Chapter I

Introduction

1.1 Background and Rationale of the Study

Organization members who play the role of users are seen to have a critical impact on the success or failure of Information Systems (IS). This is evidenced by a growing number of IS studies emphasizing the vital role of users such as: user perceptions (Agarwal and Prasad, 1998; Lou, Luo, and Strong, 2000; Zviran, Pliskin, and Levin, 2005), user involvement (Amoako-Gyampah, 2007; Kappelman, 1995; Kappelman and McLean, 1992; Robey and Farrow, 1982), and user expectation (Bhattacherjee, 2001; Szajna and Scamell, 1993; Warshaw and Davis, 1985). Academia and practitioners pay special attention to these particular aspects of users in order to elevate the level of user acceptance of technology, one of the critical conditions dealing with IS success. Among other competing theories, Technology Acceptance Model (TAM) is seen to be the most robust model in describing how an individual accepts a newly introduced system (Lee, Kozar, and Larsen, 2003). Despite the fact that TAM has been employed extensively in a wide array of contexts, there are some criticisms regarding its limitations.

Lee et al. (2003) argue that the focus of TAM is narrowly on the role of technology and design. The essence of this model seems to emphasize the encompassing role of system attributes: usefulness and ease of use. With system usage as a dependent variable, TAM's argument seems to support the idea that a degree of user acceptance is determined by usage behaviors. When usage is involuntary, this context presents a challenge for TAM. Brown et al. (2002) indicate that measuring system usage appears to be irrelevant when users are required to use the system.

User resistance, one of the most cited concepts in the literature concerning IS success, is another paradigm dealing with how users negatively react to systems being implemented. In the broadest sense, resistance refers to any attempts

that try to slow, impede, hinder or reject change in order to maintain the status quo (Bovey and Hede, 2001a; Coetsee, 1999; Val and Fuentes, 2003). In a mandatory use context, users are left no choice but to use the system to perform their tasks. One example of negative consequences brought about by user resistance is the case of the adoption of Navy/Marine Corps Intranet (N/MCI), a United States Department of the Navy outsourcing program. Users strongly resisted the system, causing significant project delay and budget overruns, resulting in 6.9 million U.S. dollars in financial loss (Malhotra and Galletta, 2004).

Enterprise Resource Planning (ERP) is an information system with the aim of helping an organization improve business operations by integrating all functions along a value chain into one single system (Gupta, 2000). When business units work separately, this is most likely to lead to different work standards which, in turn, cause a communication problem, since data are kept redundant and inconsistent. The promises of ERP are to ease the pain of disparate workflows in an organization. Thus, the system creates interdependencies among business functions using the same data. If data are not entered correctly or completely, it will disrupt the whole chain of business processes. When user tasks are integrated with other tasks, they are required to use the system in order to support other users' functions. Hence, the usage within an ERP context seems to be mandatory (Brown et al., 2002).

Implementing ERP has been proven to take considerable effort. There is on-going concern about the high failure rate of ERP implementation (Kim, Lee, and Gosain, 2005). ERP implementation often requires a substantial amount of resources in an organization. When an implementation project cannot follow an original plan, it leads to budget overrun, which can lead to both financial and non-financial loss. The delay of an ERP implemented project can lead to frustration among employees, which can result in an opportunity loss for the organization, and so forth. Furthermore, even after an organization has successfully implemented and deployed the system, it still faces the risk of failing to achieve the objectives of adopting ERP. In a study it was found that over

50 percent of implemented ERP were less effective than original expectations (Yu, 2005). After ERP is deployed, it is not certain whether employees will realize the benefits of using ERP, and eventually they may stop using the system. One such example is Allied Waste Industries, Inc., a Fortune 500 company headquartered in Phoenix, Arizona, that decided to abandon its SAP R/3 after having invested around 130 million U.S. dollars (Kim et al., 2005).

Although many organizations have installed and implemented ERP to achieve a better integration in their business processes, there are still a large number of organizations planning to acquire this promising technology. The estimated size of the 2007 worldwide ERP market was approximately 19.2 billion U.S. dollars and at that time was believed to reach 25.2 billion U.S. dollars in the year 2011 at a growth rate of 7.6% (Pang et al., 2007). It seems that ERP continues to play a crucial role in helping many organizations to gain competitive advantage. In Thailand, a wide array of organizations in almost every industry acknowledged the advantages of ERP and decided to adopt this technology in the hope that the system would deliver its promises. In 2003, the estimated value of the Thai ERP market was 100 million U.S. dollars (Chandrachai, Pantumsinchai, and Tanlamai, 2006). Many Thai organizations invested significantly in ERP, yet it remained unclear whether the investment was worthwhile. A survey in Thailand conducted in 2004 reported that approximately 70% of 170 companies encountered project delay. Clearly, the delay brought losses to the organizations. Despite lessons learnt from these previous cases, Thai organizations today are still facing problems in implementing ERP.

After having integrated business processes and functions, ERP can create interdependency among business units. ERP users are often left no choice but to use the system. It is most likely that ERP usage is not a voluntary use environment but a mandated one. In a mandatory use environment, users are obliged to use the system to perform their jobs (Brown et al., 2002). The context of ERP presents a challenge for TAM since the dependent variable of the model, namely system usage, may no longer be a

good determinant for measuring the system success. Symbolic adoption which emphasizes the mental process of system adoption seems to be more plausible in this context (Nah, Tan, and Teh, 2004).

In order to provide a more comprehensive perspective of user acceptance of ERP, researchers have recommended that it should be conceptualized as a pattern of organizational change (Kwahk, 2006). An organizational change perspective presents an alternative view of IS implementation research. In particular, resistance to change is one common problem that has been addressed in IS research known as resistance to IS implementation. Organizational theories offer theoretical explanations of underlying causes of resistance to organizational change, such as individual characteristics and experiences (Smollan, 2006), communication problems (Val and Fuentes, 2003), power and politics (Trader-Leigh, 2002) and culture (Lakomski, 2001). IS implementation generally induces change in an organization. Hirschheim and Newman (1988) have described possible causes of resistance, including factors such as innate conservatism and uncertainty, indicating individual perception towards change initiated by IS implementation. When resistance to IS implementation is assessed, characteristics of a system, emphasized in TAM, have not been identified as being related to the topic under discussion (Hirschheim and Newman, 1988; Jiang, Muhanna, and Klein, 2000; Joshi, 2005). Vice versa, individual perceptions related to change have not been examined when TAM was the topic of a study (Amoako-Gyampah, 2007; Brown et al., 2002; Nah et al., 2004). Although user acceptance and resistance to change appear to be the opposite phenomena, recent research has attempted to link these two research paradigms. Bhattacherjee and Hikmet (2007) have introduced a dual-factor model theorizing the influencing role of resistance to change on system usage. The empirical evidence from this study shows that user acceptance and resistance to change can co-exist. The authors found that resistance to change negatively affected behavioral intention and usage behaviors.

It is becoming more evident that user acceptance and user resistance are not opposites but are inter-related concepts. Thus far, little is known about the relationship between these two perplexing phenomena. This study follows the initiative of previous research in exploring the linkage of user acceptance and user resistance. In order to create a new body of knowledge, this study primarily focuses on the context of the mandatory-usage context where it presents a challenge to the explanatory power of TAM. User resistance is incorporated to provide a larger view on how users can react favorably or unfavorably to the new system introduced. Key theoretical constructs are derived from both research paradigms and assessed empirically. Interview data help to provide case background. Survey data are used as empirical evidence, leading to the conclusions of this study. The results from this study will be applicable to both academia and industry. The knowledge will add to the literature of both user acceptance and user resistance. Practitioners could benefit from the key insights from the case data. The findings could be used to develop a change management plan or an intervention program during the implementation process in order to ensure the success of the implementation.

1.2 Problem Statement

Research on user acceptance has provided both researchers and practitioners with understanding precursors to system usage. Nevertheless, given a situation in which users use the system involuntarily, a usage behavior seems to present a misleading view of user acceptance of IS implementation. When symbolic adoption was introduced it was seen to be a better candidate in explaining this so-called phenomenon in a mandatory usage environment. Empirical evidence has shown that symbolic adoption could lead users to utilize a mandated system in a more creative manner (Wang and Hsieh, 2006); however, the concept of symbolic adoption measuring user acceptance in this environment is relatively new. There are few published empirical studies examining the role of symbolic adoption, and thus this gap in the literature calls for extensive empirical studies to explore what determines symbolic adoption.

The attitude construct has played an important role in IS research whether in TAM studies or in resistance to change research. These two paradigms of research can be seen to represent opposite views. TAM can be viewed as a set of factors promoting IS success, while resistance to IS implementation is another group of factors seen as hindering the implementation. TAM measures attitude towards using the system, whereas resistance to change is the attitude towards change brought about by IS being implemented. The two paradigms seem to share the same theoretical fundamental which is the role of attitude influencing a particular set of behaviors. Nonetheless, it remains unclear how these two phenomena are related. This study attempts to bring together TAM and resistance to change in order to understand the acceptance process of IS implementation as well as address the following research questions:

1. To what extent do perceived usefulness, perceived ease of use, subjective norm, and attitude towards system usage predict symbolic adoption in a mandatory-use context?

2. To what extent do perceived self-efficacy, perceived level of power in an organization, perceived inequity, and subjective norm predict resistance attitude and resistance behaviors in a mandatory-use context?

3. To what extent does user resistance affect user acceptance in a mandatory-use context?

4. To what extent are job-related outcomes affected by user acceptance and user resistance in a mandatory-use context?

1.3 Objectives of the Study

The objectives of this study are to:

1. examine the effects of individual perceptions on user attitude towards mandated IS implementation,
2. explore the role of user attitude towards mandated IS implementation during the user acceptance process,
3. study the effects of subjective norm on user attitude towards mandated IS implementation,
4. investigate the effects of user acceptance and resistance to change on job-related outcome and symbolic adoption, and
5. develop a theoretical framework determining the user acceptance of IS implementation based on TAM and resistance to IS implementation in a mandated environment.

1.4 Significance of the Study

With a significant number of studies attempting to revise and refine TAM, It may seem that the research area of user acceptance has already been extensively explored. Recently, the issue about the shortcoming of TAM in explaining a complex phenomenon of a mandatory use environment has been raised. A dependent variable of TAM has been criticized as offering irrelevant explanations about user acceptance (Brown et al., 2002; Nah et al., 2004). The main argument is that there is a need for a new tenable dependent variable in the context of involuntary usage and symbolic adoption proposed as a dependent variable for measuring user acceptance in an ERP context (Karahanna, 1999; Rawstorne, Jayasuriya, and Caputi, 1998). To date, only a few studies have empirically proved this tenet.

Another vital controversial contention is the role of attitude in the process of user acceptance. In the broadest sense, attitude can be generally defined as a

disposition to respond favorably or unfavorably to an object being evaluated (Ajzen, 1988). User attitude seems to be plausible in clarifying how a user reacts with the system, especially when system usage is involuntary. Recent studies have reported empirical evidence supporting the predictive nature of user attitude in explaining user responses to a system implementation (Brown et al., 2002). In addition, resistance to change is a different paradigm of research aiming to understand how individuals respond unfavorably by hindering an implementation process. The notable work of Piderit (2000) has brought considerable attention to the area of resistance to change. This notion of resistance to change was encouraged to be conceptualized following the concept of attitudes. By bringing together research from the two paradigms; user acceptance and resistance to change, Bhattacherjee and Hikmet (2007) have pointed to the existence of a linkage between these two areas.

This study continues to pursue a new body of knowledge by seeking to gain more understanding and exploring a different aspect of user acceptance in the context of a mandatory use environment. By exploring user acceptance together with user resistance, it is hoped that the results of this study will elevate the level of understanding about the user acceptance process in a mandatory use environment and create a new body of knowledge regarding IS and organizational theories. The implications of this study will help organizations to better plan for any new initiatives possibly yielding contributions related to a system implementation by taking greater care to organization members and facilitating change.

1.5 Summary of Chapter I

This chapter has discussed the motivation underlying this study by emphasizing the need to explore the linkage between user acceptance and user resistance. Subsequently, research questions and objectives were presented. The rest of the dissertation is organized as follows. The next chapter provides the theoretical background of user acceptance and resistance to IS implementation. Research

methodology will follow. Data analysis is presented. And this dissertation will be summarized with conclusion and discussion. Implications and limitations are also provided.