example, in IT projects, knowledge reuse occurs in consulting organizations or large organizations performing multiple IT projects that experience similar problems. Knowledge reuse also arises when IT project managers seek technical or procedural knowledge for a project that is similar to one previously-conducted by the project manager, by the organization, or elsewhere. It is possible that while the IT project manager has never faced the problem before, a colleague (either inside or outside the organization) may have experienced the same or similar problem and has advice to share. Theoretically, it seems appropriate to assume that the dimensions of social capital (relational, structural, and cognitive) apply to knowledge creation as well as to knowledge reuse. However, maybe the importance of these dimensions varies or a new dimension is discovered in this context. These aspects may be examined through the following:

PROPOSITION 8: The relational, structural, and cognitive dimensions of social capital apply equally to knowledge reuse as they do to knowledge creation.

Knowledge Hoarding & Social Capital

Some individuals may choose to hoard or keep their knowledge rather than share it with others. This often occurs because the individual views their knowledge as a source of power, which is often reinforced by organizational norms (Davenport and Prusak, 2000). However, people do share knowledge if they perceive that their efforts will be reciprocated, if they want to improve their reputation, or out of altruism (Dixon, 2000).

For example, a study of ten organizations using electronic knowledge management systems found that regardless of the organizational norms, a need to retain knowledge to retain power did not impact the usage of the knowledge management system by contributors (Kankanhalli et al., 2005). In this same study, altruism was a common reason for people's willingness to contribute knowledge, reputation was not important, and reciprocity was only important if the organization had weak norms to support knowledge sharing.

This study and issue suggests several potential research questions associated with knowledge hoarding and social capital in IT projects that may take the form of the following propositions. Understanding these aspects may be useful in developing better ways to share knowledge:

PROPOSITION 9: Knowledge hoarding and power affect the willingness of IT project managers to share (or seek out) knowledge.

In considering the uniqueness of the findings of Kankanhalli et al., we offer:

RESEARCH QUESTION 1: Are the Kankanhalli et al. findings generalizable to the context of IT projects?

RESEARCH QUESTION 2: What is the motivation for IT project managers to share their knowledge with others: reciprocity, reputation, or altruism?

Interactions & Social Capital

People attain social networks through a variety of methods including communities of practice, professional organizations, conferences, former colleagues, friends, and family members. Research can be conducted to examine the types of interactions that IT project managers have and their effects on social capital.

For example, communities of practice are defined by Lave and Wenger (1990) as a cohesive group of individuals that work together, interact with one another, and solve problems. The authors suggest these groups are typically collocated (as opposed to virtual or geographically dispersed) and have a high sense of reciprocity. The characteristics of these groups suggest that there should be strong relational, structural, and cognitive dimensions, and social capital would be important and salient in these groups. Studies could examine the role of social capital in communities of practice, which could be useful in helping to develop, grow, and heighten the impact of these communities. Thus, we offer:

PROPOSITION 10: Social capital has measurable importance to communities of practice.

Many organizations may not be large enough to have a community of practice for IT project managers. Therefore, research could also examine other forms of interactions. For example, "networks of practice" were defined by Brown and Duguid (2001) as a group of people across organizations that develop relationships through professional groups and conferences. These networks are not as cohesive as communities of practice and may never actually meet face-to-face, but there is still great potential for knowledge sharing in these groups. However, these groups have weaker structural and relational dimensions and may have a more difficult time developing and leveraging social capital (Wasko and Faraj, 2005). Therefore, we may consider the following:

PROPOSITION 11: Social capital has measurable importance to networks of practice.

PROPOSITION 12: Social capital has less importance to networks of practice than to communities of practice.

Wasko and Faraj (2005) examined similar dimensions in a study of law professionals interacting in an online community of practice. In their research, they found that developing a reputation was a primary factor in terms of why individuals shared their knowledge. Reciprocity was not as important in these types of interactions. This study also found that a critical mass was necessary to encourage contributions, because those central to the group tend to contribute more to the group (Wasko and Faraj, 2005). These findings suggest that an organization has the potential to benefit from individuals accessing a network of practice. These employees are able to access a large amount of knowledge for a very small cost. There is a need for organizations to not inhibit (and possibly promote) this type of interaction for their employees (Wasko and Faraj, 2005).

PROPOSITION 13: The ability to access a network of practice positively impacts organizations.

This study and consideration of networks of practice suggest that many related research questions could be explored. Do these findings apply to IT project managers given the nature of their work and needs for knowledge? Are some sources of networks better than others (i.e., local chapter of a project management group versus conferences or some other form of interaction)? Wasko and Faraj (2005) examined the factors that impact those who are willing to contribute to the network. What about the factors that impact whether or not an IT project manager is willing to use their social capital to obtain knowledge? Understanding how various interactions impact social capital would help organizations and IT project managers

better develop and utilize social capital to gain needed knowledge on IT projects. This raises some interesting research questions:

RESEARCH QUESTION 3: Are some forms of networks of practice better than others?

RESEARCH QUESTION 4: Do certain types of interaction increase the likelihood that an IT project manager will share his/her knowledge?

Potential Organizational Considerations

Given the potential importance of social capital theory in affecting an IT project managers' ability to manage projects successfully, there are many implications for organizations. Organizations should consider implementing the following recommendations to improve social capital.

First, both organizations and the profession of IT project managers need a shared language to better communicate with one another. The use of training, methodologies, and standards from organizations or professional organizations can provide a shared language among IT project managers where there is an "overlap in knowledge" (Nahapiet and Ghoshal, 1998, p. 254). This development of a shared language among IT project managers facilitates the exchange of knowledge through the cognitive dimension of social capital. Furthermore, those within the project team or the user group should also have a shared language to better communicate with the IT project manager.

Next, organizations need to realize that novice IT project managers or those new to an organization have smaller social networks and will need to build up social capital. Novices have a difficult time soliciting advice when problems arise because they do not know who to ask for help or have a limited number of people within their network to ask for advice. When entering an organization, the structural dimension of social capital is lacking. New employees lack network ties and are thus unable to access the resources that have the necessary knowledge for reuse (Nahapiet and Ghoshal, 1998). Over time, one's network of resources can grow and improve and the organization can encourage networking both within the organization and within a professional community. The reliance on social networks is a commonly used method of obtaining knowledge and is subject to the structural dimension of one's social capital (Nahapiet and Ghoshal, 1998); this reliance is consistent with other research on cross-project learning (Newell, 2004).

The primary drawback to this type of knowledge reuse is that a person's social network dictates the knowledge available to them. A person within the organization may have a solution to the project manager's problem, but if the project manager does not have a relationship with this person, the knowledge cannot be obtained. By formalizing knowledge, the need for the structural dimension of social capital is reduced. By capturing and storing knowledge in a formal knowledge management system, anyone in the organization has access to the data (Hansen, Nohria and Tierney, 1999). This lessens the importance of social networks because people can obtain and reuse knowledge that exists outside of one's social network. Related to the former point of having a shared language, new users to the organization may have difficulty using this formal knowledge because of their inexperience in the organization and lack of shared knowledge to communicate information. This lack of structural knowledge about the organization may also impact the use of social capital.

Another option for improving social capital is establishing social norms that promote reliance on others. The perceived norms of employees within an organization affect exchange of knowledge by impacting the strength of relationships among colleagues, thus reflecting how the relational dimension of social capital theory can encourage project managers to share what they know with one another. However, while organizational norms can be supporting factors for knowledge reuse by encouraging the use of social capital among employees, norms can also affect social capital negatively if taken to an extreme (Leonard-Barton, 1995), thus inhibiting the pursuit of social capital. For example, a social norm that encourages success among its employees could be a motivating factor to seek out knowledge from colleagues during a project; however, other project managers may interpret the same social norm as the need to be perfect, meaning that asking for help would be perceived as weak or unknowing (Citation Omitted 2008). Therefore, organizations need to be cognizant of these norms and promote them positively within the firm.

CONCLUSION

Within this manuscript, we proposed that researchers more closely consider social capital theory within the domain of IT project management. This theory has received much attention in political science, sociology, and management, and is becoming more prominent in recent information systems research as reflected in the International Research Workshop on

Information Technology Project Management (IRWITPM) by Chua, Lim, Soh, and Sia (2007). The people within an IT project manager's network and the network's collective knowledge may be important for the IT project manager as s/he searches out solutions to problems that arise on his/her project. Therefore, we briefly introduced the related social capital theory and described some specific practical implications for organizations based on this theory. We also proposed a research agenda with some implications to IT project management research as well as some research propositions that could be investigated based on this theory. Although this theoretical introduction is brief to fit the guidelines of a conference publication, we believe it will challenge readers to consciously consider this theory in their study of IT project management. Thus, we may help uncover another important dimension to understanding IT project success.

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