

## Chapter 3.19

# System Characteristics, Perceived Benefits, Individual Differences and Use Intentions: A Survey of Decision Support Tools of ERP Systems

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### **ABSTRACT**

Limited research has considered the value derived from using enterprise resource planning (ERP) systems for decision making support. This paper aims to evaluate the impact of a set of individual differences, system characteristics, and perceived benefits of the system, on the intentions to use ERP systems for decision support. A field study was used to collect data from managers working in Bahraini enterprises that use ERP systems. The results indicate that individual differences concerning age, gender, level of education, and even computer self efficacy did not influence intentions of using the decision tools of ERP systems. The only individual difference that showed significant influence is the degree of knowledge of the system. In addition, both perceived shared

benefits and system characteristics had significant influence on the intention to use the system for decision support tasks, through perceived ease of use and perceived usefulness. The paper discusses the implications of these findings and ends with possible extensions of the study.

### **INTRODUCTION**

Over the past decade, organizations around the world have spent billions of dollars implementing ERP systems. Motives of adopters of ERP systems have focused primarily on revolutionizing transaction handling by improving business processes and integrating operations and data. The current generation of ERP packages holds the promise of improving online analytical ca-

pabilities to enhance the organization's business intelligence as well.

ERP systems could be defined as comprehensive software packages that seek to integrate the complete range of business processes and functions in order to present a holistic view of the business from a single information and information technology architecture (Gable, 1998). Implementing an ERP system is a costly and risky project. The cost of a full implementation in a large international organization can easily exceed \$100 million. A recent survey of 63 companies—with annual revenues ranging from \$12 million to \$63 billion—indicated that ERP projects cost \$10.6 million and take 23 months on average to complete (Umble & Umble, 2002). Moreover, their implementation environments are often very complicated. They usually require large-scale business process reengineering (BPR) undertakings, complex technical arrangements for integrating the core ERP technology with any existing or future software, as well as careful management of the contributions of several participants in the projects such as: functional departments, consultants, business partners, and vendors. All these requirements and more, magnify project management challenges for such projects, making them prone to implementation failure.

Despite these challenges, investments in these systems are increasing, making the ERP software one of the fastest growing markets in the software business. In the 1990s some statistics projected its eventual market size to be around \$1 trillion by the year 2010 (Bingi, Sharma, & Golda, 1999). Moreover, expectations for keeping these interests in ERP investments are even bigger in the 2000s. This is because, though they were originally developed and implemented for transactional aspects, a growing need to use these systems for decision support has recently become clear. Lately, these software packages are incorporating decision support tools in order to take advantage of data storage, access, scrubbing, and integration capabilities facilitated by ERP systems (Turban,

Aronson, & Liang, 2005). On the other hand, the confluence of ERP and decision support technology has begun to draw the attention of academia as well (Shafiei & Sundaram, 2004). Obviously ERP vendors, implementers, and researchers need to understand the factors that affect their usability. Based on this need, this article's main objective is to identify the main contextual variables that influence the acceptance of decision support tools of ERP systems. Three groups of variables were introduced in our theoretical model: (1) individual differences, (2) perceived shared beliefs of the decision support benefits of these systems, and (3) system characteristics.

The second section of this article reviews prior literature on ERP and decision support. In addition, it provides a brief explanation of TAM as the guiding basis for the theoretical framework of this research. The third section introduces the research model along with a discussion of the model variables. The fourth section describes the study's methodology. The fifth section reports findings on the factors that are found to be influencing the use of these systems. The last section concludes the study with a discussion of the main findings and suggestions for future investigations.

## **LITERATURE REVIEW**

### **ERP and Decision Support**

Very few studies have addressed issues related to incorporating ERP systems and decision support tools. This is mainly because ERP and decision support systems (DSSs) have independently evolved and adopted in the marketplace as well as in academia. Consequently, each subject has its own separate studies. On the other side, plenty of research efforts have been introduced for technology/information systems acceptance or usability. In the following paragraphs, we tried to briefly present the research most related to our study's main objective.

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