

ERP systems adoption: An exploratory study of the organizational factors and impacts of ERP success

Chuck C.H. Law^{*}, Eric W.T. Ngai

Department of Management and Marketing, The Hong Kong Polytechnic University, Hong Kong, PR China

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Abstract

We examined the relationships between the success of ERP system adoption, extent of business process improvement (BPI), and organizational performance and investigated the associations between the outcomes of these initiatives and such organizational factors as strategic intent, senior management support, and the status of the IT function within a company. A correlation analysis of 96 firms was made to test our hypothesis that the strategic intent to use ERP was closely related to the success of BPI, ERP, and organizational performance. The results also demonstrated that CEO-IT distance may have little direct bearing on the outcomes of ERP and BPI initiatives. A closer CEO-IT reporting relationship, however, was found to be associated with higher levels of senior management support for both types of enterprise projects. This empirical evidence reinforced the long-held assumption that organization-level benefits, BPI, and ERP success were closely related; and that these relationships were subject to the influence of the organizational variables.

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1. Introduction

Enterprise resources planning (ERP) systems allow seamless integration of information flows [6] and business processes [30] across functional areas within a company. They support information sharing along a company value chain and help to achieve operating efficiency. ERP packages offer a workflow engine to generate automated workflows according to business rules and approval matrices so that information and documents can be routed to operational users for transaction handling, and to managers and directors for review and approval [23].

Although ERP systems have been recognized as useful to many businesses while touted by vendors and consultants as systems that incorporate good business practice, ERP systems have often been found to fail to be effective [45]. One of the widely discussed issues is the need for an ERP-process fit involving some need for business and process changes. The relationship between business process change and successful ERP adoption is symbiotic: the benefit of ERP adoption often results in business change [31]. However, its outcomes are likely to be influenced by the organizational and cultural antecedents that facilitate or inhibit effective management of organizational changes [2,25,40]. The literature insists that it is necessary for the CEO and senior leaders to encourage the adoption of the technology and change [44]. Consequently, we decided to concentrate in this study on factors at the strategic management level: strategic intent to adopt ERP, the status of the IT leader,

^{*} Corresponding author. Tel.: +852 2766 7296; fax: +852 2774 0611.

E-mail address: lawftmac@yahoo.com.hk (C.C.H. Law).

and management support of IT and business process improvement (BPI) initiatives.

While the critical success factors for the implementation and use of ERP systems and their effects on organizational performance have been discussed and analysed, there have been many inconsistent and inconclusive findings [46]. We decided that it would be useful to search for empirical evidence to support the claims. Therefore, the primary objectives of this study were to explore the relationships among the extent of BPI, ERP success, and organizational performance; and also the possible impacts of the organizational variables on these constructs.

2. Literature review

2.1. *The critical role of process change*

Based on interviews with 19 Canadian firms, Kumar et al. [28] compiled a list of critical issues, including project justifications, risks, and ERP-process fit, in initiating the adoption of an ERP system. Hong and Kim [19] found empirical evidence of a relationship between organizational fit of ERP and the success of its implementation, and for moderating effects of ERP and process adaptations on this relationship. The impact of redesigning business processes has been considered in many studies [27], showing that ERP-business process fit is a pre-requisite for ERP success. Gattiker and Goodhue [12] found that the adoption of ERP was positively associated with change in process, although a relationship between change and the organizational impact of ERP was not supported.

According to Grover et al. [17], the empirical evidence supporting theories and principles on the role of business process changes on IT and system adoption is limited. Thus, while business process change has been recognized as an important issue in successful ERP adoption, it still needs to be empirically investigated.

2.2. *The potential benefits of ERP and difficulties of assessment*

Some studies have failed to support their hypothesized relationships between ERP adoption and organizational performance. Such unfavorable findings may be due to a difficulty in identifying intangible ERP benefits which are often unquantifiable. Consequently, many researchers directed their attention to the intangible benefits [36] of ERP systems, rather than limited their focus to the traditional financial-based

measures. For instance, Murphy and Simon [34] examined the intangible benefits and demonstrated how they could be incorporated into traditional methods of evaluation: the company they studied extended benefits to include intangibles such as customer satisfaction, measured by relating it to increased sales revenue.

2.3. *Organizational factors*

Ein-Dor and Segev [11] proposed that the success of IT projects was affected by organizational factors: management support and the rank of the IS leaders. In many circumstances, the top management team must mediate between technology and business requirements and resolve the conflict of interest among a large number of stakeholders [15].

The location of the MIS function or the seniority of the IS executive will affect on the success of IT and business process initiatives [16,22]. The CIO, as an influential member of the senior management team, must solicit support from the user community and other managers. Li and Ye [29] found that the direct reporting relationship of the IS executive to the chief executive as opposed to other senior leaders moderated the effects of IT investment on the firm's performance.

Another important organizational factor in IT and IS adoption is the alignment between IT and organizational objectives [5,13]. The fit between ERP systems and business strategies is often considered critical to achieving gains in organizational performance [21,26]. Thus, the strategic intention of business firms to adopt ERP [43] deserves further investigation.

3. Interviews with ERP-using organizations

IT executives of three ERP-using companies were interviewed and project documents were collected from them and reviewed.

3.1. *The firm's objectives of ERP adoption*

These three firms differed significantly in their reasons for adopting ERP systems (see Table 1).

- Company 1 is an OEM initially founded by local investors, with its management office located in Hong Kong and manufacturing facilities in South China. With a narrow profit margin, the company stays profitable through a low cost strategy as well as in the running of internal infrastructure. Its acquisition in recent years by an American multi-national did not

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