



Research Note

Promoting the continuing usage of strategic information systems: The role of supervisory leadership in the successful implementation of enterprise systems

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ABSTRACT

Organizations face significant challenges in capturing value from their investments in strategic information systems such as enterprise systems (ES). Managers are a powerful source of influence shaping the post-adoption attitudes and behaviors of users and the success of ES. However, the extant IS literature has focused primarily on the role of top management and theoretical explanations of the role of supervisors in fostering continuing usage of ES are lacking. Drawing on transformational leadership theory and the IS continuance (ISC) model, this paper conceptualizes a theoretical model differentiating the influence mechanisms through which different types of leadership behaviors influence the success of ES. Data collected from 192 users of ES confirms our theorization. We find that transformational leadership behaviors of supervisors influence users' evaluations of satisfaction and perceived usefulness, while their transactional leadership behaviors influence users' ES continuance intention by moderating the effects of user satisfaction and perceived usefulness on ES continuance intention. This study advances research on the role of leadership behaviors of supervisors in capturing value from enterprise systems. The research also contributes to practice by suggesting effective strategies for promoting continued usage of mission critical systems such as enterprise systems and delivering value from firms' IT investments.

1. Introduction

Strategic information systems such as enterprise Systems (ES) are mission critical information systems whose usage is often mandated (Seah, Hsieh, & Weng, 2010). However, continuing ES usage by users has posed a great challenge to practitioners as users may resist a mandatory system through sabotage or even discontinued use (e.g., Brown, Massey, Montoya-Weiss, & Burkman, 2002; Liang, Xue, & Wu, 2013; Malaurent & Avison, 2015; Xue, Liang, & Wu, 2011; Recker, 2016). As investments in ES bring benefits only when the new system are embedded in organizational practices (Arvidsson, Holmström, & Lyytinen, 2014), it is imperative to investigate how to achieve continued ES usage.

Continued mandatory system usage is a profound and consequently more challenging environment than voluntary IT use. Empirical studies have revealed that the usage environment (volitional or mandatory) has an effect on factor saliency (e.g., Brown et al., 2002; Venkatesh, Morris, Davis, & Davis, 2003). For example, subjective norm has found to be the most pronounced differences between the two environments (e.g.,

Amoako-Gyampah, 2007; Bagchi, Kanungo, & Dasgupta, 2003; Hwang, 2005; Sun & Bhattacharjee, 2011; Sun, Bhattacharjee, & Ma, 2009). In addition, the mechanism under which salient factors take effect could differ between two settings (Brown et al., 2002). However, IS research has focused mainly on voluntary IS usage, and not adequately investigated how to achieve continued system usage in a mandatory environment.

In the context of mandatory usage, we argue that supervisors play an essential role in affecting users' behaviors, as supervisors are the ones who execute embedding a new IS within everyday practices and processes (Arvidsson et al., 2014; O'Reilly, Caldwell, Chatman, Lapiz, & Self, 2010) through their interactions with individual users on a daily basis and controlling "significant resources and exercise significant power over employees" (Liu, Feng, Hu, & Huang, 2011, p. 192). The influence of direct managers or supervisors on individual users' continuing use of the system has been observed by recent studies (Bagchi et al., 2003; Jaspersen, Carter, & Zmud, 2005; Liu et al., 2011), but not been conceptualized or investigated. As a result, the mechanism through which supervisors influence IS continuance under the manda-

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tory context remains unclear.

Given the importance of direct managers in mandatory IS continuance and the lack of research on the issue, we have embarked on a study to address the following research question: “What is the role of direct supervisors in promoting an individual user's continued IT use in a mandatory environment?” Drawing upon the transformational leadership theory (e.g., Avolio, Bass, & Jung, 1999; Bass, 1985, 1997; Piccolo et al., 2012), the flagship theory on leadership (Antonakis, 2012), and IS continuance (ISC) model (Bhattacharjee & Premkumar, 2004), a well-established model for IS continuance, we have proposed a theoretical model differentiating the impact of two types of supervisory leadership behaviors on IS continuance use, and then tested the model based on the survey of 192 ES users in a mandatory use context.

This study makes several important theoretical contributions to the literature on management influence under the mandatory IT use context. First, our research enriches the understanding of supervisory influence under the mandatory IT usage context, and the proposed conceptual model serves as a foundation for further studies related to supervisory leadership behaviors in system implementation and adoption. Second, this study is among the first few to examine management influence in the post-adoption stage, thus advancing the existing research on management support. Lastly, by including social factors in the ISC model, the proposed research model could be further extended to obtain a comprehensive understanding of salient factors driving IS continuance.

This paper is set out as follows. It begins by discussing research on IS continuance and leadership behaviors and then develops the research model and hypotheses. It then describes the sample and methodology, and concludes with a discussion on the implications of the study for both theory and practice.

2. Theoretical background

2.1. ES continuance and the IS continuance model

IS continuance by individual users is crucial to business performance, particularly in the ES context. As embedded best practices in an enterprise system often require changes in work routines that users have been accustomed to, users don't always perceive the system favorably (Hsieh, Rai, & Xu, 2011), and thus tend to engage in destructive behaviors intentionally or unintentionally (Brown et al., 2002) or choose to discontinue use after their initial acceptance (Liang, Saraf, Hu, & Xue, 2007; Liu et al., 2011; Markus & Tanis, 2000). Our review of research on continued IS use in the mandatory context has revealed that the research at the individual user level is largely informed by the IS Continuance (ISC) model to examine psychological motivations driving continued IT usage (see Table 1).

The ISC model postulates that satisfaction and perceived usefulness are two significant factors driving IS continuance intention, and perceived usefulness as a salient predictor of satisfaction (Bhattacharjee, 2001). In the consumer behavior literature, consumers' repurchase intention is determined primarily by satisfaction with prior experience with using a product/service (Oliver, 1980b, 1980c), and dissatisfaction results in the discontinuation of subsequent use (Oliver, 1980b). In the same vein, satisfaction with initial IS usage is proposed to positively affect IS continuance intention.

Perceived usefulness represents “the most salient ex-post expectation influencing users' post-acceptance affect (satisfaction)” (Bhattacharjee, 2001, p. 356), and thus is regarded as a significant determinant of IS continuance use. As expectation serves as the baseline or reference level for consumers to assess a product or service, perceived usefulness is also posited to be positively associated with satisfaction (Oliver, 1980b, 1981). Empirically studies have confirmed that users tend to continue to use a new technology if they have found it to be useful to their daily work and job performance (Bhattacharjee, 2001; Limayem, Hirt, & Cheung, 2007; Recker, 2010;

Sun & Bhattacharjee, 2014).

Confirmation, a construct in the ISC model that captures the extent of realization of expected benefits of IS use following prior use, is proposed to influence both perceived usefulness and satisfaction (Bhattacharjee, 2001). Confirmation leads to positive usefulness perceptions and increased level of satisfaction, which lead to a strong intention to continue IS usage.

Empirical studies have confirmed the significant influence of satisfaction and perceived usefulness on continued ES usage. For example, Chou and Chen examined 305 users of an enterprise system and identified the impact of satisfaction on continuance intention (Chou & Chen, 2009). In comparing Technology Acceptance Model (TAM) and ISC model, Hsieh and Wang confirmed the significant influence of satisfaction and perceived usefulness on extended IT use (Hsieh & Wang, 2007); the examination of 529 users found that satisfaction and perceived usefulness as two salient predictors of continuous IT usage (Recker, 2010).

However, the ISC model implicitly assumes usefulness and satisfaction to be exogenous givens and does not account for factors that might influence those constructs. While that assumption may be broadly justifiable for systems involving the volitional use, it is not so for the mandatory use context as considerable influence is brought to bear by top management and supervisory management on users to use those systems. For instance, direct supervisors are an important source of influence (Jasperson et al., 2005) and the strong advocate of continued IS usage (Bagchi et al., 2003). Liu et al. (2011) case studies explored key influence factors affecting individual assimilation and revealed the significant influence of supervisors on individual IS assimilation. Their interviews with users indicate that it was the direct supervisors who had the most influence on individual system assimilation. In contrast, top managers barely had “any significant influence” on individual users (p. 192), as users did not feel that they were close to top managers, or knew what they were thinking about.

The continued use of IS as part of a work routine by front-line users is an essential condition for organizations to capture value from their strategic IT investments. (e.g., Arvidsson et al., 2014; Besson & Rowe, 2012; Bhattacharjee, 2001; Hsieh & Wang, 2007; Jasperson et al., 2005; Liang et al., 2007; Purvis, Sambamurthy, & Zmud, 2001; Saraf, Liang, Xue, & Hu, 2013; Wang, Chou, & Jiang, 2005). Previous studies have indicated that failures to implement strategy can often be traced to an inadequate level of attention to embedded practices and processes which line managers are best placed to transform (Arvidsson et al., 2014; O'Reilly et al., 2010).

Despite the recognition of the importance of supervisors on individual IT use in the mandatory setting (Bagchi et al., 2003; Jasperson et al., 2005; Liu et al., 2011), how direct managers shape IT continued usage remains uninvestigated. Consequently, how supervisors could drive continued ES usage to realize expected benefits from their strategic IT investment remains unclear. To make up for the gap, we draw on transformational leadership theory to examine the mechanism through which the impact of direct managers on continued ES usage could be explored.

2.2. Transformational leadership theory

Leadership can be regarded as behaviors that “result in others acting or responding in a shared direction” (Shartle, 1956, p.3). Transformational leadership theory, one of the most influential theories in the literature (Dinh et al., 2014), identifies two types of salient leadership behaviors: transactional and transformational (Burns, 1978). Bass (1985) elaborated on the classification by highlighting differences between the two types of leadership behaviors – transactional and transformational – in their influence mechanism and outcomes.

Transactional leadership involves an exchange relationship between leaders and followers, and mostly considers “how to marginally improve and maintain the quantity and quality of performance”

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