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The mediating effect of organizational culture and knowledge sharing on transformational leadership and Enterprise Resource Planning systems success: An empirical study in China

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ABSTRACT

Senior leadership has been identified as a critical factor in fostering Enterprise Resource Planning (ERP) systems success, however, the specific impact mechanism of transformational leadership on ERP success is still largely unknown. Based on organizational culture theory and knowledge based view, this study developed a theoretical model to explore the mediating effect of organizational culture and knowledge sharing on transformational leadership and ERP success. Data was collected from 115 IS executives and 413 ERP end users in 115 organizations in China. Partial Least Squares (PLS) analysis results suggest that transformational leadership is directly related with all the four types of organizational culture – development culture, group culture, hierarchical culture and rational culture, and is indirectly related with knowledge sharing and ERP success. Specifically, development culture has direct impact on ERP success, while hierarchical culture, group and rational culture are indirectly related with ERP success, mediated by explicit and tacit knowledge sharing. The research findings can provide guidelines for the top executives to facilitate appropriate organizational culture, so as to foster ERP knowledge sharing and achieve business benefits with the assimilation of ERP systems.

1. Introduction

With the globalization of the economy and increasing uncertainty of market environment, competition in the marketplace has become increasingly fierce and dynamic. To survive and thrive in such conditions, many firms have turned to information technology (IT) to make their operational, tactical and strategic processes more efficient and effective, and Enterprise Resource Planning (ERP) systems have emerged as one of the most critical information technologies powering businesses since the 1990s (Agourram, 2009; Jacobson, Shepherd, D'aquila, & Carter, 2007; James & Wolf, 2000). Since ERP systems can provide cost-effective functionalities for building knowledge platforms through systematic acquisition, storage, and dissemination of organizational knowledge, they are regarded as one of the most significant levers for organizations to derive competitive advantage (Hendricks, Singhal, & Stratman, 2007; Purvis, Sambamurthy, & Zmud, 2001).

ERP systems are defined as commercial packaged software that enables the integration of transactions-oriented data and business processes throughout an organization (Markus & Tanis, 2000). As integration software, ERP systems represent a complete or near-complete re-architecting of an organization's portfolio of transactions-processing applications in all functional areas such as finance, human resources, planning of manufacturing, sales and marketing, and help the different parts of the organization share data and knowledge as well as reduce cost, so as to improve the management of business processes (Aladwani, 2001; Davenport, 1998).

With price tags ranging from $3 million to over $100 million per ERP implementation, ERP systems have become the most significant IT investment for most companies with serious financial consequences (Ross & Vitale, 2000). According to a recent report by the market research firm AMR, the worldwide ERP market is expected to grow from $28.8 billion to $47.7 billion from 2006 to 2011, at the annual rate of 11% (Jacobson, Shepherd, D'aquila, & Carter, 2007). Millions of dollars are devoted into ERP systems and several years are needed for the host organizations to adapt and assimilate system functionalities and capabilities (Hendricks et al., 2007; Ross & Vitale, 2000). Therefore, ERP systems are usually adopted and implemented in multiple phases with different tasks and challenges in each of the phases (Markus & Tanis, 2000). However, because of the large-scale and complexity of system functionalities, many ERP projects have failed and led companies to financial difficulties (Xue, Liang, Boulton, & Snyder, 2005). Extant studies estimated that between 1.5% and 6.0% of an organization's annual revenue was spent on ERP systems with a significant proportion

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of the implemented systems not succeeding (James & Wolf, 2000; Sun, Yazdani, & Overend, 2005).

Improving the chances of ERP success has been a focus of research in the past decades, and studies have identified critical success factors for ERP adoption, implementation, and use. On the one hand, senior leadership has been recognized as one of the most significant factors in the extant literature (Elbashir, Collier, & Sutton, 2011; Law & Ngai, 2007; Rai, Brown, & Tang, 2009; Umble, Haft, & Umble, 2003). Somers and Nelson (2004) argued that sustained top management support was needed in each specific phase of ERP lifecycle. In empirical studies, Neufeld, Dong, and Higgins (2007) found a positive relationship exists between senior leadership and IT acceptance, while Wang, Chou, and Jiang (2005) indicated that senior leadership has positive impact on team cohesion and overall performance during ERP implementation. In the context of ERP implementation, Ke and Wei (2008) theoretically analyzed the relationship between transformational leadership, organizational culture and ERP success, and posited that transformational leadership has indirect effect on ERP success by fostering organizational culture along the dimensions of learning and development, participative decision making, power sharing, support and collaboration, and tolerance for risk and conflicts. However, the proposed model has not been validated by empirical study, thus cannot provide reliable guidelines for practice.

On the other hand, knowledge sharing has been considered as another significant factor in driving ERP success. ERP systems usually comprise of integrated modules across multiple business functions and even organizational boundaries, and a systematic acquisition, storage, and dissemination of organizational knowledge is significant in building intensive knowledge platform and providing cost-effective functionalities (Hendricks et al., 2007; Purvis et al., 2001). Sambamurthy and Subramani (2005) posited that advantages for a firm arise from cooperative social contexts that are conducive to the creation, coordination, transfer, and integration of knowledge distributed among its employees, business units as well as business partners, and organizations need to overcome cultural barriers and initiate appropriate culture to best facilitate knowledge sharing (Jones, 2005; Jones, Cline, & Ryan, 2006).

Although the existing literature has examined the link between transformational leadership and organizational culture (Ogbonna & Harris, 2000; Sarros, Cooper, & Santora, 2008; Schein, 2004; Xenikou & Simosi, 2006), the link between organizational culture and knowledge sharing (Jones, 2005; Jones et al., 2006), and their relationship with ERP success (McGinnis & Huang, 2007; Schultze & Leidner, 2002), little research has focused on understanding the influence mechanism of organizational culture and knowledge sharing between transformational leadership and ERP success, there is still a missing link between these four constructs. In addition, most of extant studies focus on adoption and implementation phase, yet ignore the ERP assimilation phase. In multi-case study, Liu, Feng, Hu, and Huang (2011) pointed out that individuals' understanding of ERP systems and their ability to use ERP for non-routine tasks is important for organizational level ERP assimilation, and the potential business value of ERP systems cannot be fully realized until they are extensively assimilated in various business processes they are implemented in and supporting. Thus top executives need to pay attention to the ERP utilization at the individual level after the system implementation was completed.

Drawing on the extant literature, in this study, we focus on ERP assimilation phase, and posit that the top executives need to exhibit transformational leadership traits to facilitate appropriate organizational culture and foster individual's ERP knowledge sharing intention, further, to enhance business efficacy and effectiveness with ERP systems.

The objectives of this study are three folds. Firstly, we want to explore the mediating effect of four typologies of organizational cultures (development culture, group culture, hierarchical culture and rational culture) on transformational leadership style and knowledge sharing. Secondly, we'd like to explore the mediating effect of two types of ERP knowledge sharing (ERP explicit knowledge sharing and tacit knowledge sharing) on organizational culture and ERP success. Thirdly, we want to explore the relationship between ERP explicit knowledge sharing and tacit knowledge sharing.

This paper is organized as follows. We first review the literature on transformational leadership, organizational culture, knowledge sharing and ERP success. Secondly, we develop our research model and articulate the corresponding five hypotheses. The research methodology is then presented to clarify the construct operationalization and data collection procedure, followed by the section of data analysis results and hypotheses testing. Finally we provide research conclusions and implications.

2. Literature review

2.1. Transformational leadership

Leadership theory has developed significantly during the last century, from the earlier leader trait theory to the later leader behavior theory. A paradigm shift occurred in the mid-1970 with new theories of leadership emerged under the labels of transformational and transactional leadership.

Burns (1978) was the first author to propose transformational and transactional leadership and used them to describe political leaders. Bass (1985) adopted this classification in organizational research and divided senior leadership style into these two types. He argued that in organizations, "transactional leaders mostly consider how to marginally improve and maintain the quantity and quality of performance, how to substitute one goal for another, how to reduce resistance to particular actions, and how to implement decisions" (p. 27), while, "transformational leaders attempt and succeed in raising colleagues, subordinates, followers, clients, or constituencies to a greater awareness about the issues of consequence" (p. 17).

Drawing from Bass's definition, transactional leadership involves an exchange relationship between leaders and followers so that followers receive wages or prestige for complying with a leader's wishes. In contrast, transformational leaders can broaden and elevate the interests of their employees, and are able to stir their employees to look beyond their own self-interest for the good of the group by generating awareness and acceptance of the purposes and mission of the group (Bass, 1998; Bass, Avolio, Jung, & Berson, 2003; Yukl, 2006). When followers equate their own success with that of their organizations' and identify with the organizations' values and goals, they become more willing to cooperate in order to make a positive contribution to the work context (Podsakoff, MacKenzie, & Bommer, 1996). Thus transformational leadership is more likely to result in higher levels of performance among individuals by influencing followers' goals and beliefs (Yukl, 2006).

While other types of leadership style and classification schemes have been proposed, the transformational–transactional dichotomy has been the dominant scheme in organizational leadership literature. In an empirical study, Bass and Avolio (1995) developed the Multifactor Leadership Questionnaire (MLQ) to measure transformational and transactional leadership, and refined the transformational leadership into five sub-dimensions including idealized attributes, idealized behaviors, inspirational motivation, intellectual stimulation and individualized consideration. Further, they found that transformational scales were strongly associated with the contingent rewards scale of transactional leadership. Based