

## **STRATEGIC DECISION-MAKING PROCESSES: THE ROLE OF MANAGEMENT AND CONTEXT**

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## **A B S T R A C T**

This paper investigates the relationship between the process of Strategic Decision (SD) making and management and contextual factors.

*First*, drawing on a sample of SDs, it analyzes the process through which they are taken, into seven dimensions: comprehensiveness/rationality, financial reporting, rule formalization, hierarchical decentralization, lateral communication, politicization, problem-solving dissension. *Second*, these process dimensions are related to (i) decision-specific characteristics, both perceived characteristics and objective typologies of strategic decisions, (ii) top management characteristics and (iii) contextual factors referring to external corporate environment and internal firm characteristics.

Overall, the results support the view that SD processes are shaped by a multiplicity of factors, in all these categories. But the most striking finding is that decision-specific characteristics appear to have the most important influence on the strategic decision-making process, as decisions with different decision-specific characteristics are handled through different processes. The evident dominance of decision-specific characteristics over management and contextual factors enriches the traditional “external control” vs “strategic choice” debate in the area of strategic management. An interpretation of results is attempted and policy implications are derived.

# STRATEGIC DECISION-MAKING PROCESSES: THE ROLE OF MANAGEMENT AND CONTEXT

## INTRODUCTION

Strategic decision-making has emerged as one of the most active areas of current management research. The area has greatly benefited from such research traditions as behavioral decision theory and transaction cost economics and has recently gained its own momentum (Schwenk, 1995). However, despite a substantial body of literature, it is still widely recognized that our knowledge of *strategic decision-making processes* is limited and is mostly based on normative or descriptive studies and on assumptions most of which remain untested (e.g. Bateman and Zeithaml, 1989; Langley 1990; Pettigrew, 1990; Rajagopalan et al. 1993; 1997; Schneider and DeMeyer, 1991). As Eisenhardt and Zbaracki put it, despite the crucial role of strategic decisions, the strategy process research has not departed significantly from a stage of being based on "mature paradigms and incomplete assumptions" (Eisenhardt and Zbaracki, 1992, pp. 17).

In particular, the need has been recognized for integrative research which explicitly considers the impact of context on strategic processes (Bateman and Zeithaml, 1989; Bryson and Bromiley, 1993; Rajagopalan et al. 1993; 1997; Schneider and DeMeyer 1991; Schwenk, 1995). For instance, Pettigrew (1990) asked whether the nature of the decision problem shapes the process more than does the organizational context through which the process proceeds. In the same vein, Rajagopalan et al. (1997) suggest as one of the priorities of future research in strategic decision making the examination of the extent to which variations in strategic decision-making processes (DMPs) are explained by variations in organizational, environmental, decision-specific and managerial factors.

The wider literature on environmental determinism and the role of management choice is relevant here. Strategic Decisions (SDs) are among the main means through which management choice is actually effected. But empirical research has not been extended to rigorous investigation of the role of management factors, contextual factors and decision-specific characteristics on the actual strategic decision-making processes.

The present paper attempts to contribute to this area drawing upon an in-depth empirical investigation of a number strategic decisions. Specifically, it focuses on strategic decisions of an investment nature.

These are decisions leading to significant commitment of resources, with significant impact on the firm as a whole and on its long-term performance (Marsh et al. 1988).

First, the paper analyzes the process through which organizations arrive at a SD. Using prior research and empirical evidence it identifies and measures significant generic dimensions of the process. The dimensions extracted refer to comprehensiveness/rationality, formalization, configuration of the process and politicization. Second, these dimensions are related to a number of factors belonging to the following categories: decision-specific characteristics, top management characteristics, contextual factors i.e. external corporate environment, and internal firm characteristics (such as systems, performance, size, ownership).

The structure of the paper is as follows. First, we review the theoretical background and propose an integrated research framework for studying the effect of management and context on SD processes. Then, comes our research methodology, the consideration of the dimensions of the process of arriving at SDs and the explanation of the selection and operationalization of management and other contextual variables. Next, we present the analysis of the data as well as the main results of the study. Finally, we discuss our results, summarize the main conclusions and derive theory and policy implications.

## **THEORETICAL FRAMEWORK**

### **Dimensions of SD Processes**

Various dimensions/aspects of SD making processes have been emphasized in the literature. Many studies in the field of strategic decision-making describe the process as a sequence of steps, phases or routes (e.g. Fredrickson, 1984; Mintzberg et al. 1976). Others focus on process dimensions instead (e.g. Bourgeois and Eisenhardt 1988; Hickson et al. 1986; Lyles, 1987; Miller, 1987; Stein, 1980). Several dimensions of SD-processes can be derived from the literature. These include the following:

- *Comprehensiveness/rationality* dimension (Dean & Sharfman, 1993a;b; Lyles & Mitroff, 1980; Miller, 1987). Elements of rationality can also be traced in studies addressing such dimensions as complexity of methodology (Langley, 1990), degree of inquiry (Lyles, 1987), and scrutiny (Cray et al. 1988).

- *Centralization* (Cray et al. 1988; Lyles, 1987; Miller 1987),
- *Formalization/standardization* of the process (e.g. Stein, 1980),
- *Political/problem solving dissension dimension*. This includes among others politicality (Lyles 1987; Hickson et al. 1986; Dean and Sharfman, 1993b; Pfeffer and Salancik, 1974), and negotiation/bargaining (Cray et al. 1988; Hickson et al. 1986; Pettigrew, 1973),
- Other factors have also been suggested such as dynamic factors-disruption-impedance (Cray et al. 1988; Mintzberg et al. 1976), forcing (Bryson and Bromiley, 1993), and duration (Hickson et al. 1986; Wally and Baum, 1994).

Characterization of the decision making process (DMP) on these dimensions allows the researcher to examine possible interrelationships with contextual and other factors.

### **The Role of Broader Context in Strategic Decision-making**

Many researchers have referred to aspects of contextual influence on strategic decision-making processes (e.g. Beach and Mitchell, 1978; Billings et al. 1980; Bryson and Bromiley, 1993; Dutton et al. 1983; Hitt and Tyler 1991; Rajagopalan et al. 1993). Schneider and DeMeyer (1991), in an attempt to provide an integrative model, proposed the following categorization of factors which are expected to influence strategic processes: (i) *managers' individual characteristics* and group dynamics, (ii) *internal organizational context* and (iii) *environmental factors*. Pettigrew, (1990), suggests that in addition to context, research should consider the role and significance of *the nature of the decision problem* in shaping the process.

An integration of these contextual domains into a wider framework looks a promising avenue for research. Such a framework must combine at least the following basic perspectives: an "individual decision perspective", "strategic or management choice", "environmental determinism", and a "firm characteristics and resource availability perspective". The following paragraphs briefly discuss the theoretical underpinnings of each perspective, as well as the most important relevant research efforts under each perspective.

### *i. The Decision Perspective*

**The nature of the decision itself, or the SD project,** may be important. Research into decision-making cognition and labeling suggests that the same internal or external stimulus may be interpreted quite differently by managers in different organizations or even within the same organization (e.g. Dean and Sharfman, 1993a; Dutton, 1993; Haley and Stumph, 1989). It has been argued that the way managers categorize and label a decision in the early stages of the decision-making process (DMP), strongly influences the organization's subsequent responses (Dutton, 1993; Fredrickson, 1985; Mintzberg et al. 1976). For example, there is evidence that if a decision is perceived as a crisis different actions will be taken than if the decision is perceived as an opportunity (Jackson and Dutton 1988; Milburn et al. 1983). Fredrickson (1985) found that when decisions were interpreted as threats as opposed to opportunities, the DMP followed was characterized by greater comprehensiveness.

Our understanding, however, of the impact of decision-specific characteristics on organizational decision-making processes is still quite limited (Papadakis and Lioukas, 1996; Rajagopalan et al. 1993). Most of the empirical work focuses on: (i) single decision-specific characteristics (e.g. opportunity or crisis) and their influence on aspects of the DMP, or (ii) the early stages of issue identification and diagnosis (e.g. Billings et al. 1980; Dutton 1986; Jackson and Dutton, 1988). The authors are not aware of any empirical work that empirically examines a range of decision specific characteristics in relationship to a range of process dimensions. With few exceptions (e.g. Dean and Sharfman, 1993a; Dutton, 1986; Dutton et al. 1989; Dutton et al. 1983; Fredrickson, 1985), existing research has not yet shown in any detail how decision-specific characteristics shape the DMP *as a whole*.

### *ii. The Strategic or Management Choice Perspective*

This perspective emphasizes the role of decision makers. It stresses that strategic choices have an endogenous behavioral component, and partly reflect the idiosyncrasies of decision makers (Child, 1972; Cyert and March, 1963). A number of studies extend this argument further, contending that the role of "upper echelons" or "top managers" or "strategic leadership" is important enough to determine strategy content and process (Child, 1972; Hambrick and Mason, 1984; Miller and Toulouse, 1986).

Research has mainly focused on the influence of top management (i.e. CEO and/or top management team) on corporate strategies (Miller and Toulouse 1986; Finkelstein and Hambrick 1990), on performance (Haleblian and Finkelstein 1993; Smith et al. 1994) and on planning formality (Bantel 1993). There has been little empirical work on the link between top management and the process of making SDs (Bantel 1993; Huff and Reger 1987; Lewin and Stephens 1994; Smith et al. 1994). As Rajagopalan et al. (1993, pp 364) stress in a recent review: "*research relating organizational factors such as .... top management team (TMT) characteristics to strategic decision processes is limited*".

Moreover, the few studies which have been done on the links between top management characteristics and strategic DMPs have produced mixed results. Recently Hitt and Tyler (1991) found that the demographic characteristics of CEOs (i.e. type of academic education) influenced the modes of strategic decision-making followed. It is interesting to note that counter-arguments have also been advanced. Stein, in studying the strategic DMP, went so far as to conclude that "*leadership does not constitute a meaningful contextual domain influencing strategic procedures*" (Stein 1980: 332). The same view has also been supported by Lieberman and O'Connor (1972), and Hannan and Freeman (1977). From another perspective, Lyles and Mitroff (1980, pp. 117), note that management characteristics may not influence the organizational problem-formulation process.

This is a significant issue that needs to be resolved empirically. The influence of top management on SDs remains unclear. To advance our knowledge of the role of the CEO and the TMT we need a better understanding of their impact (if any) on strategic DMPs and/or the underlying characteristics which are important (Rajagopalan et al. 1997; Smith et al. 1994).

### *iii. The Environmental Determinism Perspective*

According to **environmental determinism**, strategic decisions and processes are expressing adaptation to opportunities, threats, constraints and other characteristics of the environment. The role of top managers is minimized to a facilitation of this adaptation. Hannan and Freeman (1977), and Aldrich (1979) go even further to propose a process of natural selection of species for organizations: the environment determines who will survive, while top managers are passive agents with minimal impact on

corporate development. This view is in line with economic theories in which decision outputs rather than internal Decision-Making Processes (DMPs) are relevant for the explanation of a firm's behavior in a competitive environment.

In the context of SDs the environmental determinism perspective mainly addresses the question of how environmental factors (e.g. dynamism, hostility) influence strategic DMPs. Few empirical studies can be found here (e.g. Fredrickson, 1984; Eisenhardt, 1989; Judge and Miller, 1991) and those available seem to have produced contradictory results (Rajagopalan et al. 1997). For example, Fredrickson and Iaquinto (1989) contend that companies operating in stable environments follow rational-comprehensive strategic DMPs. In the same vein, Stein (1980) argues that companies operating in highly dynamic environments may tend to employ both less extensive search and less explicit analysis of alternatives. Yet, Bourgeois and Eisenhardt (1988) concluded that in high velocity environments effective firms follow more rational decision making processes. Sharfman and Dean (1991) argued for a link between environmental heterogeneity and standardization in the making of SDs. In a similar vein, Priem et al. (1995) have found that comprehensive processes led to better performance in rapidly changing environments.

In sum, the results of this body do not help us in making any meaningful generalizations (Sharfman and Dean, 1991). Rajagopalan et al. (1993 pp. 354) and Dess and Rasheed (1991) note that the small number of studies adds to the uncertainty as to the effects of each environmental aspect on the process of making SDs. Another criticism is that most research seems to focus mainly on one important environmental characteristic (i.e. environmental uncertainty). Other important characteristics such as environmental munificence-hostility seem to have received somewhat less attention (Rajagopalan et al. 1993).

#### *iv. The Firm Characteristics and Resource Availability Perspective*

This perspective emphasizes internal factors such as: internal systems, company performance, size, corporate control (i.e. ownership). At the level of theory, it can be linked to the "**inertial**" perspective proposed by Romanelli and Tushman (1986), according to which existing organizational arrangements, structures, systems, processes and resources, though initially determined by management and environmental forces, in turn constrain future strategic decision-making. It is also related to **resource**



**availability** such as profitability and slack resources. More specifically:

*Internal Systems:* The systems of an organization (especially formal planning systems-FPSs), might be expected not only to exert significant influence on the flow of information between the layers of hierarchy, but also to determine the nature and context of human interactions, and to influence SD processes (Armstrong, 1982; Miller, 1987). The literature is replete with studies arguing that FPSs are essential tools for managers, since they are designed to improve managerial decision making (e.g. Duncan, 1990; Langley, 1988). But there is an opposite line of argument, which discounts their contribution to SDs. It has been convincingly argued that much of the actual decision making may take place outside FPSs (e.g. King 1983; Sinha, 1990). It seems therefore a fruitful research question, to explore empirically this link between formal planning systems and strategic DMPs.

*Performance:* Since virtually all strategic initiatives require resources, a "resource perspective" may be added to the determinants of strategic decision processes (Bourgeois, 1981; Pfeffer and Salancik, 1978). Research relating past performance to strategic DMPs is limited (Rajagopalan et al. 1993). Much research investigates performance in relation to the content of strategy, planning and strategy formulation processes, rather than SDs. An exception is the study conducted by Fredrickson (1985) who found that past performance had a negative effect on the comprehensiveness of strategic DMPs.

More than three decades ago, Cyert and March (1963) reached the same conclusion, i.e. that superior performance is expected to lower the intensity with which organizations will 'search' for and analyze information. In the same vein Bourgeois (1981), March and Simon (1958), suggested that slack resources offer organizations the 'luxury' of 'satisficing', and suboptimal decision-making. The above arguments lead us to hypothesize that performance may be *negatively* related to rational decision-making.

Against this, others have found empirical support for a positive relationship. For example Smith et al. (1988) found that, for both small and larger firms, comprehensive out-performed less comprehensive decision-making, and Jones et al. (1992) reported consistently positive relationships between organizational effectiveness and comprehensiveness in decision-making. Taken together, empirical results in this area are conflicting. This may be due to the moderating effect of other omitted variables (e.g. environment) or to model underspecification which characterizes much of the research (Rajagopalan et al.

1993).

*Firm Size:* Company size is usually considered to be of importance in the context of SDs. Again, the evidence is far from clear or generalizable. Fredrickson and Iaquinto (1989) reported that larger **size** is associated with comprehensiveness in strategic decision-making. Child (1972) also suggested that size affects the framework of organizational decision-making. However, it is worth mentioning that Dean and Sharfman (1993a) as well as the Bradford studies (e.g. Hickson et al. 1986) found no differences in strategic DMPs which could be attributed to size.

*Corporate Control:* Several studies have provided evidence on the important implications of corporate control in strategic DMPs (e.g. Lioukas et al. 1993; Mintzberg, 1973). The *type of ownership* or *control type* is a variable which has attracted much attention, especially lately in the literature on markets for corporate control and privatization. If it is hypothesized that nationally-owned enterprises display a national style of management and national 'culture' in decision-making, while subsidiaries of multinationals may represent an implanted (probably more 'sophisticated') decision-making style, then it will be of interest to test whether important differences can be detected. The Bradford group of researchers have provided evidence of the existence of different decision-making patterns between British and multinational companies operating in Britain (Mallory et al. 1983). Moreover, as suggested by several authors, public vs. private ownership may decisively affect decision-making practices and processes (e.g. Lioukas et al. 1993).

### **Towards an Integrated Research Framework**

It is evident from the above brief review that: (i) there has been little research on the influence of broader context on SDs, (ii) most of the studies focus on a limited number of antecedents while ignoring other important sources of influence on strategic decision making processes (model underspecification), (iii) most of the studies focus on just one characteristic of the process (i.e. comprehensiveness, politics, decentralization), despite the fact that strategic DMPs are multidimensional in nature, (iv) in addition, much of the evidence produced is contradictory and far from establishing a coherent theory.

Therefore, we are not able to answer the question “**what are the key influences on the process of**

**making SDs?”**. Is it the external environment as the population ecologists would argue, or is it the top management (CEO and TMT) as the proponents of management choice theories would contend? Do internal enterprise characteristics affect the process? Do different decision-specific characteristics, as perceived by management, lead to different treatment of the decision? Does past performance play any role in influencing the making of SDs? What is the role and significance of formal planning systems?

Since these questions remain largely unanswered (Bateman and Zeithaml, 1989; Bryson and Bromiley, 1993; Pettigrew, 1990; Rajagopalan et al. 1993; 1997; Schneider and DeMeyer, 1991), it seems that what is needed is an exploratory approach which views the process of making SDs as subject to multiple influences, and examines the effects of factors in three contextual domains: decision-specific characteristics, top management, and context.

The present paper addresses these issues by formulating an integrative model of contextual influence on strategic DMPs. The dimensions of the strategic DMP are shown on the right-hand-side of figure 1. The decision-specific characteristics are depicted on the left-hand-side. The top block of the diagram indicates management factors while the lowest block indicates broader contextual factors (corporate environment and internal firm characteristics).

This study operationalizes these dimensions/factors, and tests their effect on the DMP. The components of the model together with operationalization and measurement issues, follow the discussion of our methodology. The exploratory nature of the paper should again be stressed. Given the previous studies have reached widely conflicting conclusions the paper aims to provide evidence as to which domains pertaining to SD process are more important, and which factors within each domain actually influence various dimensions of the process. Further research will be needed to advance and test particular hypotheses.

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**Insert Figure 1 about here**

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## **RESEARCH METHODOLOGY**

### **Data Collection and sampling issues**

To achieve these objectives an ambitious study was designed and executed, which took more than 14

months of intensive fieldwork. This can be characterized as a multi-method, in-depth field research study (Snow and Thomas, 1994). The data sources include: (i) initial CEO interview, (ii) semi-structured interviews with key participants, (iii) completion of two different questionnaires: one general for the CEO and one decision-specific for the key participant(s), (iv) supplementary data from archival sources (e.g. internal documents, reports, minutes of meetings).

The research covers 70 SDs in 38 manufacturing firms in Greece. A sequence of steps was followed in order to secure the reliability of data based on participant recall. The process is described in Appendix 1. The sampling frame comprised all manufacturing enterprises in Greece with more than 300 employees, drawn from three industrial sectors (food, chemicals and textiles), a total population of 89 companies of which 38 participated in the research. The average size of the companies in the sample is 730 full time employees. In most cases two SDs were studied in each firm, resulting in a sample of 70 SDs.

The response rate achieved (approximately 43%) is very high considering the intrusive nature of the research and the fact that top management was asked to devote several hours of its time. Comparison between respondent and non-respondent firms on the basis of three objective measures (number of employees, total assets, and return on assets), verified the representativeness of the final sample.

### **Reliability and Validity Considerations**

A study based on participant recall, though the dominant method of studying decision-making processes, may have inherent limitations (Bouchard, 1976; Huber and Power, 1985; Kumar et al. 1993). A number of procedures have been suggested to help reduce their impact, including the use of multiple informants (Kumar et al. 1993). Even these methodologies do not guarantee objectivity. The *nature of the present research* (in-depth study of one or two SDs in each company, a separate CEO interview, use of archival data), *the specific features of the sample* (i.e. medium-sized enterprises, existence of few key-informants in each SD), as well as the *effort* required to find informants to discuss in depth often delicate matters, relating to a SD, made it difficult to use multiple informants per SD and to aggregate their responses.

Several tactics were followed in an attempt to alleviate possible biases (Bourgeois and Eisenhardt,

1988; Huber and Power, 1985; Kumar et al. 1993), *First*, archival records documenting the process and its characteristics were collected prior to each main interview. *Second*, all the discussions were recorded. This tactic enabled the researcher to have direct access to the original discussion and pay attention to any part of it, at later stages. Interview notes, impressions, noteworthy points were written down during the first 24 hours after the completion of the interview (Bourgeois and Eisenhardt, 1988). These improved knowledge of the process.

*Third*, particular caution was exercised to minimize distortion and memory failure problems notably by selecting *recently taken decisions* (Mintzberg et al. 1976), by interviewing only *major participants* having an intimate knowledge of the process (Kumar et al. 1993), by adopting a "*funnel sequence*" method in conducting interviews (Bouchard, 1976), by cross-checking interview-derived information against other managers' recollections (e.g. CEOs), by using *additional informants in cases of incomplete information*, and by cross-checking interview data with *other company sources* available (e.g. documents, reports, minutes of meetings).

In addition, a *small number of key process variables* were measured independently (e.g. planning formality, internal reporting activities) based on archival data. Statistical tests showed that managers' recollections were significantly correlated with the selected archival data. In addition, both subjective and objective data on corporate performance were obtained. The two methods provided similar results, reinforcing belief in the validity of the data. However, managers' recollections were used in measuring most of the variables in this study.

Another major consideration was the minimization of *common method bias*. To correct for such effects the following precautions were taken: *First*, a number of variables (e.g. size, performance) are archival, obviating any danger of common method bias with them. *Second*, two different questionnaires (general and decision-specific) were used and they were answered by different managers (i.e. dependent and independent variables were answered by different persons). *Third*, the items used in the analysis were distributed throughout a lengthy interview. *Fourth*, scale anchors were reversed in several places to reduce and compensate for the development of response patterns. These precautions afford some confidence that common method bias was not a problem. *Finally*, the willingness and sincerity with

which top managers participated in the research and the interest they showed during the interviewing process, provide a further reason to believe in the face validity of their responses.

## **OPERATIONALIZATION AND MEASUREMENT OF SD PROCESSES**

The dimensions along which SD processes were measured in this study are: *comprehensiveness/rationality*, extent of *financial reporting*, existence of a set of *formalized rules* guiding the process, *hierarchical decentralization*, *lateral communication*, *politicization*, and *problem-solving dissension*. These are indicated in appendix 2 along with their measurement details, reliability levels and the sources from which they were derived.

As outlined in the theoretical framework, ample theoretical support can be found for the above dimensions. For example, the framework adopted is similar to that of Cray et al. (1988). Indeed, the scrutiny dimension is captured by the comprehensiveness and financial reporting dimensions, the interaction dimension is captured by the politicization and problem-solving dissension dimensions, the centrality dimension is similar to our hierarchical decentralization and lateral communication dimensions.

Moreover, their reliability levels are very satisfactory. Especially for the comprehensiveness/ rationality construct, they are higher than those reported by other researchers (e.g. Dean and Sharfman, 1993b; Fredrickson, 1984; Smith et al. 1988). It is noteworthy that despite the fact that the resulting variables tap dimensions of the same phenomenon (i.e. the strategic DMP) they do not have very high intercorrelation coefficients (see table 1). All however, are in the expected direction. For example the formalization construct is positively and significantly related to the notion of rationality, an association argued by several researchers (e.g. Langley, 1989).

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**Insert Table 1 about here**

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## **SELECTION AND OPERATIONALIZATION OF EXPLANATORY VARIABLES**

### **Measuring Decision-specific Characteristics**

To derive generic dimensions, the present research specified and measured sixteen decision-specific characteristics, which would apply across the diverse SDs in our sample, and which were based on the

literature review. These issue characteristics are shown in table 2.

These initial variables were factor analyzed, using varimax rotation method and six factors were derived. Table 2 presents the results of the factor analysis investigation. It is worth noting that all factors reflect distinct, internally consistent patterns suggesting generic characterizations of SDs. A specific name is assigned to each factor based on the variables loading. The names of these factors are: SD's magnitude of impact, uncertainty, amount of pressure anticipated by the participants, frequency/familiarity, extent to which the SD was perceived as a crisis situation, and finally extent to which the SD emerged through the formal planning system (planned vs. ad hoc). Appendix 3 presents details on variable measurement, sources in the literature from which these were drawn, and their reliability levels.

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**Insert Table 2 about here**

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But these generic characteristics may not cover the true nature of a project. So further *objective* decision-specific constants were added describing any idiosyncratic aspects of SDs not accounted by the characteristics included (see Hickson et al. 1986; Shirley, 1982). For the purposes of the present paper, a fourfold classification of SDs is identified: *new business investment decisions* (e.g. acquisitions, mergers, joint ventures, new company establishment), *investments in capital equipment* (e.g. expansion of production equipment, storing facilities, modernization of production equipment), *investment in the marketing domain* (e.g. new product introduction, marketing channels), and finally *internal reorganization investments* (e.g. investments in information systems, internal reorganization etc.). All these are measured using dummy (0/1) variables.

### **Measuring Top Management Characteristics**

Both *personality and demographic* variables are used to measure characteristics of the CEO and the *top management team* (TMT). This would help find out whether it is the CEO, or the top management team, or both, that play an important role in the making of strategic decisions.

#### *i. CEO's Personality and Demographic Characteristics:*

Two CEO personality characteristics are incorporated in the present work: need for achievement, and risk attitude. **Need for achievement** is, according to several writers, one of the basic characteristics positively associated with entrepreneurial success (Gough, 1976). In the present study Steers and Braunstein's (1976) scale is used (see appendix 3). **Attitude towards risk** (risk propensity) is a psychological disposition of individuals to show varying degrees of risk taking or risk avoidance behavior. It is among the major personality dimensions which was found to be associated with various strategic configurations. The particular construct used is derived from Jackson (1976), and Eysenck and Wilson (1975). Appendix 3 describes how these dimensions were operationalized and measured. The resulting reliability coefficients are satisfactory, providing reliability levels similar to those reported in other studies (e.g. Budner, 1962; Steers and Braunstein, 1976).

As regards CEO's demographic characteristics several variables have been used for describing characteristics of 'managerial elites'. The present research uses two variables (i) CEO's **length of service** in the company (number of years with the company), and (ii) CEO's level of **education**. Both variables have been reported to have a profound influence on organizational processes and outcomes (e.g. Finkelstein and Hambrick, 1990; Hitt and Tyler, 1991).

#### *ii. TMT Characteristics*

Two measures were used. The first, measures the **degree of aggressiveness** of what Hage and Dewar (1973) call the 'behavioral elite group' (i.e. the CEO and all those participating in major decisions). It draws from Khandwalla (1977) and Stein (1980), and is measured by three items expressing dimensions of the TMT's attitude towards risk and achievement. The first item measures the degree of 'beat-the-competition' attitude, the second TMT's risk propensity (i.e. attitude towards risky projects), and the third the top team's attitude to innovation. The combination of these three items is explained as TMT's aggressiveness towards competitors, innovation, and risky projects.

The second variable attempts to capture the **level of education** of what Hage and Dewar (1973) name as formal elite. It is an objective variable measuring the percentage of managers, down to the level of departmental heads, who are university graduates.



## Broader Context

### *i. Environmental Context*

Three environmental dimensions are measured using perceptions of top managers: (i) *environmental heterogeneity*, (ii) *environmental dynamism*, and (iii) *environmental hostility (opposite to munificence)*. Appendix 3 describes how these dimensions were operationalized and measured. Cronbach Alpha reliability coefficients are satisfactory, providing reliability levels similar to those reported in other studies which used the same measures.

### *ii. Internal Context*

*Internal Systems:* For the purposes of the present work, planning systems are used as potentially very relevant to SDs (e.g. Sinha, 1990). In particular the variable **formalization of the planning** effort is used. It has been suggested by various researchers (e.g. Grinyer et al. 1986) that formalization is one of the most prominent characteristics of planning systems. The specific construct used is adapted from the work of Wood and Laforge (1981). Only seven of the initial eighteen dimensions proposed by Wood and Laforge (1981) have been selected. These dimensions were preferred because they refer to the long-term planning conducted rather than to short term budgeting practices (see appendix 3). When factor analyzed the seven dimensions produce only one factor, further verifying the appropriateness of the modified scale used.

*Corporate Performance:* Two objective measures of performance are used. First, **return on assets (ROA)**, which is viewed as an operational measure of the efficiency of a firm with regard to the profitable use of its total asset base (Bourgeois, 1980). Second, **growth in profits**, indicating the trend in profitability improvement. This paper treats performance as an independent variable influencing the strategic DMP. To assure this, performance measures were calculated going five years prior to the decision studied. This adds confidence in testing whether past performance was serious consideration when making the SD.

*Firm Size:* To measure size this paper uses the log of full time employees (e.g. Fredrickson, 1984).

*Corporate Control:* Finally, to capture the effect of type of ownership-control on decision-making

practices two dummy (0/1) variables are used, distinguishing State Owned Enterprises (SOEs) and private Greek companies from subsidiaries of multinationals.

## DATA ANALYSIS CONSIDERATIONS

Given the number of variables involved, both dependent and independent, separate regression models were applied for each SD dimension. The results reported here present the "best" regression equation, i.e. the equation which provides the maximum number of significant variables. These would give a first indication of the relative influence of the explanatory variables on each independent variable.

A consideration in presenting the models was whether a full equation model should be presented along with the best equation model, for each of the dependent variables. The size of the sample (i.e. 70 SDs) theoretically would impose limits on the number of variables to be introduced simultaneously. The degrees of freedom would not be adequate to assure reliable and valid results in a full variables version. Moreover, the research is exploratory and in most cases there are not prior strong reasons to expect relationships with all variables. Versions with full equations can be obtained by the first author upon request. These do not change the pattern emerging.

Each model was derived by both backward elimination and stepwise regression methods in corroboration. In most cases the results were identical. In the very few cases where the two methods provided different equations, further tests were attempted by entering and removing variables from the equation, and finally the model with the best explanatory power was selected.

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**Insert Table 3 about here**

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A second consideration refers to possible multicollinearity effects. Table 3 presents the intercorrelations between the independent variables. Only 2 out of over 300 single correlation coefficients are above 0.50, and then only slightly, indicating that intercorrelations are not unduly high. To safeguard for multicollinearity effects, the procedures outlined by Belsley et al. (1980) were followed. According to this, condition indexes were calculated for each of the regression models of table 4. These condition indices were far below the suggested warning level of 10.0 for mild collinearity. Thus, no serious

problems are expected (Belsley et al. 1980).

Several other warning signals were also inspected, in order to detect possible multicollinearity problems. In none of the equations is there a substantial  $R^2$  accompanied by statistically insignificant coefficients, to raise suspicion about possible multicollinearity problems. The stability of regression coefficients was also tested. Here, several runs were conducted by dropping or adding independent variables in the equation. None of these trial runs has indicated any extraordinary change in regression coefficients. Most of the regression coefficients appear to produce algebraic signs according to theoretical expectations and the coefficients for each regression show a high consistency with single correlations.

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**Insert Table 4 about here**

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## RESULTS

Table 4 summarizes the results of the paper. All models afford good to satisfactory predictions of the extent to which each SD-process dimension is determined by the decision-specific, management and contextual characteristics. The explanatory power of the models ranges from .39 to .63 and on average exceeds .50. Considering the cross-sectional nature of the research, and comparing the results to similar efforts this is seen as very satisfactory (e.g. Dean and Sharfman, 1993a; Stein, 1980).

### Comprehensiveness/Rationality

Overall, results show that comprehensiveness/rationality is affected by **decision-specific characteristics** and **internal context**. Environment and management factors are insignificant. The specific coefficients of model 1, table 4 suggest that SD's *magnitude of impact and type of SD* are the most important decision-specific characteristics while *planning formality, corporate performance, firm size*, and *ownership/control type* are the dimensions of the internal context which significantly influence comprehensiveness in the SD-making process.

Results are in line with Dean and Sharfman (1993a) and Stein (1980) who suggest that the perceived *magnitude of impact* of a decision is among the strongest explanatory variables of decision-making

behavior, as decision makers act more comprehensively/ rationally when decisions imply important consequences. It is also noteworthy that SDs for new business investment and marketing type seem to be subject to less comprehensive/rational analysis than SDs on capital investment and internal reorganization. This follows from the negative coefficients of the respective dummies.

As regards **internal context**, all dimensions appear to be significant. Results support the normative view that FPSs contribute to more rational decision making (Armstrong, 1982; Duncan, 1990; Langley, 1988). Contrary to the line of reasoning which understates the contribution of formal planning systems (FPSs) to decision-making (e.g. King 1983; Sinha, 1990), here planning formality appears to be an important contributor to comprehensiveness in SD making.

A positive relationship between corporate performance and comprehensiveness/ rationality, is obtained with *return on assets*. It appears that high levels of performance may produce enough resources to help in making better, more rational decisions; that may mean that high performers are 'offered the luxury' to invest in more analysis while poor performers may lack these slack resources. The opposite may also obtain, high rationality may lead to better performance thus reinforcing a positive relationship. In the same vein, others have argued that more rational decisions may themselves lead to better performance (Grinyer and Norburn 1977/78; Smith et al. 1988). In our case this explanation is less likely, given that ROA figures used concern previous years. The results seem to contradict the opposite school of thought, which suggests that superior performance may lower the extent with which organizations engage in rational decision-making (Bourgeois, 1981; Cyert and March, 1963; Fredrickson, 1985).

*Size* constitutes a significant explainer of comprehensiveness. This is in line with the suggestions of previous work (e.g. Fredrickson, 1984; Fredrickson and Iaquinto 1989; Mintzberg, 1973), which state that size entails more comprehensive/rational decision behavior.

Finally, both dummy variables measuring *control/ownership* appear to be significantly related to decision comprehensiveness/rationality. More specifically, using subsidiaries of multinationals as benchmarks, state controlled enterprises seem to follow more rational processes, while enterprises of private Greek ownership appear to be less rational. This is an interesting result since it verifies the popular view that Greek private enterprises follow less comprehensive/rational DMPs when making decisions of a

strategic nature, in comparison to subsidiaries of multinationals. That state owned enterprises are closer to multinationals in this respect is unexpected. Maybe they have qualified staff and engage in more analysis, taking all the necessary time and effort to collect all necessary information and explore alternatives, in order to justify their final choices in their strong stakeholders, both inside and outside the organization.

The insignificant coefficients also provide useful suggestions. A striking result is the lack of significance of **top management characteristics**, since no variable loads significantly in model 1. Only TMT's aggressive philosophy is marginally significant (at a 10% level). This seems at odds with current theory, which stresses the vital role of the CEO and/or the TMT on comprehensive/rational decision-making (Hambrick and Mason, 1984).

A similar observation can be made as regards **environmental variables** in determining comprehensiveness, which runs against propositions of environmental determinism. We would expect environmental variables to influence rationality/comprehensiveness. Indeed, several researchers have argued for the significance of environmental heterogeneity in determining strategic processes (Lindsay and Rue, 1980; Smart and Vertinsky, 1984). These authors argued that managers who perceive their corporate environment as complex tend to employ more comprehensive strategies. Bourgeois and Eisenhardt (1988), in their study of strategic decision processes in high velocity environments concluded that effective firms follow the rational model in decision making.

Others have argued that companies operating in stable environments follow rational-comprehensive processes in making and integrating strategic decisions (e.g. Cyert and March, 1963; Fredrickson, 1984; Fredrickson and Iaquinto, 1989; Hart, 1992). The argument behind this contention is that strategists usually find it difficult to rely on formal financial analysis, in-depth study, and rational processes when having to deal with unstable, high velocity environments characterized by information scarcity and rapid change. Instead, they are obliged to take quick, bold decisions in many instances, relying on the available amount of information. In the same vein, companies operating in stable environments rarely face significant opportunities and thus when having to deal with such a situation they employ more rational processes.

Our results do not support either line of thought. On the contrary they are in line with Smith et al.

(1988) who reported a lack of any statistical significant relationship between environmental dimensions and rationality of strategic decision-making. However, one should consider the results of the other dependent variables, before rushing to conclusions.

### **Financial Reporting**

Financial reporting, a dimension of rationality typically applied in SD especially of an investment nature, is significantly affected by **decision-specific** characteristics, and some characteristics of the **internal context**.

More specifically, from a quick inspection of model 2 in table 4 it appears that two decision specific characteristics notably *magnitude of impact* and *emergence of the SD through planning*, *CEO's level of education* and *return on assets* are to be positively associated with financial reporting, while *private Greek ownership* has a negative association. Of note are the marginally significant associations (10% level of significance) provided by two other generic decision-specific characteristics.

First, results indicate that situations perceived as crises are actually associated with more financial reporting activities. This is in line with previous theoretical argumentation (Dutton, 1986). In general, one might argue that when adversity looms everyone might want to interpret and explain the situation in terms of financial analysis and reporting. Or, taking another view, the company may seek to exercise control and support the meaningfulness of its actions in the eyes of both internal and external stakeholders by relying on deeper financial reporting and analysis, since crises usually involve risks of a significant financial loss.

Second, financial reporting is negatively related to frequency. This result supports the view that frequent/familiar issues are dealt with by standard rules and analogies from memories. They therefore are associated with less analysis and comprehensive reporting of data (Marmaras et al. 1992). Also the coefficients of the dummies “investment in capital equipment” and “investment in marketing” are marginally significant showing a higher level of financial reporting for these types of decisions, as against investments in internal reorganization.

As regards **top management**, only *CEO's level of education* is positively associated with financial reporting. Education level has been found to be related to the extent of people's information search and

analysis (Dollinger, 1984). A highly educated CEO is thus likely to demand more detailed information, leading to more financial reporting (Bantel, 1993). All other top management characteristics (e.g. CEO's need for achievement, risk propensity or tenure) appear to be insignificant.

From internal firm characteristics, again *performance* in terms of ROA is positively associated with financial reporting. An important finding, is also the negative association between *private Greek ownership* and financial reporting. It implies that Greek private firms may rely less on formal financial reporting activities when making strategic decisions than multinationals. This strengthens our argumentation when discussing the results of the comprehensiveness/rationality model. SOEs are not different from multinationals.

Of note is the general lack of significance of external corporate environment. This is in line with the results obtained using the rationality/comprehensiveness construct. Interestingly, *size* does not seem to be significantly associated with financial reporting. These findings will be further discussed in later sections of the paper.

## Rule formalization

Rule formalization in the SD process (model 3 table 4) is influenced by **decision-specific characteristics** (*decision uncertainty* and *emergence* through formal planning), **top management characteristics** (CEO *risk propensity*) and **corporate control type** (*Greek-ownership*).

From **decision-specific characteristics**, *decision uncertainty* and *emergence* are negatively associated with rule formalization of SD process. Uncertainty, as used here refers to specific decisions, as opposed to the uncertainty caused by the organizational environment. Results are in line with Thompson (1967 pp. 134) who contends that in cases of high uncertainty, managers act in an 'inspirational' manner, by making obsolete any formal procedures and rules usually followed. One can contend that high uncertainty about the decision may, contrary to the received (common) expectations, result in more intuitive processes (Daft and Lengel, 1986; Dean and Sharfman, 1993a) together with use of less formalized rules. Again, as expected, SDs *emerging* from the discipline of a *formal planning system* are found to follow more formalized paths.

As regards **management** we observe a negative association between *CEO's risk propensity* and rule formalization in taking SDs. Again, such a result is intuitively expected, since risk takers usually break the bounds of organizational systems and formalities and influence the SD process towards more informal paths. TMT's aggressive philosophy is also related to more formalized rules.

Finally, *private Greek companies* seem to be lagging in rule formalization as the negative coefficient suggests. SOEs do not differ from multinationals.

Overall, however, we cannot argue that there exists a 'balanced contribution' of all domains (SD itself, management and context) in explaining SD formalization. Of interest is the lack of significant impact of decision frequency, corporate environment, planning formality, past performance and size. This suggests that SD process formality is independent from the formal planning machinery of the firm and external corporate environment and the other internal company characteristics. It is more a matter of decision-specific characteristics and top management choice.



### **Hierarchical decentralization and lateral communication**

The extent to which SD process is decentralized and allows participation of lower level managers depends on the **decision-specific characteristics**, on *CEO tenure* and corporate *profitability*. Moreover, the extent of lateral communication is determined by **decision-specific characteristics**, *top management team's aggressiveness*, and internal *firm planning formality*.

More specifically, several conclusions can be drawn from the results of models 4 and 5, table 4. From the decision-specific characteristics, particularly strong is the effect of *magnitude of impact*, followed by perceived *pressure* and *threat/crisis*. Results imply that SDs with important impact attract the collective attention of more layers in the hierarchy and more departments as revealed in models 4 and 5. This corroborates Dutton et al. (1989) who argues that issues with great magnitude of impact imply high interconnectedness with other relevant issues. Therefore, such issues attract more collective attention and thus result in higher hierarchical decentralization and lateral communication.

Pressure has a negative coefficient, suggesting that when SDs are taken under pressure there may not be enough time to involve more levels and departments.

An interesting effect obtains for threat/crisis. This suggests that threatening situations result in more hierarchical decentralization. At first this is counterintuitive. A number of authors (e.g. Dutton, 1986; Herman, 1963) argue that centralization of authority is the expected outcome of crises, since two opposite forces clash. First, managerial elites undertake the responsibility of the whole effort to divert the crisis. Second, middle managers feeling that the issue might be 'too heavy' for them to deal with, pass it to top management.

Milburn et al. (1983), provide an explanation for this counterintuitive result: their findings suggest that although centralization was the immediate outcome of crises, the actual intermediate response was decentralization of authority. This may be explained by the distributed character of information and expertise; if we admit that the source of vital information is middle management, centralization deprives top management of extremely useful data. Herman (1963) offered another explanation. He argued that the relationship between crisis and decentralization of authority is curvilinear. Thus, under situations which are characterized as "mild crises" one may observe decentralization. By contrast, when crises become

acute, authority centralization is found. Further investigating the descriptive statistics of the variable measuring the extent of perceived crisis, we may see that the variable is measured on a five-point scale and has a mean of 2.51 which implies rather 'mild crises', on the average. This suggests that our sample of SDs may not include intense crises which are assumed to lead to hierarchical centralization and less lateral communication.

As regards the effect of *type of investments* on hierarchical decentralization, all dummy coefficients are significant showing that only internal reorganization investments are relatively more centralized. On the contrary none of the dummy variables is significantly associated with lateral communication.

**Top management** has two significant coefficients. In model 4 the variable measuring *CEO's tenure* is positively related to hierarchical decentralization patterns. This may be explained by the fact that CEO's tenure may influence participation patterns by developing greater levels of social integration, and possibly by including in the dominant coalition more managers from various layers (Wiersema and Bantel, 1992).

Similarly, *TMT's aggressive philosophy* appears significantly positively associated with lateral communication during SD making. This is in line with the view that in order to follow an aggressive strategy top management may need more information and cross-departmental involvement. If we consider that individual departments possess specialized information and their alliance is crucial to implementation of an aggressive philosophy, it is plausible that the level of lateral communication may increase.

It is somewhat surprising, however, to find again that *corporate environment* has insignificant coefficients. None of the environmental variables seems to have any effect on hierarchical decentralization and lateral communication patterns during the making of SDs. This is more intriguing if we consider the results of various studies which have argued for close links between environmental characteristics and decentralization and communication. For example, Lindsay and Rue (1980) argue that environmental heterogeneity is associated with more hierarchical decentralization, and more lower-levels involvement. Miller and Friesen (1983), also suggested that an increase in perceived environmental heterogeneity is expected to complicate the administrative task, thus resulting in subsequent changes in structure (e.g. more lateral communication). In the same vein, Grinyer et al. (1986) contend, that environmental stability

favors the delegation of authority to lower levels in the hierarchy, during the planning process. Interestingly, none of these relationships are supported by our data.

*Performance*, expressed by ROA, is positively related to hierarchical decentralization. This is in line with the results presented by Bourgeois and Eisenhardt (1988) and others. They have reported that the more the power to make strategic decisions is delegated to the functional and divisional executives, the higher the performance of the firm. This line of thought assumes that greater participation (especially by middle managers) will have a positive impact on organizational performance by triggering two parallel, positive phenomena. On one hand, the involvement of more people in strategic DMPs increases the level of consensus among managers, produces a common understanding of the joint task, creates a climate of shared effort, and facilitates smooth implementation of strategic decisions. Smooth implementation contributes in turn to higher performance (Wooldridge and Floyd, 1990). On the other hand, lack of involvement of employees other than 'strategic elites' in the process has been found to create implementation problems, including sabotage (Guth and MacMillan, 1986).

Secondly, middle managers act as information monitors and are usually the first to sense potential threats and opportunities in their own particular domains (Pascale, 1984). Increasingly, top management's ability to sense the emergence and meaning of various challenges encountered, is seen as a critical strategic capability. Due to information overload, top managers may be less and less able to fully understand the world around them. According to this view, strategic DMPs in successful firms are, more a product of a shared effort, than deliberation by one person.

Two other results seem also important. First, *planning formality* as expected, has a positive coefficient in model 5, indicating that it is associated with higher lateral communication. Second, *corporate control* does not appear to influence decentralization and communication patterns. So there may be no significant differences between the various types of enterprises -state, private, foreign- in decentralization and communication, when taking SDs.

### **Politicization and Problem-solving Dissension**

Politicization and problem solving dissension (models 6 and 7, table 4) are mainly influenced by

**decision specific characteristics** (uncertainty, and pressure), one **external environmental** characteristic (*heterogeneity*) and certain **internal context** characteristics (e.g. planning formality, performance and corporate control).

Both politicization and problem solving dissension seem to be influenced more by SD *uncertainty* and less by other characteristics such as impact, threat/crisis or pressure. This is in line with Lyles (1981), who based on case evidence, argued that uncertainty about certain aspects of an issue (i.e. definition) may raise politicality in the problem formulation process. Indeed, when uncertainty exists (for example about the actions to be taken and/or the information to be collected), one may expect to find both a divergence of opinions during the initial stages of problem formulation, and a surge of political activities during the issue resolution process.

Interestingly *pressure* situations are found to have positive effect on problem solving dissension among participants. It seems that pressure situations may intensify dissension as many times they call into question the efficacy with which the dominant coalition has acted in the past to preserve organizational interests, and threatens the power-base of managerial elites (Dutton, 1986). It is not at all unexpected to witness what Herman (1963) has called 'factionalism' i.e. various units or departments favor opposite views about the proper reaction to the problem. It is also interesting to note that all dummies for type of decision have negative coefficients. This suggests that all investments cause less dissension than internal organizational SDs.

**Environmental factors** also seem to have no significant effect on politicization, while environmental heterogeneity appears to negatively influence problem-solving dissension. This latter result is contrary to expectations. For example, Dess and Origer (1987) argue for an inverse relationship between environmental heterogeneity and consensus on goals, since complexity gives rise to more possible points of conflict among managers and makes consensus more difficult to achieve. Others, (e.g. Lyles and Mitroff 1980) argued along similar lines.

A positive relationship obtains between politicization and *planning systems* formality. This suggests that planning formality has a positive influence on politicization. Results corroborate the prevailing view that FPSs encourage political behavior (Langley, 1988; Rhyne, 1986) since managers may perceive

planning systems as a means through which personal views are communicated, political aspirations take effect, and political activity may develop.

Of note is also that both politicization and problem solving dissension are found to be positively related to *growth in profits*. We will draw attention to this finding in our discussion section.

The positive statistical significant association between politicization and *SOEs* may be attributed to the multiplicity of internal and external interests in the context of *SOEs*. The fact that numerous parties may intervene and try to skew the output of the decision process in their preferred direction may raise politicization levels in *SOEs* relative to other categories of enterprises.

Of note is the general absence of **top management characteristics** in influencing both political activities and problem solving dissension. Results support the view that the emergence of internal politics and dissension depends more on the decision-specific characteristics and certain characteristics of the external and internal context (environmental heterogeneity, planning formality, performance), rather than the characteristics of the decision makers themselves. This appears to be at odds with Dean and Sharfman (1993b), who have reported that political behavior (among others) stems from the characteristics of the decision making group (interpersonal trust).

## DISCUSSION

Overall, the results of the paper support the view that for understanding strategic DMPs in depth, an integrative model which includes decision-specific, management, environmental and organizational factors is needed. Results suggest that strategic DMPs are shaped by the interplay of these factors. Neither the external control model (environment), nor the strategic choice model (decision makers), nor the corporate inertial model (size), or the resource availability (performance), adequately explain actual strategic decision-making behavior.

The most striking finding was the dominant role of **decision-specific** characteristics in determining decision processes. To the best of the authors' knowledge this is the first time that the dominant role of decision-specific characteristics (generic attributes and objective categorization) is verified in the context of SDs. The specific results show that the generic characteristics of a SD such as its perceived magnitude

of impact, frequency/familiarity, its uncertainty, its threat/crisis component and whether it emerges through discipline of the planning system of the firm, significantly influence dimensions of the DMP, more than other environmental, organizational and managerial factors.

Somewhat similar results were obtained by Meyer and Goes (1988), in their study of innovation assimilation. In assessing the comparative influence of various contextual domains on innovation assimilation they found that environment, organization and leadership, taken together, were relatively poor predictors of innovation. In contrast very good predictors proved to be the innate attributes of innovations.

The generic decision-specific characteristics tested in the present study may not be exhaustive. This is obvious from the statistically significant dummies expressing types of decisions. This means that the objective type of SD variables introduced offer a unique additional explanatory power, not captured by the generic decision-specific characteristics included. It also calls for a search for additional 'generic' SD characteristics which may, when included, minimize any remnant effect of dummies. This however would require further research.

New business investments and investments in marketing exhibit less association with rationality in comparison to capital equipment investments and internal reorganizations. Investments in capital equipment and marketing exhibit more financial reporting in comparison to other investments. Investments in internal reorganization seem to be hierarchically more centralized in comparison to other investments. Also internal reorganization is accompanied by more problem-solving dissension in comparison to all other types of SDs.

The study has also established the relative importance of **top management characteristics**. Certain CEO characteristics entered significantly into the regression models and influenced financial reporting, formalization and hierarchical decentralization. This implies that the contribution of CEO characteristics have also their own effect when controlling for other contextual factors. These results are in line with research reporting that CEO personality and demographic characteristics are related to aspects of strategic DMPs (e.g. Miller and Toulouse, 1986).

In addition to CEO characteristics, TMT aggressive philosophy appear to influence rule formalization and lateral communication and only weakly comprehensiveness/rationality. It is also worth noting that both

the CEO and the TMT appear to be insignificant in influencing such dimensions as political activities and problem solving dissension. This may be explained by the fact that executives do not always have complete latitude of action (Hannan and Freeman, 1977). There exist conditions of restricted discretion where TM becomes less important and other factors as corporate control, and firm characteristics or decision-specific characteristics become more significant in influencing politicality in SD making.

Overall, regression results support the view that both CEO's and TMT's characteristics have their effects in SD processes and are in line with Kets De Vries and Miller (1986) and Nahavandi and Malekzadeh (1993). This may lead us to lend credence to the “upper echelons view” of organizations, and put into dispute the allegations of population ecologists (e.g. Hannan and Freeman, 1977) who consider TMT to be but a passive agent.

As regards external **corporate environment**, we found only one significant coefficient: namely, that environmental dynamism has a negative effect on problem solving dissension. All other environmental variables we found to be largely insignificant. Overall, our results contradict researchers who argued that environmental factors as opposed to internal organizational factors are the primary sources of influence on SDs (e.g. Hannan and Freeman 1977; Jemison, 1981).

No support was found for the role of environmental heterogeneity/complexity on strategic DMP. Rajagopalan et al. (1993) argued that the degree of **environmental complexity** in a firm's operating environment directly impacts the amount and nature of information that has to be processed by decision makers. Research on cognitive processes also suggests that environmental heterogeneity affects strategic decision process characteristics such as comprehensiveness, and leads to greater use of cognitive simplification processes (Schwenk, 1988). None of these are supported by our results. Again, environmental hostility was found to influence none of the characteristics of SD process. The argument that organizations in hostile environments follow more rational decision processes (Dess and Beard, 1984; Rajagopalan et al. 1993) receives no empirical support.

In an attempt to explain this lack of dominance of the external control model, several speculative assumptions may be advanced regarding the particular country from which results are drawn. Schneider and DeMeyer (1991), reported that Latin European managers in contrast to other Europeans, may be

characterized by an attitude of having limited control over the external environment. Thus, they may direct their efforts towards controlling the immediate, internal environment, and adjust decision making processes accordingly. Although speculative this conjecture provides a fruitful avenue for research in comparative decision-making practices.

**Internal firm characteristics** show more significant effects on DMPs. Firstly, formal planning systems appear to have a positive influence on three aspects of the DMP: comprehensiveness, lateral communication, and politicization. This is in line with theoretical and normative speculations arguing that planning systems lead to more rational decision-making (Armstrong, 1982; Duncan, 1990; Langley, 1988). Again, results corroborate the prevailing view that formal planning systems encourage both lateral communication (Langley, 1988; Tregoe and Tobia, 1991) and political behavior (Langley, 1988; Rhyne, 1986).

Concerning formal planning systems we should note the difference with another dimension which in the course of this research was treated as a project characteristic rather than as an internal firm characteristic, i.e. the *emergence of a SD through the formal planning system*. This refers to the decision whether to handle a SD in the formal planning machinery or treat it ad hoc outside the planning system, and is related to the initial stages of project formulation. These two variables are conceptually distinct and their inter-correlation is not unduly high ( $r=0.47$ ). The results suggest that both have a significant influence on strategic decision-making processes.

Another set of interesting relationships revolves around the significance of corporate **performance** in determining decision processes. Return on assets, provides significant positive associations with rationality, financial reporting and hierarchical decentralization. Profit growth in turn are highly related to politicization and dissension. So different performance aspects appear to influence different dimensions of the process. Past profitability may lead to more rationality and decentralization of DM processes. Growth in profits may lead to internal politics and dissension. The latter is an interesting finding which deserves attention. It may be that high growth of profits over time raises internal conflicts as to where these resources should be invested. Particularly telling was the example of a fast-growing company in the food sector which considering investing a sizable part of its retained earnings. The marketing department



wanted major investments in new products and channels of distribution, while the production department supported a single investment in state of the art computerized storing facilities. The process of deciding where to invest these surplus resources was a highly political one.

**Size** is found to be largely insignificant in almost all regression models except for comprehensiveness/rationality which appears to increase with size. A similar pattern of associations was reported by Dean and Sharfman (1993a). This result seems to be at odds with the conventional wisdom that as companies grow they tend to move towards more procedural and formalized decision-making (e.g. Mintzberg, 1973).

Finally, it appears that **control type** has a significant impact on several aspects of strategic DMPs. Indeed, enterprises under state ownership (SOEs) seem to apply more comprehensiveness/rationality, and more politicization, when making decisions of a strategic nature. This is in line with the view that in the context of SOEs political and economic considerations coexist (e.g. Lioukas et al. 1993). As strategic decisions in SOEs are usually subject to scrutiny or influence by strong stakeholders the decision-takers may take pains to demonstrate that they act rationally and to justify their major decisions both inside and outside the company (Dean and Sharfman, 1993a; Romanelli and Tushman, 1986). This explains the positive relationship between comprehensiveness and SOEs. The positive statistical significant association between politicization and SOEs may be attributed to the fact that numerous parties, not only from inside but also from the outside of the company, may intervene and try to skew the output of the decision process in their preferred direction. Such an activity may raise politicization.

By contrast in **private Greek companies** less rational processes, less financial reporting, and less rule formalization appear to prevail. Results seem to comply with the particular view, that private Greek companies lag in analytical resources and internal systems to support comprehensive/rational decision-making, extensive financial reporting and formalized procedures, or may be less interested in analysis.

In a study of decision-making practices between British and American-owned firms in Britain Mallory et al. (1983) reported that in general American ownership had little or no influence on the way decisions were made. Among the few alleged differences they found more reliance in British companies on certain aspects of formalization. The results of this study seem to reveal an important gap between private Greek

enterprises and subsidiaries of multinationals which tend to have international characteristics. This implies that Greek private management may be associated with less comprehensive/rational processes, less financial reporting and less rule formalization. This opens up interesting questions on comparative decision making practices across countries or types of firms, which may be a useful avenue for future research.

## **IMPLICATIONS AND POSSIBLE EXTENSIONS**

Some interesting practical implications follow from the significance of decision-specific characteristics, identified in this research, in comparison to management, corporate environment and internal firm characteristics. As certain of these decision-specific characteristics are amenable to managerial interpretation and perception it may be in the interest of management to actively manipulate the meaning or categorization of strategic issues, and through them to influence organizational responses. This is in line with much of the thinking in the area. For example, top management deliberately make certain decision-specific characteristics salient. E.g. it may choose to 'manipulate' the information provided from external or internal systems, such as 'Environmental Scanning' or 'Strategic Issue Management' or 'Boundary Spanning' systems, to serve its own goals. What may be communicated as a threat by a specific system may be characterized as an opportunity by another. Filtering information and manipulating decision-specific characterizations, may enable management to subsequently control rationality, formalization, lateral communication, hierarchical decentralization and even the extent of internal political activity.

The specific results indicate that certain management and internal firm characteristics bear on the strategic DMP, while others such as the environment variables appear to be insignificant. So contrary to allegations on the significance of environmental determinants, management seems to play an important role. More specifically, CEO's risk propensity, education and tenure as well as the TMT's aggressiveness seem to be important determinants of certain process dimensions (e.g. rule formalization, financial reporting, hierarchical decentralization, and lateral communication). These results directly question the findings of a number of research works arguing for the secondary role of managers.

Another implication of the results is that they verify the important role of the formality of planning

systems in influencing the making of SDs. Results indicate that formal planning influences the way in which strategic decisions are taken, and thus to an extent, strategy itself. Indeed, by influencing comprehensiveness, lateral communication, and political activities, formal planning systems seem to act as a powerful input to the process of strategy making.

Corporate control is also important, suggesting, an important lagging of private Greek firms in rationality. SOEs instead seem to be closer to international standards, as benchmark against the subsidiaries of multinationals included in the sample.

The present research effort has touched on only a few of the research questions in the field of strategic decision-making. Several extensions, both methodological and substantive need to be made, and a number of points concerning overall research recommendations in the area be highlighted.

*First*, the research has established the dominance of decision-specific characteristics over other management and context factors in making strategic decisions. More work needs to be done to test the generalizability of the present results in other settings and sample designs. Another useful line of research would be to examine the same hypotheses in more narrowly defined samples, e.g. controlling for types of enterprises or SDs and for other context variables, so that consistent research findings be accumulated and a more focused contingency theory on the impact of context on strategic DMPs be developed.

*Second*, despite the fact that the regression models tested here appear to have a very good explanatory power over the adopted process dimensions, there still remains an unexplained percentage of variance. Further research can incorporate additional variables not considered in the course of this study (e.g. contextual elements such as reward systems, organizational structure or further SD attributes), and may adopt different and possibly more appropriate operationalizations of the constructs already used.

*Third*, theory is needed that more accurately reflects the strategic DMP in its context and the relative weight of its determinants. Progress in this area could significantly improve both our understanding and eventually the quality of strategic DMPs. A refinement of the formulation may be necessary before a more substantial explanation or prediction capability can be achieved.

*Fourth*, it may be useful to include intermediate outcome variables of SDs (e.g. innovation, learning, decision quality, satisfaction, commitment, and overall company performance/ effectiveness). Future

research may seriously consider these aspects, which were outside the scope of the present work.

*Fifth*, the present work has established the multidimensional aspects of SD processes and the multiple relationships with the main variables of the study. This enhances the need for producing a more integrated image of decision-making reality through the simultaneous study of a large number of qualities, and use of more sophisticated multivariate analysis of contextual influence on strategic DMPs (Rajagopalan et al. 1993). Simultaneous equation techniques would be useful to further examine determinants of the actual sets of relationships in practice.

It will also be interesting to investigate how closely these results, obtained in one southern E.U. country, apply to SDs in the countries where the vast majority of research in this field has taken place (USA, UK, Canada).

Some of the empirical results from this study concur with the body of research evidence in the area. This would support the 'culture free' argument which maintains that cultural differences may not affect relationships among structural characteristics (e.g. Negandhi, 1975). There are however, certain findings which may be interpreted as 'culture specific'. For instance, the enhanced role of decision-specific characteristics as against corporate environment and top management may be specific to the particular context. It is possible that because Greek private firms have less formal rules and less comprehensive decision processes than their U.S. or British counterparts, they would be more likely to treat each strategic decision as unique and thus react in a more "emotional" manner. In U.S. or British firms with more formal rules and procedures for SDs, decision-specific characteristics may be less important and all or most SDs may be handled using similar processes. This does not mean decision-specific characteristics are of no significance in such a context: the work of Dutton et al. (1989) as well as many others provide clear evidence to the contrary. It rather implies that the role of these characteristics may be not as dominant as they appear to be in the Greek context. This opens up a very promising avenue for future research on comparative decision-making practices, across different country and/or cultural domains. As Charles Schwenk argues in a recent literature review, "it may be that many of the conclusions about strategic decision making developed in the U.S. context will have to be modified in order to be applicable across cultures" (Schwenk, 1995 pp. 484).

## REFERENCES

- Achrol, R.S.**, and L.W. Stern, "Environmental Determinants of Decision-Making Uncertainty in Marketing Channels", Journal of Marketing Research, (1988), 25,36-50.
- Aldrich, H.E.**, Organizations and Environments, Prentice-Hall, New Jersey, 1979.
- Armstrong, S.J.**, "The Value of Formal Planning for Strategic Decisions: Review of Empirical Research", Strategic Management Journal, (1982),3,197-211.
- Bantel, K.A.**, "Top Team, Environment and Performance Effects on Strategic Planning Formality", Group and Organization Management, (1993), 18, 4, 436-458.
- Bateman, T.S.**, and C.P. Zeithaml, "The Psychological Context of Strategic Decisions: A Model and Convergent Experimental Findings", Strategic Management Journal, (1989), 10, 59-74.
- Beach, L.R.**, and T.R. Mitchell, "A Contingency Model for the Selection of Decision Strategies", Academy of Management Review, (1978),3, 439-449.
- Belsley, D.A.**, E. Kuh, and R.E. Welsch, Regression Diagnostics: Identifying Influential Data and Sources of Collinearity, John Wiley and Sons, New York: 1980.
- Billings, R.S.**, T.W. Milburn, and M.L.Schaalman, "A Model of Crisis Perception: A Theoretical and Empirical Analysis", Administrative Science Quarterly, (June 1980), 25,300-316.
- Bouchard, T.J., JR.**, (1976), "Field Research Methods: Interviewing, Questionnaires, Participant Observation, Systematic Observation, Unobtrusive Measures", In Dunnette, M.D., (Ed.), Handbook of Industrial and Organizational Psychology, Chicago, and, McNally: 363-413.
- Bourgeois, L.J.**, "On the Measurement of Organization Slack", Academy of Management Review, (1981),6,29-39.
- Bourgeois, L.J. III**, "Performance and Consensus", Strategic Management Journal, (1980), 227-248.
- Bourgeois, L.J. III**, and K.M. Eisenhardt "Strategic Decision Processes in High Velocity Environments: Four Cases in the Microcomputer Industry", Management Science (1988), 34,7,816-835.
- Bryson, J.M.** and P. Bromiley, "Critical Factors Affecting the Planning and Implementation of Major Projects", Strategic Management Journal, (1993),14, 319-337.
- Budner, S.**, "Intolerance of Ambiguity as a Personality Variable", Journal of Personality, (1962), 30,29-50.
- Butler, R.**, L. Davies, Pike, and J. Sharp, Strategic Investment Decision-making: Complexities, Politics and Processes, *Journal of Management Studies*,(1991), pp. 395-415.
- Child, J.**, "Organizational Structure, Environment and Performance: The Role of Strategic Choice", Sociology, (1972), 6,1-22.

- Cray, D., G.R. Mallory, R.J. Butler, D.J. Hickson and D.C. Wilson** "Sporadic, Fluid and Constricted Processes: Three types of Strategic Decision Making in Organizations", Journal of Management Studies (1988), 25, 1, 13-39.
- Cyert, R.M., and J.G. March**, A Behavioral Theory of the Firm, Prentice-Hall, 1963.
- Daft R.R. and Lengel, R.H.**, 1986. Organizational Information Requirements, Media Richness and Structural Design. Management Science, 32,(5):554-571.
- Dean, J.W. Jr., and M.P. Sharfman**, "Procedural Rationality in the Strategic Decision Making Process", Journal of Management Studies, (1993a), 30, 3, 587-610.
- Dean, J.W. Jr., and M.P. Sharfman**, "The Relationship Between Procedural Rationality and Political Behaviour in Strategic Decision Making", Decision Sciences, (1993b), 24, 6, 1069-1083.
- Dess, G.G. and D.W. Beard**, Dimensions of Organizational Task Environments, Administrative Science Quarterly, (1984), pp.52-73.
- Dess, G.G. and A.M.A. Rasheed**, "Conceptualizing and Measuring Organizational Environments: A Critique and Suggestions", Journal of Management, (1991), 17, 4, 701-710.
- Dess, G.G., and N.K. Origer**, "Environment, Structure and Consensus in Strategy Formulation: A Conceptual Integration", Academy of Management Review, (1987), 12, 2, 313-330.
- Dollinger, M.**, "Environmental Boundary Spanning and Information Processing Effects on Organizational Performance", Academy of Management Journal, (1984), 27, 351-368.
- Duncan, H.**, "Strategic Planning Theory Today", Optimum, (1990), 20, 4, 63-74.
- Dutton, J.E.**, "Interpretations on Automatic: A Different View of Strategic Issue Diagnosis", Journal of Management Studies, (1993), 30, 3, 339-357.
- Dutton, J.E.**, "The Processing of Crisis and Non-Crisis Strategic Issues", Journal of Management Studies, (1986), 25, 5, 501-517.
- Dutton, J.E., E.J. Walton, and E. Abrahamson**, "Important Dimensions of Strategic Issues: Separating the Wheat from the Chaff", Journal of Management Studies, (1989), 26, 4, 379-396.
- Dutton, J.E., L. Fahey and V.K. Narayanan**, "Toward Understanding Strategic Issue Diagnosis", Strategic Management Journal, (1983), 4, 307-323.
- Eisenhardt, K.M.**, "Making Fast Strategic Decisions in High Velocity Environments", Academy of Management Journal, (1989), 32, 3, 543-576.
- Eisenhardt, K.M. and M.J. Zbaracki**, Strategic Decision-making, Strategic Management Journal, (1992), pp.17-37.
- Eisenhardt, K.M., and L.J. Bourgeois**, "Politics of Strategic Decision Making in High-Velocity Environments: Toward a Midrange Theory", Strategic Management Journal, (1988), 31, 4, 737-770.
- Eysenck, H.J., and G. Wilson**, Know Your Own Personality, Penguin Ltd, Harmondsworth, Middlesex, England, 1975.

- Finkelstein, S.,** and D. Hambrick, "Top Management Team Tenure and Organizational Outcomes: The Moderating Role of Managerial Discretion", Administrative Science Quarterly (1990), 35, 484-503.
- Fredrickson, J.W.,** "Effects of Decision Motive and Organizational Performance Level on Strategic Decision Processes", Academy of Management Journal (1985),28,4, 821-843.
- Fredrickson, J.W.,** "The Comprehensiveness of Strategic Decision Processes: Extension, Observations, Future Directions", Academy of Management Journal, (1984), 27,3, 445-466.
- Fredrickson, J.W.,** and A.L., Iaquinto, "Inertia and Creeping Rationality in Strategic Decision Processes", Academy of Management Journal, (Sept, 1989), 32,4,516-542.
- Guth, W.D.** and I.C. MacMillan, "Strategy Implementation vs Middle Management Self-Interest", Strategic Management Journal, (1986), 7,313-327.
- Gough, H.,** "Personality and Personality Assessment", In Dunnette, M.D., (Ed.), Handbook of Industrial and Organizational Psychology, Rand McNally, Chicago, (1976),571-607.
- Grinyer, P.,** S. Al-Bazzaz, and M. Yasai-Ardekani, "Towards a contingency theory of corporate planning Findings in 48 U.K. companies", Strategic Management Journal, (1986), 7,3-28.
- Grinyer, P.,** and D. Norburn, "Planning for Existing Markets: An Empirical Study", International Studies in Management and Organization, (1977-78),7,99-122.
- Hage, J.,** and R. Dewar, "Elite Values Versus Organizational Structure in Predicting Innovation", Administrative Science Quarterly (1973),18,3,279-290.
- Haleblian, J.** and S. Finkelstein, "Top Management Team Size, CEO Dominance, and Firm Performance: The Moderating Roles of Environmental Turbulence and Discretion", Academy of Management Journal, (1993),36,4,844-863.
- Haley, U.C.V.,** and S.A., Stumpf, "Cognitive Trails in Strategic Management Decision-Making: Linking Theories of Personalities and Cognitions", Journal of Management Studies, (1989), 26,5,477-497.
- Hambrick, D.C.,** and P. Mason, "Upper Echelons: The Organization as a Reflection of its Top Managers", Academy of Management Review, (1984), 9, 193-206.
- Hannan, M.T.,** and J.H. Freeman, "The Population Ecology of Organizations" American Journal of Sociology, (1977),82,929-964.
- Hart, S.L.** An Integrative Framework for Strategy-Making Processes, The Academy of Management Review, (1992), 17, pp. 327-351.
- Herman, C.F.,** 1963. Some Consequences of Crisis Which Limit the Viability of Organizations. Administrative Science Quarterly, 8:61-82.
- Hickson, D.J.,** D.C. Wilson, D. Cray, G.R. Mallory, and R.J. Butler, Top Decisions: Strategic Decision-Making in Organizations, Jossey-Bass, San Francisco, CA, 1986.
- Hitt, M.,** and B. Tyler, "Strategic Decision Models: Integrating Different Perspectives", Strategic Management Journal, (1991),12,327-352.

- Huber, G.P.,** D.J. Power, "Retrospective Reports of Strategic-Level Managers: Guidelines for Increasing Their Accuracy", Strategic Management Journal, (1985), 6,171-180.
- Huff, A.S.,** and R.K. Reger, "A Review of Strategic Process Research", Journal of Management, (1987),13,2,211-236.
- Jackson, D.N.,** Jackson Personality Inventory, Research Psychologists Press, Goshen, N.Y., 1976.
- Jackson, S.E.,** and J.E. Dutton, "Discerning Threats and Opportunities", Administrative Science Quarterly, (1988), 33,370-386.
- Jemison, D.B.,** "Organizational vs Environmental Sources of Influence in Strategic Decision Making", Strategic Management Journal, (1981), 2,77-89.
- Jones, R.E.,** L.W. Jacobs, and W. Van't Spijker, "Strategic Decision Processes in International Firms", Management International Review, (1992), 32,219-236.
- Judge W.Q.** and A. Miller, "Antecedents and Outcomes of Decision Speed in Different Environmental Contexts", Academy of Management Journal, (1991), 34,2, 449-463.
- Kets De Vries, M.F.R.,** and D. Miller, "Personality, Culture and Organization", Academy of Management Review, (1986),1,266-279.
- Khandwalla, P.N.,** The Design of Organizations, Harcourt, Brace, Jovanovich, New York: 1977.
- King, P.F.,** "An Investigation of the Process of Large Scale Capital Investment Decision Making in Diversified Hierarchical Organizations", Unpublished Doctoral Dissertation, Cambridge University, 1975.
- King, W.R.,** "Evaluating Strategic Planning Systems", Strategic Management Journal, (1983), 4, 263-277.
- Kumar, N.,** L. Stern, and J.C. Anderson, "Conducting Interorganizational Research Using Key Informants", Academy of Management Journal, (1993),36,1633-1651.
- Langley, A.,** "Patterns in the Use of Formal Analysis in Strategic Decisions", Organization Studies, (1990),11,1,17-45.
- Langley, A.,** "In Search of Rationality: The Purposes Behind the Use of Formal Analysis in Organizations", Administrative Science Quarterly, (1989), 34,4,598-631.
- Langley, A.,** "The Roles of Formal Strategic Planning", Long Range Planning, (1988), 21,3,40-50.
- Lewin, A.Y.,** and C.U. Stephens, "CEO Attributes as Determinants of Organization Design: An Integrated Model", Organization Studies, (1994),15,2,183-212.
- Lieberson, S.,** and J.F. O'Connor, "Leadership and Organizational Performance: A Study of Large Corporations", American Sociological Review, (1972), 37,117-130.
- Lindsay, W.M.,** and L.W. Rue, "Impact of the Organization Environment on the Long-Range Planning Process", Academy of Management Journal, (1980), 23, 3, 385-404.
- Lioukas, S.,** D. Bourantas and V. Papadakis, "Managerial Autonomy of State-Owned Enterprises: Determining Factors", Organization Science, (1993),4,4,645-666.



- Lyles, M.A.**, "Defining Strategic Problems: Subjective Criteria of Executives", Organizational Studies, (1987),8,3,263-280.
- Lyles, M.A.**, 1981. Formulating Strategic Problems: Empirical Analysis and Model Development. Strategic Management Journal, 2:61-75.
- Lyles, M.A.**, and J.I. Mitroff, "Organizational Problem Formulation: An Empirical Study" Administrative Science Quarterly, (1980), 25, 102-119.
- Mallory, G.R.**, R.J. Butler, D. Cray, D.J. Hickson, and D.C.Wilson, "Implanted Decision-Making: American Owned Firms in Britain", Journal of Management Studies, (1983), 20,2,191-211.
- March, J.G.**, and H.A. Simon, Organizations, Wiley, New York, 1958.
- Marmaras, N.**, Lioukas, S. & Laios, L. 1992. Identifying Competences for the Design of Systems Supporting Complex Decision-Making Tasks: A Managerial Planning Application. Ergonomics, 35(10):1221-1241.
- Marsh, P.**, P. Barwise, K.Thomas, and R. Wensley, Managing Strategic Investment Decisions in Large Diversified Companies, London Business School, Center for Business Strategy, (1988).
- Meyer, A.D.**, and J.B. Goes, "Organizational Assimilation of Innovations: A Multilevel Contextual Analysis", Academy of Management Journal, (1988), 31,4,897-923.
- Milburn, T.W.**, Schuler,R.S., and K.H.Watman, "Organizational Crisis. Part II:Strategies and Responses", Human Relations, (1983), 36,12,1161-1180.
- Miller, D.**, "The structural and Environmental Correlates of Business Strategy" Strategic Management Journal, (1987), 8,55-76.
- Miller, D.**, and J.M. Toulouse, "Chief executive personality and corporate strategy and structure in small firms". Management Science (1986), 1389-1409.
- Miller, D.**, and P. H., Friesen, "Strategy-Making and Environment: The Third Link", Strategic Management Journal, (1983),4,221-235.
- Mintzberg, H.**, "Strategy Making in Three Modes", California Management Review, (Winter, 1973), 16,2,44-53.
- Mintzberg, H.**, D. Raisinghani and A. Theoret, "The Structure of the 'Unstructured' Decision Processes", Administrative Science Quarterly, (1976),21,246-275.
- Nahavandi, A.**, and A.R. Malekzadeh, "Leader Style in Strategy and Organizational Performance: An Integrative Framework", Journal of Management Studies, (1993), 30,3,405-425.
- Negandhi, A.**, "Comparative Management and Organizational Theory: A Marriage Needed", Academy of Management Journal, (1975), 18,334-343.
- Papadakis, V.** and S. Lioukas, 1996. Do Early Perceptions of Strategic Decisions Influence Strategic processes?: An Empirical Investigation. 1996 Academy of Management Best Paper Proceedings, 46-50.

- Pascale, R.T.** "Perspectives on Strategy: The Real Story Behind Honda's Success", California Management Review, (1984), 26,3,47-72.
- Pettigrew, A.M.**, "Longitudinal Field Research On Change: Theory and Practice", Organization Science, (1990), 1,3,267-292.
- Pettigrew, A.M.**, "The politics of Organizational Decision-Making", Tavistock, London, 1973.
- Pfeffer, J.**, and G.R. Salancik, The External Control of Organizations: A Resource Dependence Perspective, Harper and Row, London, 1978.
- Pfeffer, J.**, and G.R. Salancik, "Organizational Decision Making as a Political Process: The Case of a University Budget", Administrative Science Quarterly, (1974),19,135-151.
- Priem, R.L.**, A.M.A. Rasheed, A.G. Kotulic, "Rationality in Strategic Decision Processes, Environmental Dynamism and Firm Performance", Journal of Management, (1995), 21, 913-929.
- Rajagopalan, N.**, A.M.A. Rasheed, D.K. Datta and G.M. Spreitzer, "A Multi-Theoretic Model of Strategic Decision Making ". In V. Papadakis and P. Barwise (Eds.) Strategic Decisions: Process, Context and Outcomes, New York, Kluwer Academic Publishers, 1997.
- Rajagopalan, N.**, A.M.A. Rasheed, and D.K. Datta, "Strategic Decision Processes: Critical Review and Future Directions", Journal of Management, (1993),19,2,349-384.
- Rhyne, L.C.**, "The Relationship of Strategic Planning to Financial Performance", Strategic Management Journal, (1986),7,423-436.
- Romanelli, E.**, and .L. Tushman, "Inertia, Environments and Strategic Choice: A Quasi-Experimental Design for Comparative-Longitudinal Research", Management Science, (1986),32,608-621.
- Schneider, S.C.**, and A. De Meyer, "Interpreting and Responding to Strategic Issues: The Impact of National Culture", Strategic Management Journal, (1991), 12,4, 307-320.
- Schwenk, C.R.**, "Strategic Decision Making", Journal of Management, (1995),21,3,471-493.
- Schwenk, C.R.**, "The Cognitive Perspective on Strategic Decision Making", Journal of Management Studies, (1988), 25, 41-55.
- Sharfman, M.P.**, and J.W. Dean, Jr. "Conceptualizing and Measuring the Organizational Environment: A Multidimensional Approach", Journal of Management, (1991), 17,4, 681-700.
- Shirley, R.C.**, "Limiting the Scope of Strategy: A Decision Based Approach", Academy of Management Review, (1982),7,2,262-268.
- Sinha, D.K.**, "The Contribution of Formal planning to Decisions", Strategic Management Journal, (1990),11,479-492.
- Smart, C.**, and I. Vertinsky, "Strategy and the Environment: A Study of Corporate Responses to Crises", Strategic Management Journal, (1984), 5, 199-213.

- Smith, K.G.,** K.A. Smith, J.D. Olian, H.P. Sims, Jr., D.P. O'Bannon, and J.A. Scully, "Top Management Team Demography and Process: The Role of Social Integration and Communication", Administrative Science Quarterly, (1994),39, 412-438.
- Smith, K.G.,** M.J. Gannon, C. Grimm, and Mitchell T.R., "Decision Making Behavior in Smaller Entrepreneurial and Larger Professionally Managed Firms", Journal of Business Venturing, (1988), 3,223-232.
- Snow C.C.** and J. B. Thomas, "Field Research Methods in Strategic Management: Contribution to Theory Building and Testing", Journal of Management Studies, (1994),31,4,457-479.
- Steers, R.M,** and D.N. Braunstein, "A Behaviorally-Based Measure of Manifest Needs in Work Settings", Journal of Vocational Behavior, (1976), 9,251-266.
- Stein, J.,** Contextual Influence on Strategic Decision Methods, University of Pennsylvania, PhD dissertation, 1980.
- Tannenbaum, A.S.,** Control in Organizations, McGraw-Hill, New York, 1968.
- Thompson, J. D.,** Organizations in Action, McGraw-Hill, New York: 1967.
- Tregoe, B.B.,** and P.M. Tobia, "Strategy vs. Planning: Bridging the Gap", Journal of Business Strategy, (1991),12,6,14-19.
- Wally, S.,** and R.J. Baum, "Personal and Structural Determinants of the Pace of Strategic Decision Making", Academy of Management Journal, (1994),37,4,932-956.
- Wiersema, M.F.,** and Bantel, K.A., "Top Management Team Demography and Corporate Strategy Change", Academy of Management Journal, (1992), 35,1,91-121.
- Wood, R.D., JR.,** and LaForge, L.R., "Toward the Development of a Planning Scale: An Example from the Banking Industry", Strategic Management Journal, (1981), 2,209-216.
- Wooldridge, B.** and S.W. Floyd, "The Strategy Process, Middle Management Involvement, and Organizational Performance", Strategic Management Journal, (1990), 11, 231-241.

**Table 1 : Correlations Among SD Process Dimensions**

	MEAN	STD	1	2	3	4	5	6	7
1. Comprehensiveness / Rationality	3.26	.73	1.00						
2. Extent of Financial Reporting Activities	.00 <sup>1</sup>	1.00	.46 ***	1.00					
3. Rule Formalization	.00 <sup>1</sup>	1.00	.28 **	.19	1.00				
4. Hierarchical Decentralization	2.77	.54	.42 ***	.35 **	.01	1.00			
5. Lateral Communication	2.23	.56	.62 ***	.35 ***	.27 *	.54 ***	1.00		
6. Politicization	2.97	1.34	.31 **	.10	-.11	.14	.07	1.00	
7. Problem-Solving Dissension	2.50	1.27	-.01	-.12	-.14	.01	-.08	.27 *	1.00

\* SIGNIFICANT AT .05      \*\* SIGNIFICANT AT .01      \*\*\* SIGNIFICANT AT .001

<sup>1</sup> Variables marked with an asterisk are factors (principal components) incorporated in the analysis

**Table 2 : Factor Analysis Results of Decision specific characteristics**

DECISION SPECIFIC CHARACTERISTICS	FACTOR LOADINGS *					
	FACTOR 1: MAGNITUDE OF IMPACT	FACTOR 2: UNCERTAINTY	FACTOR 3: THREAT / CRISIS	FACTOR 4: PRESSURE	FACTOR 5: FREQUENCY / FAMILIARITY	FACTOR 6: 'PLANNED' VS 'AD HOC'
- SDs Impact on Strategy	.805					
- Radicality of Changes	.782					
- SDs Magnitude of Impact	.760					
- Precursiveness Of The SD	.743				.352	.446
- Seriousness of Consequences	.608					
- Action Uncertainty		.731				
- Overall Uncertain Nature of SD		.726				
- Information Uncertainty		.647	-.266			
- Extent of Crisis Perception			.847			
- Perceived Threat of Loss			.819		.262	
- Time Pressure to Make the SD				.903		
- Pressure on the Organization	.313			.771		
- SD as Part of Another Decision					.793	
- Frequency of Occurrence	-.401	-.282			.572	-.470
- Familiarity with the SD		-.437	.389		.489	
- 'Planned' vs 'Ad Hoc'		-.263				.847
Eigenvalue	3.59	2.42	1.87	1.38	1.10	1.04
Percentage of Variance Explained	22.4	15.1	11.7	8.6	6.9	6.6
Cumulative Percentage	22.4	37.6	49.3	57.9	64.8	71.4

\* Alpha factoring method was used, together with Varimax Rotation and Kaiser Normalization.  
Factor loadings less than .25 are not reported.

**Table 3 : Intercorrelations Among Independent Variables**

VARIABLES	MEAN	STD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Magnitude of Impact	3.29	.75	1																				
2. Thread/Crisis	3.04	1.26	.09	1																			
3. Decision Uncertainty	2.44	.98	-.16	.01	1																		
4. Frequency	2.97	.80	.03	.13	-.26	1																	
5. Pressure	4.44	1.53	.33	.30	.03	.05	1																
6. 'Planned vs Ad Hoc'	3.81	1.08	.42	.10	-.30	.20	.13	1															
7. Heterogeneity	2.71	.93	.13	-.13	-.04	-.19	.19	.35	1														
8. Dynamism	3.17	.87	.23	-.25	-.26	.09	.16	.21	.44	1													
9. Hostility	2.94	.74	-.19	.05	.38	-.09	-.04	-.19	-.17	-.32	1												
10. Planning Formality	3.04	1.13	.26	.19	-.04	.17	.17	.47	.31	.21	-.28	1											
11. CEOs Need for Achievement	2.15	.63	-.01	-.26	.00	-.18	-.13	.03	.47	.36	.02	-.05	1										
12. CEOs Risk Propensity	3.14	.56	.24	.15	-.16	-.01	.39	.14	.24	.36	-.09	.21	-.01	1									
13. CEOs No. of Years with Company	18.14	10.3	-.01	-.18	.00	.25	-.17	-.02	-.13	-.25	-.12	.17	-.07	-.26	1								
14. CEO's Level of Education	3.36	.89	.00	-.01	-.01	.10	.02	.01	-.12	.30	.07	.11	.05	.17	-.39	1							
15. TMT's Level of Education	85.0	16.6	.08	.25	-.31	.18	.29	.27	.07	.10	-.46	.44	-.43	.19	.00	.17	1						
16. TMT's Aggressive Philosophy	3.35	1.18	.37	-.13	-.13	.13	.26	.34	.42	.55	-.42	.53	.12	.44	.01	.16	.21	1					
17. Return on Assets	.997	3.39	.03	-.04	.11	.18	.13	.10	.13	.16	.01	.28	-.14	.08	.23	.10	.08	.45	1				
18. Growth in Profits	1.29	5.38	.03	.03	-.33	-.07	.22	.17	.14	.17	-.33	.16	.10	.10	-.06	.01	.28	.21	.12	1			
19. Size	2.76	.27	-.22	.16	.10	-.06	-.04	-.07	-.05	-.19	.00	.00	.11	-.21	.06	-.04	.05	-.34	-.13	.17	1		
20. State Controlled Enterprises	.19	.39	-.17	.25	.12	-.26	.8	-.19	-.05	-.12	.09	-.18	-.08	-.02	-.23	-.03	.21	-.43	-.37	-.07	.37	1	
21. Private Greek Companies	.47	.50	-.01	-.14	.07	.08	-.27	-.21	-.30	-.28	-.33	-.10	-.04	.06	-.03	-.34	-.06	.27	.26	-.04	-.08	-.45	1
22. Subsidiaries of Multinationals	.34	.48	.15	-.06	-.17	.13	.22	.38	.35	.39	-.42	.47	.16	.05	-.03	.05	.18	.41	.03	.11	-.23	-.35	-.68

Note : Decimals of Correlation Coefficients were omitted  
For Coefficients greater than  $r > 0.275$   $p < 0.01$

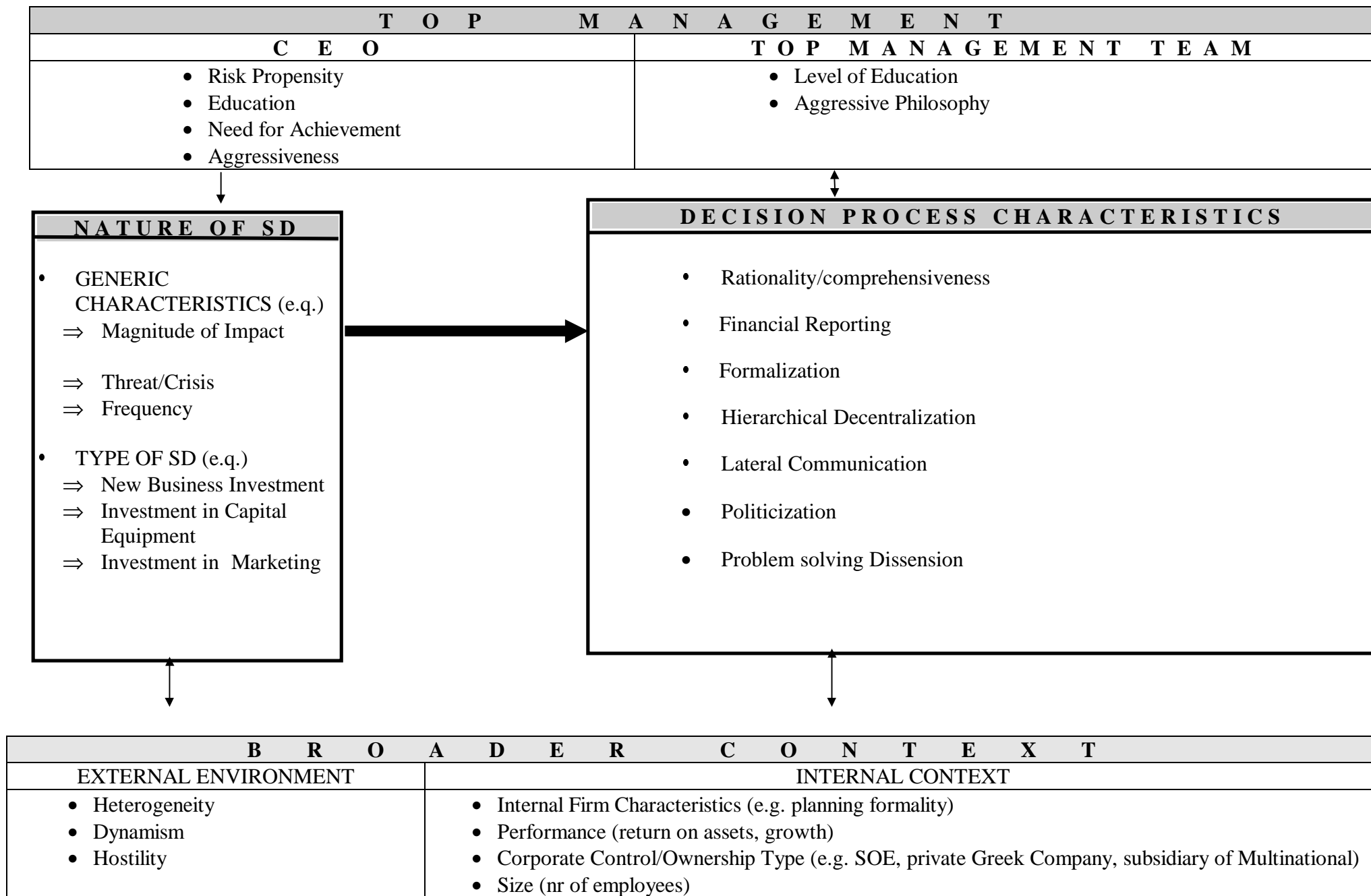
For Coefficients greater than  $r > 0.20$   $p < 0.05$   
For Coefficients greater than  $r > 0.35$   $p < 0.001$

**Table 4: Summary Table of Best Models of Regression Analyses<sup>a</sup>**

VARIABLES	MODEL 1: COMPREHENSIVENESS/ RATIONALITY	MODEL 2: FINANCIAL REPORTING	MODEL 3: FORMALIZED RULES	MODEL 4: HIERARCHICAL DECENTRALIZATION	MODEL 5: LATERAL COMMUNICATION	MODEL 6: POLITICIZATION	MODEL 7: PROBLEM SOLVING DISSENSION
<b>DECISION-SPECIFIC CHARACTERISTICS</b>							
<i>A. GENERIC CHARACTERISTICS</i>							
1. Magnitude of Impact	.35 ***	.19 *	-.20 +	.41 ***	.48 ***		
2. Threat/Crisis		.15 +		.20 *			
3. Decision Uncertainty		-.16 +	-.19 *			.41 ***	.60 ***
4. Frequency					.13 +		
5. Pressure				-.25 *	-.19 *		.20 *
6. 'Planned vs Ad Hoc'		.25 *	.25 *				
<i>B. TYPE OF SD</i>							
7. New Business Investment Type	-.27 **			.42 *			-.38 *
8. Investment in Capital Equipment		.20 +		.64 ***			-.39 *
9. Investment in Marketing	-.19 *	.19 +		.37 *			-.40 *
10. Investment in Internal Reorganization	-----	-----	-----	-----	-----	-----	-----
<b>TOP MANAGEMENT CHARACTERISTICS</b>							
1. CEO's Need for Achievement							
2. CEO's Risk Propensity			-.34 **				
4. CEO's number of years with the Company				.29 **			
5. CEO's Level of Education		.23 **					
6. TMT's Level of Education							
7. TMT's Aggressive Philosophy	.21 +		.35 **		.34 ***		
<b>BROADER CONTEXT</b>							
<i>A.. EXTERNAL CORPORATE ENVIRONMENT</i>							
1. Heterogeneity							-.25 **
2. Dynamism							
3. Hostility							
<i>B. INTERNAL CONTEXT</i>							
<b>Internal Firm Characteristics</b>							
1. Planning Formality	.29 **				.25 **	.26 *	
<b>Corporate Performance</b>							
1. Return on Assets	.20 *	.29 **		.33 ***			
2. Growth in Profits						.27 *	.27 **
<b>Firm Size (No of Employees)</b>	.19 *						
<b>Corporate Control</b>							







**Figure 1:** Factors Influencing Strategic Decision Making Processes

## APPENDIX 1:

### METHODOLOGY OF DATA COLLECTION

The SDs were identified at the initial CEO interview. The CEO was asked to complete the first, general, questionnaire providing information about the company, its environment, and its organization. Then the CEO was asked to name the two most important investment decisions which had taken place in the last 2-3 years. In an attempt to minimize distortion and memory failure problems, he (all the CEOs were men) was asked for recent decisions. The vast majority of the decisions were taken less than 6 months prior to interview.

The CEO was asked to give a *brief description* of each decision and the process followed in making it, and to name *all the key participants* as well as the manager with the most intimate knowledge of the process, e.g. the project champion (this methodology follows that of Hickson et al., 1986). In most cases we had access the paper trail documenting the decision and its process, before interviewing the designated manager: investment decisions tend to be better documented than other strategic decisions (Marsh et al. 1988). This aided understanding, helped to form a clearer picture of the process, and also helped in checking managers for possible memory failure and ex-post rationalization (Huber and Power, 1985).

Semi-structured interviews were conducted with the most knowledgeable manager (Huber and Power, 1985). We followed a "funnel sequence" whereby the interview started with a semi-structured discussion using open-ended questions (Bouchard, 1976). This approach was preferred for the following reasons:

- (i) it helped the manager to *conceptually reconstruct* the whole process and its major stages, before answering the more specific (closed-ended) questions which followed.
- (ii) it provided *detailed qualitative data* on the level of respondent's understanding, his/her conceptual language, personal views etc.
- (iii) by answering spontaneously the initial open-ended questions, the respondent has committed himself to a certain "reality" concerning the making of the decision and thus it was easier for the researcher to *check the validity of responses* in the closed-ended questions that followed.

When this informal discussion was completed interviewees were handed the second decision-specific questionnaire designed to measure the dimensions of the process. Their responses were always checked against the initial CEO interview and the paper trail. If the answers differed from what these sources suggested, we were able to question the manager's recollections. A thorough discussion followed and the manager usually justified his/her point of view.

Where interviewees felt they had insufficient information (e.g. a production manager could not reliably recall aspects of the financial evaluation or the marketing issues), we conducted further interviews with the relevant informants

(e.g. finance or marketing director) to *clarify these specific points. Their responses in these specific points were used as better approximating reality.* These incidents were rare because people selected had actively participated in the process and thus, had a thorough understanding of what actually happened. Six decisions out of 70 used this hybrid multiple-informant approach.

## APPENDIX 2

### OPERATIONALIZATION OF SD PROCESS DIMENSIONS

SD MAKING PROCESS DIMENSIONS	OPERATIONALIZATION	VARIABLES DERIVED FROM:	ITEMS IN SCALE	ALPHA
1. RATIONALITY / COMPREHENSIVENESS	This construct is based on Fredrickson's (1984) Rationality/comprehensiveness dimension. Five stages in the SD process are measured (i.e. the situation diagnosis, alternative generation, alternative evaluation, making of the final decision and decision integration). For each of these stages Fredrickson's eight rationality elements are measured on five-point Likert-type scales (i.e. extend of scheduled meetings, assignment of primary responsibility, information seeking activities, systematic use of external sources, employees involved, use of specialized consultants, years of historical data review, and functional expertise of people involved). The rationality elements for each stage are summed to create five additive variables, each representing the rationality/ comprehensiveness dimension of the respective stage. Summation of these five variables results in an overall measure of rationality-comprehensiveness of the process.	Fredrickson, 1984;	5	.94
2. FINANCIAL REPORTING	This is one of the two factors extracted from a factor analysis investigation involving sixteen items measuring the degree of reporting activities in support of the SD. This specific factor variable measures the degree of financial reporting activities and is consisted for six items. Sample items include: (1) use of NPV-IRR methods, (2) inclusion of proforma financial statements, (3) detailed cost studies, (4) incorporation of the SD into company-wide financial plans. The measurement scale ranges from '1' absolutely false to '7' absolutely true.	Ideas expressed by:  King, 1975  Marsh et al. 1988; Stein, 1980	6	.90
3. RULE FORMALIZATION	This construct is one of the three factors extracted from a factor analysis investigation involving seventeen items measuring the degree of formalization/standardization of the process. This specific factor variable incorporates seven items and measures the degree of rule formalization during the making of the SD. Sample items include: The degree to which there exists a written procedure guiding the process, (2) existence of a formal procedure to identify alternative ways of action, (3) formal screening procedures, (4) formal documents guiding the final decision, (5) predetermined criteria for SD evaluation. The measurement scale ranges from '1' absolutely false to '7' absolutely true.	Ideas expressed by:  King, 1975 Stein, 1980;	7	.89
4. HIERARCHICAL DECENTRALIZATION	This additive variable measures the extent of vertical decentralization of the decision making during all the phases of the process. It is based on the total amount of participation of various hierarchical levels and departments in each of the previously mentioned five phases of the process. The five hierarchical levels include owner-main shareholder, CEO, first level directors, middle management and lower management. Responses are taken on a five-point Likert-type scale, anchored with '1' no involvement at this stage to '5' active involvement and influence. By adding all hierarchical layers for every stage in the process, five additive variables were obtained, each measuring the hierarchical decentralization in the respective stage. Summing all five variables resulted in an overall measure of hierarchical decentralization.	Ideas expressed by:  Tannenbaum, 1968;  Grinyer et al. 1986;	5	.93
5. LATERAL COMMUNICATION	Lateral communication was measured in a similar way to hierarchical decentralization, except from that it measures the degree of balanced participation of all major departments in the adopted five stages of the process. The major departments include: finance-accounting, production, marketing-sales, personnel, and purchasing department.	Ideas expressed by:  Tannenbaum, 1968;	5	.87
6. POLITICIZATION	This variable results from the addition of four seven-point Likert-type scales measuring the extent of coalition formation, the degree of negotiation taken place among major participants, the degree of external resistance encountered and finally the degree of process interruptions experienced. Scales range from '1' absolutely false to '7' absolutely true.	Pettigrew, 1973;  Mintzberg et al. 1976;  Hickson et al. 1986;	4	.77
7. PROBLEM SOLVING	Three items comprise this variable measuring the degree of problem solving dissension during the initial stages of the process: the degree of disagreement on '1'	Eisenhardt and Bourgeois 1988;	3	.71

DISSENSION	the objectives sought by the decision, '2' the proper methodology to follow and '3' the proper solution to the problem.	Butler et al. 1991;		
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### APPENDIX 3

#### OPERATIONALIZATION OF DECISION SPECIFIC, MANAGEMENT AND CONTEXTUAL VARIABLES

GENERIC DECISION- SPECIFIC CHARACTERISTICS	OPERATIONALIZATION	VARIABLES DERIVED FROM:	No. OF ITEMS IN SCALE	ALPHA
1. MAGNITUDE OF IMPACT	Composite variable consisting of eight five-point Likert-type scales measuring the impact of SD on the following organizational areas: (i) profit, (ii) quality of products/services, (iii) total production, (iv) cost, (v) sales, (vi) market share, (vii) call for changes in existing programs and (viii) organizational adjustment required to serve the decision.	Ideas drawn from: Beach and Mitchell, 1978; Schneider and DeMeyer, 1991;	8	.81
2. THREAT / CRISIS	Composite variable consisted of two scales measuring the extent to which the SD is perceived as a crisis situation and the second the threat of financial loss.	Billings et al. 1980;	2	.68
3. DECISION UNCERTAINTY	Composite variable consisting of three seven-point Likert-type scales measuring the uncertainty about actions to be taken, general uncertainty surrounding the decision and uncertainty concerning the information to be collected.	Beach and Mitchell, 1978;	3	.56
4. FREQUENCY / FAMILIARITY	Composite variable consisted of two scales measuring the frequency of occurrence, the familiarity of the SD to the company, and the extent to which the SD was part of another major decision.	Dutton et al. 1989; Beach and Mitchell, 1978;	3	.54
5 PRESSURE	Extent of pressure exerted either on the organization or the time pressure felt by the participants in the SD.	Beach and Mitchell, 1978; Schneider and DeMeyer, 1991; Billings et al. 1980;	2	.70
6. PLANNED vs AD HOC	A five-point Likert-type variable measuring the extent to which the SD emerged through some type of formal planning effort.	Sinha, 1990;	1	-

TOP MANAGEMENT CHARACTERISTICS:		VARIABLES DERIVED FROM:	No. OF ITEMS IN SCALE	ALPHA
1. CEO's NEED FOR ACHIEVEMENT	Composite variable consisted of six, seven-point Likert-type scales measuring an active attitude towards decision making and personal goal setting.	Steers and Brauenstein, 1976; and Eysenck and Wilson, 1975	6	.70
2. CEO's RISK PROPENSITY	Composite variable consisted of fifteen, five-point Likert-type scales measuring the psychological disposition of the CEO towards risk. Particular care was exercised to select items approximating the reality of business situations and represent 'monetary risk'.	From Jackson's Personality Inventory (3 out of 8 items) and Eysenck & Wilson's Risk Propensity scale (1975)	15	.73
3. CEO's NUMBER OF YEARS WITH THE COMPANY	Continuous variable measuring the number of years the CEO is with the company.	Ideas drawn from: Hambrick and Mason, 1984; Fredrickson and Iaquinto, 1989;	1	-
4. CEO's LEVEL OF EDUCATION	One five-point scale measuring CEO's level of education.	Ideas drawn from: Hambrick and Mason, 1984; Haley and Stumpf, 1989;	1	-
5. TOP MANAGEMENT's	Here the CEO was asked to rate the aggressive philosophy of his TMT on three dimensions (attitude of the whole top management team	Adapted from	3	.70

AGGRESSIVE PHILOSOPHY	towards innovations, risky projects and competitors).	Khandwalla 1977;		
6. TOP MANAGEMENT TEAM'S LEVEL OF EDUCATION	Percentage of managers, down to the level of departmental heads who are university graduates.		1	-

EXTERNAL CORPORATE ENVIRONMENT	OPERATIONALIZATION	VARIABLES DERIVED FROM:	No. OF ITEMS IN SCALE	ALPHA
1. ENVIRONMENTAL HETEROGENEITY	Composite variable consisting of four five-point Likert-type scales measuring significant differences between the products/services offered in relation to: (i) customer's buying habits, (ii) the nature of competition, (iii) market dynamism, (iv) market uncertainty.	Miller and Friesen, 1983;	4	.86
2. ENVIRONMENTAL DYNAMISM	Composite variable consisting of eight distinct scales referring to three derived subconstructs: (1) dynamism in marketing practices, (2) competitor dynamism and (3) customer dynamism. Each scale was measured in a seven-point Likert-type scale ranging from 1' (no change) to 7' (very frequent changes).	Achrol and Stern 1988;	8	.81
3. ENVIRONMENTAL MUNIFICENCE-HOSTILITY	Composite variable consisting of three five-point Likert-type scales measuring the degree of environmental (1) riskiness, (2) stressfulness, (3) dominance over the company.	Khandwalla, 1977;	3	.69

INTERNAL FIRM CHARACTERISTICS		VARIABLES DERIVED FROM:	No. OF ITEMS IN SCALE	ALPHA
1. PLANNING FORMALITY	Composite variable consisting of seven five-point scales ranging from '1' strongly disagree to '5' strongly agree. The scales measure the extent of: (1) formal functional area planning, (2) active departmental participation, (3) formulation of quantified goals, (4) formalization of company objectives, (5) existence of planning group or department, (6) development of a favorable planning climate, and (7) existence of detailed action plans.	Adapted from Wood and Laforge, 1981;	7	.89

CORPORATE PERFORMANCE	OPERATIONALIZATION	VARIABLES DERIVED FROM:	No. OF ITEMS IN SCALE	ALPHA
1. RETURN ON ASSETS	Return on Assets (ROA) averaged for five years, to decrease to chance of a one-year aberration influencing results. Another consideration was to control for industry effects on performance. Since three different industrial sectors are represented in the sample each of the resulting ROA measures was divided by the mean ROA of the respective sector, in an attempt to control for sectoral influences.	Bourgeois, 1980;	-	-
2. 'GROWTH' IN PROFITS	Percentage change in 'growth' in profits over a five-year period.	Fredrickson, 1984;	-	-

\* All composite variables were averaged by the number of scale-items in the construct