Beliefs and Attitudes Associated with ERP Adoption Behaviours: A Grounded Theory Study from IT managers and End-users Perspective

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Abstract

The Theory of Reasoned Action (TRA) was used to explain the beliefs, attitude and behavioural intention of the adoption of ERP systems by Thai-owned companies and multinational companies operating in Thailand. Interviews were thus conducted with IT managers and end-users in Thailand to identify a number of beliefs towards ERP systems. A grounded theory method was used to collecting and analysing data. The findings of the study suggest that shared beliefs in the benefits of ERP systems to organizations correlate with positive attitudes towards ERP systems while individual beliefs in the perceived problems of adopting ERP systems correlate with negative attitudes, which appear to affect the behavioural intention to adopt an ERP system. This paper concludes with some implications of these findings, and with some possible direction for future research.

Keywords: Enterprise Resource Planning, ERP, Innovation adoption, Attitude, Theory Reasoned of Action, Thailand, Grounded theory

1. Introduction

Davenport (1998, p.121) defines an Enterprise Resource Planning (ERP) system as an enterprise system that promises seamless integration of all information flowing through a company. ERP systems came on the scene in the early 1990s as a response to the proliferation of standalone business applications to service these separate information needs in most large organisations. Installing it requires large investments of money, time, and expertise, and involves coordination requirements across multi-adopters at different organisational levels.

A review of the literature reveals that there is a lack of research on the adoption of ERP systems and selection of ERP system vendors. Although the concept of complete integration has been pursued for more than two decades (Klaus 2000), published research on the topic of ERP has only recently emerged and mainly focuses on issues related to the implementation phase of the ERP lifecycle (Esteves & Pastor 2001, Al-Mashari 2002).

In addition, there is limited knowledge the relationship between user beliefs, attitude, and behavioural intention to adopt and use an ERP system. Most of them have been conducted in developed countries (Abdinnour-Helm et al 2002, Amoako-Gyampah & Salam 2004). It is apparent that an ERP system created for and working in developed Western countries may not be a perfect fit in organisations in different countries. Problems that companies in developed countries face may not be presented in the context of developing countries (in this case, Thailand), which may in turn have unique issues of their own. It is also arguable that there may not only be difference between organisations in Thailand and those in other places, but also a distinction between Thai-owned and multinational companies (MNCs) in Thailand.
This paper aims to examine the attitudes of IT managers and end-users towards ERP systems. We believed that attitude and behavioural intention towards ERP system adoption are correlated. Although in most cases the use of an ERP system is mandatory, variations exist in the intentions of users (Amoako-Gyampah & Salam 2004). Thus, it is important to examine behavioural intention to adopt a new technology, which leads to implementation success and effective usage. We attempted to extend an understanding of what IT managers and end-users imagined about using an ERP system in their own environments prior to physical implementation. We intended to empathise with their real or latent needs from, and positive or negative expectations of an ERP system.

This paper begins with an overview of the relevant literature to provide a theoretical background. Thereafter, the research methodology is described, followed by the findings from the study. The paper concludes with a discussion of the practical implications of the findings and identifies areas for possible future research.

2. The Theoretical Framework
Attitude in simplest terms may be defined as a predisposition that determines how a person behaves or does not behave in a particular way. In the field of social psychology, Ajzen and Fishbein (1975, 1980) developed the Theory of Reasoned Action (TRA) in an attempt to provide a model to understand how a person’s attitude impacts his or her behaviour.

The TRA operates on the assumption that human beings are rational animals who are able to systematically process and use the information available to them. People consider the implications of their actions or outcomes before they decide to engage or not engage in a given behaviour (Ajzen & Fishbein 1980, p.5). According to the TRA, there are two main components that explain intention. They include the attitude towards performing the behaviour and the subjective norms. In this study, the focus is on the former. It is because attitude is regarded as the primary predictor of intention, and as “a latent or underlying variable that is assumed to guide or influence behaviour” (Fishbein & Ajzen 1975, p.8).

Attitude is determined by a set of behavioural beliefs about the outcome of behaviour. It refers to the person’s evaluation that the potential outcome will be ‘positive or negative’ or ‘good or bad’, and the likelihood that performing a given behaviour will result in a given outcome. In addition, beliefs are formed on the basis of past experience and direct observation, or information received from outside sources, or by way of various inference processes (ibid, 1975). Figure 1 shows the flowchart of TRA with an emphasis on attitude, and illustrates the transmission of belief into behaviour.

Figure 1. A Flowchart of the Theory of Reasoned Action (TRA)

Fishbein and Ajzen (1975, p.9) further point out a positive attitude would lead to the performance of positive behaviours and a negative attitude to the performance of negative behaviours. Accordingly, in an ERP case, if an employee perceives that positive benefits are
due to implementing an ERP system, he or she will be motivated and intend to be co-operative, which leads to the success of ERP system implementation.

3. Methodology
In order not to preclude any issues, findings of this study were allowed to emerge from raw data, and there was no attempt to force the data into a fixed framework. Grounded theory was thus deemed the most appropriate methodology. It allowed the IT managers and end users to freely explain what their perceptions or attitudes were from their own perspective.

32 companies were selected: 1) 8 Thai-owned companies that implemented an ERP system, 2) 8 Thai-owned companies that did not implement an ERP system, 3) 8 MNCs that implemented an ERP system, and 4) 8 MNCs that did not implement an ERP system. The MNCs were randomly selected from lists supplied from foreign Chambers of Commerce in Thailand. The Thai-owned companies, which have the largest turnover of all companies in Thailand, were drawn from the database of the Revenue Department of Thailand. It is believed that these companies could be leaders for deploying IT or could have great potentials and resources for investment in IT. It is, therefore, fitting to compare them with MNCs. At least one IT manager and one end-user participated in the interviews. In those companies not implementing ERP systems, the chosen end-users at least had heard about ERP systems and known about the concept.

All the data were analysed by using a grounded theory method. Undertaking the constant comparative method of analysis, the quantity of data was reduced, the empirical nature of the data was transcended, and as a result a condensed, abstract view scope of the data was obtained (Glaser 1978, p.55).

4. Findings

4.1. Attitudes
Many IT managers and end-users in both Thai-owned companies and MNCs expressed their positive and negative attitudes. These attitudes come from the interviewees through their views on the benefits and threats they believe that will be obtained from the adoption and use of an ERP system. As Fishbein and Ajzen (1975, p.131) argue, “attitudes are usually measured by assessing a person’s belief”. We thus identified a number of beliefs that influences these attitudes, as shown in Table 1.

Table 1. Attitudes and Beliefs

<table>
<thead>
<tr>
<th>Positive attitude</th>
<th>Negative attitude</th>
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<tr>
<td>Belief 1: Inventory accuracy and visibility</td>
<td>Belief 1: Suspicion</td>
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<tr>
<td>Belief 2: Cost saving</td>
<td>Belief 2: Resistance to change</td>
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<td>Belief 3: Personnel reduction</td>
<td>Belief 3: Difficulty</td>
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<td>Belief 4: Improved internal integration between systems</td>
<td>Belief 5: Enhanced visibility of data and greater accessibility to data</td>
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<tr>
<td>Belief 6: New or improved business processes</td>
<td>Belief 7: Increased responsiveness</td>
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We found there to be no obvious distinction between the Thai-owned and multinational companies. However, as anticipated, companies that did not have an ERP system in place had more negative attitudes and expectations than the ERP-adopting companies.
4.1.1. The positive attitude
Most interviewees viewed an ERP system as a total solution. With one application, one centralised database and a unified interface, an ERP system was expected to provide a tightly integrated working environment, linking together an entire organisation’s operations. Coordination across departments could be improved, and the workforce could be managed effectively. The positive attitude contains several benefits, which are not ranked. It should also be noted that some categories may be interdependent with others.

Belief 1: Inventory accuracy and visibility
ERP evolved from MRP and MRPII, which were initially designed for manufacturing operations. Therefore, the capability of inventory management is recognised. An ERP system could increase accuracy in managing repair and new inventories as well as raw materials. At the same time, it could plan and schedule inventory flow throughout the entire procurement process, which in turn leads to reducing excess inventories and costs to manage them.

Belief 2: Cost saving
An ERP system could save costs in many business areas. Many interviewees agreed that their companies could reduce purchasing costs by improving procurement activities. Furthermore, an ERP system could hold down administrative burdens and lower paperwork.

Belief 3: Personnel reduction
Business process reengineering (BPR) could improve processes and eliminate some non value-adding activities, thereby reducing the risk of human error. As many business functions could be automated in this process-covering a significant amount of clerical work at the same time, companies adopting an ERP system could reduce staff costs.

Belief 4: Improved internal integration between systems
As most companies are organised and operated in a decentralised manner, different business units or even branches of companies deploy different computer systems and software. These different systems do not easily communicate with one another, and data is stored and processed separately. There is a necessity for interfaces among systems to transfer data across system boundaries. An ERP system could replace these disparate systems, centralising them into one comprehensive multi-module software system that integrates all (or many) fundamental business activities across departments, and serves the entire company.

Belief 5: Enhanced visibility of data and greater accessibility to data
With one common database, users at all levels could have convenient access to truly accurate, real-time and consolidated information. With a real-time integration environment, information is updated and exchanged immediately and continuously. Once data are entered into an ERP system from one department, all other departments can view it. Employees can share the same information horizonally and even vertically. Because of this, data entry time, duplicate information and redundant jobs can reduced.

Belief 6: New or improved business processes
The architecture of an ERP system introduces new ways of thinking (e.g., about how employees do work, and how they think about work), and in most cases forces a company to switch from a functional (or departmental) to a process-driven model. Nearly all interviewees saw the opportunity to review, and alter their business processes and organisational structure, which are based on recognised theories or best business practices.

Belief 7: Increased responsiveness
An ERP system could help to improve their company’s ability to respond to customer inquiries by delivering just the information that customers want. Their companies could coordinate plant assets and resources to deliver goods to customers more quickly.

4.1.2. The negative attitude
Although an ERP system promises a great range of benefits, some interviewees still had doubts and negative expectations of adopting and using it. Most seemed to agree that the focus was on people and organisational issues rather than on the ERP system itself.

Belief 1: Suspicion
An IT manager argued that since end-users would not see the benefits of an ERP system in a short-time period, it is not easy to convince them of the value of investing an ERP system. Another IT manager contended that it was difficult to measure ROI, and therefore it was impossible to see the value of an ERP system as soon as it was installed. In addition, nearly all ERP end-users interviewed were worried that an ERP implementation project might create extra workload, and that there were difficulties waiting ahead.

Belief 2: Resistance to change
Most interviewees were keen to stress that massive changes in existing processes and organisational structure would inevitably occur, which might have an adverse impact on their jobs. There was no evidence that employees were afraid of losing their jobs. However, most ERP end-users did not want to see any change in their job description, and feared unwanted job assignments. They did not want to have to learn new skills, and accept new responsibilities. Furthermore, they did not want to experience a loss of certainty.

Belief 3: Difficulty
A majority of IT managers were more concerned with the complexity of implementation and difficulty of configuration, modification and maintenance. ERP system implementation was not simply about buying cutting-edge technology. Approximately 40% of the IT managers interviewed were also afraid for any number of reasons that there was not a good functional fit for their organization. However, there is no concrete evidence on technical matters from ERP end-users, partly because they could not evaluate an ERP system technically. From the ERP end-users’ view, an ERP system was not easy to learn and use.

It is reasonable to conclude that these above beliefs can be categories into two groups: shared and individual. Shared beliefs occurred when most employees perceived relative advantage of an ERP system for their company. In other word, employees believed that an ERP system would benefit their companies. They could be motivated and intend to be co-operative. These beliefs had an influence on a positive attitude towards ERP systems. Consequently, this attitude can increase the intention of ERP system adoption, and lead to the success of ERP system implementation. Individual beliefs were formed when employees were suspicious and concerned that ERP system adoption would cause them a problem. These beliefs had an influence on negative attitudes, and could cause ERP system implementation failure.

Based on the above discussion, we refined the existing TRA model to shows the impact of both shared and individual beliefs and intention on ERP system adoption and usage. Figure 2 shows the transmission of shared and individual beliefs into the adoption and use of an ERP system.
Figure 2. A Research Model of Attitudes towards ERP Systems

4.2. The different attitudes towards ERP systems in Thai-owned and multinational companies
Organisational culture can influence attitudes towards ERP system adoption. In most cases, the adoption and use of IT applications of MNCs is mandatory. Decisions on new IT adoption are normally made at the corporate headquarters. However, the findings revealed that employees of MNCs seemed to have a greater degree of organisational commitment and a strong confidence in their organisation’s decision. They appreciated the overall benefits that could be gained to their organization, and so they seemed to have positive attitudes towards their ERP system. On the other hand, Thai-owned companies seemed to have more problems of user resistance to change. Most Thai-owned companies allowed their employees to be involved in an ERP project. In some Thai-owned companies, employees even had some influence on ERP system adoption and vendor selection. Although they did not completely reject a new system, they still wanted it to be customised to be familiar with the ways they were accustomed to working. Bring a new system into their company required them to learn new skills, and accepted new responsibilities. They seemed pessimistic, and had negative attitudes towards their ERP system.

4.3. The difference of attitudes towards ERP systems between IT managers and end users
IT managers and end-users reacted differently to the changes brought upon them by the ERP systems. IT managers seemed to have a more positive attitude towards change, and were more willing to adopt an ERP system. They seemed to understand more the value of adopting the system as they knew how an ERP system works and could foresee the promised benefits that their companies would gain from an ERP system. On the other hand, end-users, who are at a relatively low level in the organisation, felt that they had no choice. In most cases, they were not given any opportunity to learn the usefulness of an ERP system before the decision was made to adopt it, but they must accept the ERP system. They were then required to adjust themselves to new ways of doing their jobs with little help or understanding from management. Thus, end-users seemed to be more reluctant to accept change.

5. Discussion and Conclusion
Our general interpretation of the findings leading to the model were that shared beliefs of an ERP system were associated with a more positive attitude towards adopting an ERP system, while individual beliefs were associated with a more negative attitude. This shared belief and hence more positive attitude seemed to be more prevalent in MNCs than in Thai-owned companies and also more likely to exist among IT staff than general employees. These findings seem to point to aspects of organisational and professional culture were likely to influence attitudes towards ERP system adoption. Employees of the MNCs seemed to have positive attitudes towards an ERP system, while employees of Thai-owned companies...
seemed pessimistic. This may indicate that their organisational culture is such that managers in MNCs place greater value on a shared vision and expected some effort into building and maintaining this. The importance of this effort may not be appreciated in locally-owned companies, and there may be an assumption that it automatically exists without the need to foster it. On the other hand, IT managers seemed to have a more positive attitude towards the change brought on by the ERP system implementation than end-users who felt that they had no choice, and must accept an ERP system. This could be explained in two ways: firstly, that they naturally have an shared professional culture and set of beliefs or secondly, that their greater knowledge of IT makes them more comfortable with the demands of a package such as an ERP system.

6. Implications for Practice
To deal with negative attitudes associated with difficulty, the findings suggest that management should provide information and training to their users. Intense resistance to change should be reduced, and suspicion should be dispelled if users could have a clear idea of how an ERP system would have a collective impact on their work. It is also important that management takes an active part in managing change and will be part of the process of creating a shared vision. Management should share information with them, help them to build an understanding, and to recognise the potential benefits of their ERP system together.

7. Limitations and Suggestions for Future Research
Some limitations of the study are inherent in that it was inductive in nature, and the findings are not necessarily generalisable. We suggest that future research could seek to test the research model of attitudes towards EPR systems, using either quantitative or qualitative data or both. In addition, a similar study could be conducted in other countries.

References