Impact of IS Investment on Business Performance

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Abstract

Information systems (IS) and business strategy are closely linked in most companies. Measuring the effect of information systems investment on business performance addresses a significant need of organizations attempting to demonstrate the value of IS to the development and implementation of the business strategic plan. The importance of IS investment to business performance has been recognized, but studies have been fragmented, individual company oriented, and focused narrowly on one or two methods for measuring only one type of performance. A literature review reveals a lack of theoretical model development. A model and propositions relating IS investment to business performance is developed, addressing the problems in previous studies.

Introduction

Investment in information systems has become a matter of serious concern for strategic management today. The spectacular growth of IS has enormous potential for improving the performance of organizations. However, the large investment made in IS puts increasing pressure on management to justify the outlay by quantifying the business value of IS during strategic plan development and implementation (Hitt and Brynjolfsson, 1996; Mukhopadhyay, et al., 1995, p. 137). While advances in technology have reduced the per unit cost of computing power, expenditures have been rapidly rising. For example, one of the major reasons for this increase has been the escalating cost of maintaining application software, an expense that currently is estimated to comprise from 50-80% of corporate information systems department budgets (Banker, et al., 1991, p. 1).

Measuring the link between IS investment and business performance has been a difficult task because researchers and practitioners have a difficult time agreeing on what to measure and how to measure it (Mahmood, et al., 1996; Reich and Benbasat, 1996). "We currently lack an effective way to measure and demonstrate the value of IS in ways that are comparable to those used by business management to make other investment decisions" (Parker and Benson, 1988, p. 231). Of significant usefulness to management would be the identification of factors under managerial control that have a significant positive or negative impact on the link between IS and business performance (Banker, et al., 1991, p. 1; Finnie, et al., 1993; Hymphrey and Singpurwalla, 1991). "Once identified, management can take steps to retain and amplify the positive factors and eliminate or at least reduce the negative factors" (Banker, et al., 1991, p. 2).

In implementing a business strategic plan, it is often important to show the value of IS investment to performance. "Unfortunately, the results of recent studies of IS business value are at best inconclusive" (Mukhopadhyay, et al., 1995, p. 137), and theoretical development is lacking. While the importance of IS investment to business performance has been recognized, studies have been fragmented, individual company oriented, and focused narrowly on one or two methods for measuring only one type of performance. The literature has paid little attention to the needs of management, the main beneficiary of the study of the relationship between IS investment and business performance, or to the complexity of the issue. First, a conceptual framework is lacking to integrate available literature on the IS and business performance link. Second, explicit guidelines for management have not been established on how to measure the effect of IS investment on business performance. Third, topics/variables based on a conceptual framework requiring additional research have not been identified.
**Model**

A literature review revealed some potential measures of the effect of IS investment on business performance and has helped in the development of a model, which is presented below. Management may need to measure at least three types of performance: IS performance, business unit performance, business performance. Each type of performance has numerous possible measures. Examples of potential performance measures are presented below the model.

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**EFFECT OF IS INVESTMENT ON BUSINESS PERFORMANCE**

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<thead>
<tr>
<th>Implemented IS</th>
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<tr>
<td><strong>IS PERFORMANCE</strong></td>
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<tr>
<td><strong>Business Unit Performance</strong></td>
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<tr>
<td><strong>Business Performance</strong></td>
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Possible Measures of Performance - Examples

**IS Performance** (e.g., Galletta and Lederer, 1989; Doll, et al., 1991; Joshi, 1990)

- reliability of output information
- relevancy of output information
- accuracy of output information
- completeness of output information
- timeliness of output information
- usefulness of output information
- ease of use of output information

**Business Unit Performance as Related to IS** (e.g., Mukhopadhyay, et al., 1995)

- capacity utilization
- inventory turnover
- product quality
- speed of decision making

**Business Performance as Related to IS** (e.g., Mukhopadhyay, et al., 1995, Huber, 1990; Mata, et al., 1995)

- return on assets
- increased market share
- competitive advantage
- effectiveness of environmental scanning for strategic planning

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**References**


