End Users’ Perceptions of Critical Success Factors in ERP Applications

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ABSTRACT

Today’s competitive world is given the critical role of enterprise resource planning (ERP) for coordinating the workflow in companies from different industries. To provide valuable insights into ERP, identifying the critical factors are the most important issue in achieving quality and success. Both in literature and practice, there are quite a few of success factors for ERP applications. One of the purposes of this paper is to empirically classify the most important critical factors referred by scholars in previous studies. Another purpose is to determine the critical success factors in the light of end-user perceptions. In this respect, exploratory factor analysis was conducted to determine the factorial structure of the scale. Data was collected 128 ERP end-users from different departments of companies in manufacturing industry. The results of the analysis provided a six-dimensional structure for critical success factors (CSFs) in quality and successful ERP applications.

KEYWORDS

Critical Success Factors, End-Users, ERP Applications, Manufacturing Industry

1. INTRODUCTION

Enterprise Resource Planning systems integrate business functions and departments allowing rapid flow of information within the organization. The widespread usage of internet expanded the scope of ERP by providing inter-organizational integration (Eckhart et al., 2010; Alimazighi & Bouhmadi, 2011; Grant et al., 2013). Due to the developments in cloud computing and SaaS (Software as a Service) delivery models, it is predicted that ERP systems will continue to produce information system solutions for corporations (Lucintel, 2012). Additionally, an extensive usage of ERPs by SMEs (Ahmad & Cuenca, 2013; Chang et al., 2010, Malhotra & Temponi, 2010; Doom et al. 2010) and developing countries (Research & Markets, 2012; IDC, 2012; Chan, 2011) are being observed as vendors are offering more economic costs. Studies in developing countries include China (Srivastava et al., 2009; Zhang et al., 2005; Zhu et al., 2010), Taiwan (Liu, 2011), Iran (Amid et al., 2012), India (Garg and Agarwal, 2014), Poland (Ziemia & Oblak, 2013) and Saudi Arabia (Aldayel et al., 2011; Ullah et al. 2013).

On the other hand, various difficulties still arise in ERP applications in terms of duration overruns, cost overruns and received benefits. According to Panorama’s (2013) independent ERP research, approximately 59% of projects have exceeded their planned budgets, 53% of projects have exceeded

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their planned durations and a full 56% of respondent organizations have received less than 50% of the measurable benefits they expected from their ERP applications. Therefore, scholars continue to explore the critical factors in achieving success and quality in ERP applications (Ram & Conkindale, 2014). Initial studies considered ERP applications as a project and introduced a number of critical success factors at implementation stage (Bingi et al., 1999; Nah et al., 2001; Basoglu et al., 2007). Recent studies argue that ERP applications are more than IT projects (Ahmad & Cuenca, 2013) and emphasize the significance of continuity in post-implementation stages (Zhu et al., 2010; Ifinedo et al., 2010, Ozturkoglu & Esendemir, 2014) and interrelations of critical success factors (Grabski et al., 2011).

In the critical success factors (CSFs) research stream, quite a few factors are identified by the past studies and the most important factors are evaluated according to the occurrence rates of CSFs (Ahmad & Cuenca, 2013). Furthermore, scholars proposed taxonomies for practitioners and researchers (Nah et al., 2001; Basoglu et al., 2007; Dezdar & Sulaiman, 2009). Most of the studies have focused on the evaluations of project managers, senior executives and IT personnel in determining the critical factors affecting the application success. Whereas, end-users play a critical role in the success and quality of ERP applications at every stage. Therefore, we believe the perceptions of end-users about CSFs should also be examined.

A majority of the previous studies identifying CSFs were reviews or case studies. There was a limited number of quantitative studies in the research stream. The focus of this research is to identify and classify critical success factors with a quantitative analysis of end-user perceptions. The study initially analyze the end user perceptions for critical success factors in the research stream. Another contribution of this paper is that it covers a classification of the significant amount of factors determined by previous studies. This study also provides quantitative evidence from the end-users’ perceptions in manufacturing industry for analyzing the critical factors for ERP applications in Turkey. While doing so, the relationships between the factors will also be observed. According to the study conducted in Turkey (Postaci et al., 2012) SAP, CANIAS, Microsoft Dynamics Navision, Netsis have around a total of 40% market share. The rest of the market is shared among local vendors. Larger companies in terms of number of employees and revenues use SAP, followed by Oracle (Erdil & Basligil, 2011).

This study is organized as follows. Research streams about CSFs and end-users are reviewed, CSFs are identified by analyzing the most cited 13 studies in literature. In section two a survey for 48 CSFs is conducted to 128 ERP end-users in manufacturing industry located in Turkey. Factor analysis is performed to determine and classify CSFs. 6 main factors and 29 sub-factors determined as a result, are presented and discussed in section three.

2. THEORETICAL BACKGROUND

Companies use huge amount of budgets and lengthy implementation time to carry out ERP projects. On the contrary, many projects resulted with misfit problems, budget and duration overruns. A vast number of studies have been conducted for exploring CSFs to achieve more successful results in ERP applications since late 1990s.

Most of the researchers attempted to identify CSFs in ERP applications were based on a review of already published literature (Nah et al., 2001; Al-Mashari et al., 2003; Gargeya & Brady, 2005; Başoğlu et al. 2007; Finney & Corbett, 2007; Ngai et al., 2008; Dezdar & Sulaiman 2009) and case studies (Brown & Vessey, 1999; Sumner, 1999; Umble et al., 2003; Bradley, 2008). The list of CSFs identified according to frequency of occurrence is presented in Table 1. CSFs were determined
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