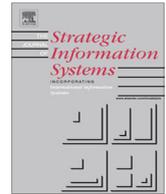




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Action-embedded transformational leadership in self-managing global information systems development teams

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ABSTRACT

While software development teams are becoming more and more distributed around the globe, most software development methodologies used by global teams prescribe self-managing teams. Transformational leadership is the key to successful information systems development and use for competitive advantage. Yet, little is known about transformational leadership in self-managing global information systems development team settings. This study answers the research question of how leaders emerge and strategically influence systems development in self-managing global information systems development teams. This question is answered with a grounded theory study of Apache Open Source Software development teams. A theoretical model of action-embedded transformational leadership is developed to demonstrate how leaders emerge and strategically influence systems development efforts through their leadership, which is embedded in their work-related actions.

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1. Introduction

This study investigates how emergent leaders strategically influence systems development in self-managing global information systems development teams (SMG-ISDTs) through transformational leadership. Self-managing teams are groups of interdependent individuals who have the collective authority and responsibility of managing and performing relatively whole tasks to achieve group goals (De Jong et al., 2004). Transformational leaders generate awareness and acceptance among followers toward group goals. Transformational leadership exists when leaders move their followers to go beyond their own self-interests for the good of the group (Burns, 1978). Transformational leadership enables information systems (IS) development for competitive advantage by generating an innovative IS climate (Leidner et al., 2010; Watts and Henderson, 2006) and by contributing to business-IS alignment (Chan and Reich, 2011) thus increasing organizational performance (Chan and Reich, 2011; Leidner et al., 2010). This is in line with the arguments that the real sources of IS-based competitive advantage are the complementary capabilities, including the transformational IS leadership (Keen, 1993; Mata et al., 1995; Peppard and Ward, 1999; Powell and Dent-Micallef, 1997).

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Human resource issues associated with information systems are pertinent to the strategic information systems field and have often been addressed in JSIS (Galliers et al., 2012). Our study concentrates on the complementary human capability of transformational leadership in enabling global IS development for competitive advantage. We believe that leadership supports the process of IS enablement of competitive advantage, which is one of the research areas in the strategic information systems field (Gable, 2010). Our view is similar to the views adopted by previous JSIS authors interested in the use of IS for competitive advantage: For example, Andreu and Ciborra (1996) developed an organizational learning model to describe how IT applications can contribute to core capabilities development, therefore to competitive advantage. They suggested that managers could improve this IT transformation process by adopting certain leadership behaviors such as nurturing the learning process, and fostering a climate of sharing work practices. Similarly, Dehning and Stratopoulos (2003) found that companies with superior leadership skills are more likely to sustain IT-enabled competitive advantage. Likewise, in their conceptual paper, Peppard and Ward (2004) suggested that management of IT enables organizations to derive and leverage value through IT on an ongoing basis. While these researchers focused on organizations with formal managerial structures, in this study, we focus on novel organizational forms where such managerial structures may not be available, as explained below. In the remainder of this paper, we use the term *information systems* rather than *strategic information systems*, while acknowledging that information systems have the potential to provide competitive advantage together with complementary transformational leadership.

In this study, we examined transformational leadership within self-managing global information system development teams (SMG-ISDTs). In the early 1990s, Lambert and Peppard (1993) had estimated a move towards newer organizational forms characterized by self-managing teams. Furthermore, they had contended that these novel teams would require newer types of leadership that challenge traditional organizational assumptions. In recent years, with the flattening of organizations and increasing globalization (Oshri et al., 2007), there is indeed a move towards self-managing global (SMG) information systems development teams. The leadership of these teams tends to be emergent rather than top-down (Carmel and Sawyer, 1998). Yet, emergent IS leadership is under-studied (Avolio et al., 2000; Kahai et al., 2003). SMG-ISDTs have globally distributed members with a high degree of decision-making autonomy and behavioral control (adapted from Manz and Sims Jr., 1980). These groups are increasingly common in IS development (Carmel and Sawyer, 1998). Yet, despite what the term *self-managing* seems to indicate, self-managing teams may have external leaders or formal or informal administrative roles, which may or may not be viewed by the team members as a management role. In fact, much self-managing team research focuses on external leadership provided to these teams (e.g., Cohen et al., 1996; Druskat and Wheeler, 2003; Kirkman and Benson, 1999; Manz and Sims Jr., 1987). Similarly, SMG-ISDTs may come in different organizational forms: they may be standalone, they may reside in organizations or they may be cross-organizational. SMG-ISDT beneficiaries may include their participants, one or more organizations or a large community. Examples of SMG-ISDTs include Open Source Software development teams, which range from fully voluntary teams to company-based commercial teams (Wasserman, 2009).

The study of SMG-ISDTs' transformational leadership is timely for three reasons. First, existing research is limited to co-located teams (Judge and Bono, 2000); thus, it might transfer only partially to SMG-ISDTs due to the unique conditions of global teams (Carte et al., 2006; Hooijberg et al., 1997; Zhang and Fjermestad, 2006). Therefore focused studies of transformational leadership in the SMG-ISDT environments are needed.

Second, both strategic information systems literature and general transformational leadership research typically investigates managers' leadership. Peppard and Ward (1999) identify two main streams of leadership research in strategic information systems literature. One leadership stream examines the characteristics of either the IS director or the chief information officer. The other leadership stream relates the role of chief executive officer to an organization's IS-related activities. However, SMG-ISDTs depend on emergent leaders (Conger and Pearce, 2003). Hence, the findings in hierarchical settings may not be generalizable to non-hierarchical self-managing teams (Cummings, 1981; Hackman, 1986).

Third, leadership research focuses on leadership outcomes (Cascio and Shurygailo, 2003; Judge and Piccolo, 2004; Lowe et al., 1996); it does not explicate the leader emergence processes (Avolio et al., 2000; Kahai et al., 2003) and the influence processes (Balthazard et al., 2009) that are crucial to selection, training, and development of team members.

This study was intended to address these research gaps by investigating the following research questions: (1) How do leaders emerge as transformational leaders in SMG-ISDTs? (2) How do leader behaviors influence team outcomes?

2. Theoretical background

In this section, we first discuss the unique nature of leadership in IS development teams, which are increasingly becoming globalized. In an effort to address the unique leadership challenges, we introduce transformational leadership theory. Consequently, we provide a critical look at the transformational leadership literature and identify and uniquely combine other literature streams, which may address the gaps in the transformational leadership literature.

2.1. IS development teams and leadership

While leadership plays a crucial role in determining the success of IS development in organizations (Irani et al., 2005; Ravichandran, 2000; Thong et al., 1996; Wixom and Watson, 2001), IS leadership has both similarities to and unique

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