Managing Strategic IT Investment Decisions: From IT Investment Intensity to Effectiveness

TZU-CHUAN CHOU, University of Warwick, UK
ROBERT G. DYSON, University of Warwick, UK
PHILIP L. POWELL, University of Bath, UK

INTRODUCTION

Control issues have been given lower priority than the planning or organizational problems of information management (Earl, 1989). Making effective investment decisions for strategic IT projects has become a critical task. Numerous cases of successful information systems have been cited as a basis for encouraging the strategic use of IT. However, other cases (e.g. the computer-aided dispatch system of the London Ambulance Service) have been failures. For the London Ambulance Service ‘the single most important factor was the inadequacy of the organisation to control such a large and technically complex operations’ (Hougham, 1996). Such experiences demonstrate the critical importance of managing strategic IT investment decisions (SITIDs) effectively.

Research into SITIDs is not new. Clemons and Weber (1990) provide some principles on which to base an evaluation of a strategic IT venture. Other studies focus on evaluating IT projects (Willcocks, 1992) and report the difficulties involved in evaluation processes (Clemons, 1991). However, evaluation is only one part of the investment decision-making process. It is insufficient to manage SITIDs only through evaluation activities. Weill and Olson (1989) emphasize that ‘the first step in managing IT investment is to know exactly what that investment is’. It is, therefore, necessary to clarify the nature of SITIDs.

SITIDs form part of corporate strategic investment decisions (SIDs). However, research has concentrated on either SITIDs or SIDs, ignoring the continuous nature of decisions (Simon 1977). Decisions can be distinguished according to several dimensions, including strategic versus operational, structured versus unstructured, and dependent versus independent. SIDs have different degrees of IT intensity that are also an important dimension of the IT/non-IT continuum. Chou et al. (1997) find IT investment intensity to be negatively associated with the effectiveness of SIDs. However, how IT investment intensity and the effectiveness of SIDs are linked has not yet been convincingly demonstrated and further investigation is needed.

Dean and Sharfman (1996) point out that management may use different processes to make different types of decisions. Further, Mohr (1982) argues that the link between decision process and outcome is so intimate that ‘the process is itself an outcome’. Taken together, these two arguments may imply that the link between IT investment intensity and

Many information technology projects fail, especially those intended as strategic. Yet, there is little research that attempts to explain the link between the IT investment intensity of strategic investment decisions (SIDs) and organizational decision-making, in order to understand this phenomenon. This paper proposes an analytical model employing a number of constructs: effectiveness of decisions, interaction and involvement in the decision formulating process, accuracy of information and strategic considerations in the evaluation process, rarity of decisions, and the degree of IT intensity of an investment in strategic investment decisions. The model explores the relationships influencing the effectiveness of decisions. Empirical testing is based on a sample of 80 SIDs from Taiwanese enterprises. The results show that interaction, accuracy of information, and strategic considerations are mediators in the linkage of IT investment intensity and the effectiveness of SIDs. The implications of these findings for the management of strategic IT investment decisions are discussed.
the effectiveness of SIDs is not a direct one and the impact of IT investment intensity may be through the decision process. If different degrees of IT intensity lead to different processes, which, in turn, lead to different outcomes, then it is important to know what factors can act in this kind of role, so that they can be taken into account in the evaluation and management of SITIDs. This paper proposes an integrative framework for exploring the relationship between IT investment intensity and the effectiveness of SIDs. The framework is used to gain additional insight into the linkage. The possible relationships are, therefore, derived from the framework. This paper uses survey data from Taiwanese manufacturers to test the hypothesized relationships.

**TOWARDS AN EXPLANATORY THEORY OF EFFECTIVENESS OF SITIDs**

In order to study SITIDs, this paper employs the concept of ‘contextualism’ as advocated by Pettigrew et al. (1988) and adopted by Farbey et al. (1993), and Ketchen et al. (1996). This school integrates context, content and context to study organizational decision-making. Based on Pettigrew’s arguments, content refers to the particular decision under study. This dimension explores the basic nature and scope of SIDs. The process refers to the actions, reactions and interactions of the various interested parties as they seek to make a commitment to allocate corporate resources. This dimension incorporates both the formulation and evaluation processes. The context includes the outer context, that refers to the national economic, political and social context for an organization, and the inner context that is the on-going strategy, structure, culture, management and political process of the organization. This dimension helps to shape the process of decision-making.

In the linkage between IT investment intensity and the effectiveness of SIDs, the precise roles of decision process, content and context are not clear. In the social sciences, moderators and mediators have long been identified as two functions of third variables. Baron and Kenny (1986) explain these as follows: ‘the moderator function of third variables, which partitions a focal independent variable into subgroups that establish its domains of maximal effectiveness in regard to given dependent variables; the mediator function which represents the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest.’

As discussed, the impact of IT investment intensity on the effectiveness of SIDs is through the decision process. Accordingly, the process constructs should have a mediating effect in the linkage. Greater IT intensity will lead to a more technically-orientated project that has a different impact upon the effectiveness of SIDs. The decision content, therefore, can also have a mediating effect between the linkage of IT involvement and the effectiveness of SIDs. As part of the context, the organizational investment intensity has an impact on the outcome of investment. Therefore, the context constructs should act as covariates that impact upon the effectiveness of SIDs. Decision context, decision content and decision process may involve many constructs, and some of them may not be related to IT investment intensity. Two criteria are employed for the selection of constructs and these form the hypothesized relationships for further investigation. First, the construct must be expected to vary according to different degrees of IT investment intensity. For example, importance of decisions is a key characteristic for defining all strategic decisions (Eisenhardt and Zbaracki, 1992). All strategic investment decisions are critical to the organization no matter whether IT is involved or not. Therefore, this paper does not predict any hypothesized relationships concerning the importance of decisions. Second, the construct must impact at the decision level, not the organizational level. For example, a ‘competitive threat’ is a pressure for the whole organization, not just for the outcome of specific decision. This study, therefore, does not hypothesis this relationship. Figure 1 presents a conceptual model of the constructs used and the pattern of relationships among them. The next section develops the rationale and presents a series of hypotheses. The results of an empirical

Recommend this product to your librarian:
www.igi-global.com/e-resources/library-recommendation/?id=2