Chapter 21
Comparative Analysis of Acceptance Factors for SAP and Microsoft Dynamics NAV ERP Solutions in their Maturity Use Phase:
Enterprise 2.0 Issues

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ABSTRACT

Enterprise Resource Planning (ERP) systems have been implemented in numerous organizations over the last decade. However, research indicates that successful implementation of ERP solutions does not necessarily lead to successful ERP usage. ERP systems benefit organizations only to the extent that users accept and utilize them frequently and extensively. To improve the efficiency and effectiveness of ERP systems in the operation phase, organizations need to research the factors that impact user satisfaction. In this area, the Technological Acceptance Model (TAM) proposed by Davis (1989) has been widely used as it can enhance understanding of the influences that increase the efficiency and effectiveness of ERP system use. Regardless of ERP complexity and ERP implementation failure, very few studies have been conducted to examine technology acceptance, especially when dealing with autonomous ERP users and including more external factors, which can influence users' acceptance of ERP system. Because ERP solutions are implemented by different methodologies and some are more present at large organizations than at small and mid-sized organizations, the authors research and compare the importance of external factors of two global solutions—namely, SAP and Microsoft Dynamics NAV—regarding user acceptance. The chapter contributes to the body of knowledge in this specific area.

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INTRODUCTION

Enterprise Resource Planning (ERP) solutions can be viewed as (1) a set of packaged application software modules, with an integrated architecture, that can be used by organizations as their primary engine for integrating data, processes, and IT in real time across internal and external value chains; (2) deep knowledge of business practices that vendors have accumulated and stored from implementations in a wide range of client organizations and that can exert considerable influence on the design of processes within new client organizations; and (3) a generic 'semi-finished' product with tables and parameters that client organizations and their implementation partners must configure, customize, and integrate with other computer-based IS to meet their business needs (Seddon, Shanks, & Willcocks, 2003). These systems are "Web enabled," meaning they work using Web clients; this makes them accessible to all of the organization's employees, clients, partners, and vendors at anytime and from anyplace, thereby promoting the business units' effectiveness (Motiwalla & Thompson, 2009). The ERP solution's goal is to make information flow be both dynamic and immediate, thereby increasing the usefulness and value of the information. In addition, an ERP system acts as central repository eliminating data redundancy and adding flexibility. In summary, ERP systems are the mission-critical IS in today's business organizations and solve the critical problem of integrating information from various sources both inside and outside the organization's environment to make it available in real time to all employees and partners of the organization.

ERP system adoption typically follows three lifecycle phases: selection, implementation, and operation, the latter of which can be divided into a stabilization stage and a routine stage. Most literature on ERP solutions is focused on either evaluating the appropriateness of the ERP system vis-à-vis software, vendors, or consultants or identifying Critical Successful Factors (CSF) affecting ERP selection and implementation (Yu, 2005); less effort has been given to identifying potential post-implementation impact (Gattiker & Goodhue, 2005).

ERP systems benefit organizations only to the extent that users accept and utilize them frequently and extensively. To improve the efficiency and effectiveness of ERP systems in the operation phase, organizations need to research the factors that impact user satisfaction. In this area, the Technological Acceptance Model (TAM) is widely used for explaining behavioral intent and usage; it can enhance understanding of the influences that increase the efficiency and effectiveness of ERP system use (Shih & Huang, 2009). Several researchers have applied TAM to examine ERP system use (e.g., Calisir, Gumussoy, & Bayram, 2009; Lee, Lee, Olson, & Chung, 2010; Shih & Huang, 2009; Sun, Bhattacherjee, & Ma, 2009; Youngberg, Olsen, & Hauser, 2009), but few researchers have examined multiple external factors that influence intention to use an ERP system or ERP system usage in the stabilization stage. Although a small number of external factors have failed to illuminate user opinions about specific systems (Agarwal & Prasad, 1999; Lu, Chun-Sheng, Liu, & Yao, 2003; Sun et al., 2009), most studies address only a small number of external factors.

The goal of this paper is to explore a large number of external factors that potentially influence attitudes and behavior related to ERP use in the operation phase of the ERP lifecycle and to investigate the importance of these factors for different ERP solutions (i.e., SAP solution and Microsoft Dynamics NAV solution). Because of the large sample size required to apply TAM to multiple individual variables, we combine external factors into three groups: personal characteristics and information literacy (PCIL); System and Technological Characteristics (STC); and organizational-process characteristics (OPL). To test these factors, we collected survey data from 15 organizations where a SAP system has been implemented and 29 organizations where Microsoft Dynamics NAV has been implemented. An