Chapter 8
ERP Misfit–Reduction Strategies: When are System Modification and Organizational Adaptation Appropriate?

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ABSTRACT
The Enterprise Resource Planning (ERP) system is a breed of configurable package systems that aims to disseminate transactional information of the entire organization to users in a timely and efficient fashion under a uniform system environment. However, ERP systems often fail to live up their claim to improve operational efficiency and strategic effectiveness due to misfits between the standard-built ERP systems and the adopting organizations. Anecdotal evidences from subjective studies suggest modification of ERP systems and adaptation of organizational structure could mitigate the misfits between ERP systems and the adopting organizations. Nevertheless, empirical and rigorous studies capable of proving these conjectures are scarce. The purpose of this chapter is to empirically validate and examine: 1) the negative impacts of the misfits between ERP systems and organizations and 2) to what extent the two misfit-reduction strategies, namely system modification and organizational adaptation, are able to mitigate the impacts of these misfits. The Task-Technology Fit (TTF) model is adapted as the theoretical framework of this study capable of incorporating moderating variables. Three-hundred-and-five sets of questionnaires collected from ERP systems users in the manufacturing sector of Malaysia were analyzed using the Structural Equation Modeling (SEM) approach. Findings of this study indicate that different types of misfits, namely input misfit, process misfit, and output misfit, have different impacts on ERP systems performances. More importantly, this study found that the appropriateness of misfit-reduction strategies is contingent to the types of ERP misfits. Precisely, system modification can effectively mitigate input and process misfits, while organizational adaptation can be used to counteract input and output misfits.

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INTRODUCTION

Enterprise resource planning (ERP) system, by definition, is a configurable enterprise system that is designed to disseminate operational information to users in timely and efficient fashion by integrating transactions-oriented data and operations of the entire organization under a uniform system environment. One of the primary motivations that drives the organizations to adopt ERP systems is to achieve transactional interoperability – an organizational environment where the data is flowing seamless across every part of the organization (Chang, Hung, Yen, & Lee, 2010), which in turn improves the transparency of operations. The eventual goal of ERP system adoption by organizations is to achieve operational efficiency and strategic advantage.

Given the unprecedented opportunity of data integration and related benefits, 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 organizational requirements (Gao, Zhang, & Wang, 2008; Gattiker & Goodhue, 2004). The rest of this paper uses the term “ERP misfit” to represent the misfit between ERP system and business requirements.

Modification of the ERP system and adaptation of organizational 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. Furthermore, ongoing disputations between two different schools of thought have been argued about the superiority of one of the two strategies over its counterpart. Thus, this study is formulated to answer the following research questions:

Could the impacts of ERP misfits be reduced by modifying the system to be aligned with business (i.e. system modification)? Could the impacts of ERP misfits be reduced by adapting the organizational process (i.e. organizational adaptation)? Which one of these misfit-reduction strategies is more effective over another? In the terms of empirical research, the purpose of this study is to examine to which extent system modification and organizational adaptation able to reduce the impacts of the misfit between the ERP systems and the organizations.

By answering the research questions, this study provides insights into the strategies that can be used to effectively resolve ERP misfits. Additionally, this study provides generalizable and reliable evidences to the conjectural claims about effects of system modification and organization in resolving ERP misfits by testing them with rigorous quantitative approach. In terms of the scope, this study investigates ERP misfits from the perspective of system architecture in post-implementation stage. Definition of ERP misfit in this study is confined as the misalignments between functionalities of EPR systems and functional requirements of the organization. This is given that the functional requirements specify the end result that the ERP system supposes to accomplish and deliver to the users (Kaindl, 1993). In this sense, functional requirements directly affect the outcome of the system, which are required by the users to carry out their tasks. On the other hand, non-functionality requirements that are not part of this study drive the technical and hardware attributes of the ERP system which not directly influence the deliverables of the systems. Added to this, misfits of functional requirements which reflect the incompatibilities in terms of