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Investigating ERP systems procurement practice: Hong Kong and Australian experiences ☆

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ABSTRACT

Context: Integration of information systems is now commonly recognized to be a powerful strategic weapon that sharpens the competitive edge of a firm in today's highly volatile business environment. Such integration can be achieved by replacing the disconnected and incompatible legacy applications by enterprise resource planning (ERP) systems. Along with the remarkable growth of the ERP market, we have seen a number of failure cases of ERP adoption. Such failure cases indicate that not all firms know how to adopt an ERP solution effectively.

Objective: To explore and identify crucial practices from real experiences in the Asia–Pacific region that may explain a firm's success in ERP procurement, with an overt intention toward the formulation of useful lessons that inform practitioners and contribution to advances in software development practices in organizations.

Method: A multiple-case design involving three Chinese firms based in Hong Kong and a local firm in Australia was employed. We collected, verified, and analyzed the information about the ERP procurement practice in each subject firm by means of semi-structured interviews, archive reviews, and member checks.

Results: We summarized our results in the form of 10 lessons learned, together with observations of how culture seems to have played a part in shaping the practice.

Conclusion: Our results offer practical guidelines originated from real cases that are of use for practitioners to improve the ERP procurement process.

1. Introduction

Many firms now realize that *integration* is a must for them to maintain a competitive advantage, by making corporate information available to any authorized user, anywhere, anytime. Numerous firms have achieved such integration by replacing their disconnected and incompatible legacy applications by *enterprise resource planning* (*ERP*) systems, which link back-office and front-office operations as well as internal and external supply chains [5,30,56,57]. Vendors offering ERP solutions are now plentiful. Among these vendors, the first-tier players include SAP, Baan, Oracle, and PeopleSoft, while the second-tier players include J.D. Edwards, QAD, and Lawson [5].

According to International Data Corporation (IDC) market analyses, the ERP market grew 6.5% to $28.3 billion in 2005 with some of the major vendors hitting twice the growth rates. The growth rate of the ERP market is expected to continue to be phenomenal, notably in the Asia–Pacific region [40], suggesting that ERP systems are becoming "the price of entry for running a business" [26].

Along with the remarkable growth of the ERP market, there have been many failure cases of ERP adoption (for example, FoxMeyer Drugs, Whirlpool, Volkswagen, and Dell Incorporated) [8,48,58,61]. These firms spent huge investment on ERP solutions but without getting what they expected. In some cases, the effect was more fatal, resulting in bankruptcy proceedings and litigation against software vendors. Such failure cases indicate that not all firms adopted an ERP solution effectively.

In general, an ERP adoption life cycle consists of three major phases: pre-implementation, implementation, and post-implementation [54]. The *pre-implementation* (also known as *procurement* or *acquisition*) phase is typically kicked off once the idea of ERP adoption is initiated and gains management support, and ends when the firm completes the procurement of an ERP system from a chosen vendor. In the *implementation* phase, the selected ERP

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system is installed, customized, and tested until accepted for use. Major activities in this phase also include business process alignment, hardware/software compatibility resolutions, and user training. The *post-implementation* phase begins with the formal deployment of the ERP system for use and maintenance as part of the firm's normal operations.

A large portion of the published work on ERP adoption is directed to issues and problems encountered in the implementation and post-implementation phases [15]. To name but a few,[1] Mabert et al. [31] empirically investigate and identify key differences in the approaches used by firms that managed their implementations on-time and/or on/under-budget versus the ones that did not, through a survey of US manufacturing firms that have implemented ERP systems. Dreiling et al. [14] introduce a method to increase the usability and usage of conceptual modeling for the purpose of ERP configuration. Nicolaou and Bhattacharya [38] empirically examine the long-term financial performance effects of ERP revisions (enhancements, upgrades, abandonments, and switches) in the post-implementation phase for firms that have previously reported ERP adoptions. However, focusing mainly on implementation and post-implementation phases may cause a mis-alignment between the ERP system and the business strategies that the system is originally expected to support [24,51,52,59].

Until recently, relatively few studies [1,43,46,49,50] in the literature have addressed the ERP pre-implementation phase, and even fewer are concerned with firms in the Asia–Pacific region, where the growth of ERP markets has become phenomenal in recent years. Indeed, in its report released in March 2009, the research house Gartner forecasted that while the global enterprise software market would stay "flat" (only 0.3%) in 2009, the Asia–Pacific region would at the same time continue to grow at 7.8% [20]. Furthermore, Gartner projected Asia's growth to remain "well above" those of mature regions such as Europe, which was expected to go down by 5.6% in the same year [20], as firms in those fast-growing regions are moving ahead with their plans to overhaul their application frameworks with integrated solutions [40]. Experiences in ERP adoption practices in Asia–Pacific firms are certainly of interest and value to both researchers and practitioners.

This paper focuses on the *pre-implementation* phase of the ERP adoption life cycle, and discusses the experience gained and lessons learned from the case studies of ERP systems procurement practices in three Chinese firms based in Hong Kong and a local firm in Australia (that is, all the subject firms reside in the Asia–Pacific region). Note that, in Hong Kong, the influence of Chinese culture and work styles permeates the business operations in most organizations, as the vast majority of employees are ethnic Chinese. On the other hand, the Australian firm we studied is owned and run by local Australians, whose culture is primarily originated from the West. In the literature, it has been found that the differences in culture between the East and the West did affect ERP implementations and operations in Hong Kong [12] and in Singapore [53]. Thus, even though all these firms are in the Asia–Pacific region, there could be significant differences in the management styles between firms in Hong Kong and in Australia.[2] As such, we have also posed the research question on whether and how, in our cases, culture has played a part in shaping the ERP procurement practices.

The remaining sections of this paper are structured as follows. Section 2 presents a conceptual model for ERP procurement process, which serves as a useful basis to frame our subsequent discussions. Section 3 describes our research methodology and process, and discusses the limitations of the study. Section 4 presents our observations and lessons of ERP procurement from the case studies in the subject firms. Section 5 discusses related work. Finally, Section 6 summarizes the paper and proposes some further work.

2. A conceptual model for ERP procurement process

ERP adoption is a complex process in which multiple dimensions of factors play a part: strategic, organizational, and technical. It also involves a mix of business process redesign and software configuration to align the system with the business processes. Considering the complexity of ERP systems and the large variety of vendors, the decision to adopt ERP and the subsequent procurement process must be properly managed in order to reduce the risk of failure.

In planning the study, we search the literature to identify the major activities and tasks involved in typical ERP procurement processes. We note from [16,43,54,56] that these activities and tasks include: (a) determining organizational, business, and user requirements, (b) formally describing the domain of ERP selection criteria, and (c) systematically evaluating the ERP selection criteria. Developing a business case and deciding the participants of the acquisition project are also recommended in [54,56]. Through the synthesis and extension of existing work [16,43,54,56], we develop a four-stage conceptual model for the procurement process (see Fig. 1) to frame our discussions. Running in parallel with the activities in these four stages is an information search process, whose activities are generally more intensive at the earlier than later stages. The information sources can be internal (for example, information from functional units of the firm about their requirements) or external (for example, information about threats brought about by the ERP adoption of the competitors).

To focus our discussions on the research questions of this study, the stages of the ERP procurement process are presented in a linear fashion. This is based on a slightly simplifying description of software development projects in which planned management decisions are to be made first, followed by appropriate IT solutions. Some researchers, however, contend that many software development projects, including the procurement process, are often more complex in reality. However, it would be beyond the scope of this paper to delve into the issue here. Nevertheless, the process model is useful enough for structuring our experiences from the subject firms' practices. In any case, most of our observations and lessons

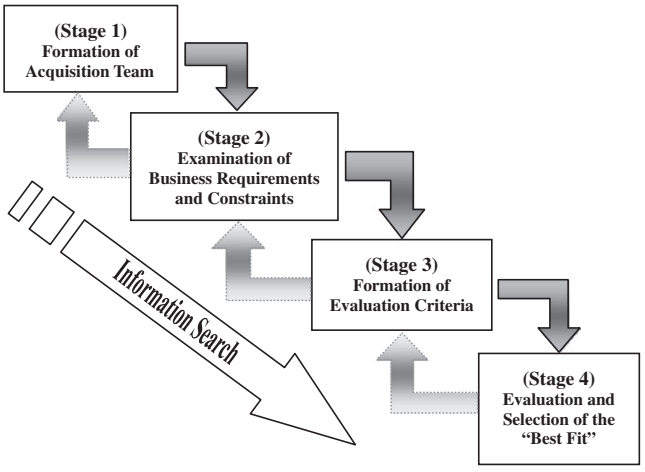

Fig. 1. A conceptual ERP procurement process model.

[1] More discussions of related work can be found in Section 5 of this paper.

[2] For example, it has been reported in [21] that: (a) people from a particular national background will prefer a particular organizational configuration because it fits their implicit model and (b) planning and control processes in organizations are strongly influenced by culture.