

Managing Strategic IT Investment Decisions

Tzu-Chuan Chou

Warwick Business School, UK

Robert G. Dyson

Warwick Business School, UK

Philip L. Powell

University of Bath, UK

INTRODUCTION

IT can have a significant impact on organizational performance, but 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. 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 that the organization might wish to invest in. SIDs will then have different degrees of IT intensity that may impact on outcome. IT investment intensity is the degree to which IT is present in an investment decision. Here, IT investment intensity is defined as the ratio of IT spending to total investment. The higher IT investment intensity, the more important IT is to the whole investment. For example, Chou et al. (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 may be defined as the degree to which information is present in the product or service of a business (Porter & Millar, 1985).

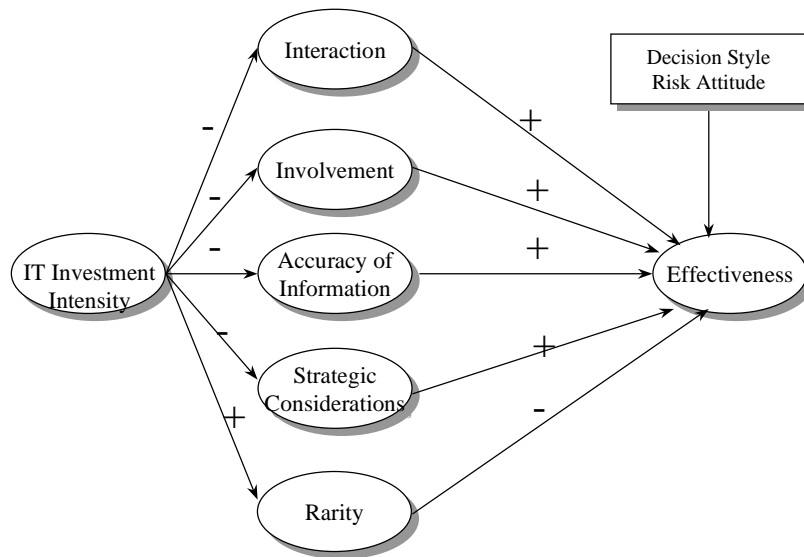
Management may use different processes in order to make different types of decisions (Dean & Sharfman, 1996). The link between decision process and outcome is so intimate that “the process is itself an outcome” (Mohr, 1982). This may imply that the link between IT investment intensity and SID effectiveness 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 et al., 1988), which integrates process, content and context, as all decisions need to be studied in context. Content refers to the decision itself, 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 on-going strategy, structure, culture, management and political processes.

In the IT investment intensity-SID effectiveness link, the roles of process, content and context are unclear. While 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). Sambamurthy et al. (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. demonstrate theoretically that 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 chapter takes a slightly different route, as it focuses on IT at the project or at the decision

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



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, which impacts on 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 covariances 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 et al., 1993).

Decision Context

The context of any investment is affected by the firm's financial health, its market position, industry pressures, culture, and business strategy. SIDs often involves major

change to the organization and environment. This suits managers with an innovative risk attitude. From a style perspective, decision quality is dependent on resources the leader is able to utilize. Consensus-driven management seems able to acquire more information than directive management, and leads to more effective decisions. Management's *attitude to risk* and *decision style* are predicted to relate to SID effectiveness, since other factors impact at an organizational level.

Decision Process

Strategic decision processes involve comprehensiveness, rational activity, participation, duration and conflicts (Rajagopalan et al., 1993). Comprehensiveness measures rationality and is the extent to which the organization attempts to be exhaustive in making and integrating strategic decisions. This includes formal meetings, assignment of primary responsibility, information-seeking and analytical activities, the systematic use of external sources, stakeholder involvement, use of consultants, reviews of historical data, functional expertise (Papadakis, 1995), and informal interaction. Hickson et al. (1986) define "politicality" as the degree to which influence is exerted on the outcome through a decision process. Strategic decision-making is not a matter of explicating alternatives and choosing on the basis of readily available criteria all participants perceive as appropriate (Fahey, 1981). It might be expected that interaction and involvement are related to IT investment intensity.

Interactions are contacts between people. Higher IT intensity reduces interaction and SID effectiveness. Decision-makers' IT knowledge, experience, and educa-

3 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/managing-strategic-investment-decisions/14530

Related Content

Research on Semi-Structured and Unstructured Data Storage and Management Model for Multi-Tenant

Xin Huand Yabin Xu (2019). *Journal of Information Technology Research* (pp. 49-62).

www.irma-international.org/article/research-on-semi-structured-and-unstructured-data-storage-and-management-model-for-multi-tenant/216398

From E-Learning to Games-Based E-Learning

Thomas M. Connolly and Mark Stansfield (2009). *Encyclopedia of Information Communication Technology* (pp. 268-275).

www.irma-international.org/chapter/learning-games-based-learning/13367

Matching Facilitator Style and Agenda Structure in Group Support Systems: Effects on Participant Satisfaction and Group Output Quality

Todd J. Hostager, Scott W. Lester, Kathryn J. Ready and Marilyn Bergmann (2004). *Advanced Topics in Information Resources Management, Volume 3* (pp. 242-261).

www.irma-international.org/chapter/matching-facilitator-style-agenda-structure/4621

Mining Text with the Prototype-Matching Method

A. Durfee, A. Visa, H. Vanharanta, S. Schneberger and B. Back (2007). *Information Resources Management Journal* (pp. 19-31).

www.irma-international.org/article/mining-text-prototype-matching-method/1318

Mm

(2013). *Dictionary of Information Science and Technology (2nd Edition)* (pp. 579-621).

www.irma-international.org/chapter/mm/76422