

RESEARCH NOTE

ERP Misfit-Reduction Strategies: A Moderated Model of System Modification and Organizational Adaptation

Tan Shiang-Yen, Queensland University of Technology, Brisbane, Australia

Rosnah Idrus, Universiti Sains Malaysia, Penang, Malaysia

Wai Peng Wong, Universiti Sains Malaysia, Penang, Malaysia

ABSTRACT

Misfit between Enterprise Resource Planning (ERP) system and business is widely recognized as the main cause of ERP system failure. Modification of the ERP system and adaptation of business processes have been hyped as the means to reduce misfits between ERP system and business organizations. Nevertheless, to date, very little empirical evidence exists to demonstrate that the potential has indeed been realized. Thus, the purpose of this study is to empirically examine to which extent the two misfit-reduction strategies, namely system modification and organizational adaptation mitigate the negative impacts of ERP misfits on ERP system performance, which is measured by information quality in this study. A total amount of 305 sets of questionnaire that collected from the ERP system users in manufacturing sector in Malaysia were analyzed using Structural Equation Modeling (SEM) approach. The findings of this study have revealed that the effects of the two misfit-reduction strategies vary based on the different characteristic of ERP misfits. Specifically, system modification is found to significantly reduce the negative impacts of deep-structure misfit such as process misfit, whereas organization adaptation is significant in mitigating surface-structure misfit such as data presentation and layout.

Keywords: Enterprise Resource Planning (ERP), Enterprise Systems, Information Management, Misfit and Misalignment, System Alignment, Task-Technology Fit (TTF), Technology Strategy

INTRODUCTION

Globalization presents numerous business and technology challenges, especially for the manufacturing companies that operate in multiple locations. Due to the increasingly complex nature of global operations, success of the multinational companies' strategy is highly depending on its ability to capture, manipulate,

disseminate, and use real-time information. In this respect, enterprise resource planning (ERP) is an indispensable tool for managing these challenges and a mission-critical component of the globalization strategy. One of the main motivations that drive the adoptions of ERP by the multinational companies is to enable global data visibility and transactional interoperability without spatial restriction (Chang, Hung, Yen, & Lee, 2010; Vincent, 2008). Through the integration and sharing of data from different

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subunits of the company, effective management governance can be realized. In considering this, it is noted that the quality of the information plays critical role in serving the purpose of ERP system adoption by the multinational companies. Without high quality information, the global management governance and cost reduction dreamed by the companies are hardly realized.

Parallel with the pervasiveness of globalization, ERP system has become the fastest growing market in the business software. Its global market size is projected to be around \$1 trillion by the year 2011 (Calisir & Calisir, 2004). In general, the implementation of ERP systems cost \$300-500 million for large multinational companies (Mabert, Soni, & Venkataramanan, 2003). Despite all the resources invested, there is no guarantee of the ERP system success. Scholars assert that more than half of the ERP projects have been judged to be unsuccessful. Nearly one in five are scrapped as total failures (Soh, Kien, & Tay-Yap, 2000). Researchers have widely recognized that the failures of ERP implementation are mainly attributed to the misfit between the ERP systems and the business architecture or requirements (Gao, Zhang, & Wang, 2008; Gattiker & Goodhue, 2004)

A good fit between ERP system and business requirements is a fundamental prerequisite for accurate, timely, and useful information which pertaining to the effectiveness and efficiency of the operational routine and strategic governance of the companies. Modification of the ERP system and adaptation of business process have been posited as the means to reduce the misfit between ERP system and business thus to enable better ERP system-business alignment. Nevertheless, very little empirical evidence exists as to testify that the claim. Hence, the purpose of this study is to empirically examine to which extent the system modification and organizational adaptation able to reduce the negative impacts of the misfit between the ERP systems and business requirements. The rest of this paper uses the term "ERP misfit" to describe the misfit between ERP system and business requirements.

THEORETICAL BACKGROUND

ERP Misfit

ERP misfit is a specific derivation from a broader concept called "fit of information technology and organization." Researchers have generally defined fit as the match between the requirements of the task and the capabilities of the technologies. The negative concept of fit, that is "misfit between IT and organization" has been developed by IS literature to explain the causes of information system failure. The main idea is that IS failure is determined by the degree of misfit between the IT and organization (Hawari & Heeks, 2010). It is generally expected the misfits between the IT and the organization will lead to mediocre performance of both the system and organization.

In the context of ERP system, misfit is generally defined as the mismatch between the capabilities of ERP system and functionalities required by the business organization. Wand and Weber (1995) have posited that for an information system to be practical and succeed, its structure must represent a good mapping to the real world it seeks to model. In other words, ERP systems carry their representation of real-world (i.e., enterprise architecture such as business processes, logics, rules, and procedures) via their ontological structure such as objects, properties, relationships, state, and transformation rules. From this viewpoint therefore ERP misfit is an instance where aspects of the enterprise architecture are not adequately represented by the ontological structures embedded in the ERP systems.

The operational consequences of ERP misfits are disruptions in business operations, such as large increases in unfilled customer orders, inaccurate production scheduling, and poor purchasing decision. This is due to the fact that the effectiveness and efficiency of these business operations highly depend on the quality of information produced by the ERP system. From a strategic point of view, scholars claim that ERP misfits limit business strategy differentiation, reduce flexibility, and

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