Information Systems
Implementation Success: A Causal Analysis Using the Linear Structural Relations Model

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The author argues that IS implementation success is a complex subject only assailable through a series of success measures working together. The study identifies and uses four distinct success measures (e.g., top management involvement, user involvement, organizational strategic plan, and information systems plan) generally believed to influence IS implementation success. Based on these success measures, the present research proposes and empirically tests an IS implementation success causal model. The IS implementation success and different success variables are measured using multi-item scales. The data for the study consists of responses from a sample of 154 IS professionals. A LISREL (Linear Structural Relations) analysis of the model indicated that top management involvement leads to organizational strategic and information systems plans, which in turn positively impact user involvement and ultimately lead to implementation success. The paper concludes by identifying areas that need further attention for successful IS implementation and by providing suggestions for future research.

With increasing availability of state-of-the-art hardware, software, and communication technology, one would think that information systems (IS) implementation will be simple. Yet “successful implementation of management information systems in complex organizations continues to be a source of great managerial concern and frequent frustration” (Robey & Farrow, 1982 p. 73).

Given this concern, it is not surprising that a large number of research studies have been conducted in this area. Most studies, however, have investigated the relationship between implementation success (IMS) and user involvement (UI) (Alter, 1978; Baroudi et al., 1986; Boland, 1978; Debrabander & Edstrom, 1977; Gallagher, 1974; King & Rodriguez, 1978, 1981; Lucas, 1976; Mahmood and Medewitz, 1985; Maish, 1979; Olson & Ives, 1981; Schewe, 1976). A few have attempted to relate implementation success to top management involvement (TMI) (Doll, 1985; Edstrom,
1977; Ference & Uretsky, 1976; Ginzberg, 1981a, 1981b), organizational strategic plan (OSP) (Murdick, 1977; Schwartz, 1969; Shiler, 1971; Soden, 1975), and to information systems plan (ISP) (Alter & Ginzberg, 1978; Davis & Olson, 1985; Dickson & Wetherbe, 1985, Mushet, 1985). Unfortunately, none explored causal relationships between implementation success and the aforementioned success measures working closely together. The objective of the present research is to investigate those relationships, based on the premise that implementation success is a complex subject only assailable through a series of success measures working together.

In the next section, all of these success measures are woven together into an IS implementation success causal model, and hypotheses relating these variables are developed. Section 3 puts forth a research method and the findings of reliability tests. Section 4 presents results from correlation and Linear Structural Relations (LISREL) analyses. Section 5 discusses the results. Section 6 concludes by identifying areas that need further attention for successful implementation of information systems, and by making suggestions for future research.

**A Causal Model Relating Implementation Success to Antecedent Success Measures**

Based on the IS implementation literature, it is hypothesized that top management and user involvements, and organizational strategic and information systems plans are related to IS implementation success in a manner that is generally consistent with the causal model shown in Figure 1. In general, the model suggests that top management involvement leads to organizational strategic and information systems plans, which, in turn, positively affect user involvement and ultimately influence IS implementation success. Hypotheses for primary research variables are developed below, and a rationale for their selection is given.

**H1:** Top management involvement facilitates the formulation of an organizational strategic plan.

Top management refers to those indi-

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**Figure 1: Implementation Success Model**

![Implementation Success Model](image-url)
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