Motivating users toward continued usage of information systems: Self-determination theory perspective

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A B S T R A C T

Continued usage of new Enterprise Resource Planning (ERP) systems has plagued organizations that intend to maximize long-term benefits from their ERP investments. Leadership behavior is widely regarded as one of the key influences for motivating ERP users toward using the system. This study investigates how direct supervisors’ leadership styles influence ERP users’ motivation to continuously engage with the ERP system. We employed self-determination theory (SDT) and the post-acceptance model of information systems to propose a conceptual model theorizing how transformational and transactional leadership styles affect users’ intrinsic and extrinsic motivation, which in turn impacts ERP continuance intentions through user satisfaction and perceived usefulness. Our research model was empirically examined using data collected from 299 ERP users. Our findings have revealed that transformational leadership motivates ERP users differently than transactional leadership, and that user satisfaction and perceived usefulness are salient predictors of ERP continuance intentions. In addition, our research demonstrates a critical role of direct managers’ leadership styles in the ERP post-implementation phase. Important theoretical contributions and significant implications for practice are discussed.

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1. Introduction

Continuous use of new Enterprise Resource Planning (ERP) systems has plagued organizations that intend to maximize long-term benefits from their ERP investments (Hsieh, Rai, & Xu, 2011; Liu, Feng, Hu, & Huang, 2011; Zhu, Li, Wang, & Chen, 2010). As a result, long-term benefits from the use of ERP systems have been questioned, as it is not uncommon for demotivated users to discontinue using the system entirely and switch back to the shadow system (Boudreau & Robey, 2005; Kerr & Houghton, 2014). Empirical studies have demonstrated that many ERP systems do not achieve their anticipated outcomes because of non-supportive system users in the post-acceptance phase (Kerr & Houghton, 2014; Limayem, Hirt, & Cheung, 2007).

It has been found that nearly 50% of ERP-using organizations are unsatisfied with ERP usage outcomes (Grabski, Leech, & Lu, 2003; Krigsman, 2010). Those that have managed to successfully achieve ERP implementation, in many instances have proved unsuccessful in the post implementation (Barker & Frolick, 2003; Kerr and Houghton (2014), for instance, found that due to mistrust and confusion that an ERP system brought to the organization, system users worked around the system and developed unauthorized software to fit previous work processes. As ERP systems require effective and continued use in order to attain the expected benefits from these large investments (Bhattacherjee & Lin, 2015; Liu et al., 2011; Recker, 2016) it is essential to understand how to motivate users to ensure continued system usage.

Leadership is widely regarded as one of the key influences for motivating employees (Kark & Van Dijk, 2007; Rezvani et al., 2016). Over the past couple of decades there has been an increase in research examining leadership styles and behaviors in the Information Systems (IS) context (Cho, Park, & Michel, 2011; Dong, Sun, & Fang, 2007; Ke & Wei, 2008; Neufeld, Dong, & Higgins, 2007; Rezvani, Khosravi, Subasinghage, & Perera, 2012; Wang, Chou, & Jiang, 2005). Amongst various leadership theories, transformational and transactional leadership approaches have been linked with managerial effectiveness, and have been used to
explain the link between leadership behavior and IS success (Ke & Wei, 2008; Shao, Feng, & Liu, 2012), Dong et al. (2007), for example, revealed that transformational leaders were able to influence users’ perceived usefulness of the system. In the same vein, Neufeld et al. (2007) found that charismatic leaders had a positive effect on performance expectancy, effort expectancy, social influence and facilitating condition perceptions of users.

Previous studies have advanced our understanding of leadership theories in an IS context by establishing a direct link between leadership behaviors and users’ perceptions of success (e.g., intention to use the system or perceived usefulness of the system). However, little attention has been given to examining how different types of leadership styles motivate continued usage of ERP systems. Furthermore, previous studies in the IS literature seem to overlook users’ psychological needs and motivations, which have been known to directly influence user behavior. The lack of motivation may result in resistance to use the system and, consequently, system managers in the post-implementation of IS (Rezvani, Dong, & Khosravi, 2017; Shao, Feng, & Hu, 2016). Managing the post-implementation stage is challenging because direct managers have to attend to individuals’ needs and motivate users to use the system over an extended period of time in order to ensure expected benefits from the IS investment (Shao et al., 2016). Yet, “there is still a dearth of knowledge informing managers how best to facilitate the continuous post-implementation adaptation of IS” (Aanestad & Jensen, 2016, p. 13). Taking into account these gaps in the existing body of knowledge, and the call to address the absence of research regarding direct managers (Shao et al., 2016), our study examines the role of direct managers’ leadership behavior in the post-implementation phase of ERP systems.

The purpose of this research is to address the following question: “How do supervisors’ transformational versus transactional leadership styles motivate users to continue ERP usage?” To answer this research question we draw on two theories: self-determination theory (SDT), one of the most detailed and best-validated frameworks (Grguras & Diefendorff, 2009; Olafsen, Halvari, Forest, & Deci, 2015) explaining the link between intrinsic and extrinsic motivation, and increased performance (Deci & Ryan, 1985, 2012), and the post-acceptance model of IS that explains the link between satisfaction and perceived usefulness as predictors of continuance intention (Bhattacherjee & Lin, 2015). We argue that SDT provides a framework to comprehend the fundamental processes behind the effectiveness of transformational and transactional leadership behavior in the IS context, because in the work context managers have the power to influence the psychological needs of their subordinates (Graves, Sarkis, & Zhu, 2013). Based on these two theories we propose a model conceptualizing how the two leadership styles — transformational and transactional — exert their influence on intrinsic and extrinsic motivation, which in turn affect users’ satisfaction and perceived usefulness toward achieving ERP continuance intentions.

This study focuses on the post-adoption behaviors of ERP system users, which are the behaviors exhibited after the initial acceptance of the system, embracing continuance, routinization and assimilation. As the continuance or post-adoption stage is often the longest phase of the ERP lifecycle and the phase during which benefits from the investment begin to be realized (Chou & Chen, 2009; Hsu, Yen, & Chung, 2015; Jaspersen, Carter, & Zmud, 2005), we aim to investigate this phenomenon at the individual level, focusing on employees’ continuance intention (Bhattacherjee, 2001).

This study contributes to academic research and practice in various ways. First, it deepens the understanding of users’ continuance intention by providing an insight into various motivations and motivational triggers. Second, it demonstrates the role of two leadership styles, transformational and transactional, in the post-adoptions stage of the ERP system. Third, it shows the effect of various motivations on user satisfaction and perceived usefulness of the ERP system, which are key determinants of users’ continued engagement with the system.

The remainder of the paper is organized as follows. We first introduce and synthesize the literature on the post-acceptance model of continuance, leadership styles and self-determination theory, and then describe our research model and hypotheses. This is followed by the research methods used to test the model. The paper concludes with a summary of the key findings and implications for theories and practice.

2. Theoretical background

2.1. Post-acceptance model of IS continuance

The post-acceptance IS continuance model (Bhattacherjee & Lin, 2015) serves as a useful framework to explain user intention to continue their engagement with the ERP system. Our review of research on continued IS use has revealed that the research at the individual user level is largely informed by the IS continuance model to examine psychological motivations driving continued IT usage. In this model, two antecedents of satisfaction and perceived usefulness are found to predict continuance intentions. ERP satisfaction is described as “an end-user’s overall affective and cognitive evaluation of their fulfillment” when using an ERP system (Bhattacherjee, 2001). Users have a tendency to rely more on their satisfaction than on relatively unknown future expectations (Bhattacherjee & Lin, 2015). Indeed, satisfied ERP users are more likely to continue using the ERP system, while dissatisfied users are more likely to discontinue ERP usage or switch to shadow systems. Perceived usefulness is referred to as the “extent to which individuals believe that using a particular IT will enhance their job performance” (Bhattacherjee & Lin, 2015). The expectation is that ERP users are more likely to have positive intentions regarding IS usage when systems are perceived as being useful. Users have fewer tendencies to continue ERP use unless the system benefits them in their prospective routines (Bhattacherjee & Lin, 2015; Venkatesh, Morris, Davis, & Davis, 2003). In addition, perceived usefulness and satisfaction have proven to be salient predictors of continued IS usage and success (Yeh & Teng, 2012). In our study, we adapted the post-acceptance model of IS continuance (Bhattacherjee & Lin, 2015) to investigate the link between leadership style, motivation and ERP continuance intention. Our review of research on continued IS use has revealed that the research at the individual user level is largely informed by the post-acceptance IS continuance model to examine psychological motivations driving continued IT usage. In addition, the IS continuance model has been validated in different contexts, such as mobile payment (Zhou, 2013), electronic medical records (Ayanso, Herath, & O’Brien, 2015), knowledge sharing in virtual environments (Zheng, Zhao, & Stylianou, 2013) and continuous use of ERP systems (Chou & Chen, 2009; Khosravi, Rezvani, Subasinghage, & Perera, 2012).

2.2. Transformational and transactional leadership styles

The two leadership styles, transformational and transactional,
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