

COMPETITIVE STRATEGY, ENVIRONMENTAL SCANNING AND PERFORMANCE: A CONTEXT SPECIFIC ANALYSIS OF THEIR RELATIONSHIP

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This study examines the scanning/strategy relationship in the context-specific setting of the health care industry. It extends the current research on the strategy/scanning relationship to include performance. Results confirm the moderating role played by environmental scanning activities in the strategy/performing relationship, thus providing further evidence for the contingency relationship among the environment, the organization's internal processes, and performance.

INTRODUCTION

Environmental scanning is the monitoring, evaluating, and disseminating of information to key managers within the organization (Snyder, 1981). It is an important aspect of strategic management because it serves as "the first link in the chain of perceptions and actions that permit an organization to adapt to its environment" (Jennings & Lumpkin, 1992: 791). Environments pose important constraints and contingencies for organizations, and their competitiveness depends on their ability to monitor and adapt their strategies based on information acquired through environmental scanning activities (Boyd & Fulk, 1996).

Despite the large number of environmental scanning studies (e.g., Aguilar, 1967; Ahituv, Ziv & Machlin, 1998; Calori, 1989; Culnan, 1983; Elenkov,

1997; Fahey & King, 1977; Mahon-Neill, 1995), the impact of the strategy/scanning alignment on organizational performance, the issue which is at the heart of the environmental scanning-strategy literature, remains largely unexplored (Subramanian, Fernandes & Harper, 1993b). However, there is research on the environmental scanning/performance relationship as well as the strategy/ scanning relationship. Based on these two streams of research some inferences may be made concerning the strategy/scanning/performance relationship.

Most of the research on the environmental scanning/performance relationship has found a positive link between scanning and the acquisition of strategically relevant external information with organizational performance (Daft, Sormunen & Parks, 1988; Lamont, Marlin & Hoffman, 1993; YasaiArdekani & Nystrom, 1996). However, Ancona and Caldwell (1992) found that prolonged scanning was negatively related to the performance of product development teams. Bluedorn, Johnson, Cartwright, and Barringer (1994) attributed this result to what Peters and Waterman (1982:42) called "paralysis-induced-by analysis." Scanning in and of itself is not enough. The information gained from scanning must be used in some relevant manner.

Hambrick (1982) failed to find a relationship between the different strategies employed by a firm and scanning behaviors. However, most researchers in this area have found this relationship to be positive (e.g., Jennings & Lumpkin, 1992; Miller, 1989; Subramanian, Fernandes & Harper, 1993a; Thomas & McDaniel, 1990)

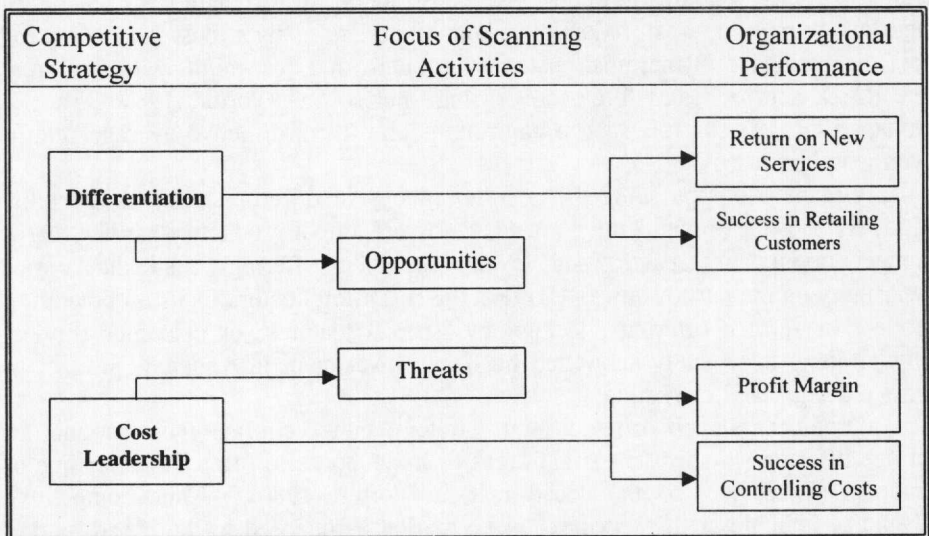
Combining the strategy/scanning stream of research with the scanning/performance research, it can be argued that there is a relationship among environmental scanning activities, strategy, and performance. Although not testing this specific relationship, Rogers, Miller and Judge (1999) provide some insight on this issue. They examined the relationship among strategy, planning processes (including scanning), and performance. Using the Miles and Snow (1978) typology, they found that improved performance is dependent on matching strategic type with the appropriate planning processes (including scanning). For example, defenders who appear to focus their information processing on critical internal efficiency information have improved performance. While this study provides valuable information as to the necessity of aligning strategy and planning processes in order to improve performance, it does not explain the relationship that scanning as an activity has on the strategy/performance relationship. This is an important question and the focus of this study. To the extent that an organization's strategy is incremental (Quinn, 1984) and reflects gradual organizational learning about the environment, an

information advantage about environmental opportunities and/or threats may facilitate strategic adjustments, thereby improving performance. In other words, a scanning system that is in line (in terms of emphasis on the collection of environmental information) with an organization's primary strategy may be an important contributor to organizational performance. Such a scanning system may be the organization's *distinctive competence* (Selznick, 1957) and in the context of the resource-based view of the firm (Barney, 1991) a valuable resource both for its present competitive advantage as well as for future possibilities.

Examining environmental scanning activities as potential moderators of the strategy/performance relationship is firmly grounded in the information processing perspective advanced by Daft et al. (1988) and allows an exploration of the detailed linkage among strategy, environmental scanning, and organizational performance advanced by contingency theorists (e.g., Van de Ven & Astley, 1981). Figure 1 outlines the theoretical framework that guided this study, and was put to empirical testing.

FIGURE 1

Strategy-Scanning Alignment and Organizational Performance



THEORETICAL FRAMEWORK OF ANALYSIS

Porter's Generic Strategies

A number of typologies (e.g., Miles & Snow, 1978; Miller & Friesen, 1978, 1986; Hambrick, 1983) have been developed in the strategic management literature to categorize the strategies that an organization can pursue at the business level. Porter's (1980) typology of generic strategies of cost leadership, differentiation, and focus appears to be the most popular paradigm in the literature (e.g., Dess, Gupta, Hennert & Hill, 1995; Hill, 1988; Lee & Miller, 1999; Miller, 1989; Miller & Dess, 1993). This may be due to the fact that Porter's generic strategy types seem to integrate the central concepts of the other typologies (Miller, 1989). For example, Porter's cost leaders are similar to Miles and Snow's (1978) defenders and Hambrick's (1983) efficient misers. Also Porter's differentiators are comparable to Miles and Snow's prospectors and Miller and Friesen's (1986) innovators.

Porter (1980) argues that each of the generic strategies provides a firm with the ability to achieve a competitive advantage. Organizations that pursue the generic strategy of overall cost leadership achieve competitive advantage by becoming the lowest cost producers in the industry. Cost leaders emphasize cost control through "the construction of efficient-scale facilities, rigorous pursuit of cost reductions from experience, tight cost and overhead control, avoidance of marginal customer accounts, and cost minimization in areas like R&D, service, sales force, advertising, and so on" (Porter, 1980: 35). By emphasizing cost control, such organizations aim to make above average returns even with low prices.

Organizations pursuing the generic strategy of differentiation, on the other hand, try to achieve competitive advantage by creating a product or service that is unique, hoping to create brand loyalty for their offerings, and thus, price inelasticity on the part of buyers (Porter, 1980). Differentiators focus on breadth of product or service offerings, technology, special features, or customer service. This strategy is typically supported by heavy investment in research, product or service design, and marketing.

Organizations choosing a focus strategy either confine their product or service offerings to specific market areas or may choose to offer a smaller line of products or services to the broad market (Porter, 1980). Thus competitive advantage is achieved by serving a niche market as opposed to the broad market served by the overall cost leadership and differentiation strategies.

Although not part of Porter's original typology, the combined cost leadership and differentiation strategy generally has become accepted as a fourth generic strategy. Porter (1980) described his cost leadership and differentiation strategies as being mutually exclusive each representing "a fundamentally different approach to creating and sustaining a competitive advantage" (Porter, 1985:17). While there is limited research that supports this view (e.g., White, 1986), other researchers argue that differentiation and cost leadership are really dimensions along which firms can score high or low (Hambrick, 1983; Miller, 1989; Murray, 1988). This argument is supported by numerous studies that have established the economic viability of a combined cost leadership and differentiation strategy (e.g., Dess & Davis, 1984; Hall, 1980; Kim & Lim, 1988; Miller & Dess, 1993).

Competitive Strategy and Environmental Scanning

There is much written in the strategic management literature on the relationship between an organization's strategic orientation and the kinds of environmental information it seeks in order to make its strategies successful (e.g., Ansoff 1975; Dutton & Jackson, 1987; Jennings & Lumpkin, 1992; Thomas & McDanel, 1990). This research generally uses categorization theory (Rosch, 1975, 1978) to examine the process of strategic issue diagnosis by organizational decision-makers. The strategic management literatures suggests that the two most commonly used categories of environmental information are *opportunities* and *threats* (e.g., Dutton & Jackson, 1987, 1988; Jennings & Lumpkin, 1992; Lang, Calantone & Gudmundson, 1997; Thomas & McDanel, 1990). Dutton and Jackson (1987: 80) describe opportunities as "*positive* situations in which *gain* is likely and over which one has a fair amount of *control*" and threats as "*a negative* situation in which *loss* is likely and over which one has relatively *little control*."

Due to bounded rationality and organizational filters not all opportunities and threats are perceived by decision-makers. In addition, not all environmental information may be categorized in the same manner by all organizations. The same issue could be categorized by one organization as an opportunity and by another as a threat based on the organization's filters. The strategy pursued by the organization has been identified in the literature as being the most important organizational filter (Huff, 1982; Meyer, 1982; Waddock & Isabella, 1989). Hambrick (1981) posited that "an organization's strategy imposes a type of strategic requirement, defining some issues as critical and others as inconsequential" (Dutton & Jackson, 1987: 79). This is often termed *selective perception* (Dearborn & Simon, 1959) because it causes the environmental scanning process to focus on what is needed to execute the organization's strategy

and to ignore information that seems irrelevant to that strategy (Thomas & McDaniel, 1990). As an example of this, Dutton and Jackson (1987:79) suggest that for a prospector, per Miles and Snow's (1978) classification, "issues arising from competitors' new product developments easily penetrate this strategic filter."

The concept that an organization's strategic orientation acts as an organizational filter and as such influences the type of information it seeks from the environment is seen in the strategic management literature as early as 1973. Mintzberg (1973) observed that in certain organizations strategic management is predominantly geared toward searching for opportunities, whereas threats are secondary. Similarly, Ansoff (1975) suggested that organizations with a proactive strategy (similar to Porter's (1980) differentiators) will scan their external environment looking for opportunities, while organizations with a reactive strategy (similar to Porter's (1980) cost leaders) will scan for problems. The conceptual framework presented by Hrebiniak and Joyce (1985) also suggests that differences in strategic orientation make it imperative for organizations to employ different environmental activities.

There is also empirical support for the concept that an organization's strategy acts as a filter and as such influences the type of information an organization seeks from its environment. Miller (1989) found that an organization pursuing a differentiation strategy employed systematic scanning activities directed at information about market opportunities and innovation. In a study of 151 hospitals, Thomas and McDaniel (1990) found that both strategy and information processing influence how chief executives label strategic situations. In their study of 44 savings and loan firms, Jennings and Lumpkin (1992) found that firms classified as differentiators tended to engage in environmental scanning activities that provide information regarding opportunities, while those classified as cost leaders focused on evaluation of threats. Subramanian, Fernandes and Harper (1993a) studied 68 of the Fortune 500 manufacturing firms and found that a prospector's strategic orientation makes it imperative to keep on top of the new product knowledge, the opening up of new markets, and actions of competitors.

Based on the above arguments, it is hypothesized that:

- H1:** *An organization whose strategic orientation is characterized as a differentiator will focus on environmental scanning activities that provide information regarding opportunities.*

H2: *An organization whose strategic orientation is characterized as a cost leader will focus on environmental scanning activities that provide information regarding threats.*

Strategy-Scanning Alignment and Organizational Performance

The environment facing an organization is changing continually. Information about the various sectors of the environment is therefore critical in order for the organization to achieve the desired alignment (McArthur & Nystrom, 1991). The rationale for examining the relationship between environmental scanning and performance is based on the fact that scanning provides the external intelligence that policymakers use in strategic adaptations (Miller, 1982; Rhyne, 1985). The information processing perspective (Daft et al., 1988) suggests that managers must identify opportunities and detect problem areas while implementing strategic adaptations. While it would not be accurate to claim that scanning leads directly to superior performance, because performance is caused by a number of factors (Daft et al., 1988), a careful tailoring of scanning to strategic intent does provide input for incremental adjustment in strategy, and thereby may lead to superior performance. In their study of 101 Fortune 500 companies, Subramanian et al. (1993b) found evidence for the contingent relationship among the environment, the organization's internal processes, and performance in the case of successful firms. Findings of their study suggested that better performing firms gain a competitive advantage by using sophisticated scanning systems. Based on this they suggested that scanning may act as a moderator in the strategy/environment coalignment which is critical for effective performance. By combining this perspective with the arguments that led to the formulation of the first two hypotheses, one would expect that an opportunity-focused environmental scanning activity will act as a positive moderator of the outcomes associated with a differentiation strategy, while a threat-focused environmental scanning activity will positively moderate the outcomes of a cost leadership strategy. Accordingly, it is hypothesized that:

H3: *The more focused the environmental scanning activities of an organization in terms of its strategy, the greater the positive impact of strategy on performance.*

As noted previously, environmental scanning is the primary mechanism for achieving the alignment between strategy and environment. To the extent that the environmental scanning activities of an organization are able to provide strategy-relevant superior information about the environment, an organization may attain a

strategic advantage. Empirical evidence also suggests that the manner in which scanning is conducted determines the organization's alignment with the environment. This alignment, in turn, is positively linked with organizational performance (Daft et al., 1988; Miller & Friesen, 1986). Daft et al. (1988) concluded from their study that CEOs of high performing firms scanned more broadly and more frequently, because broader scanning may be proactive, provide better knowledge of the environment, and enable the organization to achieve a better strategy-environment fit. On the contrary, CEOs of low performing firms may be fighting fires and hence be concerned with narrower issues that are reactive in their orientation. Similarly, a recent study of 179 firms shows that ineffective scanning systems were not able to align scanning and the organizational context (Yasai Ardekani & Nystrom, 1996). Therefore it is hypothesized that:

H4: An organization whose focus of environmental scanning is well aligned with its competitive strategy will perform better than an organization whose focus of environmental scanning is poorly aligned with its strategy.

RESEARCH METHOD

Industry Selection

This study examined the strategy/scanning/performance relationship using a sample of acute care hospitals. Due to the dynamic nature of the health care industry, top managers of health care organizations have been forced to recognize organizational competencies and weaknesses, resolve strategic issues, and develop coherent strategies (Ketchen, Thomas & McDaniel, 1996; Zajac & Shortell, 1989). Therefore one would expect to see varying levels of strategic orientations and a wide array of scanning practices among different hospitals, providing the right research setting for examining the strategy/scanning/performance relationship.

The dynamic nature of the health care industry also has influenced the economics of this industry shifting "health care as a social good to health care as an economic good, from a production orientation to a marketing orientation..." (Shortell, Morrison & Robbins, 1985: 219). These changes have affected industry profitability providing further support for use of the health care industry as an appropriate setting for this research. Vogel, Langland-Orban, and Gapenski (1993) report that while the average operating profit margin for hospitals was around 2% in 1984, it declined to -0.2% in 1990. A 1990 survey by Deloitte and

Touche reported that 43% of 1,765 responding hospital executives believed that their hospitals could fail within five years (Cleverley & Harvey, 1992).

Finally, as strategic planning is becoming more common in the health care industry (Subramanian, Kumar, & Yauger, 1993, 1994), the applicability of findings generated in general management contexts to the health care industry has come under close scrutiny. A number of researchers (e.g., Fottler, 1987; Kumar, Subramanian & Yauger, 1996a, 1998; Luke, Begun, & Pointer, 1989) have questioned the external validity of generic management findings to the health care sector on the basis of factors such as the difficulty of defining and measuring output and the complexity of the political, legal, and financial environments confronting these organizations (for a full review see Blair & Boal, 1991). As such, the health care industry warrants serious attention from management scholars. This is especially true given that the health care industry accounts for over 12% of our national GNP (Blair & Boal, 1991).

Sample

Six hundred acute care hospitals were identified from the annual American Hospital Association (AHA) Guide to the Health Care Field. A pre-notification letter was mailed to the chief administrators of each of the hospitals informing them of the study and its importance to academicians and health care professionals. Two weeks later, a questionnaire titled "Business Practices Survey" was mailed to the same 600 chief administrators. Along with the questionnaire, a personal letter was sent assuring the respondents of anonymity and explaining that the aim of the survey was to investigate current business practices, and the importance of certain performance criteria among hospitals. In the context of the health care industry the chief administrator as CEO of the hospital is the most appropriate informant for a survey of this type (Ketchen et al. 1996). Hospital CEOs have been found to be the primary interpreter of issues confronting the hospital (Provan, 1991). Further, hospital CEOs have been found to possess far more information regarding strategy than any other hospital administrator (Ritvo, Salipante & Notz, 1979). As a consequence it can be concluded that the most reliable information regarding strategic orientation and environmental scanning will be provided by the hospital's chief administrator. A total response of 171 (28.5%) was obtained, yielding a usable response of 159 fully completed questionnaires.

The resulting sample was heterogeneous in terms of profit orientation, size, location, age, and ownership. Thirty-four percent of the sample was identified as non-profit, while 66% of the sample was identified as for-profit. In terms of

location, 35% of the hospitals were located in towns of less than 100,000 people, 28% in towns of over 100,000 people, 21% were located in the suburb of a large city, and 16% were located in large cities. The age of the hospitals in the sample also varied. Fifty- five percent of the hospitals were over twenty-five years old, 31% were between eleven and twenty-four years old, and 14% were less than eleven years old. Finally, 37% of the hospitals were small independent hospitals, 15% were mid-sized independent hospitals, 9% were large independent hospitals, and thirty-nine percent were part of a larger system of hospitals.

To ensure the sample's representativeness, sample bias was assessed using the time-trend extrapolation test. The assumption underlying this test is that non-respondents are more like late respondents than early respondents. No differences were apparent between these two groups (early respondents and later respondents) in terms of size ($F=.15$, $p>.70$), location ($F=1.79$, $p>.18$), age ($F=3.62$, $p>.06$), and profit orientation ($F=.03$, $p>.87$). This test was used due to the absence of secondary data with which the sample could be compared (Armstrong & Overton, 1977).

Measurements

Porter's Generic Strategies

The general framework suggested by Porter (1980) for business-level strategy has been applied in the hospital industry for quite some time. In recent years, the strategy of cost leadership has received much attention (Blair & Boal, 1991). Health care managers have focused a great deal of attention on cost control measures in order to protect their hospitals from competitive forces arising in this industry and to cope with regulatory changes. Examples of cost control strategies used by hospitals include eliminating marginally profitable and unprofitable services, reducing waste, reducing staff, and improving interfunctional coordination. There have been a number of approaches to differentiating hospital services including creating a high tech image by using the latest (and most expensive) technologies (e.g., magnetic resonance imaging), and providing services not commonly offered (e.g., burn care, geriatrics). In general, however, hospitals have attempted to create institutional loyalty and hence price inelasticity. Prospective payment also has made this strategy more attractive because hospitals (especially for-profit hospitals) can differentiate in areas where costs are easier to control and revenues are superior.

While four generic strategies are recognized, this study considered only two of the four generic business level strategies previously described, overall cost leadership and differentiation. The combined cost leadership and differentiation

was not used as a classification. While the argument for organizations simultaneously pursuing both strategies is accepted, in some instances depending on the relative emphasis an organization places on cost control or product differentiation, an organization can be characterized as either a cost leader or a differentiator. Adoption of such an approach is theoretically sound (Miller, 1989) and empirically well supported (Jennings & Lumpkin, 1992; Lee & Miller, 1999; Kumar & Subramanian, 1997; Pelham 1999).

Adoption of this approach is especially appropriate in the health care industry where characteristics of cost control and product differentiation should be found in each hospital. Given the nature of the health care industry where very often life-saving procedures are performed, it is likely that a hospital that pursues a strategy of cost leadership is not going to ignore quality of care and patient service issues. Likewise, in the context of prospective payments and the government's concern about rising health care costs, it is unlikely that a hospital pursuing a strategy of differentiation is going to ignore efficiency. Thus, the strategy pursued by a hospital is likely to be one of emphasizing one factor (cost or differentiation) while attaining an acceptable level in the other. It is the relative emphasis on cost or differentiation that suggest the strategic posture of the hospital. Therefore in the current study, hospitals were classified as cost leaders or differentiators depending on the relative emphasis placed by a hospital on the two factors.

Also the *focus* category of Porter's generic strategies was not used in this study. This was due to the fact that the delivery of health care is mostly local in nature. Thus, most hospitals are serving one or more specific geographic niches. In addition, even when seeking to compete in a niche, a hospital has to choose from the strategies of cost leadership or differentiation

Based on the activities associated with differentiation and cost leadership strategies, Narver and Slater (1990) developed scales to measure the extent to which an organization uses these two strategies. Narver and Slater (1990) have reported satisfactory reliability for the scales and have provided evidence of validity. Subsequent use of the scales by other researchers also has established their reliability and validity (e.g., Pelham, 1999). This study used a modified (to suit the hospital environment) version of this scale. The differentiation strategy was measured using a four item, seven point scale, that asked respondents to indicate the extent to which their institution engaged in competitive activities involving: (1) introducing new services/procedures, (2) differentiating services from competitors, (3) offering a broader range of services than the competitors, and (4) utilizing market research to identify new services. To operationalize the cost leadership strategy, respondents were asked to indicate on a seven-point scale the extent to which their institution engaged in the following six activities: (1)

achieving lower cost of services than competitors, (2) making services/procedures more cost efficient, (3) improving the time/cost required for coordination of various services, (4) improving the utilization of available equipment, services and facilities, (5) performing analysis of costs associated with various services, and (6) improving availability of diagnostic equipment and auxiliary services to control costs.

Reliability of the two scales for this study was .85 and .86 and far exceeded the recommended .7 threshold (Nunnally, 1978). The item-total correlation for the items in the two scales ranged between .65 and .85, with the majority of correlations being .70 and above, indicating that the items included in the scale were all related to a common construct. The intercorrelation between the two generic strategies was .42, and was statistically significant ($p < .01$). This is not surprising since it has been observed that Porter's generic strategies are not mutually exclusive, and that each strategy may be linked to a variety of strategic means (Murray, 1988).

Environmental Scanning

Environmental scanning activities were measured in terms of the two commonly accepted dimensions, *opportunities* and *threats* (Ansoff, 1975; Hrebiniak & Joyce, 1985; Jennings & Lumpkin, 1992; Mintzberg, 1973; Snyder, 1981). The scales used for measuring the two dimensions of environmental scanning (i.e., opportunities and threats) were developed by Jennings and Lumpkin (1992). Subsequent use of the scale by other researchers also has established its reliability and validity (e.g., Abdalla & Amin, 1995). This study used a modified (to suit the hospital environment) version of this scale. The internal reliability of the scales for this study was .74 and .78, which exceeds the recommended level (Nunnally, 1978). The correlation between the two scales measuring opportunities and threats was .57 ($p < .001$), indicating that the two environmental scanning activities are not independent. This is understandable since organizations are known to pursue multiple scanning activities and these activities are expected to correlate to each other (Jennings & Lumpkin, 1992).

Performance

Traditional measures of performance (such as, ROI, profit margin, and market share) which may be adequate in the general industry context are not appropriate in the specific context of the health care industry. The health care industry includes members with both for-profit and not-for-profit orientations, limiting the use of profitability measures to compare performance. In addition, due to the increasing demands of their varied stakeholders there is a compelling

need for health care managers to focus on both efficiency and effectiveness as performance measures (Fottler, 1987). Efficiency is important since "competition for patients has been intensifying, and much of the future health care business will be determined through competitive bidding" (Fottler, 1987:373). In order to elicit and retain economic and political support for the organization from external and internal stakeholders, effectiveness also is important. (Fottler & Lanning, 1986).

Also to the extent that the strategic goals being pursued by the differentiator and the cost leader are different (Miller & Dess, 1993), performance differences based on strategy/scanning alignment can be best evaluated in terms of performance outcomes related to the strategy-specific goals. As such in order to test the strategy/scanning/performance relationship among hospitals in a comprehensive and industry-relevant way, in addition to return on new services/facilities and profit margin (traditional measures of performance), retaining patients and controlling expenses also were used as performance measures. Success in controlling expenses and retaining patients have been noted to be critical for the long-term survival, growth, and profitability of health care organizations (Autry & Thomas, 1986; Fottler, 1987).

A hospital's ability to control operational expenditures was used as the surrogate measure of efficiency. A hospital whose strategy and environmental scanning activities are well aligned would be expected to use the information obtained through the scanning activities to achieve operating efficiency because it is likely that such an institution understands that value can be created for customers by keeping the costs down for the services being provided to them. Internal efficiency is thus, the springboard to cost containment. Second, the ability to retain patients, which is a function of clinical quality, patient satisfaction, and employee attitudes and behavior, was used as a surrogate for effectiveness. Effectiveness in this category is critical because continued economic and political support for a hospital depends considerably upon the hospital's success in satisfactorily meeting the expectations of stakeholders on these measures (Fottler, 1987). A hospital that obtains, analyzes and evaluates information relevant for the implementation of its strategy by virtue of knowing what patients want and preparing the organization to act on patients' needs is expected to be highly effective on this performance measure.

Organizational performance was measured using a subjective approach as opposed to an objective approach. This approach consisted of asking respondents for their assessment of their organization's performance on various measures (Kumar et al., 1998). Previous studies that have used both the subjective approach and objective measures have found a strong correlation between the two

approaches (Pearce, Robins & Robinson, 1987; Robinson & Pearce, 1988; Venkatraman & Ramanujam, 1986).

Use of a subjective approach is appropriate in cases such as this where objective measures are inappropriate or unavailable (Dess & Robinson, 1984). In the case of not-for-profit organizations conventional performance measures such as profit margin are unavailable (Kumar et al., 1998; Subramaninan et al., 1994). In addition, because absolute scores on financial performance criteria are known to be affected by industry related factors (Miller & Toulouse, 1986), financial performance measures obtained from health care organizations would have made it misleading to compare the results of this study with studies from other industries (Kumar et al. 1998). Finally, a number of organizations included in the study were small organizations, which are noted to be reluctant to provide hard financial data (Covin, Prescott & Slevin, 1990; Fioritto & La Forge, 1986).

Business performance was measured using a modified version of an instrument developed by Gupta and Govindrajan (1984). The respondents were first asked to indicate on a 7 point Likert-type scale, where 1=of little importance and 7=of extreme importance, the importance their organization attaches to various performance criteria. The respondents were then asked to indicate on a second 7-point Likert-type scale, where 1=highly dissatisfied and 7=highly satisfied, the extent to which their organization was currently satisfied with their performance on each of the same performance criteria. For each performance measure, a weighted average was computed by multiplying the *satisfaction* score with the *importance* score.

Controlling for Other Influences on Performance

There are a number of situational variables that affect an organization's performance (Aaker, 1988; Bain, 1959; Day, 1984) and as such must be controlled in analyzing the effect of the strategy/scanning/performance relationship. Based on a review of the health care strategy literature (e.g., Blair & Boal, 1991; Fottler, 1987; Topping & Hernandez, 1991; Zallocco & Joseph, 1991), hospital size, profit orientation, location, and age, were identified as being able to influence a hospital's performance.

Prior research indicates that larger organizations have better technological, human and financial resources to pursue certain strategies (Liu, 1995). In addition, larger hospitals may have scale economies in various activities, thereby positively affecting its performance (Scherer, 1980, Robinson & Pearce, 1988). Profit orientation also may affect hospital performance due to the impact profit orientation may have on the ability of the hospital to obtain resources (Fottler, Blair, Whithead, Laus, & Savage, 1989). For example, while for-profit hospitals

can obtain capital from the public, not-for-profit hospitals have a more constrained set of sources of capital. As noted by Autry and Thomas (1986:10), "investment monies for non-profit hospitals in some areas are shrinking in this time of governmental retrenchment and budget cutting." Hospital location may impact the performance of the hospital due to the nature of the competitive environment in various locations. For example, hospitals located in urban areas may face intense competitive rivalry which may negatively impact the performance of these hospitals. On the other hand, rural area hospitals may have little or no competition, which in turn could contribute to the superior performance by these hospitals. The last control variable was hospital age. The health care strategy literature (e.g., Topping & Hernandez, 1991) identifies age as a factor that influences the type of strategy pursued by the organization which in turn can impact performance.

RESULTS

Data analysis involved several statistical procedures. The relationship between competitive strategies and focus of scanning activities was examined using canonical correlations, multivariate multiple analysis of variance, and univariate analysis of variance. The effect of the focus of scanning activities on the strategy/performance relationship was examined through multiple moderated regression analysis. Finally, the hypotheses relating to the strategy/scanning alignment were tested using univariate analysis of variance. Details of the statistical procedures follow later in this section. However, before proceeding with the data analysis, this study needed to address an important issue, namely, the possibility of common method variance. Addressing this issue was deemed important since all the measures in this study were based on self-report data.

Common Method Variance

Self-report data, common to management research, has been known to create common method variance problems (Boyd & Fulk, 1996) either inflating (Williams, Cole & Buckley, 1989) or suppressing (Ganster, Hennessey & Luthans, 1983) the magnitude of relationships being investigated. However, a review of the research on common method variance and examination of the data for this study indicated that common method variance was not a significant issue for this study. Self-report data creates most variance problems for topics "that evoke strong sentiments," such as stress, job satisfaction, organizational commitment, etc. (Boyd & Fulk, 1996). Because of the unobtrusive nature of environmental

scanning and strategic orientation, there was little likelihood that self-reports concerning these topics would be distorted. Common method problems also have been found in topics invoking socially desirable responses (Podsakoff & Organ, 1986). However, none of the variables being examined in this study would have encouraged respondents to report in a socially desirable manner.

The use of self-report data for strategic orientation is supported by previous management research. Some of the leading researchers in the field of health care strategy (e.g., Shortell & Zajac, 1990: 828-29) have concluded that "using knowledgeable key informant's perception of an organization's strategic orientation is a valid approach to measuring strategy." Research in the broader area of strategic management (e.g., Boyd & Fulk, 1996) also lends support to this assertion. Likewise the use of self-report data for the performance measures also is supported in the literature. As discussed earlier, self-report on performance measures have been found to correlate strongly with objective measures of performance (e.g., Robinson & Pearce, 1988). In fact, it could be argued that given the nature of the health care industry, a subjective assessment of performance by an institution's key personnel is more appropriate than using surrogate measures of performance (Kumar et al., 1996).

The issue of common method variance was statistically addressed by using Harman's (1967) one factor test. The one factor test involves entering all the independent and dependent variables into a factor analysis. If a single factor emerges, or if one general factor accounts for a disproportionately large variance, the common method variance is judged to be a substantial problem. Thus, all the variables included in this study were included in a factor analysis. A five-factor solution emerged, which explained 71% of the variance. No single factor explained more than 16 percent of the variance. Also, a general factor did not account for a majority of the variance in the predictor and criteria variables. An examination of the basic statistics (see Table 1) related to the variables being examined in this study also provided evidence to the absence of common method variance. The means and standard deviations of all variables showed a wide range of response. Also, variables which were not meaningfully or theoretically related had low and insignificant correlations. This evidence suggests that the results of this study were not affected by common method variance.

Testing the Relationship between Competitive Strategy and Focus of Environmental Scanning

Since the two dimensions of environmental scanning, opportunities and threats, were not mutually exclusive (correlation .57, $p < .01$), and the two

competitive strategies, differentiation and cost leadership were known to be used concurrently by organizations (albeit with varying degrees of emphasis) (Murray, 1988), canonical correlation analysis was used to test the hypothesized relationships between strategy and scanning activities. Canonical correlation analysis is a multivariate statistical model that facilitates the study of interrelationships among sets of multiple dependent variables and multiple independent variables (Haire, Anderson & Tatham, 1987). Although the four single item scales used for measuring opportunities and threats were combined to create multiple item scales in later statistical analysis, at this stage of analysis the four single item scales were used independently in order to examine the association of scanning activities with generic strategies with greater specificity. It should be noted, however, that results still supported the hypothesis when the four items were combined to create two multiple item scales. Results of this analysis are presented in Table 2.

As seen in Table 2, the canonical loadings, which measured the simple linear correlation between the observed variable in the dependent set and the set's canonical variate, were of significant magnitude. The multivariate analysis of variance model was significant, as well ($F=4.32, p<.01$).

The univariate analysis illustrated in Table 2 indicated a significant difference between environmental scanning dimensions across the two competitive strategy types. Based on the mean importance, the thrust of environmental scanning activities of hospitals with a differentiation strategy was on searching and evaluating information about opportunities. However, hospitals with a cost leadership strategy appeared to focus on searching and evaluating information about threats.

Tests for Moderator Effects

The influence of the focus of environmental scanning activities (opportunities and threats) on the relationship between competitive strategy and performance was tested using moderated multiple regression analysis (MMR) (Arnold, 1982, Sharma, Durand & Gur-Arie, 1981). The procedure required the introduction of a multiplicative interaction term into the regression equation. Accordingly, two multiplicative interaction terms were created by multiplying the values of competitive strategy by the values of hypothesized scanning activity moderator (*differentiation * opportunities* and *low cost * threats*). A total of four equations were built and tested by estimating the following regression equations:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_1X_2 + \dots + b_6X_6 + e$$

TABLE 1
Mean, Standard Deviations Scale Reliabilities and Correlations
(N = 159)

Variables	Mean	S. D.	1	2	3	4	5	6	7	8	9	10	11	12
1. Differentiation	4.98	1.30	.85											
2. Cost Leadership	5.31	1.00	.42**	.86										
3. Opportunities	5.11	1.17	.38**	.31**	.74									
4. Threats	4.78	1.28	.25*	.35**	.57**	.78								
5. Return on New Services	26.66	10.49	.28**	.11	.32**	.23*	-							
6. Customer Retention	28.52	10.47	.26*	.14	.30**	.21*	.60**	-						
7. Cost Control	26.97	11.19	.13	.29**	.13	.22*	.13	.17	-					
8. Profit Margin	27.39	9.50	.19	.21*	.20*	.27**	.51**	.15	.63***	-				
9. Profit Orientation	-	-	-.08	-.08	.09	-.07	-.08	-.23	-.21*	-.18	-.26**	-		
10. Size	-	-	-.09	-.09	.06	-.08	.04	.02	.04	.09	.04	-.14	-	
11. Location	-	-	.16	.16	.04	.21*	.16	-.14	.06	.03	.01	.07	.09	-
12. Age	-	-	-.13	-.13	.04	-.05	.07	-.12	-.04	-.04	.09	.52***	-.28**	.15

Note: *** p < .001 ** p < .01 * p < .05
 reliability coefficients are presented in the diagonal.

TABLE 2
Results of Canonical Correlation Analysis for
Competitive Strategy and Focus of Environmental Scanning

Focus of Groups Environmental Scanning ¹ Leadership	Canonical Loadings	F-Test Values	Competitive Strategy Groups Differentiation	Cost
A. Searching for Opportunities				
1. Having a procedure to determine shifts in customer values or attitudes.	.49	4.97*	5.34 (1.16)	4.46 (1.18)
2. Formalized and systematic search for and evaluation of opportunities for acquisition, new investment and new markets.	.51	4.54*	4.91 (1.14)	4.54 (1.35)
B. Searching for Threats				
1. Explicitly tracking policies and tactics of major competitors.	-.56	11.05**	4.41 (1.42)	5.31 (1.10)
2. Formalized and systematic search for and evaluation of threats from competitors and regulatory agencies.				
Multivariate Analysis of Variance	4.32**			

** $p < .001$, * $p < .05$, standard deviations are in parentheses.

¹ Based on seven point scale, where 1 = not at all important to 7 = very important.

Where Y was the performance measure, X_1 was competitive strategy, X_2 was a moderator variable, X_1X_2 was the multiplicative interaction term (the cross product of the independent and moderator variables) and X_3 through X_6 corresponded to the four control variables--relative size, profit orientation, location, and age. In each equation the performance measure was simultaneously regressed on competitive strategy, the environmental scanning dimension, the interaction term and the control variables.

If the multiplicative interaction term is statistically significant a moderator effect is present. If the coefficients of both the multiplicative interaction term and the moderator variable are significant, the moderator is a quasi moderator. However, if the coefficient of the multiplicative interaction term is significant and the coefficient of the moderator variable effect is not significant, the moderator is a pure moderator. A pure moderator effect implies that the moderator variable (thrust of environmental scanning activities) modifies the relationship (i.e. the regression coefficient) between the predictor variable (strategy) and criterion variable (performance).

Since the regression equation used in MMR included both the individual predictor and the cross-product term, multicollinearity was a concern. Two steps were taken to address this concern. First, standardized scores (Z scores) of the predictor variables were used to minimize the potential effect of multicollinearity (Mendenhall, 1986). Next, the Variance Inflation Factor (VIF) was calculated for each of the three variables in each of the equations. The tolerance for each of the variables was high (.8 or above) and the VIF was low (around 1.05). Results of the moderated multiple regression analyses are given in Tables 3 and 4.

The regression coefficient of the interaction terms was significant in each of the regressions, while neither the predictor variable nor the moderator term by itself was significant. The sign associated with the regression coefficients in each of the four regressions was positive. This indicated that scanning for opportunities by organizations pursuing a differentiation strategy enhanced the positive relationship between the predictor variable (differentiation strategy) and criterion variables (return on new services/facilities and success in retaining patients). Similarly scanning for threats by organizations pursuing a cost leadership strategy enhanced the positive relationship between the strategy and profit margin and success in controlling expenses.

To further test the effect of the strategy/scanning alignment on performance, two groups were created of organizations that were characterized as either cost leaders or differentiators. Cost leaders were hospitals whose cost leadership scores were above the sample mean and differentiation scores fell below the sample mean. Similarly, differentiators were hospitals with

TABLE 3
Tests for Moderator Effects of Scanning Focus
on Strategy (Differentiation)-Performance Relationship

Independent Variables	Return on New Services ¹	Success in Retaining Customers ¹
Differentiation	.51	.53
Profit Orientation	-.08	-.27**
Size	-.01	-.01
Location	.12	.03
Age	.03	-.24**
Opportunity	.31	.37
Interaction Term ^a	.99*	.94*
F-Value	4.65***	3.50**
Multiple R	.42	.37
Adjusted R ²	.18	.14

^a Differentiation X Opportunity. ¹ standardized regression coefficient
 *** p < .001 ** p < .01 * p < .05

TABLE 4
Tests for Moderator Effects of Scanning Focus
on Strategy (Cost Leadership)-Performance Relationship

Independent Variables	Profit Margin ¹	Cost Control ¹
Cost Leadership	.37	.24
Profit Orientation	-.31**	-.12
Size	-.05	.01
Location	.04	.04
Age	.02	.15
Threats	.58	.70
Interaction Term ^a	1.03*	1.04*
F-Value	4.20	6.74
Multiple R	.40	.49
Adjusted R ²	.16	.24

^a Cost Leadership X Threats. ¹ standardized beta weights
 *** p < .001 ** p < .01 * p < .05

scores above the sample mean and cost leadership scores below the sample mean. Next, hospitals in the differentiator group with above median score on environmental scanning for opportunities were classified as possessing high strategy/scanning alignment, while hospitals with below median score on opportunities were classified as possessing low strategy/scanning alignment. The same procedure was followed for classifying hospitals in the cost leadership group in terms of their score on environmental scanning for threats.

The effect of the strategy/scanning alignment on performance was examined in terms of performance outcomes specific to the strategy. Results presented in Table 5 show that in the group classified as differentiators, hospitals whose scanning focus was aligned with their strategy (i.e. whose score for scanning activities related to opportunities were above median) performed better in terms of return on new services/facilities (mean 34.16 vs 26.59, $F=8.35$, $p<.01$) and in terms of success in retaining patients (mean 32.48 vs 26.85, $F=5.25$, $p<.05$).

Results presented in Table 6 show that in the cost leadership group, hospitals with above median score on scanning activities related to threats (i.e. high strategy/scanning alignment) performed better in terms of profit margin (mean 34.47 vs 29.22, $F=4.73$, $p<.05$) and cost control (mean 30.93 vs 25.96, $F=4.59$, $p<.05$).

TABLE 5
Results of Analysis of Variance
Differentiation Strategy on Focus of Environmental Scanning
 (n=52)

Performance Measures	Strategy-Scanning Alignment		
	High Alignment	Low Alignment	F-value
Return on new services	34.16 (9.99)	26.59 (8.89)	8.35**
Success in retaining customers	32.48 (9.15)	26.85 (8.57)	5.25*

Standard deviations are in parentheses ** $p < .01$ * $p < .05$

TABLE 6
Results of Analysis of Variance
Cost Leadership Strategy on Focus of Environmental Scanning
 (n=78)

Performance Measures	Strategy-Scanning Alignment		
	High Alignment	Low Alignment	F-value
Profit Margin	34.47 (9.45)	29.22 (10.85)	4.73*
Cost Control	30.93 (10.48)	25.96 (9.65)	4.59*

standard deviations are in parentheses * $p < .05$

These results indicate that organizations that scan their environment in terms of information critical to the execution of strategy are more successful in achieving the outcomes associated with their chosen competitive strategy.

DISCUSSION

The present study confirms the strategy/scanning linkage that was proposed by Hambrick (1982) over a decade ago. Based on the findings of this study one can conclude that the focus of an organization's scanning activities is linked to its strategy. Although this study like that of Jennings and Lumpkin (1992) and Subramanian et al. (1993a) suggests that causation runs from strategy to scanning techniques, the data does not permit any assertion about the direction of causality.

Results of this study also confirm the moderating role played by environmental scanning activities in the strategy/performance relationship, thus providing further evidence for the contingency relationship among environment, the organization's internal processes, and performance (Van de Ven & Astley, 1981). Findings about the moderating effect of the focus of scanning activities on the strategy/performance relationship also add to the body of knowledge on strategic adaptations and organizational learning (Quinn, 1984).

The fact that hospitals whose scanning focus was well aligned with the chosen competitive strategy performed better than the hospitals that lacked this alignment has important implications for the strategic management process. One

can perhaps view the linkage between the organization's strategic orientation and its scanning system in terms of a "distinctive competence" (Selznick, 1957; Snow & Hrebiniak, 1980). Distinctive competence is the term used to denote those things that an organization does particularly well in relation to its competitors. Accordingly, the strong link between an organization's strategic orientation and its scanning focus could be viewed as yet another feature that may very well be a distinctive competence. In other words, a scanning system that is in line (in terms of emphasis in the collection of environmental information) with an organization's strategic orientation may give it an edge over competitors, who may lack such alignment. In the context of the resource-based view of the firm, such a scanning system may be a capability (or a combination of resources that focus on a common activity) that is a source of sustainable competitive advantage for the firm.

Restricting the study to organizations in a single industry conferred the obvious advantage of being able to control for industry effects, but it also may limit the generalizability of the study's findings to other industry contexts. However, it has been observed that a test of sample's generalizability is the ability to replicate results reported in other samples (Sudman, 1976). Supplementary analysis (not discussed here) reported very strong similarities between the results of this study with respect to the strategy/scanning linkage and the results reported in the Jennings and Lumpkin (1992) study (conducted in the banking sector) and Subramanian et al. (1993b) study (conducted across a number of manufacturing industries). In view of the above, the present study confirms the strategy/scanning linkage proposed by Hambrick (1982), and clears the way for future research in this direction.

MANAGERIAL AND ACADEMIC IMPLICATIONS

The scanning/strategy relationship identified and empirically supported in this study has important implications for managers. The strategic choice perspective (Child, 1972) suggests that managers select the strategy(ies) that they think best aligns their organization with the environment. Environmental scanning supports the strategic choice paradigm in enabling managers to better manage both the domain selection and domain navigation activities (Bourgeois, 1980). Thus, scanning helps managers identify opportunities/threats in the external environment and also provides information that would either reinforce the strategic choice(s) made or suggest an alternative course of action.

The study's implications for health care managers stem from the significant changes that have occurred in both the general and the task environment

confronting the industry. In the past, when entry regulation and cost reimbursement "virtually insulated the hospital industry from traditional market pressures," (Cleverley & Harvey, 1992: 54) being strategically responsive to the environment was of little consequence. Given these conditions it is possible that some health care managers may have concluded that the extra resources required for performing activities associated with environmental scanning and making corresponding changes could not be justified in terms of the resultant benefits. However, the competitive landscape of the health care industry has been dramatically altered in recent years. A number of factors have contributed to this change, important among which are: active encouragement of competition by the Federal government; the shifting balance of power from physicians to managers; increased cost consciousness on the part of the government, employers, and third-party payers; implementation of a prospective pricing system for reimbursing hospitals under Medicare; and the growth and dominance of multi-hospital system (Fottler, 1987; Lamont, Marlin, & Hoffman, 1993).

In this changed industry environment, competitive factors underscore all strategic decisions. Thus for a hospital to be effective and efficient, embracing new techniques for analyzing industry dynamics and for managing the organization strategically are critically important. The findings of the current study provide important pointers to health care executives both in terms of developing a better understanding of the dynamics of the health care industry, and in terms of making incremental changes in the organization's strategy for superior performance, given the industry dynamics. First of all, this study establishes the importance of aligning the organization's strategy to the environment in order to obtain a sustainable competitive advantage by relating environmental scanning to the extent of success in achieving critical performance outcomes. The study also underscores the necessity of aligning the focus of environmental scanning to the strategy formulation and implementation process. Finally, by describing and examining the relationship of competitive strategy and environmental scanning in the specific context of the health care industry, findings of this study provide specific guidance to hospital executives for building the information gathering, dissemination and response systems in their organizations which will help them become more strategically attuned to environmental changes. From an intervention perspective, these results suggest that hospitals could sharpen the focus of their scanning activities to achieve a better alignment between the strategy and the external environment.

FUTURE RESEARCH DIRECTIONS

The current study sets the stage for three areas that are rich pastures for future research. The resource-based view of the firm (RBV) is a relatively new stream of research that has engaged the attention of strategy researchers. The RBV stresses the importance of organizational resources (and capabilities) as the key drivers of strategy and competitive advantage. According to this, the key tasks of strategists is to identify the key and valuable organizational resources, invest in them, leverage them into profitable opportunities, and upgrade those resources that are losing value. An organization's environment scanning system can be regarded as one such resource. Future research should examine this resource in greater detail, particularly in the health care context, and offer insight into the process of identifying and cultivating this resource.

The second avenue for future research concerns the process of viewing environmental scanning as being endogenous (rather than exogenous) to the strategy/performance linkage. The dominate logic perspective suggested by Prahalad and Bettis (1986) argues that corporate-level managers develop mental maps of the industry that allow them to make critical resource allocation decisions. These mental maps are schemas (Weick, 1979) that capture the social construction (or enactment) of a firm's environment. Such mental maps may allow managers to perform critical tasks faster and better, may also act as filters in terms of keeping out information that does not fit the existent mental map. Thus, future research should explore in more detail the impact of the enacted view of the environment (or the dominant logic motif) on the strategy/performance nexus.

Finally, although this study clearly establishes the link among strategy/scanning/performance in the health care industry, it is not as clear whether this link is present in other industries given the industry specific characteristics present in the hospital industry. Thus future research also should focus on applying the model developed in this study to other industries. As stated previously, this is an important issue. If this link is applicable to industries other than the health care industry then organizations may be able to make strategic adjustments in order to align their scanning activities with their strategy resulting in improved performance.

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