INTEGRATING THE NATURAL ENVIRONMENT INTO THE STRATEGIC PLANNING PROCESS: AN EMPIRICAL ASSESSMENT

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ABSTRACT

This paper explores the ability of firms to successfully integrate a critical strategic issue, the natural environment, into the strategic planning process. We empirically examined the antecedents and effects of integrating the natural environment into the formal planning process. Overall, our data provided strong support for the generalized planning model.

INTRODUCTION

Many firms have discovered that the natural environment is a critically important strategic issue. For example, a 1991 survey conducted by Booz-Allen & Hamilton showed that 67% of the senior executives considered environmental issues to be "extremely important" to their company (Newman & Breeden, 1992). Some companies are responding to the challenges created by concern for the natural environment by integrating it into their strategic management processes. For example, Taylor (1992), based on his interviews with 16 senior executives, found that some of the firms were seeking to gain competitive advantages by incorporating natural environmental issues into their business strategies. Finally, some executives are responding to environmental issues simply because they believe that it is the right thing to do (Stead & Stead, 1992).

One of the primary ways that firms respond to new strategic issues is to integrate those issues into their formal strategic planning process (Steiner, 1979). One set of issues that have received increasing attention by those involved with the strategic planning process relate to global business (Ghoshal, 1987). Another example, and one that is central to this paper, concerns issues posed by the natural environment. For example, the General Motors Corporation recently integrated environmental issues into its strategic planning process (General Motors, 1994).

Due to the emerging nature of the natural environment as a strategic issue, work has only begun to investigate the conceptual linkages between strategic management and the natural environment (e.g., Shrivastava & Hart, 1992; Stead & Stead, 1992). While these conceptual efforts have been essential, there has been a dearth of empirical studies on *how* organizations are responding to this new strategic issue. Consequently, this study empirically examines the antecedents and effects of incorporating the natural environment into the formal strategic response system, namely the strategic planning process.

THEORETICAL DEVELOPMENT

To better understand the antecedents and effects of incorporating the natural environment into the strategic planning process, we used the planning-performance theory and research. Initially, this research stream focused on planning formality and its relationship with financial performance (Armstong, 1982). However, in recent years, this research stream has expanded to consider other aspects of the planning process as well as multiple measures of performance (Ramanujam, Venkatraman & Camillus, 1986). Consequently, the planning-performance literature offers a rich basis to describe and explain the impact of incorporating natural environmental issues into a key organizational system.

Strategic Planning-Financial Performance Relationship

Miller and Cardinal (1994), in a recent meta-analysis of the planning-performance empirical studies, found that there was a positive relationship between the strategic planning process and the financial performance of the firm. They argued that formal planning systems oriented to scanning and responding to the external environment generally improve the adaptability of the organization. The same logic may apply to the natural environment. Specifically, the planning literature suggests the more the natural environment is integrated into the formal planning system, the better the financial performance. There are two basic reasons for this logic. First, the natural environment is significantly threatening the cost structure of many businesses (Makower, 1993). Second, the natural environment sometimes offers significant new business opportunities (Cairncross, 1992). Therefore, we would expect that the more that natural environmental concerns are integrated into the strategic planning process, the better the financial performance of the firm. Consequently, we would expect a positive relationship between integration of environmental issues into the strategic planning process and financial performance.

Hypothesis 1: There will be a positive relationship between the level of integration of environmental issues into the strategic planning process and the firm's financial performance.

Strategic Planning-Environmental Performance Relationship

Apart from the financial benefits of integrating environmental issues into the strategic planning process, some scholars argue that the firm has a moral duty to also attend to the environmental performance of the firm (Stead & Stead, 1992). As a result, the environmental performance of the firm can be another critical dimension of organizational effectiveness (Andrews, 1987).

Consistent with this moral obligation is the recent development in the strategic management literature that encourages multiple measures of performance (Judge, 1994; Judge & Krishnan, 1994). The need to satisfy multiple stakeholders has been advanced as a key reason to use multiple measures of organizational effectiveness (Chakravarthy, 1986; Venkatraman & Ramanujam, 1986). Therefore, strategic planning can and should have an impact beyond the financial performance of the firm. Furthermore, the strategic planning process signals to the rest of the organization what is valued and important (Ansoff & Brandenburg, 1967). In sum, we would expect that the greater the integration of environmental issues into the strategic planning process, the better the environmental performance of the firm.

Hypothesis 2: There will be a positive relationship between the level of integration of environmental issues into the strategic planning process and the firm's environmental performance.

Antecedents of Level of Integration of Environmental Issues

While the level of integration of environmental issues into the strategic planning process and its impact on organizational performance relationship is interesting and important, organizational scholars are also interested in the antecedents of that level of integration. Many researchers have emphasized the need for the firm to provide the necessary staff and line managers' time for strategic planning (Ramanujam, Venkatraman, & Camillus, 1986; Steiner, 1979).

The same relationship may apply for issues related to the natural environment. In firms where considerable resources are invested to track and address environmental issues, the planning literature suggests that the firm will thoroughly integrate environmental issues into its planning system. This suggests the following relationship:

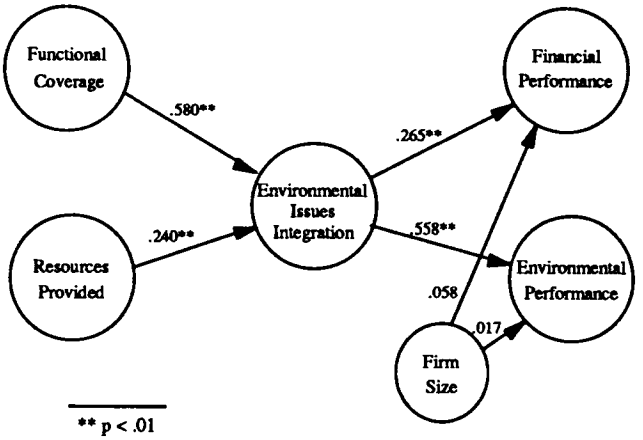
Hypothesis 3: There will be a positive relationship between the amount of resources provided to attend to natural environmental issues and the level of integration of environmental issues into the strategic planning process.

A second key deteminant of the strategic planning process uncovered by Ramanujam et al. (1986) was the degree of functional coverage within the firm. This organizational characteristic captures the degree to which the strategic planning process is integrated with different functional requirements from a general management perspective. This perspective is necessary in our study because environmental issues are often multi-functional in nature (Shrivastava & Hart, 1992; Taylor, 1992). The logic of this relationship is that "functional silos" obstruct effective strategic decision making and action. This suggests that the more that environmental issues are integrated into the various functional areas, the more that environmental issues will be integrated into the strategic planning process.

Hypothesis 4: There will be a positive relationship between the degree of functional coverage of natural environmental issues and the level of integration of environmental issues into the strategic planning process.

An overall model of the relationships described above is offered in Figure 1. By empirically examining this model, we expect to refine and extend our understanding of the strategic planning process as well as environmental management.

FIGURE 1
LISREL Model of How Firms Integrate Natural Environmental Issues into the Strategic Planning Process



METHODOLOGY

Data Collection

A questionnaire was sent to 725 environmental managers from U.S. based firms selected at random from the 1992 *World Environmental Directory's* listing of corporate environmental officers. Two hundred and seventeen (217) responses were received, resulting in a response rate of approximately 30%.

Variables and measures of functional coverage. Similar to Ramanujan et al. (1986: 350), we defined functional coverage as "the extent of environmental coverage given to different functional areas with a view to integrating different functional requirements." We operationalized this construct using a four-point Likert scale across seven functional areas of the firm. The composite reliability index for the scale in this study was 0.72. The composite reliability index is used to assess the internal consistency of the indicators in a structural equation mesarement model (Medsker, Williams & Holahen, 1994). It is analogous to coefficient alpha.

Resources provided. This construct represented the level of commitment of organizational resources to issues related to the natural environment. This concept is a rather straightforward representation of the concept that adequate resources must be committed to the planning of an activity for it to be successful (Ramanujam, *et al.*, 1986, Steiner, 1979).

Environmental issues integration. We defined this construct as the degree to which issues related to the natural environment were incorporated into the strategic planning process. We operationalized this construct with a five-point Likert scale across four items. These items were derived from the emerging environmental management literature (Greeno & Robinson, 1992; Newman & Breeden, 1992). The composite reliability index for this scale in the study was 0.90.

Financial performance. Financial performance is a construct emphasizing the profitability and growth of the firm. To measure this construct, we used well-established measures from the literature. Specifically, we operationalized this measure as a composite index comprised of ROI, earnings growth, sales growth and market share changes relative to the industry on five-point Likert scales. These measures were taken from Miller and Freisen (1984), but highly similar variations of these items can be found in the planning literature (e.g., Ramanujam et al., 1986; Boyd, 1991). The composite reliability index for the scale in this study was 0.85.

Environmental performance. Environmental performance was conceptualized as organization-wide commitment to environmental excellence relative to the rest of the industry in a variety of areas. Similar to the environmental integration measure, we derived these items from the emerging environmental management literature (Shrivastava & Hart, 1992; Stead & Stead, 1995). We operationalized this measure on a five-point Likert scale. The composite reliability index of the scale for this study was 0.90.

Firm size. Previous studies have shown that firm size affects the sophistication of the strategic planning process as well as organizational effectiveness (Boyd, 1991; Robinson & Pearce, 1983). Therefore, the natural logarithm of the number of employees in the study firms was included in the model.

Data Analysis

Having followed Boyd's (1991) recommendations concerning the multi-dimensionality of both the planning and performance constructs, we also followed his analytical approach recommendation by using a structural equation model. Therefore, LISREL 7.2 was used to perform the necessary structural equation estimations in our study.

RESULTS

Table 1 provides the standardized factor loadings for the measurement model. Since the composite reliability indices estimated for these sets of variables were high, we elected to retain all of the indicators.

TABLE 1

Factor Loadings of Measurement Model

Parameters	Loadings
Functional coverage	
production/operations	.605
marketing/sales	.609
accounting/finance	.375
product development	.567
public relations	.634
legal	.388
purchasing	.423
Environmental issues integration	
within planning process	.739
within the mission statement	.522
TMT makes proactive decisions	.849
participation by environmental personnel in planning	.800
Financial performance	
Return on investment	.754
Earnings growth	.926
Sales growth	.558
Market share change	.356
Environmental performance	
compliance with regulations	.718
ability to limit impact beyond compliance	.785
ability to prevent and mitigate crises	.787
education of employees and public	.644

The results of the full structural model are presented in Figure 1. In general, there was a good fit within the overall model. In this case, the fit of the model was tested using the Noncentralized Normed Fit Index (NCNFI), which was suggested by Bentler (1990) as the test that was least affected by potential bias in the chi-square values

(χ^2 = 334.81, 184 df, p = .000). The value of NCNFI calculated in this study was .87, which seems to represent a sufficiently good fit of the data. An additional measure of fit, the Relative Normed Fit Index (RNFI) has been suggested that assesses the fit of the latent model separately from that of the measurement model (Medsker, Williams & Holahan, 1994). The value of RNFI calculated for this study is .91, which represents significant fit for the portion of the model that tests the hypotheses.

Research Findings

As suggested from the LISREL model, level of integration of environmental issues into the strategic planning process was positively related to financial and environmental performance. Consequently, our data provide evidence to support hypotheses 1 and 2.

Regarding the antecedents of level of integration, we found that resources provided was positively associated with level of integration as hypothesized. Furthermore, functional integration was also positively related to level of integration. In sum, our data also provide support for hypotheses 3 and 4.

DISCUSSION

All four of our hypotheses were supported by the data in the study. Evidently, firms that provide sufficient resources and coordinate their strategy across relevant functions are better able to integrate environmental issues into the strategic planning process. This finding supports the perspective that specific strategic issues can be programmed into the strategic planning process so that effective and coordinated action can take place (Ansoff & Brandenburg, 1967; Mintzberg 1994). The findings also support the work of Ramanujam, et al. (1986) with respect to substantiating the planning dimensions of functional coverage and resource commitment within the context of dealing with the strategic implications of natural environmental issues.

With respect to performance, the study found a relationship between planning and performance as described by Boyd (1991). Specifically, we found positive relationships between level of integration of environmental issues into the strategic planning process and both financial and environmental performance.

There are two limitations to our data and hence findings. First, all of our data were self-reported. Future research is needed with multiple measures to replicate our findings. Second, like much of organizational science, our data is cross sectional. As a result, we theoretically assume the causal relationships, but do not test them directly. Additional research is needed to verify these causal order of these relationships.

Nevertheless, our findings are quite robust and the results are very provocative. It appears that firms that incorporate concern for the natural environment into their strategic planning system are granted competitive advantages in the marketplace and are better stewards of the environment. Consequently, a classic "win-win" relationship appears to exist and the strategic planning process may be the vehicle for achieving this desirable goal. Thus, the persuasive "lose-win" argument advanced by Walley and Whitehead (1994) may be premature. Clearly, additional research is needed to further explore these relationships. These findings refine and extend the stategic planning literature as well as offer useful insights into the emerging area of strategic environmental management.

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