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# Organizational adoption of enterprise resource planning systems: A conceptual framework

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## Abstract

Although Enterprise Resource Planning (ERP) systems are being used widely all around the world, they bring along many problems as well as benefits. Most of these implementations are failures and inadequate adoption is just one of the failure factors. This study provides an extensive review of the literature resulting in a taxonomy that may be used for other researchers in the field. The study also defines a framework for organizational adoption of ERP systems. The model consists of core Technology Acceptance Model (TAM) variables (perceived ease of use of ERP system and perceived usefulness), satisfaction and common actors of an ERP project: technology, user, organization and project management.
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## 1. Introduction

Enterprise Resource Planning (ERP) systems are integrated software solutions used to manage any organization's resources. Actually, ERP systems offer much more than their literal meanings. Not only do they make resource planning, but also integrate all departments and functions of a company into a single computer system that can serve all different departments' needs (Genoulaz & Millet, 2005; Klaus, Rosemann, & Gable, 2000). Watson and Schneider (1998) described ERP system as a generic term for an integrated enterprise computing system. They define it as an integrated, customized, packaged software-based system that handles the majority of an enterprise's system requirements in all functional areas such as finance, human resources, manufacturing, sales and marketing. It has a software architecture that facilitates the flow of information among all functions within an enterprise (Mendelson, 1999). According to Slooten and Yap (1999), ERP is the first approach that integrally combines business management and IT concepts.

Additionally, Davenport (1998) claimed that these integrated enterprise computing systems provide a seamless integration of all the information flow through an organization. Through data integration, ERP systems eliminate counter-productive processes and cross-functional coordination problems that hinder the integration of organizations. With the implementation of ERP systems, the management of an organization can also have a unified view of its

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processes (Parr & Shanks, 2000). Kumar, Maheshwari, and Kumar (2003) stated that the key underlying idea of ERP systems is using information technology to be able to plan and integrate the software applications and organizational processes such as design, production, purchasing, marketing, and finance. These systems' designs are based on business practices that have been deemed the most appropriate for achieving organizational goals (Newell, Swan, & Galliers, 2000). Considering these facts above, it is easier to see why ERP systems are accepted to be one of the most important developments in the Information Technology (IT) world and also the most popular standard business software of the last decade (Davenport, 1998; Robey, Ross, & Boudreau, 2002). ERP systems appear to be an innovation that makes dreams come true.

While implementing ERP systems, organizations seek to accomplish some objectives like reducing the cost and size of the informatics sector, making data available in real time, electronically exchanging information with major clients, employing new technologies to keep pace with the competitors, solving year 2000 problems (Lonzinsky, 1998; Umble, Haft, & Umble, 2003). They also want to obtain benefits like quicker information response time, increased interaction across the enterprise, improved interaction with customers, fast decision-making, lower inventory costs, shorter cycle times and global control over distributed business operations (Gibson, Holland, & Light, 1999; Markus & Tanis, 2000; Summer, 2005). It is interesting that companies of all sizes are implementing ERP systems with these expectations. Unfortunately, these plans do not come true most of the time.

Despite such importance and popularity in the sector, implementing these systems in the organizations of different sectors is hard to achieve as the way organizations make business is not standard. Markus and Tanis (2000) described ERP implementation as a complex exercise in technology innovation and organizational change management. The high expectation of achieving all-round cost savings and service improvements is very much dependent on how good the chosen ERP system fits to the organizational functionalities and how well the tailoring and configuration process of the system matches with the business culture, strategy and structure of the organization (Rashid, Hossain, & Patrick, 2002). According to these facts, buying ERP software is not enough for solving the problems of organizations. This process requires a lot of effort.

These difficulties are the main sign of failure of the ERP projects. Unfortunately, three quarters of these projects were found to be unsuccessful (Griffith, Zammuto, & Aiman-Smith, 1999; Hong & Kim, 2002; Kumar et al., 2003). In addition to that, about 90% of ERP implementations are over budget or late according to a survey constructed in 1999 (Seewald, 2002). A recent Standish Group report on ERP implementation projects reveals that these projects are, on average, 178% over budget, took 2.5 times longer than intended and delivered only 30% of promised benefit (Zhang, Lee, Huang, Zhang, & Huang, 2005). These data prove that they are the most difficult system development projects (Kumar et al., 2003; Wilder & Davis, 1998). Being large, complex and often requiring fundamental organizational changes are the main signs of that difficulty (Jones, Cline, & Ryan, 2006). Although most of the ERP projects fail, they are still the stars of the market, but how? The answer is hidden in that sentence. Organizations that have successfully adopted ERP systems to manage their operations view them as one of the most important innovations that have led to the realization of substantial tangible and intangible improvements in a variety of areas (Davenport, 1998; Markus & Tanis, 2000). Still, today most of the organizations try to achieve this… In addition to that, the ERP vendors are continuously expanding the capabilities of their packages by adding functionality for new business functions such as supply chain, data warehousing; the ERP vendors are transitioning to web-based solutions with the emergence of e-commerce (Kumar & Hillegersberg, 2000; Stensrud, 2001).

Academicians started to be interested in ERP systems, especially in their failure factors, in mid 1990's. As a result of the studies conducted, user resistance was found to be one of the significant factors. User resistance is an important issue, because organizational adoption of a new system may just be achieved by making its users use the system. That's why, actual use plays an important role in the organizational adoption and success of ERP projects as it happens in many other IS projects (Al-Khaldi & Wallace, 1999; Calisir & Calisir, 2004; Gyampah & Salam, 2004; Helm, Hall, & Hall, 2003). However, making people use a new system is not an easy process. As Markus and Tanis said (2000), organizational adoption of ERP systems is a complex exercise in technology innovation and organizational change management area. For that purpose, this study is dealing with that issue from a broader and newer perspective.

Wei, Chien, and Wang (2005) claimed that a successful project may be performed by selecting an ERP software system and a co-operative vendor, managing business process change, implementing this system, and examining the practicality of the new system. On the other hand, according to Wagner and Newell (2004), best practices of ERP systems may be designed with a software company working in a partnering relationship with a key industry customer to develop a package to meet the unique requirements of a particular industry. Unfortunately, lots of companies are using