A Case Study on the Impact of Customization, Fitness, and Operational Characteristics on Enterprise-Wide System Success, User Satisfaction, and System Use

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ABSTRACT

Enterprise resource planning (ERP) system success is of paramount importance for almost all organizations, as it is a prerequisite for improved and continuous benefit-realization. This study investigates the impact of ERP business dynamics (i.e., system customization required), system fitness (i.e., process fit, data fit, and user interface fit) and functional area operational characteristics on ERP system success, user satisfaction and system use. The author draws on relevant theoretical background information to construct the research model. Surveys are administered to 91 ERP system users within a multinational food company; in-depth interviews are also conducted with some system users. Empirical results indicate that the amount of ERP system customizations and/or modifications does not have any substantial impact on ERP system use or user satisfaction. In terms of ERP system fitness, these systems are found to be more suitable for complex, functional-area operational environments. The results show that only user interface fit positively affects ERP system use, while only process fit positively influences ERP system user satisfaction. In addition, different degrees of information quality, system quality and service quality have diverse effects on some of the relationships investigated. Finally, the perceived net benefit from an ERP system depends on how the ERP system is used, rather than the management level of the users.

Keywords: Enterprise Resource Planning (ERP), ERP Customization, ERP Fit, Explanatory Case Study, IS Success, Multinational Company, User Satisfaction

INTRODUCTION AND PURPOSE

Enterprise resource planning (ERP) systems are large, integrated, and cross-functional software packages that cater to the majority of fundamental functional-areas (if not all departments) in an organization. Most large firms across many industries view ERP systems as a required competitive criterion, as well as a must-have in terms of IT infrastructure (Ragowsky & Gefen, 2008; Reilly, 2005). The ERP applications market in...
2008 totaled US$33 billion in licensing, maintenance and subscription revenue; IDC research estimates that this will reach US$40.4 billion in 2013, based on a 4.2% compound annual growth rate (CAGR) (Pang, 2009).

Existing research studies indicate mixed success regarding ERP systems. Organizational change management, project management, and user behavior management have experienced positive results, but there have also been ERP customization failures (Ganesh & Mehta, 2010; Garg, 2010; Gattiker & Goodhue, 2004; Kholeif, Abdel-Kader, & Sherer, 2007). Although many enterprises believe that ERP implementation can increase their market competitiveness and provide other advantages (Jacobson, Shepherd, D’Aquila, & Carter, 2007; Olson, 2004; Shang & Seddon, 2003), differences in organizational culture, organizational structure and the flow path of enterprise operations have resulted in mixed success in terms of the final outcomes and the quality or degree of success, as well as increased risk and ERP misfit issues for many enterprises (Wang, Klein, & Jiang, 2006).

While some companies deal with these types of ERP misfits by reengineering their business processes, most prefer to customize and modify the packaged software, especially for business mission-critical processes. However, altering standard ERP system codes complicates future upgrades and maintenance work (Light, 2001; Ng & Gable, 2010). As such, companies require a deeper understanding of how ERP fit and customization influence user satisfaction with the system, its use, and the system net benefits. From a technical perspective, the fit between organizational business processes and ERP packaged software business processes helps to determine the quality of the implemented ERP system (Wang et al., 2006). That said, Gefen and Ragowsky (2005, p. 20) suggest “benefits gained by ERP systems will be better predicted by being measured separately at the level of activity areas within the organization, rather than at the broad level of the entire ERP system.” Likewise, it is more appropriate to evaluate ERP fit/misfit issues at the level of activity areas or business units within the organization.

Certainly, ERP success in the post-implementation (PI) phase is required in order to realize the business benefits from the system, as well as for continuous benefit-realization of both individual benefits (e.g., individual productivity and better decision-making quality) and organizational benefits (e.g., better revenue generation and business process efficiency). Prior research on ERP fit focuses on diversified aspects such as ERP misfit typology (Soh, Sia, & Tay-Yap, 2000), user characteristics (Holsapple, Wang, & Wu, 2005), ERP system country of origin and organizational issues (Wang et al., 2006), organizational fit (Hong & Kim, 2002), organizational unit’s coordination improvement and task efficiency (Chou & Chang, 2008), strategic alignment (Davies, 2005) and impact on future maintenance (Light, 2001). In general, these studies emphasize IT-business alignment issues. However, the current study investigates several quality (i.e., information, system and service) and operational issues that are less strategic in nature as compared to the focus of existing studies.

This study extends the work of Holsapple et al. (2005) and Wang et al. (2006) by investigating differences in ERP system use and user satisfaction with ERP systems based on the amount of customization, process fit, user interface fit and data fit. This study also responds to a call for further investigation (Chou & Chang, 2008) of the dynamic interrelationships between context (such as organizational, business process, user characteristics and business unit characteristics) and the level of ERP fit, as well as the different types of ERP fit. Moreover, we explore how information quality, system quality and service quality influence the relationships between the independent and dependent variables investigated in this study. Table 1 lists the pertinent existing research regarding the link between ERP fitness and ERP success.
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