AN IMPLEMENTATION OF ENTERPRISE RESOURCES PLANNING (ERP): FROM STRUCTURAL CONTINGENCY AND TECHNOLOGY ACCEPTANCE PERSPECTIVES

Chalit Sarntivarangkana

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy (Development Administration) School of Public Administration National Institute of Development Administration 2007
AN IMPLEMENTATION OF ENTERPRISE RESOURCES
PLANNING (ERP): FROM STRUCTURAL CONTINGENCY AND
TECHNOLOGY ACCEPTANCE PERSPECTIVES
Chalit Sarntivarangkana
School of Public Administration

The Examining Committee Approved This Dissertation Submitted in Partial
Fulfillment of the Requirements for the Degree of Doctor of Philosophy
(Development Administration).

Associate Professor ........................................... Committee Chairperson
(Tippawan Lorsuwannarat, Ph.D.)

Associate Professor ........................................... Committee
(Pornpen Petsuksiri, Ph.D.)

Associate Professor ........................................... Committee
(Palin Phoocharoon, Ph.D.)
ABSTRACT

Title of Dissertation: An Implementation of Enterprise Resources Planning (ERP): from Structural Contingency and Technology Acceptance Perspectives

Author: Mr. Chalit Sarnivarangkana

Degree: Doctor of Philosophy (Development Administration)

Year: 2007

ERP implementation is widespread in both private and public organizations in Thailand. Therefore, in order to understand the essential nature of the challenge involved in the introduction of ERP into work organizations, the objectives of this study are to develop and test factors affecting successful ERP implementation, and to provide recommendations for ERP implementation improvement.

In order to achieve these objectives, this study has adopted the combined concepts of structural contingency and technology acceptance perspectives into a comprehensive framework to explain individual perceptions, attitudes and behaviors toward ERP acceptance and use and its impact on individual performance. The proposed determinants that affect the success of ERP implementation are composed of the following: task-technology fit, individual-technology fit, individual characteristics (computer self-efficacy, computer playfulness, and personnel innovativeness), perceived usefulness and perceived ease of use of ERP, and attitude toward using ERP on the part of organizations' members.

Quantitative analysis was conducted by adopting the path analysis technique in order to identify the determinants of ERP implementation success. The target population was state enterprise organizations, which are public companies and have been operating in a non-monopolized market. These target organizations have implemented ERP for at least half a year. A survey questionnaire was conducted,
together with an in-depth interview in order to enhance understanding of the statistical analysis and findings.

The results from the statistical analysis support the majority of the hypotheses, and indicate that an individual’s positive and satisfactory attitude toward using ERP plays the most important role in ERP implementation successes. A positive attitude toward using ERP can be achieved when it is perceived as useful and beneficial for the users, and at the same time, ERP must be perceived as easy to use and easy to learn, understand and become skillful at. The second highest influential effect is task-technology fit, which is a significant factor that directly impacts ERP success. In addition, task-technology fit also has an indirect impact on ERP success through certain mediated factors: the perceived usefulness and the perceived ease of use of ERP.

Individual characteristics play a major role in explaining ERP implementation success. Though individual characteristics do not directly affect ERP success, they do exhibit indirect effects through the perceptions and attitudes of individuals. Among these, computer playfulness is the most significant individual characteristic for ERP success; computer playfulness demonstrates a strong relationship with all mediated factors: individual-technology fit, perceived usefulness, perceived ease of use and attitude toward using ERP; while computer self-efficacy has significant effects on individual-technology fit and perceived ease of use. Personal innovativeness explains ERP implementation success solely through the perceived ease of use.

Unexpectedly, individual-technology fit is found to have no direct relationship with ERP success. However, individual-technology fit indirectly explains ERP success though its perceived usefulness. A possible explanation is that in an environment where use of the technology is mandated rather than voluntary in terms of adoption, technology adoption is more dependent on individuals’ perception of usefulness regarding the task at hand rather than the alignment between an individual’s characteristics and the functionalities or features of ERP.

Finally, the results from the empirical analysis suggest that practitioners need to focus on the alignment between organizational contexts and ERP for ERP implementation rather than over-emphasizing system-related perception and design characteristics, as has been done in much information technology implementation. In
addition, practitioners must pay attention to the appropriate activities that influence the positive perceptions or beliefs structures that will bring about individual positive attitude formation regarding the use of ERP in order that greater acceptance and usage of the technology by organization members can be achieved and in turn affect ERP implementation success.
ACKNOWLEDGEMENTS

Many people have assisted me throughout the process of writing this dissertation. At this time, I would like to acknowledge and express my gratitude to the following individuals for their assistance in completing this dissertation. First and foremost, I would like to express my deepest gratitude to Associate Professor Dr. Tippawan Lorsuwannarat for being my committee chairman and for providing knowledgeable guidance and invaluable contributions to this dissertation. I would also add a debt of gratitude to all the committee members, Associate Professor Dr. Pornpen Petsuksiri and Associate Professor Dr. Palin Phoocharoon, whose invaluable knowledge, time and support were critical for the completion of this dissertation.

I would also like to extend my appreciation to many other people who directly and indirectly contributed greatly to this dissertation. These people include contacts at various participating organizations for the time they took in distributing and gathering the questionnaire, the survey respondents who provided the data for this study, and the interviewees for their valuable input. With their assistance, my dissertation is finally completed.

My special gratitude goes to my parents for their love, understanding and support throughout this incredible endeavor. They are the most significant persons who made this dissertation completed.

Chalit Sarntivarangkana
May 2007