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An Investigation and Classification of ERP Project Managers' Required Skills

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ABSTRACT

Implementation of Enterprise Resource Planning systems (ERPs) is a complex and costly process that is usually accompanied with serious risks. Numerous research projects have been conducted to illuminate ERP Critical Success Factors (CSFs) so as to identify the main factors in enhancing success rate. Although project managers' skills of ERP system implementation projects are viewed as one of the most effective factors in the success of such projects, scant attention has been paid to them and their unique aspects have not been sufficiently discussed in the extant literature. Hence, this article aims at identifying the most relevant skills of ERP project managers and proposing a classification scheme. Based on the results of the robust Exploratory Factor Analysis (EFA), 16 identified skills were grouped into four distinct categories: "managerial," "project management," "human resource," and "technical." The results of this article can help scholars and managers to grasp an in-depth understanding of the skills required for project managers and the challenges they have to mitigate while implementing ERP projects.

KEYWORDS

Critical Success Factors (CSFs), Enterprise Resource Planning (ERP), ERP Project Managers' Skills, Robust Exploratory Factor Analysis (EFA)

INTRODUCTION

Enterprise Resource Planning (ERP) systems are defined as software system allowing the complete integration of information flow from all functional areas in companies by means of single database; such a system is accessible through a unified interface for communication (Davenport, 1998). These systems have been increasingly adopted by organizations across various industries. Despite the numerous capabilities and advantages offered by ERPs, their implementation has not always proved to be effective and a high rate of failure has been reported as a major concern (Zare Ravasan & Mansouri, 2014). Therefore, over recent years, some researchers have provided valuable insights into the process of ERP implementation (e.g., Abdel-Kader & Nguyen, 2011; Soja, 2008; Soltani, Elkhani, & Bardsiri, 2014; Subramanianh & Hoffers, 2005; Wang, Shih, Jiang, & Klein, 2008) and others reported a set of Critical Success Factors (CSFs) or Critical Failure Factors (CFFs) in ERP projects (e.g., Amid, Moalagh, & Zare Ravasan, 2012; Payam Hanafizadeh, Gholami, Dadbin, & Standage, 2010; Khattak et al., 2013; Kini & Basaviah, 2013; Nour & Mouakket, 2011; Zhang et al., 2005). Within these lists of ERP projects' CSFs, the availability of competent ERP project team and required competencies of

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project team members have been enumerated among the important CSFs (Doom, Milis, Poelmans, & Bloemen, 2010; Soja, 2006; Upadhyay & Jahanyan, 2011; Zare Ravasan & Mansouri, 2016). Similarly, some researchers have considered the inadequate skills of project team members as one of the main failure factors in ERPs (Aloini, Dulmin, & Mininno, 2007; Beheshti, 2006; Hawari & Heeks, 2010). As a result, previous research highlights the significance of competencies and selection of qualified and competent team members that possess the appropriate knowledge and skills. It is clear that the success of an ERP project relies on its team members competences. In particular, given the enterprise wide scope of an ERP project, the availability of interdisciplinary and specialized skill groups in the form of teams is of crucial importance (Hanafizadeh & Ravasan, 2011).

That is why it is imperative to make sure that team members possess the essential skills of carrying out an ERP project. In addition, since ERPs are more complicated than the traditional information systems, it is crucial to identify and evaluate the skills of individuals that are heavily involved in these sort of information systems (Mahdavian & Mostajeran, 2013). Then, the overall purpose of this research is to identify and classify the critical skills required of project managers in implementing ERPs. It is noteworthy that regarding our in-depth literature review, no research on the identification and classification of critical skills required of ERP project managers has been undertaken or if any, the results have not been published widely. Identification and classification of these skills help organizations focus effectively on enhancing the chance of their success in implementing the system.

LITERATURE REVIEW

Schmidt (2001) implied that the lack of required knowledge/skills in the project team is amongst the top five factors influencing the success of information technology (IT) projects. In the same vein, Wateridge (1997) argued that the skills of project managers fulfill a critical role in the success of IT projects, so organizations should focus on developing these skills if they wish to perform IT projects efficaciously. While Verner and Evanco (2005) were attempting to identify the successful methods of conducting software development projects, they came up with some evidence that confirmed Wateridge's argument. These findings indicated that communication skills of project managers, staff's competence, and the ability to control the project have positive and significant impact on ERP system success (Verner & Evanco, 2005). Since specific skills required of IT project managers appear to be linked to the results of a project, it is of vital importance to identify these skills. If there is a list of ranked skills required of IT project managers, it will be conducive in many respects (Keil & Lee, 2013). The rest of this section provides an overview of the most recent related studies in the field.

One of the most important research studies was undertaken by Sumner (2000). She reviewed seven IT system implementing projects at the organizational level and identified 20 risk factors through interviews with firms' project managers and then categorized them into six groups. In another research, Somers and Nelson (2001) explored the most important critical factors in implementing ERPs. They enumerated 22 essential factors in implementing ERPs and then recognized the most significant of these factors in implementation phase. In their study, competency of project team members, preceded by senior managers' support, was ranked as the second essential factor in successfully implementing ERPs.

Kumar et al., (2003) identified the major barriers to ERP implementation projects. One of the significant factors identified were the lack of access to proficient and skillful team members. In reviewing the research on the ERP CSFs, Pairat and Jungthirapanich (2005) found out that in the majority of studies, team-working in ERP implementation projects has been viewed as one of the major CSFs. Soja (2006) identified ERP CSFs and elaborated that the team composition (making teams with diverse set of knowledge and skills) is the third important factor influencing the successful implementation of ERP projects. Other scholars have referred to the significance of project managers' competencies, qualifications, and skills in implementing ERPs (Al-Mashari, Ghani, & Al-Rashid, 2006; King, 2006; Remus, 2006). In another study done by Aloini et al., (2007) based on the literature

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