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## An ES Process Framework for Understanding the Strategic Decision Making Process of ES Implementations

Maha Shakir

*I.I.M.S., Massey University, Albany Campus, Auckland, New Zealand*

*m.shakir@massey.ac.nz*

### Abstract

Enterprise systems (ES) implementations are regarded costly, time and resource consuming and have a great impact on the organization in terms of the risks they involve and the opportunities they provide. The steering committee (SC) represents the group of individuals who is responsible for making strategic decisions throughout the ES implementation lifecycle. It is evident from recent studies that there is a relationship between the decision making process and ES implementation success. One of the key elements that contribute to the success of ES implementations is a quick decision making process (Brown and Vessey, 1999; Gupta, 2000; Parr, et al., 1999). This study addresses the strategic decision-making process by SC through its focus on four research questions (1) How can the strategic decision-making process in the implementation of ES be better understood, during each phase of the ES implementation lifecycle? (2) What is the process by which the SC makes strategic decisions? (3) How are fast decisions made? and (4) How does decision speed link to the success of ES implementation? Process models of ES implementation will provide a framework to investigate the strategic decision making process during each phases of the ES implementation lifecycle. Patterns in the decision making process will be explored using strategic choice models. This study develops a research model that focuses on the decision making process by steering committee to explore research questions. It concludes with identifying contributions to both IS research and business practitioners.

### Key words:

Enterprise systems, strategic decision-making, steering committee, implementation lifecycle, implementation success

### Introduction

Enterprise systems (ES) are software applications that manage and integrate business processes across and between organizational functions and locations. The three alternatives to enterprise integration (EI) identified from a review of the literature are packaged software applications, data warehousing and best-of-breed systems (Davenport, 2000; Markus, 2000; Pender, 2000). The focus of this study is on packaged software applications. A comparison between the three alternatives is out of the scope of this paper. The reader is directed to the above references for a detailed review. For the purpose of this study, ES are defined as enterprise-wide, mainly packaged software applications, which support EI and the business best practice.

Investment in IT is regarded as one of the major investments an organization commits to. Contrary to other capital investment, investments in IT are rarely justified using financial models, especially investment in IS implementations (Ballantine and Stray, 1999; Currie, 1989). ES systems are costly and take a long time to implement. Once implemented the ES system becomes the base infrastructure for other EI applications such as supply chain management, customer relationship management, data warehousing and E-commerce. Once the ES system is chosen, the organization is committed to large investments of resources for a long time before business benefits can be realized. Thus the choice of the system is one of the critical decisions an organization makes. A wrong choice means not only financial losses but also the loss of the business that has become very dependent on IT. However, a right choice of ES does not predict a successful working system. ES implementation is a complex and dynamic process that involves a mix of technological and organization interactions. Decisions in the implementations of ES are critical to ensure that implementation is carried out to the organization preferences. However and because of the dynamic nature of the process, decisions are often unstructured and have to be revised and

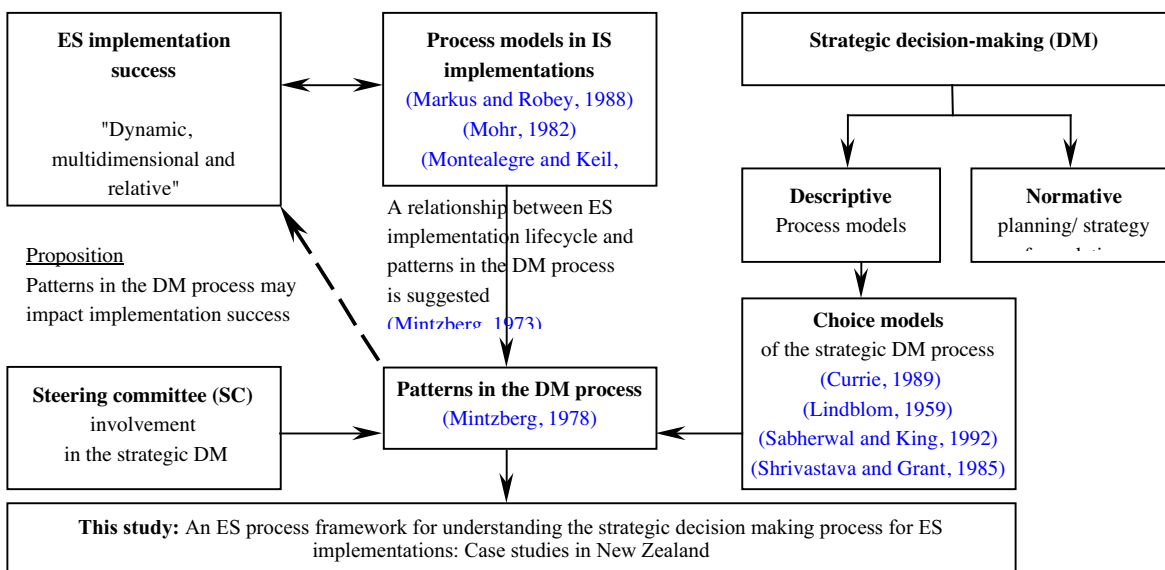
reformulated with the pace of implementation. As a result, the understanding of these decision cannot be separated from the understanding of the decision-making process of ES implementation.

The decision-making process in ES implementation involves different stakeholders from inside as well as outside the organization. The SC, which has a high level of senior management representation, manages ES implementation through the stages of ES implementation lifecycle. One of the key elements that contribute to the success of ES implementations is a quick decision making process (Brown and Vessey, 1999; Gupta, 2000, p. 116; Parr, et al., 1999, pp. 111-112). This is usually realized through the SC which is responsible for both, making high level decisions in the implementation of ES and establishing and publishing a decision making process to facilitate quick decisions to empowered ES project teams.

At present, there is a lack of research that looks at the decision making process of ES implementation through the lifecycle of initiation, acquisition, implementation and post implementation (Sarkis and Sundarraj, 2000). The aim of this study is to explore the strategic decision making process of ES implementation in New Zealand organizations using a multiple case study design approach. Furthermore, it intends to compare New Zealand findings with international findings to provide a synthesis of the similarities and differences within a global context. Comparisons will be made to draw international experiences and judge the applicability of New Zealand findings from an international perspective. The next part will introduce the theoretical framework of the study and provides for a description for the proposed research model.

#### The theoretical framework for the study

Process models of ES implementation will provide a framework to investigate the strategic decision making process during each phase of the ES implementation lifecycle. Patterns in the decision making process will be explored using strategic choice models. This study develops a research model that focuses on the decision making process by steering committee to explore research questions. Figure 1, shows the theoretical framework for the study and the relationships between research constructs. The next subsections will provide a brief discussion of these constructs.



**Figure 1: The theoretical framework for the study of the strategic decision making process for ES implementations**

### **Process models in IS research**

Two types of research has targeted IS implementation, variance research and process research (Markus and Robey, 1988; Newman and Robey, 1992). Due to the space limitation for this paper, an extensive comparison between the two is not provided. The reader is directed to the above references for a detailed review. Process research is concerned with explaining outcomes in relation to the existence of a set of necessary, but not always sufficient conditions for outcomes to occur. As a result process theories provide for a different way of generalizing research finding to that of variance theories, which is called analytical generalization (Yin, 1994, pp. 10). The aim of analytical generalization is to explain the pattern of regularities over time. Process theories are useful in answering the "how" and "why" research question and for generating new theories (Newman and Robey, 1992). They are also more useful than variance theories in dealing with complex relationships through explaining the sequence of events (Crowston, 2000; Shaw and Jarvenpaa, 1997). Practitioners value findings of process research because they are easier to understand; and are of high level of relevance (Shaw and Jarvenpaa, 1997, pp. 86). Furthermore, and because IS is considered an applied discipline, research that scores highly on relevance is much regarded (Applegate and King, 1999; Benbasat and Zmud, 1999; Davenport and Markus, 1999; Lee, 1999; Lyytinen, 1999).

In considering the study research questions, process research is found more suitable to investigate decision making through the phases of ES implementation for the purpose of providing an understanding of this dynamic process. A recent study acknowledged that although process theories complement variance theories, they are less commonly found in the literature (Montealegre and Keil, 2000). The aim of this study is to fill this gap in relation to decision making in the implementation of ES by focusing on the sequence of activities in order to explain how and why observed outcomes evolve over time. A process theory of ES implementation includes identifying both phases and the triggering activities, which drive the movement from one phase to the next (Markus and Tanis, 2000; Montealegre and Keil, 2000). Since the strategic decisions in ES implementation are performed the by SC, SC involvement in ES implementation will be the next research construct discussed.

### **Steering committee involvement in ES implementation**

It is observed that the cost of ES implementation is approximately two thirds people and one-third hardware and software (Martin and Cheung, 2000). As a result people management is regarded of key importance to ensure that money invested is well spent. Except for case studies that identify team structures, which include steering committee, project teams, study teams, venture teams etc., the literature in the implementation of ES provide no rich description of the decision-making process (Martin and Cheung, 2000; Sarkis and Sundarraj, 2000). This research tries to fill this gap by focusing on the role of the steering committee to explore the strategic decision-making process in the implementation of ES. A definition the SC is first provided. Next the proposition of extending two research models to understand SC involvement is elaborated on.

The review of the IS literature provides for a definition of the steering committee (SC) as a formal organizational body that includes members from several functional units of the organization whose main responsibility is the high level management of IS project (Doll and Torkzadeh, 1987; Drury, 1984; McFarlan, 1981; McKeen and Guimaraes, 1985; Nolan, 1982a; Nolan, 1982b; Schwartz, 1969; Willoughby, 1975). The SC can be considered a realization of the organization buying center concept, which was defined to include all members of the organization involved in the buying process (Johnston and Bonoma, 1981a; Johnston and Bonoma, 1981b). However the two definitions are incomplete because they define membership as internal to the organization while ES implementation case studies often indicate that consultants, who are external to the organization often join or are part of the decision making process by SC.

There are several responsibilities to the SC (Doll and Torkzadeh, 1987; Drury, 1984; McKeen and Guimaraes, 1985; Nolan, 1982a; Nolan, 1982b). These include: direction setting in linking corporate strategy to information systems projects; evaluation, screening and selection of IS projects; selection of staff to manage and implement IS projects, ensuring that users needs are catered for; and monitoring, auditing and post-implementation reviews of implemented IS projects. While the SC involvement prior to

the era of ES was focused on managing the selection process of IS projects, its role has evolved to include the overseeing and management of large IS projects throughout the implementation lifecycle.

Drury identified several structural and operating alternatives for the SC depending on leadership, users representation, regularity of meetings, degree of formalization and decisions authority. (Drury, 1984). Study findings revealed that advantages couldn't be achieved using the same structural alternatives. As a result, the structure of the SC needed to change over time to suit the changing needs of the organization. This calls for a process research to help the understanding of the changing relationships between the operating alternatives over time, which is what this study aims for, through the use of the exploratory case studies strategy. Johnston (1981b) in an exploration of the dynamics of organizational purchase processes developed a decision network model that shows the relationships and their frequencies between decision-making stakeholders. The five dimensions of model are: vertical involvement, lateral involvement, total number of people involved (extensivity), connectedness of people involved, and the centrality of the purchasing manager in the purchase process communication networks. This study proposes to extend the previous two models to understand the SC operating alternatives over time. Expected finding are believed to provide a context for decision making by SC. Furthermore, it can show patterns in the decision making process that are particular to the implementation of ES or to the specific cases studied. The next section justifies decisions by SC as strategic decisions, postulates a relationship between decision speed and ES implementation success and suggests the use of choice model to investigate the strategic decision making process of ES implementation.

#### **Fast strategic decision-making in the implementation of ES**

Strategic decisions are these, which are important in terms of the actions taken, the resources committed or the precedents set (Mintzberg, et al., 1976). They are important because they are fundamental decisions, which shape the course of an organization (Eisenhardt and Zbaracki, 1992). Decisions by SC to invest and implement an ES are regarded as strategic decisions because the system is one of the major investments an organization commits to and system implementation is of high impact on the organization. The previous section highlighted the role of the SC in the decision making process of ES implementation. This section proposes to use the choice models of decision making to explore this process. And since recent studies suggested that a quick decision making process would positively contribute to the success of ES implementations (Brown and Vessey, 1999; Gupta, 2000, pp. 116; Parr, et al., 1999, pp. 111-112), the relationship between patterns of the decision making process and decision making speed will also be investigated.

Choice models of the strategic decision making process include the rationality, bounded rationality, incremental, adaptive, garbage-can and political models (Eisenhardt and Zbaracki, 1992; Fredrickson and Mitchell, 1984; Hoy and Tarter, 1995; Mintzberg, 1973; Nutt, 1976; Ranganathan and Sethi, 2000; Sabherwal and King, 1992; Sabherwal and King, 1995; Shrivastava and Grant, 1985). A review of choice models for the strategic decision making process in organizations in the Eisenhardt (1992) study showed that choice models, that prevailed were a mix of bounded rationality and politics, while the garbage-can model was less relevant for strategic decision making. A preliminary case study on ES evaluation, selection and implementation produced similar findings (Shakir, 2000), however the link between decision making speed and the success of decision outcome is still to be investigated.

A study of the strategic decision making process of firms in high velocity environment identified several attributes of the decision making process that positively affected decision speed (Eisenhardt and Zbaracki, 1992). They are: using real-time information, developing a number of alternatives simultaneously, using experienced councilors, having an active approach towards conflict resolution and integrating decisions; and tactical plans. However, the review of the literature in the same study identified contradicting results of the strategic decision making process, one for a quick process and the other against it. This suggests that context matters and that Eisenhardt's framework applies when the need for decision-making speed is likely to be linked decision outcome, which is the case for both; the firms in high velocity environment that Eisenhardt investigated; and ES implementation (Brown and Vessey, 1999; Gupta, 2000; Parr, et al., 1999). This study proposes to use this framework to explore the speed determinates of strategic decisions

by SC and whether a fast decision process will be positively associated with ES implementation success. A definition of the ES implementation success construct is the subject of the next section.

### **ES implementation success**

While budget, schedule and quality are acknowledged as the traditional IS project outcome metrics for success (Abdel-Hamid, et al., 1999), it is believed that they are not inclusive. Success is a difficult construct to identify because it is multidimensional, dynamic and relative. This study concurs with Markus and Tanis (2000) in using these same features they describe as "optimal success" to operationalize this construct. Success is "dynamic" because the meaning of success is constantly changing during the lifecycle of ES implementation. It is "relative" because its assessment depends on the specific organization, organizational goals and on the time during ES implementation. Finally success is "multidimensional" because it is judged by several outcomes which are a combination of ES project outcomes, operational outcomes and strategic outcomes (Sarkis and Sundarraj, 2000). The proposed definition suggests that not all success outcomes are expected to be observed during every phase of the of the ES implementation lifecycle, because outcomes will be relative to the organization, its goals and the phase of implementation for which success will be examined. The decision making process by steering committee, as discussed in the previous section and its impact on ES implementation success will be explored within the above definition.

### **Conclusions and future directions**

The study will explore the decision-making process for ES implementation practice in New Zealand. International experiences will also be presented for comparison, similarities and differences. The expected contribution of the study is two folds, theoretical and practical. The theoretical contribution includes a synthesis of existing literature on IS implementation process models, organizational buying process models and ES implementation case studies, the result of which is the development of a normative ES implementation lifecycle model. The normative model is used to investigate group decision-making processes; at the level of the steering committee; and during the different phases of ES implementation. The relationship of observed patterns in the decision making process and both decision speed and ES implementation success will also be explored. The descriptive model of ES implementation in New Zealand, which will be developed, of case study findings will be compared to the normative model for better understanding of the decision-making process. As for practical contribution, the outcome of this research will be of interest to organizations planning large IS/ IT investments, especially in the area of ES. It will help many organization stakeholders involved in the IS implementation lifecycle visualize the decision-making process and it's implications on decision making speed and the success of ES implementation. The next phase of this research will use the research theoretical framework to collect data from four organizations that have or are in the course of implementing an ES system. Case study research is deemed suitable because the proposed research addresses the contemporary phenomenon of ES implementation, which the researcher has no control over; it is largely exploratory; and addresses the "how" question (Darke, et al., 1998; Yin, 1994). Multiple cases are suggested to enable the successful generation of theory.

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