Influence of Product and Organizational Constructs on ERP Acquisition Using an Extended Technology Acceptance Model

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ABSTRACT

The article examines the selection of ERP by organizations using an extension of the technology acceptance model (TAM) using elements of the information systems (IS) success model. The study evaluated the impact of system quality, information quality, service quality, and support quality as key determinants of cognitive response, which influences ERP system purchase/use. Industry, firm size, buying center, and product experience were introduced as organizational constructs. The results of the study indicate that system quality has a very high influence on the ERP purchase decision ($\beta = 0.497, p = 0.000$), followed by information quality ($\beta = 0.425, p = 0.000$) and software support ($\beta = 0.286, p = 0.006$). Among the organizational constructs, only firm size was found to be statistically significant ($\beta = 0.217, p = 0.016$). The results also indicate that multi-department committees and the IT department are the major buying centers responsible for vendor selection. In terms of information source, vendor reference and advertisements are major information sources, while government standards and popularity/experience of vendors are important considerations in vendor selection.

Keywords: ERP selection; firm size; information quality; information system success model; service quality; support quality; system quality; technology acceptance model

INTRODUCTION

Competition, globalization, and digitization have compelled organizations to resort to information systems as a major driver of other business processes (O’Brien & Marakas, 2007). Enterprise Resource Planning (ERP) systems have become major tools in organizational efficiency and strategic advantage through the synergistic integration of fragments of data in hundreds of previously disparate systems that
degraded organizational efficiency and business performance (Laudon & Laudon, 2007). Global expenditure on information and communications technology (ICT) infrastructure has grown tremendously, with growth in software investment averaging from 30% to 40% per year (Eckhouse, 1999). ERP acquisition is a high expenditure activity that consumes a substantial portion of an organization’s capital budget (Verville, Bernades, & Halingten, 2005) and shakes the structural and cultural foundations of the organization. It is therefore not surprising that organizations take some time to think and plan the adoption of ERP.

Most organizations have had a successful ERP implementation, but a sizable number of organizations have failed to derive benefits from ERP (O’Brien & Marakas, 2007). The costs and risks of failure in implementing a new ERP are huge. A number of researchers have focused on implementation and post implementation issues, while the acquisition process is for the most part being ignored (Verville & Halingten, 2003). Most of the failures in ERP implementation result from poor selection process that ignores contextual organizational factors. Since an ERP system imposes its own logic on a company’s strategy, organization and culture, it is imperative that ERP selection be made with care in order to avoid failure, which could result from technology-business needs/process mismatch (Umble, Haft, & Umble, 2003). For researchers, the challenge would then be to ascertain the correlation between the acquisition process and the implementation process, the results of which could be beneficial to practitioners (Estevez & Pastor, 2001).

It is important that developers of ERP systems align their development strategies to the needs, business processes and purchasing behavior of their clients. This is an uphill goal especially for off-the-shelf ERPs. However, a basic understanding of the factors influencing the organization’s choice of ERP systems is extremely vital. In most cases, these factors vary across organizations. Issues such as size of the organization, available capital budget, business processes, international outlook, and data enrichment needs are of importance (Adelman, Moss, & Rehm, 2005; Bernroider & Koch, 2001; Verville et al., 2005).

This study aims at examining critical ERP selection factors and processes in a developing country (Botswana) that has a high level of information technology (IT) utilization (Toure, 2007) using a triangulation of the technology acceptance model (TAM), Information systems (IS) success model, and elements of organizational buying behavior. It would provide insight to ERP developers on issues to be addressed when tailoring ERP systems to the needs of organizations and attempt to contribute towards filling the literature gap that exists in ERP research in developing countries. Most of the studies on ERP selection have been carried out in the developed world (Amoako-Gyampah & Salam 2004; Buonanno, Faverio, Pingi, Ravarini, Sciuto, & Tagliavini, 2005; Kostopoulos, Brachos, & Prastacos, 2004; Verville & Halingten, 2002;).

Section 2.0 examines some existing literature in ERP selection, while in Section 3.0, a research framework is presented. The materials and methods employed in the study are presented in Section 4.0, while the results are presented in Sections 5.0. In Section 6.0 the results are discussed and some conclusions are drawn.

**REVIEW OF RELATED LITERATURE**

The acquisition of ERP is a complex, involving, and intensive activity, which can take months and a number of personnel in planning and deciding on critical factors that should go into the decision matrix. In Verville and Halingten (2003), a six-step process of ERP selection is presented (Figure 1). The MERPAP consists of planning, which is a continuous exercise throughout the selection process; information search, which provides information used in subsequent steps; selection, which includes shortlisting of vendors and technologies; evaluation, which includes vendor, functional and technical evaluation of potential candidates in order to make a choice, which eventually culminates into business and legal negotiations. In
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