ERP INFORMATION QUALITY AND INFORMATION PRESENTATION EFFECTS ON DECISION MAKING

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ABSTRACT

In this study a model is developed to examine the impact of information presentation formats on the relationship between information quality and decision quality in an enterprise resource planning (ERP) environment.

INTRODUCTION

ERP systems seamlessly integrate data from different functional areas to provide information for decision-making (Davenport, 1998; Sadagopan, 1999). Different decision-makers directly tap into the ERP database to access information for carrying out different organizational tasks. The use of the same information by different decision-makers has increased the need to ensure that high quality ERP information is available for effective decision-making (Shankaranarayan et al., 2003; Bendoly, 2003; Holsapple and Sena, 2005). Besides, ERP information quality, one of the critical issues affecting decision-makers is the influence of various physical ERP information presentation effects on their decision-making quality. O’Donnell and David (2000) and Soh et al. (2000) indicate that though firms typically customize reports using the ERP system’s report writer to specific organizational needs, such reports tend to suffer from information content misfits and hence affect decision-making. This suggests that not only high information quality but also effective presentation of information is crucial for ensuring decision quality.

NEED FOR RESEARCH

Information systems (IS) researchers (Lee et al., 2002; DeLone and McLean, 2003) focus on the importance of ensuring high quality information in IS implementations. ERP studies (Vosburg and Kumar, 2001; Xu et al., 2002; Madapusi and Kuo, 2007) also emphasize the importance of obtaining high quality information from ERP system deployments. Studies such as those of Raghunathan (1999), Chengalur-Smith et al. (1999) and Madapusi et al. (2007) have examined the impact of information quality on decision quality; however, there is a paucity of empirical research on the impact of ERP information quality on decision outcomes. Also, very few studies in the ERP arena have investigated the effect of various ERP physical information displays on
decision-making. This research study uses a theory-driven model to first assess ERP information quality in firms. This is followed by an examination of the impact of ERP information quality on the decision quality of the decision-makers. The effects of ERP information display on the relationship between information and decision quality are then investigated.

**INFORMATION QUALITY, DECISION QUALITY, INFORMATION PRESENTATION**

The concept of information quality has its genesis in the accounting literature where the focus was on assuring the reliability of data (Vermeer, 2000). This focus shifted to the management of data as an asset following developments in database technologies in the 1970s and their usage in corporate relational databases (Goodhue et al., 1988; Ballou and Tayi, 1989). The advent of ERP systems in the 1990s and the increasing use of data warehouses in the early 2000s forced firms to manage increasing volumes of information (Vosburg and Kumar, 2001; Bendloly, 2003). The increasing importance accorded to information quality in organizations led researchers such as Wang and Strong (1996), Strong et al. (1997), and Lee et al. (2002) to propose various frameworks to assess information quality in organizations.

The concept of decision quality developed as two research streams in the 1950s; one on individual choice (Edwards, 1954) and the other on perceptions in judgment (Hammond, 1955). This was followed by developments in risky decision-making literature with moorings in achievement-motivation and an emphasis on the approach or avoidance conflict in risky decision-making environments (Lopes, 1987; Dutton and Jackson, 1987).

In the 1980s and 1990s, researchers such as Tversky and Kahneman (1981) and Giferenzer and Hoffrage (1995) focused on the information presentation effects of decision-making. Studies such as those of Schwarz (1999) focused on the semantic framing effects of information presentation on decision-making. Researchers such as DeBrabander and Thiers (1984), Payne et al. (1992), and O’Donnell and David (2000) on the other hand, investigated the effects of display of information in decision-making contexts.

In a typical ERP environment not much attention is paid to information quality, decision quality, and the information presentation effects on the relationship between information and decision quality. The above lack of focus is a significant reason why firms are unable to exploit the full potential benefits from their ERP system implementations.

**MODEL**

This research study develops a theory driven model to examine the relationship between ERP information quality and decision quality. The moderating impact of ERP information presentation effects on the relationship between ERP information and decision quality are also examined. ERP information quality is measured using Wang and Strong’s (1996) dimensional “fitness for use” approach to assessing information quality. Their study classifies information
quality dimensions under four categories – intrinsic, contextual, representational, and accessibility. A synthesis of ERP and information quality research suggests that Wang and Strong’s (1996) framework is apt to measure information quality in ERP deployments.

Many research studies have examined the impact of information quality on the individual performance of decision makers (DeBrabander and Thiers, 1984; Rivard and Huff, 1984). The measures used by the above two researchers, efficiency with which tasks are completed and increased user productivity respectively, have been adapted for use taking into consideration their relevance to this research study’s objectives.

Researchers such as Klayman and Brown (1994), and Gigerenzer and Hoffrage (1995), O’Donnell and David (2000), and Soh et al. (2000) suggest that the presentation format in terms of tables, graphs, frequencies, percentages, attributes, and dimensions affect decision-making judgment. As much of the standard reports from the ERP system are presented in the above format, the measures from these studies have been adapted to assess the impact of information presentation on the decision quality of decision-makers.

**METHODOLOGY**

A case study approach will be used to collect data through a validated questionnaire from information users in a manufacturing firm that has implemented ERP. The firm’s ERP project manager will be the key contact person to identify the users of ERP information in the firm. The main inclusion criterion for the respondents is that the users should routinely use ERP information for their decision-making needs. The questionnaire, which is under validation, besides collecting data on the key model variables, also gathers data on the ERP module usage and the demographic profile of the respondents. The questionnaire consists mainly of open ended questions and uses a 7-point Likert type scale to gather data. The data will be analyzed using factor and multiple regression analyses.

**DISCUSSION**

Support for this research study’s framework has several important implications for ERP implementers. Firms can do an information audit to assess the information quality of their ERP systems. This information audit would help firms address their information quality deficiencies. The resulting improvement in information quality would in turn improve decision-making quality. Firms can further focus on appropriate information presentation formats that would enable the decision-maker to further improve the quality of his/her decision outcomes.
REFERENCES


