

STRATEGIC UNCERTAINTY AND ENVIRONMENTAL SCANNING: THE CASE FOR INSTITUTIONAL INFLUENCES ON SCANNING BEHAVIOR

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This study examined the relationship between perceptions of strategic uncertainty and environmental scanning behaviors. It has been postulated that the strength of this relationship will depend on the combined effect of the environmental constraints and the prevailing approach to strategic decision making. A sample of 141 medium-size Bulgarian companies, all of them operating in a highly constrained external environment and a business culture, characterized by a low degree of calculative strategic decision making, was used to test four hypotheses related to scanning behavior. The empirical findings of this study were then compared with the results of prior research on environmental scanning in the United States in order to draw conclusions for both the theory of scanning behavior and strategic management practice in various environments. © 1997 by John Wiley & Sons, Ltd.

The processes of scanning and interpreting environmental changes are clearly critical to organizational performance and viability. These processes constitute the first link in the chain of perceptions and actions that permit an organization to adapt to its environment (Hambrick, 1981). They provide the external intelligence that decision-makers use in strategy formulation and implementation (Hofer and Schendel, 1978; Ansoff, 1979; Miles, 1982; Rhyne, 1985).

ENVIRONMENTAL SECTORS AND STRATEGIC UNCERTAINTY

The environment is defined by Duncan (1972) as the relevant physical and social factors outside the boundary of an organization that are taken into consideration during organizational decision making. The environment can be conceptualized as having several sectors that exist in two layers.

The first, or closest to the organization layer is the task environment, which directly impacts business strategy. The task environment involves environmental elements with which the organization has direct contacts. These elements are commonly defined to include competitors, suppliers, customers and regulatory bodies. The second, or outer layer is the general environment. It refers to sectors that affect organizations indirectly. The general environment often includes economic, political and social sectors. Since each of the environmental sectors may have a distinct influence on decision making and organizational actions (Hambrick, 1981; Brown and Utterback, 1985), a classification of the various sectors of the environment is needed in order to facilitate the study of environmental scanning behavior.

It is taken for granted that the environment is a major source of uncertainty for managers, responsible for identifying external opportunities and threats, implementing strategic changes, and achieving the organization/environment alignment. Miles, Snow and Pfeffer (1974) also theorize that managers respond primarily to what they perceive. Strategic action is dependent upon

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perceptions and interpretations of the environment (Schneider and De Meyer, 1991). The perceptions and interpretations are subject to influences at multiple levels of analysis, e.g., individual characteristics, group process, and environmental context (Hambrick and Mason, 1984; Miller, 1993).

When decision-makers fail to notice changes that turn out to be important or misinterpret changes in their environment they may fail to make needed adjustments to organization's strategy or structure (Pfeffer and Salancik, 1978). The ensuing lack of fit between the environment and the organization's strategy and structure may result in a performance decline and other organizational problems (Lawrence and Lorsch, 1967; Lindsay and Rue, 1980; Weick, 1987). Moreover, Bourgeois (1985) has provided evidence indicating that the greater the match between managers' perceived environmental uncertainty and true environmental volatility, the higher the economic performance of a firm.

Perceived environmental uncertainty is the difference between the amount of information required to perform the task and the amount of information which has already been obtained (Galbraith, 1977). Empirical evidence has also suggested that decision-makers have access to far more environmental information than they can possibly perceive (Mintzberg, 1973; Hambrick, 1982). In practice, perceived environmental uncertainty exists when decision-makers do not feel confident that they understand what the major events or trends in an environment are, or when they feel unable to accurately assign probabilities to the likelihood that particular events and/or changes will occur (Miliken, 1987). A manager might, for example, be uncertain about whether a competitor will introduce a new product or whether a proposed piece of legislation will pass.

In addition, perceived environmental uncertainty by itself does not lead to scanning behavior. Unless the external events are considered important to organizational performance, managers may have little interest in them (Pfeffer and Salancik, 1978). Information from important sectors of the environment may become a source of competitive advantage (Dutton and Freedman, 1984). In a sector of high importance, external events are also perceived to be directly linked to operational performance. According to Daft, Sormunen, and Parks (1988), perceived sector importance translates perceived environmental

uncertainty into strategic uncertainty. In essence, strategic uncertainty reflects the strategic value of environmental information for organizational performance.

ENVIRONMENTAL SCANNING

The combination of perceived environmental uncertainty and sector importance is expected to generate a need for managers to scan events in selected environmental sectors. Environmental scanning is the means through which managers perceive external events and trends (Hambrick, 1982; Culnan, 1983). It has the task of reducing strategic uncertainty. Following Daft *et al.* (1988), top executive scanning frequency is believed to have a positive relationship with perceived strategic uncertainty across environmental sectors.

Environmental scanning is also recognized as a difficult organizational process because the environment is complex and managers experience bounded rationality—that is, they cannot comprehensively understand the environment (Cyert and March, 1963). Moreover, managers have limited time and capacity. That is why they must choose among scanning alternatives. The selection of a given scanning mode by senior executives, however, is conceptualized as being critically influenced by perceived strategic uncertainty across sectors (Daft *et al.*, 1988).

TOWARD A REFINED MODEL OF ENVIRONMENTAL SCANNING BEHAVIOR

A common characteristic of the aforementioned conceptual developments and empirical findings is that they are based on data obtained from samples of firms in the United States. In addition, these research results have provided the fundamental principles of the strategic uncertainty/environmental scanning theoretical model, developed by Daft *et al.* (1988). Accordingly, strategic uncertainty perception, defined as the combination of environmental uncertainty perception and sector importance, is considered the chief determinant of environmental scanning behavior. This theoretical model also implicitly assumes the presence of the legal/social infra-

structure necessary for carrying out environmental scanning activities and organizational autonomy, as well as the absence of high environmental constraints. The environment is, essentially, seen as a pool of information/resources. Companies are, respectively, portrayed as unitary rational actors. Hence, it appears that Daft *et al.*'s model of environmental scanning behavior has been designed as a typical 'strategic choice' model (e.g., Andrews, 1971; White and Hamermesh, 1981). Empirical tests of this model (e.g., Sawyerr, 1993; Elenkov, 1994) have produced, at best, mixed results.

A number of studies (e.g., Lawless and Finch, 1989; Boeker, 1989; Burgelman, 1991) have convincingly demonstrated that the strategic choice way of reasoning is insufficient to a satisfactory explanation of organizational adaptive behaviors. Van de Ven (1979), Hrebiniak and Joyce (1985) and others have proposed to take into account both calculative strategic decision making and environmental constraints, in order to better understand organizational adaptation. Moreover, the study of Caeldries and Schendel (1994) has indicated that, depending on the time period under investigation, either deliberate strategic choice or environmental constraints can exert a dominant influence over organizational behavior and performance.

In addition, research on business management in some developing and post-communist Eastern European countries has identified several factors that differentiate the environment in these nations from that of Western industrialized countries.¹ Such factors include the absence of knowledge required to systematically monitor the environment and collect needed data, highly unstable political and economic environments, presence of compelling political and ideological influence on business operations, and absence of the legal and social infrastructure necessary for carrying out environmental scanning activities (Yavas, Kay-

nak, and Dibe, 1985; Fubara, 1986; Mrema, 1987; Elenkov, 1992; Sawyerr, 1993; Dadak, 1995).

Furthermore, perceptions of political, government policy, and macroeconomic uncertainties differ significantly across nations (Miller, 1993). More specifically, national culture influences perceptions of 'crisis' and 'threat,' as well as proactive responses, both internally and externally oriented (Schneider and De Meyer, 1991). Managerial behavior in a great number of developing and Eastern European countries also appears to be highly constrained by various political, economic, cultural and other factors (e.g., Yavas *et al.*, 1985; Sawyerr, 1993; Dadak, 1995; Milivojevic, 1995). In those nations calculative strategic decision making seems to give way to other decision-making approaches, which can generally be classified as cases of 'systemic rationality' (e.g., Jones and Moskoff, 1991; Elenkov, 1992).²

Social constructivist theories (e.g., Salancik and Pfeffer, 1978; Bandura, 1986; Fulk, Schmitz and Steinfeld, 1990), which generally presume that social and symbolic processes produce patterns of shared cognitions and behavior, give strong conceptual support to the idea of systemic rationality, as opposed to the models of calculative rationality. Salancik and Pfeffer's (1978) social information processing theory proposes, for example, multiple mechanisms whereby coworkers influence the attitudes and behavior of individuals. Social information from coworkers can take several forms: (1) overt statements that individuals assimilate, (2) interpretations of events, (3) communications that increase the saliency of events simply by calling attention to them, and (4) provision of standards for judging the appropriateness of particular behaviors and for appropriately rationalizing workplace activities.

Considerable evidence has been accumulated over the decades to support the existence of social influence through internalization and compliance on workers' behaviors (e.g., Levine and Moreland, 1990; Bettenhausen, 1991). Internalization refers to individuals' private acceptance of group messages and the incorporation of group meaning

¹ Developing countries and post-communist Eastern European nations have been grouped together only to reach some more general conclusions regarding environmental characteristics and managerial scanning behavior. Otherwise, it is important to recognize the fundamental differences between developing countries and post-communist Eastern European nations. In particular, the former Eastern Block nations have a well-educated workforce, qualified engineers with significant industrial experience, and developed industries that set them apart from most Third World countries.

² March (1978) and other scholars have distinguished between models of calculative rationality, in which personal intentions do guide individual behaviors, and systemic rationality, in which intentions are discovered or learned as organizational action unfolds.

and attitudes into their own constructions of reality. It produces convergence of interpretations, attitudes, and meanings between an individual and a group. Compliance refers to individual behavior that conforms to perceived group pressures. It produces convergence of behavior patterns between an individual and a group. This behavioral compliance does not require attitudinal compliance. A person may comply in response to group norms (Gladstein and Reilly, 1985), powerful leaders (McCauley, 1989), or other forms of influence (Fulk, 1993). Given the existence of compliance pressures, it is not surprising that research often finds low correlations between attitudes and behaviors (e.g., McGuire, 1985).

Bandura's (1986) social learning theory also predicts coordinated behaviors and meanings that arise through several processes of modeling. Behavioral patterning through modeling is not simply imitation (Fulk, 1993). It involves considerable cognitive processing of stimuli. The symbolic representation of experiences is a key step in the retention of modeled behavior. The complex interplay of behavior and cognition can produce not only coordinated behavior, but also coordinated meaning structures. Social influences operating within closely knit networks are key sources of social learning (Bandura, 1986). The application of these principles to environmental scanning suggests that scanning behaviors can be produced in a work setting through processes of social learning, which increases the likelihood that attitudes and behaviors will converge between modelers and observers (Fulk *et al.*, 1990).

Since environmental scanning behavior deals with company/environment interactions, environmental constraints, and patterns of shared cognition, Daft *et al.*'s (1988) strategic uncertainty/environmental scanning model apparently needs to be refined in order to increase the external validity of its predictions. The modified model should capture the existence of complex lines of influence between environmental factors and scanning activities in developing and post-communist Eastern European countries (Ghoshal, 1987; Elenkov, 1994). In particular, this upgraded theoretical model should allow for direct, nonmediated by strategic uncertainty perception, environmental effects on managers' scanning behavior which are beyond the control or cognition of the policy-maker (March, 1978), as well

as for culture-driven managerial behavior (Franke, Hofstede, and Bond, 1991; Hofstede, 1991). For example, it must explain environmental scanning activities in politically dominated environments, in situations where scanning behavior is not influenced by business rationale, as known in the West. In similar situations, managerial activities may be crucially impacted by a variety of institutional pressures and demands embodied in political ideologies, unique cultural norms, and social expectations (DiMaggio and Powell, 1983; Scott, 1987). These institutional pressures and demands can, in turn, emanate from a number of sources that are generally associated with various environmental constraints and degrees of calculative decision making. Moreover, such critical institutional pressures and demands may, or may not, be accompanied by a high level of uncertainty for local managers. Under certain conditions, managers may even choose to avoid the uncertainty issue completely (Cyert and March, 1963). The refined model of environmental scanning behavior is portrayed in Figure 1.

This study has been designed to achieve three main objectives. In the first place, it has the goal of examining the relationship between strategic uncertainty and environmental scanning by policymakers for whom calculative strategic decision making is untypical, and the means through which these policymakers acquire information about the sectors of a highly constrained external environment. Research on managerial behavior in nations, characterized by a low degree of calculative strategic decision making and highly constrained environments, is believed to be of great interest to environmental scanning theory. Bulgaria is one of the countries with that kind of characteristics (e.g., Elenkov, 1994; Dadak, 1995; Milivojevic, 1995). Following the approach of other environmental scanning researchers, e.g., Daft *et al.* (1988), who have obtained data on Texas manufacturing companies, and Sawyerr (1993), who has taken advantage of a sample of Nigerian firms, I have decided to use data from a single country, Bulgaria, in order to obtain an internally consistent sample of companies.

In the second place, the study has been contemplated as an attempt to investigate the specificity of scanning behavior of Bulgarian managers. According to the economists Gordon Hughes and Paul Hare (1994), and Salz-Trautman (1994), Bulgaria should be given high marks for the

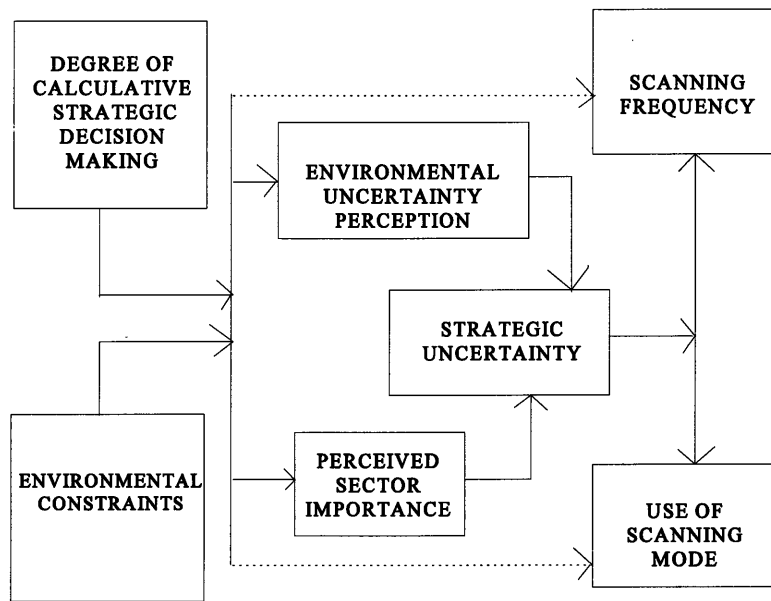


Figure 1. Model of scanning behavior.

The dotted lines designate the existence of special, culture-driven and cognition-based institutional effects on scanning behavior in highly constrained environments and/or business cultures characterized by a low degree of calculative strategic decision making

implementation of its reform program. In particular, Salz-Trautman (1994) has pointed out that Bulgaria's 'courageous reform program ... has yielded several accomplishments, including the decontrol of most domestic prices, the elimination of shortages, the encouragement of a growing private sector, and the adoption of a liberal exchange and trade system.' Moreover, Boland (1994) has indicated that 'there has been a rapid expansion in the service sector of the Bulgarian economy. Apart from the surge in (small-trade) enterprise, there has been a jump in the number of private banks. The result of the buoyant service sector is a credit-driven boom that has led to ... a flood of cheap imported goods.' Bulgarian companies have become recipients of Euro-money's Awards for Excellence (Edwards *et al.*, 1995), but relatively little is known of the management in this Eastern European country. Western businessmen, interested in investing in the transforming Bulgarian economy, will undoubtedly find specialized information of Bulgarian managerial behavior valuable.

In the third place, the study has the goal of comparing the empirical findings on perceived strategic uncertainty and environmental scanning behavior in Bulgaria with the results of prior

research on strategic uncertainty perception and scanning behavior of U.S. managers to test the strength of the refined model of environmental scanning behavior.

THE BULGARIAN ENVIRONMENT

Bulgaria is a small Eastern European country. It has a population of 8.5 million. Its territory is 42,471 square miles (approximately the size of Ohio). Sofia is the capital of Bulgaria. Other major cities include Plovdiv, Varna and Burgas.

The Bulgarian environment under the conditions of totalitarian rule

The Bulgarian sociocultural system was based on three types of monopoly: the ideological monopoly of Marxism-Leninism; the political monopoly of the Communist Party; and the monopoly of the state over the economy.

The enforcement of the ideological monopoly of Marxism-Leninism by the communists resulted in large-scale application of stereotype rules of behavior and standardized interpretation

of social events. Behavioral norms like party discipline, proletarian internationalism, and 'revolutionary coercion,' esthetic norms like 'socialist realism' and universally developed personality, methodological norms like the indisputable supremacy of Marxism–Leninism, and criteria for assessment based on total negativism were also characteristic of the Bulgarian sociocultural system before the collapse of the communist regime in that country at the end of 1989.

Another pillar of the totalitarian rule in Bulgaria was the political monopoly of the Communist Party. The political system which emerged in that country after World War II included, at least officially, several different political organizations, such as the Bulgarian Agrarian People's Union (actually just a faction of the prewar Bulgarian Agrarian Union, whose leadership agreed to follow closely the political directives given by the communists) and the Fatherland Front. However, these political organizations invariably supported Marxist–Leninist ideological principles. Their leadership also became a part of the communist nomenclatura, while the respective organizations were transformed into handy political instruments, serving faithfully the interests of the Communist Party and, most of all, of the communist élite.

The third type of monopoly—the monopoly of the state over the economy—led to total subordination of producers to the state bureaucracy and increasing inconsistency between economic logic and actual functioning of the Bulgarian economy. As a result, there was no objective criterion for assessing economic performance in that country and the domestic industrial output was, quite naturally, of relatively low quality. At the same time, the Bulgarian industry consumed 1.5–2 times more energy and other inputs per unit of output than the industries of the Western industrialized countries (Petrov, 1990).

Current changes in the Bulgarian environment

The Bulgarian environment is undergoing radical changes. As communist regimes fell all over Eastern Europe, the Communist Party in that country banked on flexibility to survive. Rather than taking the Chinese way and crushing with tanks the increasingly frequent and ever larger mass demonstrations against totalitarian rule, the communist leadership staged a palace coup, ridding

the country of T. Zhivkov in November of 1989. Then the formerly all-powerful Communist Party undertook a well-organized retreat, skillfully giving ground to the opposition forces in order to prevent a large-scale popular upheaval. The younger and more dynamic generation was allowed to take an active part in the party's leadership. The communists also appealed for protecting the income of the retired and for national reconciliation, this way taking advantage of the apprehensions of several large electorate groups: the retired and soon-to-retire, the minorities (mostly the gypsies), and the economically weak. Essentially, those interest groups comprised about 60 percent of all Bulgarian citizens, who were old enough to be given the right to vote. Thus, promising a smooth transition in the face of the realistic but not very popular program for 'shock therapy' (offered by the noncommunist Union of Democratic Forces) the communists, already calling themselves socialists, won the parliamentary elections in 1990 and, then again, in 1994.

The stability of the Socialist (Communist) Party, however, is in sharp contrast to the frequent government changes in post-communist Bulgaria. This country had, in particular, six different cabinets during the 1990–94 period. This is a clear indication that the reformed communists, being the only experienced political force, will continue to exert a significant influence on the ongoing changes in Bulgaria.

The collapse of centralized planning in this Eastern European country at the end of the 1980s has led to a situation when the communist-type economic institutions have been rapidly disintegrating, while the economic institutions that are typical of a market economy have not consolidated yet. This is why the economic system of post-communist Bulgaria is characterized by many serious problems and big fluctuations. The drop in the real GDP (when the inflation factor is taken into account) was approximately 25 percent for the 1989–93 period. Consumer prices rose by about 68.2 percent annually during the same period. Current unemployment is estimated to be 16.5 percent. However, there are some signs that the economic decline is now bottoming out in Bulgaria. Privatization has led to the creation of a viable private sector in this Eastern European country. The annual growth in private GDP was in the vicinity of 15 percent in 1995.

HYPOTHESES

The first hypothesis examines the difference in the strategic uncertainty scores for the task and general environments. It has been commonly accepted that the task environment consists of sectors that have direct transactions with the organization. Hence, competitor/industry, customer/market, supplier and technological sectors have been considered to be in the task environment of Bulgarian companies. The general environment is made up of factors external to the organization that exert great influence on its operations but on which the organization has little or no control. The general environment of Bulgarian firms consists of the following sectors: political/legal, economic and sociocultural.

Prior research has indicated that Bulgaria was characterized by ineffective dissemination of rational knowledge, existence of undemocratic social and political institutions, and compelling ideological and political influence on economic mechanisms (Petrov, 1990; Elenkov, 1992). In such circumstances, the ruling communist nomenclatura met little real opposition in building a comprehensive power network to dominate the whole of Bulgarian society. The collapse of the totalitarian regime led to normative dissociation of economic power from political power. Under these conditions, the members of the former communist nomenclatura actively traded political capital (which they would, anyway, lose) for economic capital. Thus, the new power networks in Bulgaria initially consolidated on the basis of the direct property rights and economic strength of certain members of the old communist type power network. In addition, the new power networks gradually included some noncommunist political groups that became part of the national government. As a result, political and economic power networks still remain the most important component of the business environment of every Bulgarian company (Nowicki, 1993). These power networks control state legislation, local sources of supply, distribution channels, and dissemination of technology in that Eastern European country. That is why the effect of actions of competitors, suppliers, customers and R&D centers on the performance of Bulgarian companies is expected to be suppressed by the respective influence of the present political and economic power networks. Moreover, cultural norms and

traditions are considered highly important in all Slavic societies (e.g., Puffer, 1994). To be sure, these various people have different histories and some unique cultural traditions. However, the tendency of not challenging the standard way of doing things and not wanting to do anything so as to stand out from the crowd is considered typical of most Slavs (including the Bulgarians). It can be argued that this cultural tendency was exported to Eastern Europe by the former Soviet Union. Hence, the general environment, including political/legal, economic and sociocultural sectors, is presumed to exhibit a higher level of strategic uncertainty than the task environment of Bulgarian firms.

Hypothesis 1: Sectors in the general environment create greater strategic uncertainty for decision-makers in Bulgaria than sectors in the task environment.

The combination of perceived environmental uncertainty and importance is expected to generate a need for policy-makers to scan events in selected sectors of the environment. Managers can learn about these sectors in several ways. They may scan the environment directly or learn from others in the organization. They may increase or decrease the frequency with which they scan.

Scanning frequency is the number of times managers receive data about the environment (Hambrick, 1981). Fahey and King (1977) observed that managers could obtain information along a continuum from irregular to continuous gathering, and decision-makers may process data irregularly or continuously depending upon the perceived need for data about external events. Prior research (Elenkov, 1992; Nowicki, 1993) has shown that the creation and maintenance of close exchange-of-favor relations with the dominant political and economic power networks is the most important source of competitive advantage in Bulgaria. Managerial behavior in Bulgarian companies is also critically influenced by the present changes in business culture (Dadak, 1995). Consequently, it can be presumed that strategists in that Eastern European country will need information primarily about the general environment sectors—that is, the environmental sectors expected to exhibit the highest strategic uncertainty scores.

Hypothesis 2: Perceived strategic uncertainty across sectors will have a positive relationship with frequency of scanning by decision-makers in Bulgaria.

The third hypothesis examines the relationship between strategic uncertainty scores and use of personal vs. impersonal modes of scanning. Scanning mode pertains to the source or medium through which managers learn about the environment. According to Aguilar (1967), modes or information sources can be personal, impersonal, internal or external. Personal sources refer to direct human contact. Impersonal sources are written, and include formal reports, newspapers, survey results, and the output of management information systems. Personal communications are content rich and enable managers to detect weak signals (Ansoff, 1979). When environmental uncertainty is high, personal sources may provide the adequate understanding needed by decision-makers to interpret unclear issues (Daft and Weick, 1984). Impersonal sources are appropriate when environmental events are discrete and analyzable. Hence, when environmental uncertainty is low, impersonal sources may also give access to sufficient data.

Furthermore, the use of personal connections and informal influence to get the job done are considered typical of the business culture in Eastern Europe (Pearce, 1991; Beamish, 1992; Puffer, 1994). That is why Bulgarian managers may be expected to resort to the use of personal sources of information any time when environmental uncertainty and importance are perceived to be high. In addition, informal sources are reportedly used in Bulgaria mainly to obtain information about technical matters, potential new customers, and sources of resources (Elenkov, 1992). As technological, customer/market, and supplier sectors are expected to exhibit relatively lower strategic uncertainty scores than political/legal, economic, and sociocultural sectors, perceived strategic uncertainty is anticipated to be negatively associated with the use of impersonal sources of environmental information.

Hypothesis 3: Perceived strategic uncertainty across environmental sectors will be positively associated with the use of personal sources and negatively associated with the use of

impersonal sources of information about the environment in Bulgaria.

Aguilar (1967) further distinguished between external and internal sources of information. External sources include direct contacts with government officials and politicians, discussions with managers from other companies, trade magazines, and attendance of association meetings. Internal modes pertain to reports, memos, or discussions with internal managers and employees about the external environment. In addition, research indicates that as strategic uncertainty increases, it can be expected that business executives will want to form their impressions through direct contact with key environmental sources (Daft *et al.*, 1988). In the context of Bulgarian firms this means that business executives will actively try to use external sources of environmental information. Research also shows that in the politically dominated Bulgarian environment, the decisions of top business executives usually require the approval of the crucially important political and economic power networks. Senior managers are also the only people in Bulgarian companies who possess relevant knowledge of these power networks (Elenkov, 1992). Hence, managerial scanning activities in that country essentially amount to making assessments of future political expectations regarding managerial roles. Failure to meet these expectations can result in an avalanche of unsurmountable professional and personal problems for the involved business executives. Therefore, it would be more useful for Bulgarian managers experiencing a high level of strategic uncertainty to obtain environmental data from external sources rather than to rely for this purpose on the internal organizational channels. In addition, research indicates that Eastern European companies are generally characterized by excessive compartmentalization and overloaded vertical communication channels (e.g., Lawrence and Vlachoutsicos, 1990; Puffer, 1994). That is why internal sources of information are expected to be ineffective in situations when Bulgarian business executives have to deal promptly with a high level of strategic uncertainty.

Hypothesis 4: The higher the perceived strategic uncertainty scores, the higher will be the use of external sources of information over

internal sources of information in Bulgarian companies.

RESEARCH METHOD

Subjects and organizations

Sample selection was designed to include firms for which environmental sectors could be clearly defined. This criterion led to the selection of single-business, manufacturing and sales companies using two main sources: the *Directory of the Bulgarian Chamber of Commerce and Industry* and the *1994 Yearbook of the National Statistical Institute* (Sofia). Eventually, the target population of this study consisted of 369 medium-size, single-business, manufacturing and sales companies with 100 percent Bulgarian equity interest and located in six cities in western and central Bulgaria: Sofia, Plovdiv, Pernik, Vratsa, Vidin, and Pleven. These six cities contain over 70 percent of the industrial facilities in Bulgaria. A medium-size Bulgarian company has between 50 and 1000 employees. In addition, a single business means the firm has a defined task environment, which is not the case when the company encompasses multiple businesses operating in multiple environments.

The data were collected through personal interviews with general directors (the Eastern European title for chief executive officers), executive vice presidents, or other managers having important decision-making responsibilities in their companies. General directors of 200 randomly selected medium-size, manufacturing and sales firms were contacted for participation in this study. Representatives of 141 companies agreed to participate.³ Of the 141 interviews, 97 were with the general director of the firm. Of the remaining 44 interviews, 28 were with executive vice presidents, and 16 were with managers design-

nated by the general director to have important decision-making responsibilities.

All interviews were based on a survey which consisted of three independent sections. The original survey was in English, but it was translated into Bulgarian and back-translated into English. Thus, a few linguistic problems in the Bulgarian version were tracked down and subsequently corrected. The translation process continued until the two English versions and the Bulgarian version of the survey were found to be highly compatible.

Participants were instructed that there were no right or wrong answers, but that their opinions mattered. Therefore, the subjects were encouraged simply to respond by saying how they felt about each item.

Measurement instruments

Perceived environmental uncertainty was measured using a 27-item scale, adapted from the work of Miles and Snow (1978). Some researchers (e.g., Tosi and Slocum, 1984; Buchko, 1994) have suggested that the use of multidimensional measures is highly consistent with the perceived environmental uncertainty construct and thus the use of multi-item subscales may be an important improvement over many of the idiosyncratic measures used in prior research. My scale included seven subscales containing from three to five items each. The subscales corresponded to the key sectors of the external environment of Bulgarian companies. Each participant was first given a general explanation of the study. Then, the respondents were asked to rate the degree of predictability for various characteristics of the environmental sectors. The answers were measured on 7-point Likert scales, with a rating of 1 indicating that the environmental element was predictable and a 7 indicating that the feature was unpredictable.

To measure the perceived importance of each environmental sector, a new scale was developed. The scale originally had 21 items but two of them, found to have low item-total correlations, were omitted. The respondents were instructed to indicate the extent to which they perceived the various items as being important on a 7-point Likert scale. Assessing characteristics of the key seven sectors simultaneously enabled the interviewed managers to compare environmental sectors and distinguish importance meaningfully among them.

³ The manufacturing and sales companies contacted for participation in this study spanned 11 2-digit SIC groups. A matrix was created so that the 141 respondent firms and the 59 nonrespondent firms could be compared for each 2-digit SIC code. In almost all cases both respondent and nonrespondent companies were in the industry group. Only four firms were without a counterpart in the same SIC code. Therefore, it was concluded that respondent and nonrespondent firms were equally distributed among the 11 industries. In other words, there were no significant industry differences between the 141 respondent companies and the 59 nonrespondent firms.

Scanning was further measured using frequency questions similar to those developed by Hambrick (1982) and Culnan (1983), and validated by Farh, Hoffman, and Hegarty (1984). The respondents were asked to indicate the frequency of receiving useful information from various sources using a 7-point ordinal scale. A rating of 1 was supposed to mean 'once a year or less,' while a 7 could be marked to designate 'once a day or more.' The questions distinguished between internal vs. external and personal vs. impersonal modes of scanning. This way, the data concerning scanning sources were collected in order to measure four variables: personal external sources (PE), personal internal sources (PI), impersonal external sources (IE), and impersonal internal sources (II). Following Daft *et al.* (1988), five additional variables were created to test the hypotheses about personal, impersonal, external, internal, and total scanning.⁴ These five variables overlap the four variables above, but enable specific tests of the second, third, and fourth hypotheses.

In addition, strategic uncertainty was measured as a combination of perceived environmental uncertainty and importance of events in each sector. In greater detail, strategic uncertainty is assumed to be a multiplicative rather than a linear function of perceived environmental uncertainty and importance. In particular, if environmental uncertainty and importance are both low, perceived strategic uncertainty will be also low. However, if perceived uncertainty and importance are both high, perceived strategic uncertainty will be several times greater for business executives than when uncertainty and importance are both low.

$$SU = EU \times I$$

where SU = perceived strategic uncertainty; EU = perceived environmental uncertainty; and I = perceived sector importance.

Statistical procedures

Data analysis was based on several statistical procedures, similar to the analytical approaches of Daft *et al.* (1988). An ANOVA and Scheffe's

multiple range tests were used to determine statistically significant differences in strategic uncertainty across sectors. Furthermore, Pearson's product-moment correlation coefficients were calculated between the independent and dependent variables. A 0.05 level of significance was used in testing the hypotheses. Since significant environmental and scanning differences could occur across sectors, the seven task and general environment sectors were treated as the unit of analysis ($n = 987$, seven sectors for 141 companies) in order to study the relations of strategic uncertainty with scanning frequency and use of personal, impersonal, external, and internal modes of scanning.

RESULTS

Content validity of all measurement instruments was sought. For that purpose, the aid of seven Bulgarian business students was solicited prior to the actual data collection. After reading the survey, they suggested making a number of changes. Consequently, a few items were modified until the students reached an agreement that all measurement instruments appeared to adequately reflect what they purported to measure.

Psychometric analysis revealed that the adapted perceived environmental uncertainty scale had a coefficient alpha of 0.78 and an average item-total correlation of 0.64. Cronbach alpha for the 19-item version of the perceived importance scale was 0.76. The average item-total correlation was 0.55. Hence, the reliability of both the adapted perceived environmental uncertainty scale and the adjusted perceived sector importance scale was considered adequate for research purposes.

The study was also designed to control for the possibility that some characteristics of the respondents might influence their perceptions of environmental uncertainty. As Hambrick and Mason (1984) indicated, strategic decisions might be significantly affected by two individual characteristics: a top executive career path and tenure. It was decided to focus attention on those two important characteristics of the respondents. All managers who agreed to be interviewed were asked to provide information on the positions they had held and the companies they had worked for. Seven types of functional career paths were identified: technical/engineering, manufacturing,

⁴ (1) All modes = (PE + PI + IE + II)/4; (2) All personal = (PE + PI)/2; (3) All impersonal = (IE + II)/2; (4) All external = (PE + IE)/2; (5) All internal = (PI + II)/2.

procurement/sales, political/general administration, legal, finance/accounting, and miscellaneous. Each respondent was respectively assigned to one of those categories. An ANOVA showed no significant differences in environmental uncertainty perception across the seven dominant career paths.

Tenure was operationalized as the number of months of employment of each respondent in his or her dominant career category. For this purpose, the interviewed managers were asked to provide information about the dates of their prior work and the duration of their current appointment. A correlation analysis of tenure with environmental uncertainty perception scores revealed no statistically significant relationships between the two variables. Hence, I concluded that managers' perceptions of environmental uncertainty were not affected by individual characteristics, such as career path and tenure.

Hypothesis 1

The first hypothesis postulated that disaggregating the environment into sectors would show that the general environment generated more strategic uncertainty for decision-makers than the task environment. Strategic uncertainty was measured using the multiplication product of perceived environmental uncertainty and importance.

An ANOVA of the grand means showed significant differences in strategic uncertainty perception across the seven environmental sectors ($F = 23.85$, $p < 0.001$). In addition, Scheffe's multiple range tests at the 0.05 significance level indicated that each sector was characterized by a different level of strategic uncertainty for Bulgarian decision-makers. The sectors in decreasing order of strategic uncertainty were: political/legal, suppliers, customer/market, economic, competitor/industry, technological, and sociocultural (Table 1). The top three sectors were statistically different from the bottom four. Among these three sectors, the strategic uncertainty score of the political/legal sector was significantly higher than the respective scores of supplier and customer/market sectors. The economic sector also had a significantly higher strategic uncertainty score than competitor/industry, technological and sociocultural sectors. In essence, the political/legal sector, considered part of the general environment, had the highest strategic uncer-

tainty score. The economic sector, which was also considered part of the general environment, had a significantly higher score than the competitor/industry sector, included in the task environment. However, the strategic uncertainty score of the economic sector was significantly lower than the respective scores of two other task environment sectors, that is, supplier and customer/market sectors. Besides, the differences in the means of the sociocultural and technological sectors were not significant. Hence, Hypothesis 1 about general vs. task environment sectors was not supported for this sample of Bulgarian companies.

Hypothesis 2

The second hypothesis assumed that perceived strategic uncertainty across sectors would be positively correlated with frequency of scanning by business decision-makers in Bulgaria. This relationship was examined using Pearson's product-moment correlation coefficient (Table 2). The estimated coefficient between strategic uncertainty and scanning frequency across all sectors and from all scanning modes was 0.25, which was not statistically significant at the specified 0.05 level. In other words, statistical analysis failed to provide evidence of a positive relationship between strategic uncertainty and frequency of scanning by Bulgarian decision-makers. Thus, Hypothesis 2 was not supported.

Hypothesis 3

The third hypothesis postulated that as strategic uncertainty increased, managers would rely more heavily on personal modes of scanning, and less frequently on impersonal sources. The first part of this proposition, that personal sources would be used more as strategic uncertainty increased, received support (Table 2). According to the results of the statistical analysis, the correlation coefficient between strategic uncertainty and personal modes was 0.38, which was statistically significant at the 0.01 level. Hence, the higher the uncertainty in environmental sectors, the more frequently decision-makers in Bulgarian companies relied on personal modes of scanning.

The second part of Hypothesis 3, that impersonal sources would be used less frequently as strategic uncertainty increased, was not supported

Table 1. Difference among sectors for strategic uncertainty^a

Sector	Strategic uncertainty	A	B	C	D	E	F	G
A. Political/legal (general)	42.8		*	*	*	*	*	*
B. Suppliers (task)	34.9			n.s.	*	*	*	*
C. Customer/market (task)	34.8				*	*	*	*
D. Economic (general)	26.8					*	*	*
E. Competitor/industry (task)	19.3						n.s.	*
F. Technology (task)	15.8							n.s.
G. Sociocultural (general)	12.2							

* $p < 0.05$ ^aBased on Scheffe's multiple comparison test.

Table 2. Correlations between strategic uncertainty and frequency of scanning modes

Scanning mode	Correlation coefficient
All modes	0.25
Personal external	0.52**
Personal internal	0.18
Impersonal external	0.12
Impersonal internal	0.01
All personal	0.38** ^a
All impersonal	0.03 ^a
All external	0.34** ^a
All internal	0.11 ^a

* $p < 0.05$; ** $p < 0.01$ ^a'All personal' and 'All external' are statistically greater than 'All impersonal' and 'All internal' ($p < 0.05$).

by the data of the Bulgarian sample. The calculated Pearson's product-moment correlation coefficient for all impersonal sources was 0.03, which was not statistically significant at any acceptable level. Therefore, the use of impersonal modes of environmental scanning by Bulgarian business executives was not associated with the level of strategic uncertainty.

Hypothesis 4

The fourth hypothesis predicted that the higher the perceived strategic uncertainty scores, the higher would be the use of external sources of information over internal sources of information in Bulgarian companies. This hypothesis was supported by the results of the statistical analysis (Table 2). The correlation of external modes of

scanning was 0.34, and this result was statistically significant at the 0.05 level.

The correlation coefficient of internal sources was just 0.11, which implied that the changes in strategic uncertainty hardly influenced the use of internal scanning modes by decision-makers in Bulgarian companies. Moreover, the correlation coefficient of external sources of environmental information was statistically greater than the respective score for the internal sources for this sample of Eastern European firms.

DISCUSSION

The general environment sectors did not yield significantly higher strategic uncertainty scores than the task environment sectors in Bulgaria, a nation with a highly constrained environment and business culture, characterized by a low degree of calculative strategic decision making. When the environmental sectors are examined individually, Daft *et al.* (1988) established that in the United States the task environment sectors were not significantly different from the general environment sectors in terms of strategic uncertainty ratings.

However, the order of the strategic uncertainty scores for the seven sectors of the environment in this study differed greatly from the order obtained by Daft *et al.* (1988). In particular, they found that in the United States the customer sector had the highest strategic uncertainty score, followed by the economic, competitor, technological, political/legal and sociocultural sectors. For the sample of Bulgarian companies, it was

the political/legal sector that yielded the highest strategic uncertainty score, followed by the supplier and customer/market sectors.

These results can be explained if the specificity of managerial behavior in the highly constrained Bulgarian environment is taken into account. Political power networks have traditionally been the most important component of the external environment of Bulgarian organizations. For many years the operation of these power networks has also been surrounded by a lot of uncertainty. Furthermore, business people in that country have found that they can hardly exert any influence on the ways the dominant political power networks function (Elenkov, 1992; Nowicki, 1993).

In contrast, in the United States the political system is characterized by stability. There are also salient political and legal institutions. In addition, American companies can influence, through lobbying and other means, certain government initiatives that have an impact on corporate affairs. That is why Bulgarian executives gave a considerably higher strategic uncertainty score, in both absolute and relative terms, to the political/legal sector than their U.S. counterparts did.

The collapse of central planning, the presence of a predominantly oligopolistic structure of supply in Bulgaria due to the delay in privatization, and unpredictable changes in the structure of supplier industries, as companies go bankrupt in a fast pace, have made suppliers actually another major source of strategic uncertainty, second only to the political/legal sector. Because of the generally low quality of domestic raw materials and industrial inputs, and due to the increasing protectionist sentiments of the Bulgarian government, suppliers are also likely to remain a serious problem in Bulgaria in the future.

The strategic uncertainty score for the customer/market sector was significantly higher than the respective scores of economic and socio-cultural sectors in this study. Besides, competitor/industry and technological sectors were given moderate ratings. These results can be interpreted as a clear sign that some of the building blocks of a market economy have already been constructed in Bulgaria. Competitive strategies change, customers' tastes evolve, new and better resources and technologies become available, and Bulgarian managers must respond to unpredictable events (Boland, 1994; Dadak, 1995).

There was no statistically significant correlation between strategic uncertainty scores and scanning frequency across all the environmental sectors for the sample of Bulgarian companies. This result is completely opposite to the conclusions of Daft *et al.* (1988), indicating that strategic uncertainty was a predictor of the frequency with which U.S. executives scanned the sectors of the largely unconstrained environment.

As has already been mentioned, the creation and maintenance of exchange-of-favor relations with the dominant political power networks have traditionally been a critical source of competitive advantage in Bulgaria. However, the frequency of contact appears to be largely irrelevant at this point, since it is only the pattern of behavior that seems to matter (e.g., Nowicki, 1993). Hence, successful performance of Bulgarian companies does not require frequent scanning of the political/legal sector, which is the component of the environment with the highest uncertainty score. Large economic fluctuations and rapid changes in industry structure do, however, need to be monitored more often. Consequently, the frequency of scanning the environment by decision-makers in Bulgarian companies does not appear to correlate with the degree of perceived strategic uncertainty.

According to the results of the analysis, the higher the uncertainty in environmental sectors, the more often Bulgarian managers rely on personal and external modes of scanning. Considering that maintenance of close, favorable relations with the dominant political power networks and securing access to key sources of resources are crucially important factors for successful performance of companies in Bulgaria, and taking into account that the external political changes, characterized by the highest level of strategic uncertainty, also put a profound impact on competitive positions of all business enterprises in Bulgaria, the above findings of the statistical analysis appear to be logical.

For centuries, personal connections and informal influence have been used to solve important problems in situations characterized by uncertainty in Eastern European cultures (Pearce, 1991; Beamish, 1992; Puffer, 1994). In Bulgaria the most effective sources of relevant environmental information can also be found outside of the respective executive's organization partly because of intraorganizational rigidities. In addition,

impersonal and internal information sources seem to be underutilized, particularly due to lack of knowledge of how to handle complex business documentation or how to use modern management information systems.

In contrast, the research of Daft *et al.* (1988) indicated that U.S. senior executives, exhibiting a high degree of calculative strategic decision making, relied equally on external and internal sources of environmental information. Both scanning modes were also used more frequently as strategic uncertainty increased. Besides, impersonal sources were reported to be widely used when strategic uncertainty was high.

In brief, comparative analysis reveals some systematic differences between strategic uncertainty perception and environmental scanning behavior of policy-makers in Bulgarian companies on the one hand, and strategic uncertainty perception and environmental scanning activities of U.S. managers on the other. More importantly, the refined model of scanning behavior which was proposed at the beginning of this study appears to have the capacity to adequately accommodate these varying patterns of environmental scanning.

Future research in this area should examine perceived strategic uncertainty and environmental scanning behavior in other countries with highly constrained environments and/or business cultures, characterized by a low degree of calculative strategic decision making. This can increase the external validity of the propositions tested for the Bulgarian sample. Eventually, differences among groups of companies in relation to strategic uncertainty perception and environmental scanning can be studied more meaningfully, using a broader empirical basis for reaching various kinds of comparative conclusions.

Future research is also needed along the lines proposed by Van de Ven (1979), Hrebiniak and Joyce (1985), and Caeldries and Schendel (1994) to explore the complex mechanisms of influence by institutional factors on managers' scanning behavior in different types of environments. Based on the results of this study, it appears that scanning behavior of business executives can be crucially impacted by institutional pressures and demands, embodied in social expectations and emanating from political and economic power networks which are guided in their actions by the logic of systemic rationality in a politically constrained environment. Competitive causes of

top executive scanning activities prove to be suppressed in that kind of environment. Moreover, it is important to recognize that the same environmental events can be perceived and responded to in different ways in different countries. A proper understanding of the nature and sources of institutional effects on managerial scanning behavior in various environments should, therefore, become a paramount objective of environmental scanning research in the age of rapid globalization of business activities. This can help multinational companies gain a competitive advantage by cooperating more effectively with foreign partners in the international arena.

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