An Extended Framework for ERP Post-Implementation Success Assessment

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ABSTRACT

Implementing enterprise resource planning systems is a sophisticated, lengthy and costly process which tends to face serious failure. Thus, it is essential to perform the success assessment at the post-implementation stage of an ERP project to evaluate how much the system has succeeded in achieving its predetermined objectives. This paper proposes a practical and extended framework for assessing a firm’s ERP post-implementation success. The factors contributing to the post-implementation success assessment have been adapted from the original model of Ifinedo et al. (2010) encompasses service quality, system quality, information quality, individual impact, workgroup impact, and organizational impact surrogates. Also, a new surrogate of inter-organizational impact proposed in this research. Using this model, the firm’s ERP system success can be determined and the required improvement projects can be proposed to promote the success level. The proposed model is then applied to a real international company in the field of manufacturing and supplying turbines to measure the firm’s ERP post-implementation success. Finally, the results of the assessment are discussed.

Keywords: Enterprise Resource Planning (ERP), ERP Inter-Organizational Impact, ERP Post-Implementation Success, ERP System Success Constructs, ERP System Success Surrogates, Information System (IS) Success

INTRODUCTION

ERP systems are described as information systems aimed to process and facilitate integrated and real-time transactions within organizations (O’Leary, 2000). These systems are designed to address the problem of fragmentation as they integrate and streamline internal processes by providing a suite of software modules that cover all functional areas of a business (Koch, Slater, & Baatz, 2001). Although ERPs can bring competitive advantages to organizations, the high failure rate is a real challenge (Davenport, 1998). It is said that, about 70 percent of ERP implementations fail to deliver anticipated benefits (M Al-Mashari, 2000) and three quarters of these projects are unsuccessful (Hong & Kim, 2002; Kumar, Maheshwari, & Kumar, 2003). The failure rate of ERP implementations has been estimated at between 60% and 90% (K.

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Y. Kwak & Lee, 2008). These projects are on average 178% over budget, took 2.5 times longer to implement than intended and delivered only 30% of committed goals (Zhang, Lee, Huang, Zhang, & Huang, 2005). These statistics imply that ERP projects are one of the most difficult system development projects. They are very complex projects and often require fundamental organizational changes (Rouhani & Zare Ravasan, 2012). To avoid such costly failures and helping organizations to make a better use of their resources, many efforts have been done by scholars and practitioners. Some researchers have provided valuable insights into the process of ERP implementation (e.g., Soja, 2008; Subramanian & Hoffers, 2005; Wang, Shih, Jiang, & Klein, 2008; Yusuf, Gunasekaran, & Abthorpe, 2004) and others identified a variety of critical factors affecting on success or failure of the system (e.g., Amid, Moalagh, & Zare Ravasan, 2012; Hanafizadeh & Zare Ravasan, 2011; Nah & Delgado, 2006; Somers & Nelson, 2004; Zhang, et al., 2005).

Organizations implement ERP systems to meet predetermined corporate goals and improve functional and organizational goals (M. Al-Mashari, Al-Mudimigh, & Zairi, 2003; Davenport, 1998, 2000; Yusuf, et al., 2004) and post-implementation ERP success means that these systems could help organizations to meet their goals and achieve potential benefits (Wang, et al., 2008). ERP implementation is not the final goal but is an important milestone to start continuous improvements in organizations (Yu, 2005). So, organizations need to define post-implementation review (PIR) to measure ERP system success (Nicolaou & Bhattacharya, 2006). Such evaluations could determine failure factors and offer improvement projects to strengthen poor areas in the organization (Mandal & Gunasekaran, 2003); But assessing or evaluating the success of complex IT systems such as ERP in adopting organizations is difficult due to the complex nature of such technologies (Davenport, 1998, 2000; Gable, Sadera, & Chan, 2003; Ifinedo & Nahar, 2007; Markus & Tanis, 2000). Despite its importance, prior research works have overlooked these areas (Gorla, Somers, & Wong, 2010), while, it is a research interest as noted by Law, Chen and Wu (2010).

There are several models proposed by researchers for evaluating ERP systems implementation success (Delone & McLean, 1992, 2003; Gable, et al., 2003; Ifinedo & Nahar, 2007; Ifinedo, et al., 2010; Zhang, et al., 2005). However, these models paid much attention to the intra-organizational factors in ERP success assessment, while overlooking inter-organizational surrogates. However, inter-organizational impacts and benefits of ERPs could be figured as increased customer service/satisfaction, e-government enabler, better supplier relationships, e-business/e-commerce enabler, improved service/product delivery, improved cooperation with colleagues and so on (Davenport & Brooks, 2004; Gable, et al., 2003; Gable, Sadera, & Chan, 2008; Hatzithomas, Stamelos, Fotiadis, & Mylonakis, 2011; Ifinedo, et al., 2010; Su & Yang, 2010).

Hence, with this in mind, this present research effort is designed to contribute to the literature by developing a brand new and more comprehensive model for ERP success assessment. To that end, in this paper, an ERP post-implementation success assessment model has been developed based on prior models and new inter-organizational impact surrogate. It is important to mention that the purpose of this present work is not to test the previous IS or ERP success model per se, as several IS/ERP researchers (e.g., Iivari, 2005a; Petter, DeLone, & McLean, 2008) have already published works in that domain. Rather, this present effort is directed at extending and advancing previous works especially the work of Ifinedo et al. (2010) in the area of ERP system success measurement.

**THEORETICAL BACKGROUND AND RESEARCH CONCEPTUAL MODEL**

ERP has been proclaimed as the new information systems (ISs) paradigm (Klaus, Rosemann, & Gable, 2000) and ERP success models draw from information systems success evaluation patterns. The most famous model that
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