

# Strategic IT Investment Decisions

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## INTRODUCTION

As many as half the decisions taken in organizations result in failure (Nutt, 1999). As information technology (IT) assumes a greater prominence in firms' strategic portfolios, managers need to pay more attention to managing the technology. However, while IT can have a significant impact on organizational performance, it can also be a major inhibitor of change and can be a resource-hungry investment that often disappoints. Organizations can best influence the success of IT projects at the decision stage by rejecting poor ones and accepting beneficial ones. This may enable better implementation, as Nutt (1999) suggests most decision failures are due to implementation failure that tends to be under managers' control.

However, little is known about IT decision processes. Research demonstrates the importance of managing strategic IT investment decisions (SITIDs) effectively. SITIDs form part of the wider range of corporate strategic investment decisions (SIDs) that cover all aspects in which the organization might wish to invest. Strategic investment decisions will have different degrees of IT intensity that may impact outcome. IT investment intensity is the degree to which IT is present in an investment decision. That is, some decisions will be wholly about IT investments while others will have little or no IT—most, though, will be blended programs of IT and non-IT elements. Here, IT investment intensity is defined as the ratio of IT spending to total investment. The higher the IT investment intensity, the more important IT is to the whole investment. For example, Chou, Dyson, and Powell (1997) find IT investment intensity to be negatively associated with SID effectiveness. The concept of IT intensity is similar to, but also somewhat different from, the concept of information intensity. Information intensity is the degree to which information is present in the product or service (Porter & Millar, 1985).

Management may use different processes in order to make different types of decisions (Dean & Sharfman, 1996). The link between decision process and outcome is so intimate

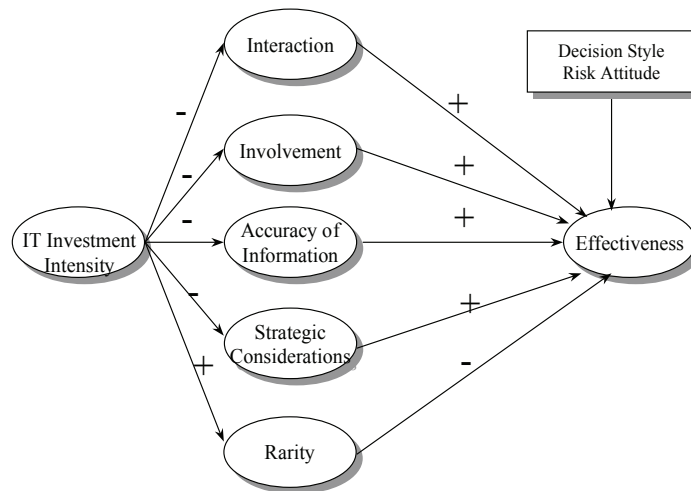
that “the process is itself an outcome” (Mohr, 1982, p. 34). This may imply that the link between IT investment intensity and SID effectiveness is not direct but that the impact of IT investment intensity may be through the decision process. If different IT intensity in projects leads to different decision processes, leading to different outcomes, then it is important to know what factors act in this, in evaluating and managing SITIDs. This chapter presents an integrative framework for exploring the IT investment intensity-SID effectiveness relationship.

## BACKGROUND

Studying decisions involves “contextualism” (Pettigrew, McKee, & Ferlie, 1988), which integrates process, content, and context, as all decisions need to be studied in context. Content refers to the decision itself, here exploring the nature and scope of SIDs. Process refers to actions, reactions, and interactions as managers allocate resources for the decision. The context includes the outer context of economic, political, and social actions, while the inner context involves ongoing strategy, structure, culture, management, and political processes.

Many researchers have investigated how strategic decisions are made, though most focus on the decision process rather than the implementation and the outcome. However, Hickson, Miller, and Wilson (2003) identify eight independent variables in decision implementation—familiarity, assessability, specificity, resourcing, acceptability, structural facilitation, and priority—and uncover two distinct approaches—experience-based and readiness-based. The experience-based approach leads to acceptance of what is being done, while the readiness-based approach leads to implementation being given clear priority. Both approaches may be employed together. Hsu (2001) on the other hand introduces promethean rationality—the stealing back of order amid disorder. Sauer-Leroy (2004) argues that decision reality is much more complex than can ever be captured by

Figure 1. The theoretical model (adapted from Chou et al., 1997)



financial analysis and that projects often introduce inertia to the organization, as they are often irreversible. He stresses the role of subjective factors in strategic decisions.

In the IT investment intensity-SID effectiveness link, the roles of process, content, and context are unclear. Though unclear, it is likely that the links between variables are not direct; rather they are mediated or moderated by other variables or processes. Moderators and mediators are functions of third variables. A moderator “partitions a focal independent variable into subgroups that establish its domains of maximal effectiveness in regard to given dependent variables,” while a mediator function “represents the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest” (Baron & Kenny, 1986, p. 1174). Sambamurthy, Bharadwaj, and Grover (2003) employ the moderator concept in their work on reshaping agility through digital options. They, for example, see IT competence as an antecedent of firms’ competitive actions, but the relationship is mediated by dynamic capabilities. Sambamurthy et al. (2003) demonstrate theoretically the IT investments and capabilities influence firm performance through organizational capabilities—agility, digital options, and entrepreneurial alertness, and through strategic processes involving capability building, entrepreneurial action, and co-evolutionary adaptation. This, they claim, is valid at the enterprise level, for business units and for processes. They finally call for empirical research that might validate their theoretical developments. This article takes a slightly different route as it focuses on IT at the project or at the decision level, and it is based on data that back up the model development.

Here, the proposal is that the impact of IT investment intensity on SID effectiveness is through decision processes. Accordingly, decision process constructs should have a mediating effect. Greater IT intensity in projects leads, inter alia, to a more technically orientated project that impacts SID effectiveness. The decision content has a mediating effect on the IT involvement-SID effectiveness link. The investment context impacts the outcome. Therefore, context constructs should act as covariates that impact SID effectiveness. Decision context, content, and process will involve many individual constructs, some unrelated to IT investment intensity. Two criteria can be employed in order to select the constructs of interest here. First, the decision construct is expected to vary with IT investment intensity. Second, it must impact at the decision level. Figure 1 outlines the basic model.

A hypothesized negative impact of IT investment intensity on several constructs suggests projects with high IT investment intensity are more challenging than those with low IT content. Effectiveness compares actual performance against planned target, outcomes, and policy objectives, measured by project success, correct choice, unexpected negative outcomes, learning, and satisfactory process (Butler, Davies, Pike, & Sharp, 1991).

### Decision Context

The context of any investment is affected by many things, such as the firm’s financial health, its market position, industry pressures, culture, and business strategy. SIDs often involve major change to the organization and environ-

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