Understanding Strategic Decision Making in Manufacturing Organizations

by

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(ABSTRACT)

Strategic decision making has been a widely covered topic in a number of fields. While some researchers have concentrated on the "content" of strategic decisions, others have looked at the "process" of strategic decision making. A review of recent strategy-related literature shows that researchers disagree not only on how strategic decisions are made, but what strategic decisions are as well. In an attempt to understand how strategic decisions are made in manufacturing organizations, this study builds on data collected from strategy-related literature and from interviews with practicing managers. These data were used to develop a conceptual model showing the variables affecting strategic decisions and the relationships between these variables. In addition to the conceptual model, this study makes recommendations to practicing managers in manufacturing organizations on how the outcome of strategic decisions can be improved. Finally, based on the results obtained in this study, recommendations for future research in strategic decision making are provided.
I would like to thank Dr. D. Scott Sink, who, as my thesis committee chairman, has been extremely responsive and resourceful throughout this study. Also sincere thanks to my thesis committee members, Dr. Harold A. Kurstedt and Dr. Marilyn S. Jones, for their continuous support in this study.

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1.0 Introduction

The objective of this study was to gain a better understanding of strategic decision making in manufacturing organizations. This objective was defined after reading several articles and books on the problems that American manufacturing organizations have faced in the '80s.

To accomplish this research objective, an eight-step action-research methodology was developed (see Figure 1 on page 8). Once the research objective was defined, a review of recent literature on strategic decision making was performed. The objective of this literature review was to find out what had been done in the past in strategic decision making related research. Based on the results of the literature review, a conceptual research model was developed. Using the conceptual research model as a framework describing the strategic decision making process, the following six research questions were identified:

1. What is a strategic decision?
2. How are strategic decisions made, what factors influence strategic decisions?
3. Who has made the strategic decisions in the past?
4. Who will make the strategic decisions in the future?
5. Why is it important to study strategic decision making?
6. How can the quality of strategic decisions be improved?
Based on these research questions and the approach taken to answer them, this study was classified as "diagnosing action research." In the next step, data were collected through structured interviews with practicing managers who have been engaged in making strategic decisions in manufacturing organizations. The objective of these interviews was to answer the research questions from the perspective of practicing managers in manufacturing organizations. Following the "data collection and analysis" step, results were reported and conclusions were drawn based on the interpretation of these results.

In addition to research questions answered, an improved conceptual model describing the formulation step of the strategic decision making process was developed (see Figure 10 on page 69). Due to the qualitative nature of this study, this model has not been statistically tested nor validated, but data collected from strategy-related literature and suggest its generalizability.

The desired outcomes of this study, before the study was completed, mostly addressed personal development goals:

- Learning how to approach and study a phenomenon in a planned and systematic way.
- Improving knowledge in strategic decision making in manufacturing organizations, which could be applied to similar situations in the future.
- Improving problem defining and interpersonal communication skills.

Having conducted this study, two additional outcomes related to the field of Industrial Engineering and strategic decision making research have been achieved.

First, as explained in detail in Chapter 5, it has been observed that the major problem in strategic decision making in manufacturing organizations is communication among top managers. Industrial engineers, with a breadth of knowledge in different fields can contribute to the solution by helping to improve communication among top management by playing a "communicator" or "facilitator" role in manufacturing organizations.
The second outcome is related to the contribution this study makes to the field of strategic decision-making research. As mentioned later in this document, the discipline of strategic decision-making traces its origin to such landmark work as Chandler’s “Strategy and Structure” (1962), Ansoff’s “Corporate Strategy” (1965), and Andrews’ “The Concept of Strategic Management” (1971). Research on strategic decision-making has since been divided into two groups: researchers study either the content of strategic decisions, or they study the process of strategic decision making. The publication of Strategic Management edited by Schendel and Hofer (1979) further solidified these categories by suggesting that this and other subdivisions would facilitate research progress in the field (Huff and Reger, 1987). This study contributes to the field of strategic decision making research by providing a simple conceptual model to describe both the process and the content of strategic decision making. This model, based on Kurstedt’s (1986) Management System Model as modified by Sink (1987), could be used to integrate previous research on strategic decision making -most of which has been independently carried on- in one conceptual model (see Figure 4 on page 27). Thorngate (1976) has pointed out that no theory of social behavior can simultaneously be generalizable, accurate and simple. Although this model has not been statistically tested and validated, data collected from the literature review suggest the model’s generalizability in manufacturing organizations.

The following chapters explain why this study is important (Chapter 2), how the problem was approached and what the research methodology was (Chapter 3), how data were collected and analyzed (Chapter 4), and what the findings are (Chapter 5).

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1 See Chapter 3 - Approach and Methodology.
2.0 Why is this Study Important?

In addition to this study's contribution to the field of Industrial Engineering and strategic decision making research, this study is important for three other reasons.

First, the approach used in this study incorporates findings from theory and practice, and bases the recommendations to improve strategic decision making in manufacturing organizations on both practical and theoretical evidence. In strategic decision making research, researchers must not lose sight of their ultimate customer, the practicing manager. Researchers have continued the practice of prescribing before describing, giving normative advice before empirical evidence supports the evidence. Providing empirical evidence is difficult because, in strategic decision making research, controlled experimentation is difficult. Since strategic decisions often threaten the survival of the organization, managers are understandably hesitant to sponsor experimentation for the sake of research (as they have for organizational behavior at lower levels in organization) (Huff and Reger, 1987). The action-research methodology used in this study minimizes this difficulty by integrating existing theory with practice, an approach which has been called for by researchers such as Huff and Reger (1987) and Huber and Power (1985). In this study, knowledge is gained by acting in a

2 See Chapter 3 - Approach and Methodology.
3 The research methodology used in this study is explained in detail in Chapter 3 - Approach and Methodology.
real situation, generating action-oriented knowledge. Although the action-research approach does not meet the criteria of "positivist science" (Susman and Evered, 1986) or "scientific research," it is a useful method, especially in strategic decision making studies. Strategic decision making researchers must recognize the need to vary methodologies according to their research questions (Fredrickson, 1983). Each piece of research adds to what is already known in an area. Research projects which employ new and innovative methods are likely to add more to the ongoing research stream than ones that replicate well-established methods that have been used often within the stream (Huff and Reger, 1987).

Second, the action-research methodology used in this study allows modification of methodology based on data obtained from interviews. Journalists cover who, what, why, when, where and how (Hopkins, 1989) in writing their stories. Previous studies on strategic decision making can be divided into two groups as "process-oriented" and "content-oriented." Process-oriented research has concentrated on how a strategy is formulated and implemented. Content-oriented research on the other hand has mainly looked at what is being decided. Who and why have been covered with both approaches in different ways. Context and timing, the where and when questions have tended to be equally neglected by both groups (Huff and Reger, 1987). Based on the preliminary literature review, the initial objective of this study was to look at the "process" of strategic decision making in manufacturing organizations.

During the interviews it has been observed that one has to look at both "content" and "process" to understand strategic decision making.

It has also been observed that the "content" (what is being decided) might affect the "process" (how the decision is made). This observation has not created a need to change the methodology used in this study because in action research "...the objectives, the problem, and the method of research

---

4 See Chapter 3 - Approach and Methodology.
...are generated from the process itself...and the consequences of selected actions cannot be fully known ahead of time." (Susman and Evered, 1978).

Finally, this qualitative study captures the "richness" of strategic decision making in manufacturing organizations. There has been discussion regarding the value of using a variety of methodologies that has been grossly qualified as "qualitative" versus "quantitative" in strategic decision making research. In the short-run, the limited knowledge of basic concepts such as "strategic decisions" probably will be most improved by using a number of qualitative approaches to capture the richness of organization life but do not meet requirements of statistical verification. At the other extreme, although controlled experiments (lab or field) on questions relating to strategic decisions may yield statistical verification, they will ignore the same richness (Fredrickson, 1983).

The following chapter explains the approach and research methodology used in this study.

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5 See Chapter 3 - Approach and Methodology.
3.0 Approach and Methodology

This chapter explains the approach and the research methodology used in this study. The research methodology provides a detailed explanation of the steps taken starting with setting the research objective and ending with interpretation of results. As depicted in Figure 1 on page 8, the research methodology consisted of 8 major steps:

1. Definition of the research objective.
2. Literature review.
3. Developing the conceptual research model.
4. Identifying the research questions.
5. Classifying this research.
6. Data collection and analysis.
7. Reporting results.
8. Interpretation of results, and conclusion.

The research objective of this study, gaining a better understanding of strategic decision making in manufacturing organizations, was developed after reading several articles and books on the problems that American manufacturing organizations have faced in the '80s. Once the research objective was
Figure 1. The research methodology consisted of 8 steps.
defined, a review of recent literature on strategic decision making was performed. The objective of this literature review was to find out what had been done in the past in strategic decision making related research. Based on the results of the literature review, a conceptual research model was developed. Using the conceptual research model as a framework describing the strategic decision making process, six research questions were identified. Based on these research questions and the approach taken to answer them, this study was classified as "diagnosing action research." In the next step, data were collected through structured interviews with practicing managers who have been engaged in making strategic decisions in manufacturing organizations. The objective of these interviews was to answer the research questions from the perspective of practicing managers in manufacturing organizations. Following the "data collection and analysis" step, results were reported and conclusions were drawn based on the interpretation of these results.

The following section explains the research methodology steps in detail.

### 3.1 Research Objective

As mentioned earlier, the objective of this study is to gain a better understanding of strategic decision making in manufacturing organizations. This objective was defined after reading several articles and books that had addressed the problems that American manufacturing industry have faced in the last decade.

Appendix A provides an overview of the evolution of manufacturing management in the United States. As this summary suggests, top managers of manufacturing organizations have been unable to create flexible and responsive organizations to cope with the rapidly changing environmental conditions since the 1960s (Skinner, 1985). Over the past two decades, the manufacturing industry has been hit by international competition with cheap labor combined with rapid technological
change and previously unseen quality levels (Garvin, 1983; Lenoard and Sasser, 1982). What was necessary to survive these new rules was rapid change in products, processes, cost mix and proactive strategic thinking with great imagination and innovation. But the manufacturing managers, as careful, conservative coordinators and controllers, were unable to play by the new rules, partly caused by the narrow-visioned approach of top management in manufacturing organizations. The financially dominated point of view from the top, in a way, necessitated strict coordination and control at the manufacturing level.


- Having focused on macro-level financial issues, top managers have been unable to look at total organizational systems. They have been relying on techniques such as the experience curve, portfolio planning, and value based planning as their key planning concepts. Managers have assumed static environments and relied too much on experience.

- Performance has been measured by financial yardsticks. Competitiveness has been defined by market share and cash flows.

- Manufacturing managers have been viewed as custodians of fixed assets, and in the secondary role they have had to focus on productivity, control, coordination, and stabilization; they have also had to mechanize to the utmost to ensure simplicity and cost reduction.
The factory has been thought of as the productivity machine, profit as the goal, labor as a troublesome cost, change as an expensive intrusion, and the mass production technology of volume production using mechanized equipment as the smoothest road to productivity.

The financially-oriented approach, by its nature, imposes conflicting goals to individual functions within the firm. For example, on one hand, it judges marketing performance on the basis of profitable growth of the company in terms of sales, market share, and new markets entered. On the other hand, manufacturing performance is often evaluated on running smooth operations at minimum cost. Ironically it encourages the marketers to generate change, and yet forces manufacturing to accept change only when it significantly lowers the cost. It forces the marketers to be customer oriented, when the manufacturers are busy with the problems of the factory.

3.2 Literature Review

Once the research objective was determined, a review of literature on strategic decision making research was conducted. The purpose of the literature review was to find out what had been done in the past in the area of strategic decision making. The literature review was guided in particular by three questions:

1. What is a strategic decision?
2. Who makes strategic decisions?
3. How are the strategic decisions made?

The following sub-sections provide a summary of findings from the literature review.
3.2.1 What is a Strategic Decision?

The literature review suggests that several researchers have used their own definitions of strategic decisions which raise construct validity\(^6\) questions. The fact that different definitions of strategic decisions have been used in different studies suggests that researchers have measured different constructs under the same label. This lack of uniformity has led writers such as Hatten and Schendel (1975-76) to point out that it is still not clear "what strategy is", or more recently, for Anderson and Paine (1975) to decry the field's difficulty in defining what is meant by the term (Bourgeois, 1980a).

In an attempt to develop a definition of strategic management from commonalities of the past definitions, Bracker (1980) analyzed 17 studies on strategy and concluded that "strategic management entails the analysis of internal and external environments of an organization to maximize the utilization of resources in relation to objectives." Bourgeois (1980a) followed a similar perspective by saying that "...the strategy concept has its main value in determining how an organization defines its relationship to its environment in the pursuit of its objectives." On the empirical side, based on their analysis of 25 strategic decision-making processes over 5 years, Mintzberg et al. (1976) concluded that strategic decision-making comprises both the exploitation of opportunities and the reaction to problems and crises. Mintzberg et al. (1976) defined strategic decisions as those decisions which actually involve organizational goals and the allocation of resources to achieve these goals. Strategic decisions have the following characteristics (Britannica, 1988):

- The more concerned the decision is with the selection of organizational objectives, as well as the means by which they are achieved, the more strategic it is.
- The larger the portion of a system that is affected by a decision, the more strategic it is.
- The longer the effect of a decision and the less reversible it is, the more strategic it is.

\(^6\) Construct validity is interested in the degree to which the construct itself is measured (Leedy, 1985).
Bourgeois (1980b) stated that among many definitions in literature, one finds that strategy serves two primary purposes: (1) defining the segment of the environment in which the organization will operate, and (2) providing the guidance for subsequent goal directed activity within that "niche".

The distinction between these two purposes of strategy has been outlined by various authors (Bourgeois, 1980a; Hofer, 1975; Snow and Hrebiniak, 1980; Miles, Snow and Pfeffer, 1974; Vancil and Lorange, 1975), and has led to a discrimination between (1) domain definition strategy, which defines the segment of the environment in which the organization will operate (answering the "what business are we in?" question), and (2) domain navigation strategy, which refers to the competitive decisions made within a particular domain, answering "how do we compete?" question. Because of their seemingly sequential order, these have been termed primary and secondary strategy respectively.

3.2.2 Who makes Strategic Decisions?

Two different answers to this question have been provided by the researchers. The first group of researchers (such as Bourgeois, 1985; Miles, Snow and Pfeffer, 1974; Milliken, 1987; Snow, 1976; Snow and Hrebiniak, 1980; Stevenson, 1976) states that as boundary spanners, top managers of an organization are responsible for monitoring the environment and formulating appropriate responses. Having the best vantage for viewing the entire organizational system, top managers’ domain of responsibility is dominated by strategic level decisions. The second group of researchers (Abernathy, Clark and Kantrow, 1981; Goodman, 1986; Hackman, 1986; Kilmann, 1985; Lawler, 1986; Peters, 1987; Peters and Waterman, 1982; Schonberger, 1986; Sink, 1985) suggests that it is not only the top managers who are boundary spanners, and that other members of an organization at the lower levels have contacts with the outside environment as well. They further suggest that these people as well as the others who will be affected by strategic decisions, should participate in formulating these decisions within an organization. The outcome, the second group of researchers
claims, will be increased commitment from the people and better implementation of strategic decisions.

3.2.3 How are Strategic Decisions Made?

The discipline of strategic decision-making traces its origin to such landmark work as Chandler's "Strategy and Structure" (1962), Ansoff's "Corporate Strategy" (1965), and Andrews' "The Concept of Strategic Management" (1971). These authors proposed to distinguish between the "content" and the "process" of strategic decision making. This distinction has tended to divide research on strategic decision-making ever since: researchers study content, or they study process. The publication of Strategic Management edited by Schendel and Hofer (1979) further solidified these categories by suggesting that this and other subdivisions would facilitate research progress in the field (Huff and Reger, 1987).

Journalists cover who, what, why, when, where and how (Hopkins, 1989) in writing their stories. Process-oriented research has concentrated on how a strategy is formulated and implemented. Content-oriented research on the other hand has mainly looked at what is being decided. Who and why have been covered with both approaches in different ways. Context and timing, the where and when questions have tended to be equally neglected by both groups (Huff and Reger, 1987).

Hundreds of papers and books have been published on strategic decision making, not only in business policy or organization theory literature, but in organization behavior, public administration, sociology, political science, international relations and education fields as well.

A complete review of process-related and content-related research on strategic decision making is provided by Huff and Reger (1987) and Fahey and Christensen (1986) respectively. Appendix B and Appendix C summarize these two articles. Since this research is interested in how strategic decisions are made, only process-related studies will be reviewed in this sub-section.
Huff and Reger (1987), in their review of recent literature of research on strategic decision making process, classify the strategic decision making process research along three dimensions. The first dimension is related to the “step” in the strategic decision making process. Andrews’ (1971) distinction between strategy formulation (how decisions are generated) and strategy implementation (how decisions are put into action) forms the basis for this dimension. The second dimension is related to the “purpose” of the research: normative (how things should be done) versus descriptive (how things are done). The final dimension is based on the “rationality assumptions” researchers have held: rationality reflecting individual, synoptic (organizational) or political characteristics.

Following the trend in the literature, this study has concentrated on the formulation step of the strategic decision making process. The following sub-sections provide an overview of previous research on the formulation step of the strategic decision making process.

3.2.3.1 Environment - Organization Interaction

It was mentioned that strategic decision making entails the analysis of internal and external environments of an organization to maximize the utilization of resources in relation to objectives (Bracker, 1980). This and other definitions of strategic decisions cited earlier, emphasize the existence of an important variable, the environment.

Internal and External Environment: Previous research on environment-organization interaction has differentiated between the internal and the external environments of organizations. The internal environment consists of those relevant physical and social factors within the boundaries of the organization or specific decision unit that are taken into consideration in the decision making behavior of the individual in that system. The external environment on the other hand, consists of these relevant physical and social factors outside the boundaries of the organization or specific decision unit that are taken directly into consideration (Duncan, 1972).
Objective and Perceived Environment: A second distinction has been made between the environment as a set of components or state of affairs outside the organization, and the environment as perceived by decision makers. Which perspective of environment is most relevant to the organization’s behavior - its managers’ perceptions of environmental states, or some objective characteristics of the environment?

Bourgeois (1980a) classifies the treatment of environment in literature into three categories as (1) objects, (2) attributes or (3) perceptions. In the first category, Dill (1958) makes the distinction between general and task environments. Task environment is composed of customers (distributors and users), suppliers (of material, labor, equipment, capital and workspace), competitors (both for markets and resources) and regulatory groups (government agencies, unions, and interfirm associations). Thompson (1967) distinguishes between the task environment as defined by Dill, and an additional residual environment composed of potential task environment members.

In the second category, writers usually focus on two attributes of an organization’s task environment: (1) its complexity and heterogeneity, referring to the number and diversity of external factors facing the organization and (2) its turbulence and volatility or dynamism, or the degree of change exhibited in these factors (Bourgeois, 1980a; Dill, 1958; Duncan, 1972; Thompson, 1967).

The third category consists of definitions that treat environment in terms of management perceptions of environmental uncertainty. Some studies (Duncan, 1972; Lawrence and Lorsch, 1967) in trying to measure organizations’ environmental uncertainty, depend entirely upon subjective data from managers. These studies coupled with Thompson’s (1967, p.159) definition of “coping with uncertainty” as the essence of administrative process, has led some researchers to rely exclusively on perceived environment. As Weick (1969) argues, it is only through managerial perceptions that the environment becomes known to the organization (Anderson and Paine, 1975; Downey, Helriegel and Slocum, 1975; Downey and Slocum, 1975; Miles, Snow and Pfeffer, 1974; Tosi, Aldag and Storey, 1973). However, research in this area has yielded inconsistent and often difficult-to-interpret results. Problems range from findings of poor reliability and validity evidence for meas-
urement instruments (Downey et al., 1975; Tosi et al., 1973) to a failure to find clear evidence of a relationship between objective characteristics of the organizational environment and perceptions of environmental uncertainty (Downey et al., 1975; Duncan, 1972; Pennings, 1975; Tosi et al., 1973).

It is difficult, if not impossible to consider environmental effects and organization responses without considering or examining the perceptual process of these people who are responsible for altering internal states of an organization (Anderson and Paine, 1975). Miles et al. (1974), quoting Child (1972) assert that perceptions guide the strategic choices managers make to achieve a better fit between their organizations and the environment, and that these perceptions must be included in any model of organization adaptation. This view is supported by Snow and Hrebiniak (1980) who conclude that top managers make deliberate choices to develop strategies and distinctive competences' quite different from those of competing organizations, even though the environmental demands faced by companies within the same environment may be generally similar.

In addition, Braybroke and Lindblum (1959) and Wrapp (1967) have maintained that the nature of people and organizations do not allow the rational, synoptic definition of strategy followed by its implementation. Ruefli and Sarrazin (1981) and Tichy (1983) noted that the environments of private, as well as public organizations are changing, thus rendering strategic decision making process more interactive and more difficult to control. Bourgeois and Bradum (1984) and Quinn (1981) outlined models of strategy development that closely link strategy formulation and implementation in such circumstances. This group of studies has focused on the necessity of devising small, incremental changes and waiting for feedback from the environment before making further changes. In addition to researchers who have looked at the environment-organization interaction, four groups of researchers, as classified by Huff and Reger (1987), have concentrated on the for-

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7 The term distinctive competence, first used by Selznick (1957) to describe the character of an organization, refers to those things that an organization does especially well in comparison to its competitors (Snow and Hrebiniak, 1980).
mutation step of the strategic decision making process: (1) Planning Prescriptions, (2) Decision Aids, (3) Planning Practices and (4) Agendas and Attention.

3.2.3.2 Planning Prescriptions

Researchers in this category have given normative prescriptions for how strategies should be formulated. Research in this area is directed toward helping organizations rationalize planning and strategic decision making systems, and relies primarily on logic and consulting experience to support advice on how strategy should be formulated (Huff and Reger, 1987).

In this category, viewing the practice of planning as a whole, one group of researchers offered prescriptions for developing strategies (such as Ansoff, 1986; Camillus, 1982; Ghajedaghi and Ackoff, 1984; Mitroff and Mason, 1982). A second group of researchers has concentrated on specific environments such as not-for-profit organizations (Bryson, 1981; Hatten, 1982; Mitchell and Mitchell, 1980; Montanari and Bracker, 1986; Nutt, 1984a). Other researchers have concentrated on the specific steps in the planning process (such as Ansoff, 1980; King, 1981; Klein and Newman, 1980) and on the specialized approaches to planning, recommending a variety of specific analytic techniques in planning (such as Hoffman, 1985; McInnes and Carlton, 1982; Mokwa, 1986).

Paying no attention to the possible political processes taking place in formulating strategic decisions, this group of researchers, in prescribing planning approaches, has assumed the rationality of individuals as decision makers. at individuals the

3.2.3.3 Decision Aids

In contrast to those with more systematically rational expectations, researchers in “Decision Aids” category have assumed that strategy formulation is conceptually problematic. Since decision mak-
ers fall short of the demands of synoptic rationality, they are expected to benefit from structured
decision processes and other aids to help them organize and analyze strategic alternatives (Huff and
Reger, 1987).

One group of researchers has tried to prescribe methods to improve the decision maker’s under-
standing of a problem (Bartunek, Gordon and Weathersby, 1983; Ramaprasad and Mitroff, 1984;
Volkema, 1983). Another group has concentrated on structured debates specifically designed to
reveal differences in assumptions that underlie the interpretation of data relevant to the different
strategic alternatives (Mason and Mitroff, 1981) or to just one strategic choice (Cosier, 1981a;
Cosier, 1981b; Schwenk, 1984b). A third group or researchers studied consensus-generating ap-
proaches in strategic planning processes (Schweiger, Sandberg and Ragan, 1986).

The importance of this group of studies is their recognition that even when the individuals have the
means for generating new ideas, it is rarely easy to coordinate these ideas with the opinions of others
in the organization.

3.2.3.4 Planning Practices

A fourth group of researchers who have been more interested in description than prescription, has
surveyed formulation processes and industry planning practices, usually by mailing questionnaires
to large samples of firms.

The objective of most of the studies was to determine whether the use of planning methods pre-
scribed by other researchers leads to increased organizational performance (such as Ramanujam,
Venkatramanan and Camillus, 1986; Rhyne, 1986). A second group of researchers recognized the
need to move away from a narrow focus on the formal planning system to an enlarged focus on the
strategic decision making process that includes the formal planning system (Bresser and Bishop,
3.2.3.5 Agendas and Attention

Concentrating on the cognitive or psychological, bureaucratic and political impacts on strategic decision making, research in this category was initiated by studies on organizational-level behavioral models (Bower, 1970; Cyert and March, 1963; March and Simon, 1958) and individual-level (Kahneman, Slavic and Tversky, 1982) behavioral models.

One group of researchers has tried to describe political and bureaucratic processes in strategic decision making (Fahey, 1981; Narayanan and Fahey, 1982; Nutt, 1984b; Schwenk, 1985; Shrivastava and Grant, 1985), as well as how individuals make strategic decisions (Schwenk, 1984a; Stahl and Zimmerer, 1984). Another group has focused on cognitive, perceptual and other psychological impacts on strategic decision making processes (Huff and Fletcher, 1984; McCaskey, 1982; Schwenk, 1984a; Smirich and Stubbart, 1985; Sussman, Ricchio and Belohlov, 1983).

This group of researchers drew on data from cognitive psychology and behavioral decision theory to describe how individual strategic decision making processes differ from rational normative ideals

3.2.4 Observations

The following observations are made after a review of literature on strategic decision making.

First, researchers have used their own definitions of "strategic decisions" raising construct validity questions.

Second, several researchers have offered prescriptive solutions on how to improve strategic decision making processes, basing their recommendations on purely theoretical assumptions. For example, studies grouped under "Agendas and Attention" category, refuted the rationality of decision makers assumption made by researchers prescribing planning practices. Strategic decision-making process
investigators must not lose sight of their ultimate customer - the practicing manager. "Research should be designed to provide knowledge (albeit probabilistic) about what is known and works, not only what is thought. This will require some concepts and arguments to be developed more fully or, where applicable, tested before they are presented to practitioners. This is not to suggest that strategic [decision making] process scholars restrict their interaction with practitioners until some future day when their knowledge will be complete. That day obviously will never arrive, because new questions will replace old ones, and answers will continue to be disputed. However it is suggested that strategic process investigators be sensitive to making unqualified recommendations and claims about how to improve strategic decision making, if these claims have little foundation" (Fredrickson, 1983).

Third, following the recommendations of researchers such as Schendel and Hofer (1979), who have suggested that dividing research on strategy between process and content and other subdivisions would facilitate research in the field, research activities on strategic decision making have been conducted mostly independent of each other.

Finally, among researchers, there is a disagreement on who makes strategic decisions. While one group claimed that, as boundary spanners, top managers make strategic decisions, others said people at lower levels of organizations participate in making strategic decisions.

3.3 Conceptual Research Model

The third step in research methodology was to build a conceptual research model defining the *formulation* step of the strategic decision making *process* this study has concentrated on.
Kurstedt’s Management System Model (MSM) as modified by Sink (1987) was further modified to be used as a conceptual framework describing the strategic decision making process. Concentrating on one part of the modified MSM (formulation), the conceptual research model was developed. The following two sub-sections describe the modified MSM and the conceptual research model for this study.

3.3.1 The Management System Model

Figure 2 on page 23 illustrates Kurstedt’s (1986) Management System Model (MSM), which describes any domain responsibility as a management system. The three components of the MSM are “who manages,” “what is managed” and “what is used to manage.” “Who manages” is anyone who uses information to make decisions that result in actions which in turn affect “what is managed.” Through interpretation of portrayed information, “who manages” makes decisions to maintain or alter the current status of the system. Experience, education and cognitive style, as well as beliefs, attitudes and values shape a manager’s interpretation of portrayed information. “What is managed” is the physical things “who manages” is responsible for. The physical things that “who manages” is responsible for, or “what is managed,” include the people, capital, equipment and material the manager manages. The management tools, or “what is used to manage,” are the tools “who manages” uses to manage. These tools include organizational structures, plans, management information systems and other tools used to convert data to information. A successful management system balances the three components by paying attention to the interfaces between them. Although it is a useful framework, the MSM is still a descriptive model. Research is currently going on to make it a predictive model (e.g., Kurstedt, Mendes and Lee, 1988).

While Kurstedt’s (1986) MSM follows an “information systems” perspective, Sink (1987) modified the MSM to apply it as a framework in “quality and productivity management.” Among other modifications, Sink (1987) introduced a fourth component, the “other audiences,” and replaced the

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Figure 2. The Management System Model has three components.

Source: Kurstedt, 1986.
"who manages" component by "management team." Figure 3 on page 25 incorporates these two modifications by Sink (1987) to the MSM. The "Other audiences" component consists of those physical and social factors outside the boundaries of the organization or specific unit that are directly taken into consideration in making decisions. "Other audiences" members include upper management, customers, suppliers, competitors and regulatory groups. Substituting "management team" for "who manages" is consistent with researchers who suggest that decision making process should also involve those people who will be affected by a specific decision (Abernathy, Clark and Kantrow, 1981; Goodman, 1986; Hackman, 1986; Kilmann, 1985; Lawler, 1986; Peters, 1987; Peters and Waterman, 1982; Schonberger, 1986). These two components, namely "other audiences" and "management team", are linked through an "information portrayal/information perception" interface in Sink's (1987) modified MSM.

Further modifications are made to the MSM to use it as a framework in this study (see Figure 4 on page 27). First, the "other audiences" component is replaced by "task environment," members of which include customers (distributors and users), suppliers (of material, labor, equipment, capital and work-space), competitors (for both markets and resources), technology (equipment process, controls, information systems, materials and products), regulatory groups (government agencies, unions and interfirm associations) and upper level managers (e.g., corporate management).

Based on the results of the literature review on "organization-environment interaction," a second modification is made to the MSM: The "information portrayal/information perception" interface between "other audiences" (task environment) and "management team" is replaced by "objective environment/perceived environment" interface. In this modified model, members of the "management team"\(^8\) incorporate their perceptions of the objective characteristics of the organization's task environment into their strategic decision-making efforts. Finally, since this study concentrates on strategic decisions, the "decisions/actions" interface between "management team" and "internal environment" is replaced by "strategic decisions/actions" interface. According to this model,\(^8\)

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\(^8\) In the modified MSM, depending on the organization structure and decision-making styles of individuals, "management team" may consist of one or more decision makers.
Figure 3. The modified Management System Model has four components.

Source: Adapted from Sink (1987).
management team members make strategic decisions based on their perception of objective characteristics of the "task environment," and on their perception of information they gather from the "internal environment" through "what is used to manage."

Thorngate (1976) has pointed out that no theory of social behavior can simultaneously be generalizable, accurate and simple. The major strength of the modified Management System Model is its simplicity. Accuracy and generalizability of this model have not been statistically tested and validated.

3.3.1.1 Strategic Decision Making Process and the Management System Model

The modified MSM, used as a conceptual framework describing the strategic decision making process, integrates the previous process-related strategy research into one simple model with one exception.

First, this model recognizes the distinction between the external environment and internal environment as two separate sources of information for strategic decision-makers, by differentiating between "task environment" and "internal environment" components. The "objective environment/perceived environment" interface follows the suggestion of several researchers who have concluded that perceptions rather than objective characteristics of the "task environment" guide the strategic decisions that "management team" members make.

Second, the "strategic decisions/actions" interface of the modified MSM follows the literature's approach in distinguishing between the formulation and the implementation stages of the strategic decision making process. In addition, the circular loop of the modified MSM, follows the suggestion of researchers who have mentioned that the nature of people and organizations does not allow the rational, synoptic definition of strategy followed by its systematic implementation. These researchers have emphasized the necessity of devising and implanting small, incremental changes
Figure 4. The modified Management System Model can be used as a conceptual framework describing the strategic decision making process.

Source: Adapted from Kurstedt (1986) and Sink (1987).
and waiting for feedback before making further changes. This concept of feedback is imbedded in the circular loop of the modified MSM. In fact, inspired by this circular loop, which suggests a feedback control diagram, Kurstedt et al. (1988) are currently working deriving an analogy between the MSM and Automatic Control Theory.

Third, the "perceived environment" and the "information perception" interfaces recognize the role of the cognitive and other psychological factors that affect decision makers' perception of information.

The "one exception" is that the modified MSM does not treat formal planning methods as a necessary part of the strategic decision making process. An organization's strategy determines the extent of alignment between its external and internal environment (Galbraith and Mathanson, 1978; Hofer and Schendel, 1978; Jemison, 1981; Miles and Snow, 1978; Mintzberg, 1978; Snow and Hambrick, 1980; Sumer, 1980). Although this alignment may be achieved with a general strategy that is produced by a formal planning process, it is just as likely that an organization's strategy at any point, simply reflects the aggregate of countless strategic decisions or behaviors that have taken place one-at-a-time, over a period of years (Mintzberg, 1978; Uyterhoeven et al., 1977). This view is supported by the arguments of theorists who have suggested that strategy formulation, above all else, is a decision making process. Not all organizations have formal planning systems, but they all make strategic decisions, usually one-at-a-time (Bourgeois, 1981; Mintzberg, 1978; Pettigrew, 1977; Quinn, 1980).

3.3.2 Building the Conceptual Research Model

It was mentioned earlier in this chapter that this study concentrates on the formulation step of the strategic decision making process. As shown in Figure 4 on page 27, part of the modified MSM identified as "Research Domain," is used as the basis for the conceptual research model. The
“Research Domain” in Figure 4 uses Mintzberg et al.’s (1976) definition of decision as a specific commitment to action, and of decision process as a set of actions and dynamic factors that begins with the identification of a stimulus and ends with a specific commitment to action. The “Research Domain” assumes that individuals make strategic decisions (specific commitment to action) based on the information they perceive from the internal and the task environments (stimuli).

The conceptual research model defines the variables and explains the relationships between those variables. The following definitions provided by Kerlinger (1986) will be useful in developing such a model.

### 3.3.2.1 Definitions

A concept expresses an abstraction formed by generalization from particulars. Intelligence, aggressiveness, conformity and honesty are all concepts used to express varieties of human behavior. A construct is a concept. It has the added meaning, however, of having been deliberately and consciously invented or adopted for a special scientific purpose. It can be said that a variable is a property that takes on different values.

A constitutive definition defines a construct with other constructs. For example intelligence can be defined as “operating intellect”. An operational definition on the other hand, assigns meaning to a construct by specifying the activities or operations necessary to measure it. Alternatively, an operational definition is a specification of the activities of the researcher in measuring a variable or in manipulating it. In short, it defines or gives meaning to a variable by spelling out what the investigator must do to measure it.

Variables have been classified in a number of ways (see for example Kerlinger (1986) and Leedy (1985)). For this conceptual research model, independent, dependent, intervening and moderating variables are used. An independent variable is the presumed cause of the dependent variable, the
presumed effect. The independent variable is the antecedent; the dependent is the consequent (Kerlinger, 1986). When we say: if A then B, we have the conditional conjunction of an independent variable manipulated by the experimenter. In non-experimental research, often times severe constraints reduce the possibility of experimental manipulation. In such circumstances, the independent variable can be defined as the variable that logically has some effect on a dependent variable. For example, in the research on cigarette-smoking and lung cancer, cigarette smoking, which has already been done by many subjects, is the independent variable. A moderating variable is one that affects the strength of relationship between the dependent and independent variables. An intervening variable, on the other hand, is one without which the cause-effect relationship between the independent and dependent variables cannot take place. Figure 5 on page 31 depicts the relationship between dependent, independent, moderating and intervening variables. In Figure 5(a), the independent variable “A” is the antecedent, and “B,” the dependent variable, is the consequent. The moderating variable “C” acts as a catalyst, affecting the strength of cause-effect relationship between “A” and “B.” In Figure 5(b) however, “C” acts as an intervening variable: if “C” is removed, the cause-effect relationship between “A” and “B” cannot take place.

3.3.2.2 The Variables in the Conceptual Research Model

To move from theory-hypothesis-construct level to observation level, operational definitions for variables of the “Research Domain” in Figure 4 on page 27 must be provided.

The perceived environment interface could be operationalized by defining it as perceived environmental uncertainty. Milliken (1987) defines uncertainty as an individual’s perceived inability to predict something inaccurately. Also an individual experiences uncertainty because he perceives himself to be lacking sufficient information to predict accurately or because he feels unable to discriminate relevant data and irrelevant data (Gifford, Bobbit and Slocum, 1979). The label “environment” when attached to the term “uncertainty” suggests that the source of the uncertainty is the organization’s external environment. An instrument to measure perceived environmental uncer-
Figure 5. Moderating and intervening variables affect the relationship between the independent and dependent variables.

Source: Sink, 1989.
tainty has been developed by Duncan (1972), modified by Bourgeois (1985), and tested and validated by Milliken (1987).

The *information perception* interface could be operationalized by defining it as *perceived internal strengths and weaknesses*. Stevenson (1976) provides a valid and reliable instrument and measures the differences and similarities between the individuals' perceptions of organizational strengths and weaknesses.

One way to operationalize the *strategic decisions* interface would be to define strategic decisions as those decisions related to organizational goals and the allocation of resources (means) to accomplish these goals. Based on his study of strategic decision making processes of 20 American firms, Bourgeois (1978) states that the goals disagreement among managers correlates positively with economic performance, but that its relationship is a function of both environmental volatility and perceived environmental uncertainty. In another study, Bourgeois (1980b) concludes that while agreement on both goals and means is associated with economic performance, in fact agreement on goals without agreement on means correlates with poor performance. Goals agreement combined with means disagreement, i.e. when managers agree where they want to go but cannot agree on how to get there, suggests paralysis-of-action condition. That is, disagreement on the choice of means to compete may hurt because functional strategies clash, causing internally inconsistent and incomplete strategies. Thus the *strategic decisions* interface could be operationalized by defining strategic decisions as those decisions related to organizational goals and the means to achieve these goals, and by measuring the consensus on goals and means among the managers. Bourgeois (1980b) in his article discusses and shows the validity of his instrument.

Thus, the conceptual research model to study the formulation step of the strategic decision making process defines *perceived environmental uncertainty* and *perceived internal strengths and weaknesses* as independent variables, and *consensus on goals* and *consensus on means* as the dependent variables. This model also assumes that organizational attributes such as size and structure, and personal attributes such as personality type, educational background, experience, years with the company and
position in the organization function as moderating variables. Figure 6 on page 34 depicts this conceptual research model.

The conceptual research model, shown in Figure 6 on page 34, defines the "formulation" step of the strategic decision making process at the "construct" level. This model explains the "formulation" of strategic decisions at a higher level of detail than the "research domain" identified in the modified MSM (see Figure 4 on page 27). The conceptual research model in Figure 6 however, falls short of explaining the relationships between the constructs at the operational level of detail.

Having realized the "incompleteness" problem of this conceptual research model, it was decided to look at the fundamentals of the formulation step in the strategic decision making process, i.e. before attempting to define the relationships between the constructs, define these constructs at a higher level of detail.

As a result, six research questions were identified to gain a more fundamental understanding of the strategic decision making process in manufacturing organizations.

The following section explains these research questions.

3.4 Research Questions

Based on the conceptual research model and the literature review, six research questions were defined, which, when answered collectively would accomplish the research objective of this study: gaining a better understanding of strategic decision making in manufacturing organizations. These research questions are:
Figure 6. The conceptual research model defines and shows the relationship between the independent, moderating and dependent variables.
1. What is a strategic decision?
2. How are strategic decisions made, what factors influence strategic decisions?
3. Who has made the strategic decisions in the past?
4. Who will make the strategic decisions in the future?
5. Why is it important to study strategic decision-making?
6. How can the quality of strategic decisions be improved?

From the beginning of this document, the term research has been used referring to this study. But is this study actually research, or is it, as Leedy (1985) puts it, merely fact finding and fact transcribing? To answer that question, the term research will be explained.

Following that explanation, it will be shown that this study falls in the diagnosis action research category of the research paradigm.

### 3.5 What is Research?

This question can be answered with a dictionary definition: “Studious inquiry...critical and exhaustive investigation or experimentation having for its aim...the revision of accepted conclusions...in the light of newly discovered facts...” (Webster, 1978). Books on research methodology generally agree with this definition (Hillestad, 1977). Mouly’s (1970) definition of research is clear and complete: “Research is best conceived as the process of arriving at dependable solutions to problems through the planned and systematic collection, analysis, and interpretation of data.”
3.5.1 Classifying this Research

An important issue in classifying this study is whether the strategic decision making process research should be qualitative, quantitative or both. There has been discussion regarding the value of using a variety of methodologies that have been grossly qualified as "qualitative" (Duncan, 1972; Mintzberg, 1977; Mitroff and Mason, 1981) versus "quantitative" (Cosier, 1981a; Hatten, 1979; Schendel and Hofer, 1979) in strategic decision making research. Strategic decision making researchers should recognize that in the short run the limited knowledge of basic concepts such as "strategic decision" probably will be improved the most by using a number of qualitative approaches that capture the richness of organization life but do not meet requirements of statistical verification. At the other extreme, it should be recognized that although controlled experiments (lab or field) on questions relating to strategic decisions may yield statistical verification, they will ignore the same richness (Fredrickson, 1983). As Weick (1979) states, failing to acknowledge and make these trade-offs may result in research that is "uninformed and pedestrian...because people have tried to make it general, and accurate, and simple." Different questions require different methods (Kerlinger, 1986). Strategic decision making process investigators must recognize the need to vary methodologies according to their research questions (Fredrickson, 1983).

Several varieties of research activity exist: basic research, applied research, action research, exploratory research, research and development, and so on (see for example Kerlinger, 1986; Leedy, 1985; Sussman and Evered, 1978). This study is an action research which, as Rapoport (1970) states, "...aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration [of the researcher and the practitioner] within a mutually acceptable, ethical framework." While Rapoport's definition of action research focuses on aim, action research can also be viewed as a cyclical process with five phases: diagnosing, action planning, action taking, evaluating, and specifying learning (see Figure 7 on page 37) (Susman, and Evered, 1978).

Figure 7. Action research can be viewed as a cyclical process with five steps.
While all five phases are necessary for a comprehensive definition of action research, action research projects may differ in the number of phases carried out in collaboration between action researcher and the practitioner (client system). Chein, Cook and Harding (1948) define four types of action research:

1. **Diagnosing action research**: researcher is involved only in collecting data for diagnosis and feeding the data back to the client system.

2. **Empirical action research**: researcher only evaluates the actions undertaken by the client system and feeds back data to it.

3. **Participant action research**: diagnosing and action planning are carried out in collaboration between researcher and client system.

4. **Experimental action research**: researcher and client system collaborate in all phases to set-up an experiment for taking an action and evaluating its consequences.

The two main characteristics of action research are that in action research: (1) theory provides a guide for what should be considered in the diagnosis of the organization, and (2) the problem, and the method of research is generated from the process itself (Huse and Cummings, 1985).

This study is a diagnosis action research with the objective of gaining a better understanding of strategic decision making in manufacturing organizations. During this study, the only interaction with the practitioner takes place in diagnosis and feedback stages.

### 3.6 Data Collection and Analysis

Mintzberg et al. (1976) suggest three methods to study strategic decision making in organizations: (1) studying organizational records, (2) interview or questionnaire, and (3) observation. For the
purposes of this study, a fourth method, literature review has been added to this list. Studying organizational records is often impossible, because strategic decisions seldom leave reliable traces in the files for the organization. Observation is certainly a powerful and reliable method, but extremely demanding of research resources, because the strategic decision making processes typically span a long period of time. Barnard (1938, p.12) supports this statement by saying that "Not the least of difficulties of appraising the executive functions or the relative merits of executives lies in the fact that there is little direct opportunity to observe the essential operations of a decision. It is a perplexing fact that most executive decisions produce no direct evidence of themselves, and that knowledge of them can only be derived from the cumulation of indirect evidence." Thus in this study, studying organizational records and observation of the strategic decision making processes were not used as data collection tools.

Of the remaining two methods, literature review was used to gain an initial understanding of strategic decision making from the perspective of researchers. As a result of the literature review, the conceptual research model for this study was developed, and the research questions were identified.

Following the approach of researchers who have concentrated on the psychological, political and bureaucratic processes in strategic decision making process, structured interviews were used in this study, trading the generalizability of the results for a richer understanding of three non-randomly chosen strategic decision making processes.

3.6.1 The Interview Process

In this study, structured interviews with practitioners were used to collect verbal data9 to answer the research questions. Ericsson and Simon (1980) identify three procedures to collect verbal data:

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9 The term data usually brings numerical data into mind. However, one definition of data is "things known or assumed; facts or figures from which conclusions can be inferred" (Webster, 1978). Therefore data can be numerical, verbal or in text form. This study uses both verbal and text-form data.
1. Thinking aloud.
2. Concurrent performance of a task and verbalization.
3. Retrospective verbalization.

Given that making strategic decisions spans a long period of time, the first two are not feasible alternatives. Thus the data collection technique used in this study is "retrospective verbalization" where the subjects provide their report about a task or process after completing the task. When translated to this study, it means that people who are actually engaged in making strategic decisions provide verbal reports on strategic decisions they have made in the past.

Many studies of the strategic decision making process have relied on retrospective reports from managers positioned at the upper levels of the organization (Birley, 1976; Clarke and Shrode, 1979; Duhaime, 1981; Fredrickson, 1984; Fredrickson and Mitchell, 1984; Lyles and Mitroff, 1980; Mintzberg, Raisinghani and Theoret, 1976; Mazzolini, 1981; Pettigrew, 1973) because of its practicality (Barnard, 1938; Mintzberg, 1977; Wolfe and Jackson, 1987). These key informants are usually chief executives, vice presidents, division managers or planners who have information about organizational events (Huber and Power, 1985). Although no single means of obtaining data is appropriate for all strategic decision making studies, the use of retrospective reports can often provide information not available from other sources. Unfortunately, the methodological issues associated with this means of gathering data have not been adequately examined in the policy and strategy-related literature (Gergen, 1968), or perhaps in any business-related literature (Phillips, 1981).

### 3.6.1.1 Data Inaccuracy Problems of Retrospective Verbalization

In an attempt to remedy this problem, Huber and Power (1985) summarize the methodological issues related to "retrospective verbalization" and provide guidelines to improve the accuracy of
verbal reports. The phrase "data inaccuracy" implies that data are incomplete, biased or imprecise. There are at least four reasons why informants provide (or why researchers report) inaccurate data:

1. They are motivated to do so.
2. Their perceptual and cognitive limitations result in inadvertent error.
3. They lack crucial information about the event of interest.
4. They have been questioned with an inappropriate data elicitation procedure.

One reason why informants might be motivated to provide inaccurate data, as Huber and Power (1985) state, is that they are motivated to do so by forces such as the needs for achievement, security and social acceptance. The magnitude of inaccuracy increases when informants believe that divulging specific information could have an adverse impact on their careers (Athanassiades, 1973; Cohen, 1958), and if they are highly committed upon their organization (Athanassiades, 1973). Also some informants may contrive or invent stories or facts in order to appear knowledgeable or important. Motivationally based inaccuracies are generally thought of as being introduced intentionally, but may be introduced unintentionally (Huber and Power, 1985).

The second reason for inaccurate reports is perceptual and cognitive limitations of people as information processors (March and Simon, 1958; Nisbett and Ross, 1980; Sage, 1981). For example, people have limited, imperfect recall (Ericsson and Simon, 1980) and seem to be influenced by their implicit or espoused theories when they reconstruct the past (Duncan, 1979). In addition, cognitive psychologists have found that people have predictable biases in their responses to many types of problems or questions (Tversky and Kahneman, 1974).

Huber and Power (1985) mention that errors are also caused by hindsight bias (Fischhoff, 1982; Fischhoff and Beyth, 1975) and attributional bias (Kahneman, Slovis and Tversky, 1982; Nisbett and Ross, 1980). Hindsight bias leads people retrospectively to see an event as having been inevitable, regardless of their predictions before the event (Huber and Power, 1985): "In hindsight, people consistently exaggerate what could have been anticipated in foresight. They not only tend
to view what happened as having been relatively inevitable, but also to view it as having appeared relatively inevitable before it happened" (Fischhoff, 1982). The attributional bias leads people to attribute outcomes to appealing but often inappropriate causes (Huber and Power, 1985). This phenomenon has special importance in strategic decision making research, as it can cause people to describe decision processes as being much more systematic and rational than they actually were (Schwenk, 1982). The attributional bias also causes people, including strategic-level managers, to attribute favorable outcomes to the actions of themselves or their associates and unfavorable outcomes to uncontrollable forces (Bettman and Weitz, 1983).

One might hypothesize that strategic-level managers would be above-average or even superior information processors (Huber and Power, 1985), since they are "highly articulate persons capable of thinking through abstract and complex issues and forming and expressing their views quickly and economically" (Kincaid and Bright, 1957). However, research on the nature of managerial work (Mintzberg, 1973) suggests that task demands can create information overload for strategic-level managers (Driver and Streufest, 1969). Although inaccuracies resulting from information overload are introduced unintentionally, they can lead to biased or otherwise inaccurate reports (Huber and Power, 1985).

A third source of data inaccuracy is the manager's lack of information or knowledge. Strategic-level events frequently involve multiple participants, a significant number of whom may lack full information. In these situations, second-hand information and imagination may fill in information gaps and lead to unintentional inaccuracies (Huber and Power, 1985).

Finally, as a fourth source of data inaccuracy, which may cause content validity problems, the questions researchers ask can limit and bias the information received. Since researchers have more

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10 Content validity is the accuracy with which an instrument measures the factors or situations under study; i.e. the "content" being studied. If, for example, we are interested in the content validity of questions being asked to elicit familiarity with a certain area of knowledge, content validity would be concerned how accurately questions asked tend to elicit the information sought (Leedy, 1985).
control over this cause of data inaccuracy than they do over the other three, this source of error can be remedied by a careful design of data collection method.

Biases or inaccuracies unique to the individual are of special importance when researchers study strategy and policy topics, since in many strategic decision making research situations, there are only a few qualified respondents in the organization. As a consequence, errors introduced because of the unique bias of an individual are less likely to be offset or corrected by responses from other individuals in the same organization.

3.6.1.2 Guidelines to Improve Accuracy of Retrospective Verbalization

Data accuracy of retrospective verbalization technique can be improved by following guidelines specified by Huber and Power (1985):

1. If more than one informant per unit of analysis is to be interviewed, choose informants whose unique biases or lack of knowledge are likely to offset those of other informants. However, when the knowledge of the informants varies, and the most knowledgeable people are likely to be queried first, responses from additional but less knowledgeable informants can actually decrease the accuracy of responses (when they are averaged arithmetically). As an empirical example, Campbell (1955) reported that a summary of data from just three very knowledgeable people was more accurate than a summary of data from a much larger group of less knowledgeable respondents.

2. When choosing key informants, recognize that the person’s emotional involvement with a topic or unit of analysis may either increase or decrease the accuracy of the responses. Since events important to the individual are reported more completely and accurately (Cannell and Henson, 1974), one would be tempted to choose as informants individuals with a high level of emotional involvement in the decision of interest (Huber and Power, 1985). Paradoxically the
perception and responses of emotionally involved people are more likely to be distorted (Huber, 1982; O'Reilly, 1978). Two tactics for dealing with this problem are:

a. **Choose informants with moderate levels of emotional involvement.** A lower level of involvement may result in casual deletion of information and the introduction of random errors, whereas a greater level of involvement may lead to either motivational or cognitive distortions.

b. **Seek factual data from informants with higher emotional involvement, as their ability to recall is probably greater, and seek judgmental data from those with lower level involvement, as their responses are less likely to be distorted by their motives.**

3. **Attempt to motivate the informants to co-operate with the researcher.** This guideline is important for two reasons. First, in strategic decision making studies, it is especially important to obtain accurate data from each of the scarce respondents. Secondly the motivating techniques that organizational scientists typically use in research (such as financial incentives for graduate students) are less appropriate when dealing with strategic-level managers. Huber and Power (1985) suggest two approaches to overcome this problem:

a. **Remove as many disincentives to responding as possible.** One disincentive is the fear that the information provided will somehow prove adverse to the respondent's interests. Therefore ensure the anonymity and confidentiality of responses.

b. **Explain how the research results can be useful to the manager,** to the organization, the strategic management field and the researcher. Usefulness is a key incentive to upper-level managers (Kincaid and Bright, 1957). Even if the managers are not completely convinced of the usefulness of the study, the arguments made may allow them to rationalize their participation, especially if they have been "volunteered" by a superior.
4. *Minimize the elapsed time between the events of interest and collection of data.* Reducing the elapsed time following an event enables information to be more easily recalled (Buckhought, 1974; Ericsson and Simon, 1980; Hyatt, Riley and Sederstrom, 1978).

5. *Consider how the framing of the questions will affect the informant's responses.* As Huber and Power (1985) mention, cognitive psychologists have recently documented what survey researchers (Sudman and Bradburn, 1974) have generally known - that the structuring of questions influences the answers received (Buckhought, 1974; Loftus, 1975; Tversky and Kahneman, 1981). As an example, when decision makers are asked for their preferences between two actions, one with a fixed payoff and the other with a probabilistic payoff, they tend to choose the action with the fixed payoff if the expected payoff's from both actions are similar in magnitude and positive. On the other hand, they tend to chose the action with the probabilistic payoff if the expected payoff's are similar in magnitude and negative (Huber and Power, 1985). Since in designing questions,! strategic decision making process researchers can portray the choice situation as either positive (capturing 30 per cent of the market) or negative (failing to capture 70 per cent of the market), the framing of the questions can bring forth either of two relatively predictable responses.

6. *Use questions that are pretested, structured and that import an image of being rich in information content without being complex, and in interviews use follow-up probes to ensure that the question was understood and the answer was complete.* Unstructured questions are more likely than are structured questions to be misinterpreted. Their answers are also more likely to be misinterpreted. As Bruner (1957) notes, “Presented with a complex stimulus, the subject perceives...what it is ready to perceive; the more complex or ambiguous the stimulus, the more the perception will be determined by what is already ‘in’ the subject and the less by what is ‘in’ the stimulus.” This phenomenon occurs twice in unstructured questions - once when the subject interprets an ambiguous question and again when researcher interprets an ambiguous answer (Huber and Power, 1985). In spite of the scientific need for researchers to use structured questions, especially those researchers who intend to compare answers from multiple
respondents, experience shows that strategic-level managers are impatient with tedious, highly structured tasks (Dexter, 1970; Kincaid and Bright, 1957). This obstacle may be overcome by using questions that impart an image of richness and contain redundancies that aid in understanding (Cannell and Henson, 1974). In addition, encouraging respondents to elaborate on their responses can increase the accuracy of these responses (Huber and Power, 1985). Probes and pauses can give respondents a chance to remember information they may have forgotten when answering the structured question (Ericsson and Simon, 1980).

3.6.2 Data Collection and Analysis Process

Five organizations in different sectors of the manufacturing industry were contacted and asked if they would be willing to participate in this study. Of the five, three organizations responded positively. Managers in one organization were not willing because of disclosing sensitive information concerns. The second organization was then in the process of restarting their plant, and the managers said they would not have time. The three participant organizations had experienced major changes in recent years: two had gone through a leveraged-buy-out (LBO) process, and the third had been relocated, all within the last five years. In the remainder of this document, these three manufacturing organizations will be referred to as Company-A, Company-B and Company-C.

Keeping the guidelines mentioned in the preceding sub-section in mind, a six-step procedure was used to collect and analyze verbal data: (1) Initial interview, (2) Diagnosis, (3) Feedback, (4) Data analysis, (5) Improve diagnosis structure and (6) Specify learning (see Figure 8 on page 47).

Initial Interview: First, an initial interview with one manager in each organization was conducted. The purpose of this initial interview was to identify (1) a strategic decision to be used in this study and (2) the participants who were involved in formulating that decision.
Figure 8. A six step procedure was used to collect and analyze verbal data.
Two criteria were used to identify the initial contact in each organization. First, the initial contact had to be a member of top management team (i.e., either the president or a manager reporting to the president). This criterion was used to make sure that the initial contact was someone who could motivate other top managers to participate in this study. Second, the manager would preferably be someone who has been involved in making strategic decisions in the organizations. If the manager could provide alternative strategic decisions to be used in this study, then the selection of the strategic decision would be less dependent on his interpretation of what a strategic decision is.

The initial contact in Company-A was the Human Resources Manager who had been with the company for 10 years. He has been the Human Resources Manager for 4 years. He has also been participating in the strategic decisions made in the organization since he became the Human Resources Manager. In Company-B, the initial contact was the President of the company, who has been at his position for 7 years. In Company-C, the Vice President for Manufacturing, also an equity owner, was the initial contact. He has been with the company for 28 years.

As an output of the initial interviews, one strategic decision in each organization was identified to be used in this study. The selection of the strategic decision was based on the following criteria:

1. The decision selected was strategic as defined by the manager. The manager was not provided with a definition of strategic decisions.

2. More than one manager was involved in formulating the decision. This criterion was used to have the option of verifying and clarifying data collected from one manager by others if needed.

3. The participants would feel comfortable giving information about the selected decision.

4. The decision would be a recent one (made within the last 5 years) to enable information more easily recalled by participants.
The second output of the initial interviews was the list of participants who were involved in formulating the selected decisions. Initially, it was attempted to interview all managers in that list. In Company-A, all managers but one participated in this study (General Manager, Human Resources Manager, Engineering Manager, Systems Manager, Manufacturing Manager, Controller). The Marketing Manager was assigned to one of Company-A's overseas locations, and he was not available for the interview. In Company-B, a total of eleven managers had been involved in the formulation of the selected decision (President, Controller, Marketing Manager, Operations Manager, Human Resources Manager, and six managers reporting to top managers). The President of the company however, limited the number of participants to three, including himself. The President also selected the other two participants: the Marketing Manager and the Controller. He mentioned that being equity owners, those two participants were heavily involved in the decision. In Company-C, five managers were involved in formulating the selected strategic decision (President, Vice President-Marketing, Vice President-Manufacturing, Chief Financial Officer, Vice President-Operations), but only the Manufacturing Vice President and the Chief Financial Officer were interviewed among top managers. The other three top managers were located in a different state and their schedules did not permit them to participate in this study. In addition to the two top managers in Company-C, a Department Manager participated in this study. She was selected following the recommendations of the two top managers who suggested that the Department Manager, being the project manager in charge of implementing the selected decision, could provide answers to some of the questions, and that she had a very good understanding of the processes that resulted in the selected decision. Overall, twelve managers in three manufacturing organizations were identified as participants for this study.

**Diagnosis:** Once a strategic decision and the participants in each organization were identified, the interviews were conducted at the *Diagnosis* step of Figure 8 on page 47. These interviews were conducted over a period of three months (December '88 - March '89) and they lasted from 45 minutes to an hour and a half, depending on how much time the participant was willing to spend.
Being part of a qualitative study, these interviews have traded the statistical validation of results for a richer understanding of a strategic decision making process in three manufacturing organizations. The questions asked during the interviews were divided into three groups:

1. Demographic questions (personal and organizational).
2. Decision specific questions (how it was initiated, why it was made, what factors influenced the formulation of the decision, who participated in the decision).
3. General questions (what is a strategic decision, what factors influence strategic decisions, who has made the strategic decisions in the past, who will make them in the future).

Feedback: Interviews were recorded on tape (with permission from the participant) and later transcribed. The transcript of the interview was sent to the participant at the Feedback step.

Data Analysis: Following validation by the participant, the transcript of the interview was used to answer the research questions at the Data Analysis step. The answers provided by the participant were tabulated and were used to answer the research questions. At this step, two sources of information were used: (1) answers given to the decision-specific questions (retrospective verbalization) and (2) answers given to the general questions.

Improve Diagnosis Structure: At the next step -Improve diagnosis structure- the questions to be asked during the next interview were modified based on the answers received from the previous interviews. This modification was particularly useful in areas where clarification was needed, the answers were not complete or there were conflicting answers.

Specify Learning: Once all the participants were interviewed, the answers provided by each participant were put into tabular form and interpreted to answer the research questions. The data collected from the interviews and the interpretation of these data are explained in Chapter 4 - Data Collection and Analysis.
3.7 Reporting Results

Once all of the interviews were conducted, the answers provided by the participants were put together and based on the synthesis of the literature review and the answers provided, four of the six research questions were answered.

3.8 Interpretation of Results

At the final step in research methodology, based on the interpretation of the answers provided by the participants and the results of the literature review, an improved conceptual model describing the strategic decision making process was developed. Also at this step, the remaining two research questions were answered and recommendations were made on improving strategic decision making processes in manufacturing organizations.

The following chapter presents data collected from the interviews and reports findings.
4.0 Data Collection and Analysis

As it was mentioned in Chapter 3 a six-step data collection procedure was used to collect data from practicing managers (see Figure 8 on page 47): (1) Initial interview, (2) Diagnosis, (3) Feedback, (4) Data analysis, (5) Improve diagnosis structure and (6) Specify learning.

The purpose of the initial interview, as mentioned earlier, was to identify a recent strategic decision made in each of the three organizations (Company-A, Company-B and Company-C) as well as the participants who were involved in formulating those decisions. In the next step, structured interviews were conducted with the participants. Three groups of questions were asked in those interviews: (1) Demographic questions, (2) Decision-specific questions and (3) General questions.

Demographic questions provided information on the participants’ personal background as well as demographic information on the organization. Decision-specific questions were used to understand how the selected decision was formulated (i.e., the formulation process that took place in making these decisions). Prompts were used to at this step to make sure that the question was understood and the answer was complete. The last group of questions were guided by four of the six research questions identified earlier in Chapter 3:

1. What is a strategic decision?
2. How are strategic decisions made, what factors influence strategic decisions?
3. Who has made the strategic decisions in the past?
4. Who will make the strategic decisions in the future?

This chapter provides data collected from the interviews and, through synthesis of data collected from the literature review and the interviews, answers the research questions.

The following section provides demographic information on the companies and the participants, as well as the history of strategic decision selected in each organization. This information is based on the transcripts of the verbal reports given by the participants.

4.1 Company and Participant Demographics

This section provides demographic information on the companies and the participants. Also provided is a brief history for each decision selected in each company. As mentioned earlier, twelve managers from three manufacturing organizations in different sectors were used as participants in this study. Figure 9 on page 54 presents demographic information on companies as well as on participants.

4.1.1 Company-A

Company-A, with seven locations and 900 employees worldwide, serves national (35%) and international (65%) markets. The strategic decision selected to be used in this study was the 1987 decision to "study the whole business to create a plan integrating the different functions of the company under a total business approach."
COMPANY-A
Facilities: 7 worldwide
Markets: National (35%) and International (65%)
Number of employees: 900
Decision selected: To create a plan to integrate the separate functions of the organization under a total business approach.
Year decision made: 1987

<table>
<thead>
<tr>
<th>Participant</th>
<th>Years with company</th>
<th>Years at position</th>
<th>Education</th>
<th>Degree of Involvement</th>
<th>Experience (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Resources Mgr.</td>
<td>10</td>
<td>4</td>
<td>BA-Liberal Arts, MS-Ind. Lab. Rel.</td>
<td>Moderate</td>
<td>20</td>
</tr>
<tr>
<td>Controller</td>
<td>12</td>
<td>2</td>
<td>BS-Accounting</td>
<td>Low</td>
<td>12</td>
</tr>
<tr>
<td>Systems Manager</td>
<td>17</td>
<td>1.5</td>
<td>BS-Accounting</td>
<td>Low</td>
<td>17</td>
</tr>
<tr>
<td>Engineering Manager</td>
<td>14</td>
<td>1.5</td>
<td>BS-Mech. Eng. MBA</td>
<td>Moderate</td>
<td>14</td>
</tr>
<tr>
<td>Manufacturing Manager</td>
<td>7</td>
<td>7</td>
<td>BS-Business Mgt.</td>
<td>High</td>
<td>25</td>
</tr>
</tbody>
</table>

COMPANY-B
Facilities: 2 U.S.
Markets: National (85%) and International (15%)
Number of employees: 265
Decision selected: To move into a new complementary product-line.
Year decision made: 1986

<table>
<thead>
<tr>
<th>Participant</th>
<th>Years with company</th>
<th>Years at position</th>
<th>Education</th>
<th>Degree of Involvement</th>
<th>Experience (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>7</td>
<td>7</td>
<td>BA-Economics</td>
<td>High</td>
<td>14</td>
</tr>
<tr>
<td>Controller</td>
<td>4</td>
<td>4</td>
<td>BS-Accounting</td>
<td>Moderate</td>
<td>18</td>
</tr>
<tr>
<td>Marketing Manager</td>
<td>9</td>
<td>5</td>
<td>Ph.D. Foreign Lang.</td>
<td>High</td>
<td>14</td>
</tr>
</tbody>
</table>

COMPANY-C
Facilities: 2 U.S.
Markets: National
Number of employees: 560
Decision selected: To upgrade equipment-process technology.
Year decision made: First phase 1984, second phase 1988

<table>
<thead>
<tr>
<th>Participant</th>
<th>Years with company</th>
<th>Years at position</th>
<th>Education</th>
<th>Degree of Involvement</th>
<th>Experience (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP - Manufacturing</td>
<td>28</td>
<td>1</td>
<td>BS-Business Mgt.</td>
<td>High</td>
<td>28</td>
</tr>
<tr>
<td>Chief Financial Officer</td>
<td>24</td>
<td>1</td>
<td>BA-History</td>
<td>High</td>
<td>24</td>
</tr>
<tr>
<td>Department Manager</td>
<td>5</td>
<td>1</td>
<td>BA-Business</td>
<td>Low</td>
<td>7</td>
</tr>
</tbody>
</table>

Figure 9. Twelve managers in three manufacturing companies were interviewed in this study.
Company-A operates as a division of a larger corporation, with all of its functions located in the same building. Originally, the division was located in a different state together with three other divisions, where each division was in charge of its own profitability and its own product line. The Marketing, Distribution and Engineering functions were in separate buildings located miles away from manufacturing and systems functions. The Distribution, Systems, Materials Management and Maintenance functions were service functions to all four divisions.

This complex system was first hit by recession in early '80s, and then by increased international competition. The division went from making an operating income of 12-13 percent to losing 20 percent in one year. Managers of Company-A wanted to change, but they could not because the complex corporate structure would take months to approve capital investments. Limited funds from the corporate management were not readily available, because all four divisions were in trouble, and they all wanted to improve, and they all needed money from the corporate management at the same time. Company-A managers were frustrated because they could not get their capital requests approved in time, and they could not make system-wide changes under this complex structure, which they felt they should make to improve the division performance. Employees were frustrated because their managers could not make the changes they had felt the need for. Morale was low.

Low performance levels, coupled with a major labor dispute in the unionized environment, prompted the Chairman of the Board and the Manufacturing Manager to move Company-A to a different location, where it would be totally independent of the other three divisions. In three months, the manufacturing facility was moved to its new location, followed the rest of the division with its Marketing, Human Resources, Engineering and Finance departments. By 1985, Company-A was operating as a separate division at its new location with all functions in the same building.

After the division had been moved to its new location, the then-Chairman of the board asked the Manufacturing Manager (who was also then-acting General Manager) to totally automate one of
their production-lines: corporate management wanted to have a show-case for technology and a show-case for an automated production-line. A consultant was hired, and it was estimated that the project would cost close to ten million dollars. At that time, the Manufacturing Manager realized that without support from the rest of the organization, that production-line would be an island-of-technology, and it would not improve the performance of the organization all by itself. Based on this perception, the Manufacturing Manager convinced the then-new General Manager to go ahead and study the whole business instead of just automating the production-line. The General Manager agreed, and a consultant was hired. A “management steering committee,” consisting of top managers and some of their subordinates was formed. The consultant worked with the steering committee members to prepare a prioritized list of projects that would improve the performance of the organization. After six months of heavy interviewing throughout the entire organization, the consultants and the steering committee came up with a list of 46 projects to be voted and ranked by the top managers. Corporate management was kept informed throughout the process (a factor which, as managers reported, helped getting corporate support later in implementing the projects), and they were given a report explaining what had been done, and what projects had been selected as “top priority” projects. The output of that voting was a list of eleven projects to be implemented within the following five years. The first project in the list has already been implemented, and the second project is being studied by involved functions. Funding for the projects are being requested from the corporate management as they are implemented, and some of the funding is provided by the division itself.

4.1.2 Company-B

Company-B, in contrast to Company-A, serves mostly national (85%) markets with its two locations in the United States. With its five top managers and a financial partner as equity owners, Company-B employs 265 people (see Figure 9 on page 54).
In the early '80s, Company-B was heavily relying on the North American Original Equipment Manufacturers (OEM) as customers, which constituted 70 percent of its business. The rest, 30 percent was in the end-user market, selling their products as replacement parts to the end-users. At that time, the North American OEM market was dominated by American manufacturers, who were enjoying a 70 percent market share. But the managers of Company-B realized that the machines built by American manufacturers were not as competitive as foreign manufacturers', and they anticipated an increase in foreign manufacturer dominance within a couple of years -the same experience American auto industry has gone through. Managers of Company-B also considered the fact that the end-user market was composed of companies with low buying power. They were not dealing with a high-volume buyer that would drive the prices down with a lot of buying power. With that anticipation, the managers decided to de-emphasize the OEM business, and concentrate on the end-user market. They identified a couple of U.S. manufacturers in the OEM market which they thought would survive foreign competition, and they targeted those few manufacturers with better sales support and service.

In 1984, the company went through a leveraged buy-out (LBO) process, and the current top management together with a financial partner became equity owners. Continuing on the same path, the company emphasized the replacement part business. After a planning session in 1986, which involved the President, the managers reporting to the President, and six other people reporting to the top managers, the planning-group came up with two alternatives: (1) produce a better quality product (replacement part) at a lower cost or (2) start manufacturing a complementary product and provide a package to the customers. After a 6-6 split vote, the President decided to get into the complementary product line, the second alternative. The decision was based on the fact that any customer buying one of the products was buying the other from other manufacturers. If Company-B could provide a high-quality package which included both products, they would become the single-source supplier of both products in the market, developing a distinctive competence: a package with high-quality and good customer support. The President also thought that selling the "low-cost producer" alternative to the Board of directors would be very difficult.
A corollary of that selection was whether to start manufacturing the complementary product-line from scratch or to acquire an existing manufacturer. The management team, which consisted of equity owners, decided to acquire an existing manufacturer for the following reasons:

- It would be faster than starting from scratch.
- Company-B did not have the required manpower, skilled-labor and the location for the new facility.
- There was a large barrier to entry on the engineering content.
- The company that they would acquire would already have a good quality image.
- Starting from scratch would mean increasing the capacity in the market which may already have been saturated.

So, they acquired an existing company. Their predictions were correct: By 1987, the North American OEM business was dominated by foreign manufacturers, who enjoyed a 70 percent market share, compared to 30 percent in the early 1980s. The American manufacturers, which the managers had identified as "survivors" actually did survive. Currently, 55 percent of Company-B's business is in the continuously growing end-user market, and they have problems keeping-up with the demand.

An interesting fact is that the same company, under different management, had made the same decision in 1970s. But because of poor marketing, poor sales support, failure to mastermind the effort and short-term profit orientation, they entered and left the market in two years, leaving customers in surprise. Today, it is a common thought among the managers that the company would have survived the recession in early 1980s in better shape.
4.1.3 Company-C

Company-C is similar to Company-B in three ways. First, the current five top managers are equity owners together with a financial partner. Second, their two facilities are located in the United States. Finally they went through an LBO process in 1986.

As shown in Figure 9 on page 54, Company-C employs 560 people in two locations. Manufacturing and finance departments share the same building, while operations, marketing and sales are located nearby the customers in a different state. Company-C is the second largest producer of their product in the U.S., and competition is mostly national.

In 1984, while Company-C was still operating under their parent company, its managers (who are the same as current managers), based on changing customer demands and quality concerns coupled with their major competitor’s moves to produce a better product, decided to modernize the entire plant in phases. The managers at that time had to sell this idea very hard to corporate management, because having been operating in a mature market, corporate management was looking at the company as a “cash-cow.” The idea of modernizing the plant had to go up five layers of management before funding was allocated: after the initial proposal by top managers, the Plant Manager put a plan together, showing what they wanted to do and how much equipment would cost for what they wanted to do. The Division Manager would oversee that and make sure that that was in fact where the business wanted to go, and sell the idea to the Area Manager. The Area Manager in turn assisted the Plant Manager in making the presentation to the Corporate Policy Committee to secure the funds for a three-step modernization process. Finally, the first phase was approved and implemented by mid-1986. Most of the implementation has been carried-out by corporate support in purchasing, engineering, accounting and finance.

In 1987, the company went through an LBO and the current management, together with a financial partner bought the company from the parent company. One of the conditions of the buy-out
process was that the financial partner would secure the necessary funds for the second step of modernization. The managers thought if the business was going to be sold, they did not just want to buy it and run it to the ground. They wanted to grow, be modern and go forward. The partners agreed and funds were allocated up-front.

As soon as the LBO process was over, the top managers, who were equity players contacted several vendors, selected one, prepared a proposal and submitted it to the Board of Directors. Funds had already been allocated, and the Board approved the selection. This time there was no corporate staff support, and the entire process was carried out in the plant by people at lower levels of the organization. A Department Manager (who was also interviewed in this study) was assigned as the project manager, hourly employees were sent overseas for training for three weeks, and by September '89, the new equipment will have been up and running. Compared to 2.5 years of the first phase, this time it took a year less to go through the same process. The main difference was that there was only one layer of approval compared to five layers under the parent company.

4.2 Research Questions Answered

This section provides answers to the first four of the six research questions based on the synthesis of data collected from the literature review and the interviews with practicing managers. The last two research questions are answered in Chapter 5 (Conclusion) based on the interpretation of data collected.

The research questions answered in this section are:

1. What is a strategic decision?
2. How are strategic decisions made, what factors influence strategic decisions?
3. Who has made the strategic decisions in the past?
4. Who will make the strategic decisions in the future?

4.2.1 What is a Strategic Decision?

It was mentioned in Chapter 3 (Data Collection and Analysis) that researchers in the past have used different definitions of "strategic decisions" in their studies, which raised construct validity questions. The definition provided in this section applies to strategic decisions made in manufacturing organizations by top managers. People at all levels of organizations make strategic decisions which affect their domain of responsibility, or sometimes even the larger organizational unit of which their domain is a part. Since only top managers were used as participants in this study, the following definition of strategic decisions refers to strategic decisions made by top managers in manufacturing organizations.

Table 1 on page 63, Table 2 on page 64 and Table 3 on page 65 depict the answers given by 12 participants in 3 organizations to the questions: (1) what is a strategic decision and (2) what are the characteristics of strategic decisions.

The following definition of "strategic decisions" is based on the synthesis of the definition provided in Chapter 3 (Approach and Methodology) and the definitions provided by the practicing managers who participated in this study.

Strategic decisions are defined as those decisions related to organizational goals (where the organization will be in the long-run) and to allocation of organizational resources to accomplish these goals (how the organization is going to get there). Strategic decisions have the following characteristics:

- They affect the entire organization in the long-term.
• They have a long-term horizon (3-5 years).
• They have a strong degree of irreversibility.

Strategic decisions typically involve deciding what business you are in, what products you want to make, who your customers are, what your market is, as well as how you are going to go about being competitive in that market by allocating the financial, human, capital and technological resources. Strategic decisions affect the whole company although they might impact certain areas more than the others, and it might take a while for the ripple effect to impact the other areas of an organization. For example, investing two million dollars on a new CAD/CAM system might initially improve the performance of the engineering department by providing a tool to design better-quality products faster, having an immediate effect on the engineering department. In the long-run it will affect the performance of the entire company by meeting individual customer demands faster and with better quality products: instead of taking two years to deliver a special product, it will take six months. As another example, a better cost-accounting system that truly reflects the allocation of costs on a product, could significantly affect a decision as to whether to continue a product-line or not, which in the long-run will affect the company performance.

A second characteristic is that strategic decisions typically have a long-term horizon. Seven participants in this study reported a three-to-five year horizon for strategic decisions. Sometimes however, managers might be forced to make a strategic decision in less than a week, with a planning horizon of three months. For example, a decision to meet an unanticipated demand from overseas to be shipped in three months is also a strategic decision. Even though the implementation will be over in three months, that decision will impact the company in the long run: If more people are hired because of the unanticipated demand, and if production schedules are altered to meet the new short-term demand, this decision will have a long-term impact on the company by having more people and by having changed the product-delivery and new product introduction schedules.
What is a Strategic Decision?  
What are the Characteristics of Strategic Decisions?  

Company A

**Human Resources Manager**  
A decision that is general in nature, that either keeps the business on the track, the broad track that it is currently on, or moves that direction one way or another. It is not a decision that is defined in terms of many specifics.

**Engineering Manager**  
A strategic decision is one you make knowing that it has a long term impact on your business. And your primary gain is not a short term gain but instead a long term gain. It does not mean that short term gains cannot be made with strategic decisions, but when you make them, you are looking longer term.

- 3-5 year horizon.

**General Manager**  
Deciding where you are going to be in 10 years and how you are going to get there and what you have to do to be a good competitor.

- It affects the entire company.

- It has to be synergistic. It is difficult to get all the benefits unless you do an operation completely. You have to change the whole system to get the benefits.

**Manufacturing Manager**  
It is a decision that is made within the time frame of today that has to take into consideration the predicted future conditions.

- Has to have enough flexibility to change because environmental conditions change on a continuous basis.

- It has to consider the effect on the entire organization.

- It has long term influences on the entire company.

**Systems Manager**  
Any proposed change that would involve a long term impact on the product, plant and the entire business.

- 3-5 year horizon.

**Controller**  
A decision that is going to significantly alter a current philosophy, or current method of doing anything, or significantly change the business as we know it today.

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Table 1. Definition and characteristics of strategic decisions provided by Company-A participants.
What is a Strategic Decision?
What are the Characteristics of Strategic Decisions?

Company B

President

Deciding what business you are in, what products you want to make, and who your customers and markets are, and how you are going to be effective and competitive in that market, in that business, allocating the resources, financial, human, capital, marketing etc. to be effective in that business that you can define yourself as being into.

- Strategic decisions might affect the whole company although it might affect certain areas more than others. And it might take a while for the ripple effect to spread into the other sectors of the company. It is going to affect the company in the long run.

- Time frame beyond three years.

Marketing Manager

The easiest way to describe a strategy is to think of it as a major course objective and how to get there with to details attached to it.

- It has a long time frame.
- It is made by fairly senior people.
- It has a long-term impact and importance to the company.
- It has a high degree of irreversibility but it has to have enough flexibility to walk away from it.

Controller

A decision on that path in which we would take the company for broad long-term avenue of addressing the business that we are in. Deciding where we want to be in five years.

- It affects the whole company.
- There is a strong degree of irreversibility to the decision.

Table 2. Definition and characteristics of strategic decisions provided by Company-B participants.
What is a Strategic Decision?

What are the Characteristics of Strategic Decisions?

Company C

**Vice President Manufacturing**
The bottomline in a strategic decision in this scenario [refering to the decision] was in fact going to be perfect our market share and continue to grow the business. Once the decision was made, the next step was to decide on how to decide on how we were going to do it.

**Chief Financial Officer**
Is the one that affects the long range goals of the company, the long range plans, the long health or being of the company. How the things we do now will affect the company in the long run.

- Five years

**Department Manager**
Is the one that affects the direction of an organization whether it be a plant, department, of a group of individuals.

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*Table 3. Definition and characteristics of strategic decisions provided by Company-C participants.*
Three participants reported that there was a strong degree of irreversibility to strategic decisions. But a strategic decision has to have enough flexibility they reported, and enough understanding when it is made, that the decision might have to be changed based on changing environmental conditions. "A strategic decision is a decision that you have to be willing to walk away from" reported one participant, "it has to be flexible because environmental conditions as well as our understanding of environmental conditions change" said another. If, for example, a decision is made to completely automate a production-line, and later it is realized that it will not work without changing the rest of the system, then instead of pushing on the decision, the decision-makers should abort it, even at a significant short-term cost. Without good marketing forecast, without knowing the customers and the product, without good customer service, without good distribution, without good front-end engineering designing quality into the product, without an accounting system that measures the actual cost of the product, a completely automated production-line will be a state-of-the-art "island of automation." In addition to millions of dollars of initial investment, time lost in trying to make that system work, and the cost of inconsistencies in the system will cost more than the relatively short-term cost of initial investment.

4.2.2 What Factors Influence Strategic Decisions?

The second research question is related to the factors influencing the strategic decisions. Table 4 on page 67 depicts the factors that influence strategic decisions as reported by the participants. Table 4 was prepared based on the answers the participants provided when they were asked to talk about the strategic decision selected in their organizations, in addition to the question "What factors influence strategic decisions" asked in the final part of the interviews.

Based on the review of literature on strategic decision making process, and the data collected from the interviews with practicing managers, an improved conceptual model of strategic decision making
<table>
<thead>
<tr>
<th>Company C</th>
<th>Company B</th>
<th>Company A</th>
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<tbody>
<tr>
<td>Total</td>
<td>Participant</td>
<td>Human Resources Manager</td>
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<td>Company B</td>
<td>Engineering Manager</td>
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<td>Engineering Manager</td>
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<td>Controller</td>
<td>Manufacturing Manager</td>
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<td>Department Manager</td>
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<td>Chief Financial Officer</td>
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<td>Marketing Manager</td>
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<td>President</td>
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<td>Systems Manager</td>
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**Task Environment**
- Customer demands
- Upper management requirements
- Level of competition
- Technology
- Union demands
- Vendors
- Internal strengths and weaknesses
- Management tools
- Previous performance levels
- Employee demands
- Education, Experience, Knowledge
- Job security
- Personal goals
- Power considerations
- Politics
- Who participates in formulating decisions
- Structure
- Size

**Internal Environment**

**Personal attributes**

**Group attributes**

**Organizational attributes**
process was developed (see Figure 10 on page 69). The second research question will be answered in the context of Figure 10.

Data\textsuperscript{11} collected from the literature review and the interviews suggest that decision makers incorporate information they perceive from both internal and external environments in their strategic decision making efforts.

4.2.2.1 \textit{External Factors}

External environment consists of those relevant physical and social factors outside the boundaries of the organization that are taken directly into consideration (Duncan, 1972). Data collected in this study suggest six external factors affecting strategic decisions:

1. Customer demands.
2. Upper management.
3. Competition.
4. Technology.
5. Union demands.

\textbf{Customer Demands:} Eleven participants reported "customer demands" as an important external factor (see Table 4 on page 67). "You don't need the factory if you don't have the customer" reported one manager reflecting the importance of customers. "We try to bring at least one customer every year to talk to the entire organization [210 people]" said the President of Company-B, "so that the employees understand that they are actually working to satisfy the needs of the customers,\textsuperscript{11}"

\textsuperscript{11} The term \textit{data} usually brings numerical data into mind. One definition of data is "things known or assumed; facts or figures from which conclusions can be inferred" (Webster, 1978). Therefore data can be numerical, verbal or in text form. This study uses both verbal and text-form data.
An improved conceptual model of strategic decision making process was developed after interviews with practicing managers.
not of us, the managers'." Customers, with more alternatives available to them as a result of increased competition, demand better quality products, better sales support and faster response to their needs. Strategic decision-making involves anticipating market conditions from generally three-to-five years ahead and moving the organization to a position where it can make the best out of these anticipated conditions. Therefore anticipating market conditions, such as new customer demands, plays an important role in strategic decision-making. Participants in two organizations reported that their perceptions of market conditions and customer demands changed faster than the market conditions actually did. This frequent change in perception has caused major internal problems. For example, in Company-A, because of the lack of knowledge of the market conditions, the Marketing department frequently changed its forecasts for new products. This, in turn, affected the Engineering department by forcing them to stop their earlier product design efforts and either change the design or start it all over. In the mean time, the Manufacturing department was complaining that the Engineering department was frequently changing the product design, and the Manufacturing department did not have a clear direction for new product development. Setting-up the machine shop for a new product was costly both financially and time-wise. As a consequence of inaccurate future market demand forecasts, a company may end up with a product that is the wrong product for the customer after investing three years of design, development and manufacturing time.

Upper Management Demands: A second important external factor as reported by eleven participants is "upper management". Upper management influences strategic decisions in one or more of the following ways: (1) approving capital investments, (2) setting organizational goals and (3) placing specific demands on the organization. The way upper management influences strategic decisions depends on the organizational structure. For example, all participants from Company-B and Company-C reported that upper management influenced strategic decisions by approving capital investments. In both of these organizations, top managers are equity owners and they report to the Board of Directors, which some of them are members of. In Company-A however, in addition to approval of capital investments, two of the six participants reported that they consider
organizational goals defined by the corporate management, and one participant mentioned one case when the Chairman of the Board wanted the division to automate one of its product lines. As mentioned earlier, Company-A operates as a division of a larger organization and the General Manager of Company-A reports to Corporate Management.

Since strategic decisions made at the top level of a manufacturing organization typically involve a high level of capital investments, they usually have to be approved by upper levels of management—either corporate management or the board of directors. The time it takes to approve a strategic decision considerably affects the competitiveness of a manufacturing organization by delaying implementation of critical changes. For example in Company-C, the fact that it now takes at least one year less to get capital investments approved, increases the organization's responsiveness to both the customer and the employee needs. Corporate management may also influence strategic decisions by placing demands on the organizations, such as completely automating a production-line.

**Level of Competition:** Ten participants reported the level and state of competition as the third external factor influencing strategic decisions. Managers of Company-A decided to improve their performance by undertaking "total business approach" immediately following their best year in more than ten years. "Because the competition is changing," reported the General Manager of Company-A, when he was asked why they were changing, when the current way of doing things had been proven to work. The managers did not want to follow the "don't fix it if it ain't broke" approach which has been taken by many American manufacturing companies since 1960s. The General Manager of Company-A stated that although they did not know exactly in what ways the competition was changing, they could feel the increased presence of, especially the foreign competitors in the market-place. In a similar way, Company-C's modernization decision was facilitated by the major modernization and new product offerings of its major competitor. In a mature market, the managers felt, "it is important to meet or exceed competitors' product offerings." Managers

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12 See Appendix A.
in Company-B, in a proactive decision, anticipated that their OEM customers would be heavily affected by increased foreign competition and that not many of them would survive this new competition. "Had we stayed with the same customers," said one participant, "we would have gone down with most of them." Instead, they identified four "key survivors" and improved their relationship with them. At the same time, they decided to concentrate on the end-user market by offering high quality replacement parts in a package. Since none of their competitors offered these products as a package, this decision provided a distinctive competence for Company-B by making them a single source supplier for the replacement parts package.

**Technology:** "The available technology" was reported as the fourth external factor affecting strategic decisions, by six participants. In Company-A's case, the availability of a faster and more integrated CAD/CAM system is expected to improve product development time as well as the quality of the products by allowing the engineers perform "finite element analysis" on the products they design. Before the new system was purchased, the Engineering Department could not perform this analysis, and for many years they had to experimentally test the strength of their products, changing the design three or four times before full scale production. With the new system, the product is right the first time, resulting in faster development cycles and more reliable quality. The availability of more reliable and flexible machinery in the market helped Company-C reduce their "defective product ratio" to three percent down from eight percent of the older machinery. The new machinery also increased the responsiveness to customer demands in Company-C by bringing in the flexibility to produce a variety of products.

**Union Demands:** "Labor union demands," reported as another external factor by three managers in Company-A was one important factor affecting the strategic decisions. Among the three manufacturing organizations used in this study, only Company-A was unionized when it was located in its earlier location. Currently, none of these three organizations are unionized.
Vendors: Finally, "vendors" play an important role as an external factor in making strategic decisions. "We were trying to introduce a new strategic product, and to reduce the production cost we went with an outside vendor that we felt pretty good about," said the Engineering Manager of Company-A, "and he was willing to do the job for us." There were misunderstandings both in engineering and manufacturing and "we ended up trying to produce a very strategic new product, using, what we did not realize, a very experimental process," he continued. This misunderstanding delayed product introduction by one year, having a very important affect on the competitiveness and new product introduction plans of Company-A.

4.2.2.2 Internal Factors

On the other hand, as depicted in Figure 10 on page 69, participants reported four internal factors which affect strategic decisions:

1. Internal strengths and weaknesses.
2. Information provided by management tools.
3. Previous organizational performance.
4. Employee demands.

Internal Strengths and Weaknesses: Internal strengths and weaknesses was reported by eight managers (see Table 4 on page 67) as an important factor they consider in making strategic decisions. Company-B's decision to acquire an existing company was based on the managers' perception that they did not have the engineering know-how, the skilled labor, and the facilities. Company-C decided to modernize, because with their existing equipment they could not meet the quality demanded by their customers. Company-A decided to look at the total business, because they thought there were many areas for improvement internally.
**Information Provided by Management Tools:** A second internal factor, reported by four participants is the information provided by management tools, such as measurement systems. For example, under a certain cost-accounting system, a product that has matured, that has already paid for the price of its development, that has already paid for the equipment to run it, may look better than a product that new equipment was put in for, or was started-out on new technology. “That would be an inaccurate and unfair evaluation,” reported the Manufacturing Manager of Company-A, “because the comparison is being made at a time when the new product has not paid for itself yet.” Based on that information, managers could decide to get out of the new product-line that they should perhaps strategically stay in. As a second example, reward systems and performance appraisal systems can cause managers stick to their decisions even when they realize they were wrong down the line, because of career considerations. If a manager realizes that he had made the wrong decision and that if he turns away from that decision, the company will save from long-term costs. A short-term profit oriented reward system would discourage such decisions, leading the way for long-term failures.

**Previous Performance Levels:** Four participants reported “previous performance levels” as the third internal factor affecting strategic decisions. These participants suggested that high performance levels increased upper management’s (i.e., corporate management or the Board of Directors) confidence on the managers, giving the managers more room and flexibility in making strategic decisions.

**Employee Demands:** Finally, “employee demands” was reported as the fourth internal factor that four participants reported as being an important internal factor they incorporate into their strategic decision making efforts.
4.2.2.3 Managerial Perceptions

Following several researchers' suggestions (i.e., Anderson and Paine, 1975; Child, 1972; Miles et al., 1974; Snow and Hrebinia, 1980), the conceptual model depicted in Figure 10 on page 69 assumes that the information managers perceive from internal and external environments guide the strategic choices they make to achieve a better fit between their organizations and the environment.

Personal Attributes: In Figure 10, "personal attributes" such as knowledge, experience and education (a factor five participants reported important) and cognitive style (see for example Duhaime and Schwenk, 1985; Hambrick, 1981; Hambrick and Mason, 1984; Henderson and Nutt, 1981; Hogarth and Makridakis, 1981; Isenberg, 1986; Schwenk, 1984a; Zimmerer, 1984) is depicted as a moderating variable shaping the managers' perceptions of information from internal and external environments.

These managerial perceptions, in turn are defined as intervening variables in Figure 10, because it is only through managerial perceptions that the environment becomes known to the organization (Anderson and Paine, 1975; Downey, Helriegel and Slocum, 1975; Downey and Slocum, 1975; Miles, Snow and Pfeffer, 1974; Tosi, Aldag and Storey, 1973; Weick, 1968).

4.2.2.4 Personal, Organizational and Group Attributes as Moderating Variables

Data collected from the participants and the literature review also suggest that "personal attributes" (such as job security, personal goals and power considerations (turf issues)), "organizational attributes" (size and structure) and "group attributes" (politics and who participates in formulating strategic decisions) influence strategic decisions that managers make. In Figure 10 on page 69, these three factors are depicted as moderating variables influencing strategic decisions managers make.
Who Participates in Making Strategic Decisions? Because of its significant influence on the strategic decision making process, and because of the significant number of participants (11) who mentioned it, "who participates in formulating strategic decisions" will be further explained. According to participants, this factor affects strategic decisions in three ways:

1. It may cause lack of communication among managers resulting in inconsistent internal systems.
2. It influences the priorities of individual functions.
3. It influences how successfully the strategic decisions are implemented.

In Company-A, until recently (1987), strategic decisions have been made by individual function managers with little or no communication across the organization. This lack of communication has resulted in inconsistent internal systems because managers, when trying to improve their functions' performance, have not considered the effects of that change on other functions. For example, even though the accounting system was thought to be satisfactory by the majority of the functions in Company-A, the cost accounting portion of that system was not measuring the actual cost of the product. The system was doing a great job on tracking direct-labor cost, which was only ten percent of the total product cost. The overhead cost which constituted the majority of total product cost, was spread among different products equally, as one manager put it "like peanut butter." The majority of the cost factors were not accurately tracked. The Manufacturing Manager had been complaining about this fact for a long time but no changes had been made. In another case, the Marketing Manager was complaining that the Manufacturing department was not producing the goods at high quality and on time. The Manufacturing Manager, in turn was accusing the Engineering department for frequently changing product design specifications, each of which required a long setup time on the shop-floor. The Engineering Manager thought that the Marketing department was changing their forecasts too often, thus forcing the Engineering department to abandon a new product development effort and begin a new one. The Engineering Manager thought if they could theoretically design a new product, the Manufacturing department should be able to produce
it. The Systems department was using a 25 year old system which was not flexible enough to meet new demands from other departments.

Second, “who participates in strategic decision making” influences the individual function priorities. Strategic decisions typically require a high amount of capital investment, and if the priorities of individual functions are set locally, politics becomes the tool to secure the limited funds for “top priority” projects. In Company-A, until two years ago, each function manager had set his priorities without considering the other functions’ priorities. Functional priorities have been set locally, without considering the priority of the project in the total business picture. Building the in-house capability to process equipment rather than subcontracting it, purchasing a million dollar CAD/CAM system, automating the production-line for nine million dollars, or changing the cost accounting system, all require high investments. If funds are not available for all projects (which typically is the case), and there is little or no communication among top managers in setting their priorities, then funds are sought through politics rather than concentrating on which project is the most important for the overall business. Five participants reported that personal goals and politics affect the priorities, depicted as moderating variables in Figure 10 on page 69.

Finally, “who participates in decision making” influences how successfully these decisions are implemented. Participants have also reported that lack of communication among managers have caused problems in implementing strategic decisions. One participant mentioned that “it was more difficult to sell an expensive project internally than it was externally.” “You can make a terribly good decision,” stated the Marketing Manager of Company-B, “but the implementation of that strategy is only as good as the ability you have to sign people on in your company to help you push it through,” he added. This problem of not being able to implement strategic decisions because people were not bought-in at an early stage of the decision has been reported by eleven participants.

Organizational Attributes: “Organizational Attributes,” particularly organization structure, is also worth explaining in detail, because as four participants reported, this factor influences how quickly the strategic decisions are made and implemented. In Company-A’s case, the managers felt the
need to change the entire system when the division was still in its previous location. But they could not, because several functions (e.g., Materials Management, Systems and Distribution) were servicing more than one division and a change imposed by one of the divisions may have adversely affected the other divisions which had different goals. Company-A managers were able to make such strategic decisions only after they moved to their new location and became completely physically-independent of other divisions. A second way organizational structure would affect the strategic decisions is through the number of approval layers a decision has to go through to get approval for funding. In Company-C's case, reducing five layers of approval to one layer reduced the approval time by one year, improving organization's responsiveness to outside changes.

4.2.3 Who has Made the Strategic Decisions in the Past?

Data collected from participants suggest that strategic decisions in the past have been made either by corporate management (Company-A and Company-C) or by the President of the organization (Company B). Upper management has been in control until recently in all three organizations that participated in this study. Strategic decisions generally involve high capital investments which have to be approved by upper management.

Managers in Company-A were not given the authority and flexibility to make strategic decisions, or more precisely, to implement their ideas as strategic decisions because of tight corporate financial control until the last couple of years. Now, the managers of Company-A have more authority, and the corporate management approves capital expenditures usually by a phone call from the General Manager.

Strategic decisions in Company-B have been made solely by the President until the company changed ownership in 1985 (the third since 1980) and current management became equity owners. The same thing happened in Company-C: corporate management had tight control on investments.
and each decision involving capital investment had to go through five layers of approval through corporate management. After Company-C had gone through an LBO, the current management became equity owners together with a financial partner. Currently strategic decisions have to be approved by the Board of Directors, reducing the number of approval layers to one.

According to the practitioners interviewed, this flexibility and higher autonomy coupled with less upper management control resulted in higher responsiveness to the customers and the employee needs. For example, in one of the companies, a critical process that their products had to go through was subcontracted because it was economically more feasible. Despite cost savings, the subcontractor did not provide the quality at desirable levels and was occasionally late in delivering the product. So the managers decided to bring in that capability to the plant to be less dependent on the outside vendor. This in-house capability increased the product quality as well as the delivery time. Under old capital justification system, that project would not have been approved by corporate management, because it would cost more than having it made outside. However, the managers, with increased autonomy and flexibility, were able to justify it on mostly qualitative measures such as increased quality and more dependable delivery schedules.

4.2.4 Who will Make the Strategic Decisions in the Future?

When they were asked who should make the strategic decisions in the future, all participants reported that strategic decisions would stay at the top level because these decisions in manufacturing organizations involve high capital investments. On the other hand, they reported that there would be more participation from lower levels, because this would provide more accurate information from the internal environment, and it would make implementation of these decisions easier because of early buy-in.
4.3 Summary

This chapter presented data collected from the interviews with twelve practicing managers in three manufacturing organizations. In this chapter, four of the six research questions were answered through synthesis of this data and the literature review results presented in Chapter 3. In addition to answering the research questions, the initial conceptual research model depicted in Figure 6 on page 34 was improved and a new conceptual model describing the formulation step of the strategic decision making process was developed (see Figure 10 on page 69). This improved conceptual model was developed based on the synthesis of data collected from the literature review and the interviews with practicing managers.

In the conceptual model depicted in Figure 10 on page 69, managers incorporate the information they perceive from the task environment and the internal environment into their strategic decision making efforts. Customer demands, upper management, level of competition, technology, union demands and vendors are the elements of the task environment that influence strategic decisions. Internal strengths and weaknesses, information provided by management tools, past performance levels and employee demands were reported by participants as internal factors affecting their strategic decisions.

In this model, personal attributes (such as experience, education, knowledge and cognitive style) function as moderating variables shaping the managers' perception of external and internal factors. These perceptions are depicted as intervening variables, because it is only through the managerial perceptions that the environment becomes known to the organization.

Strategic decisions, the dependent variable in Figure 10 on page 69, are defined as those decisions related to organizational goals (where the organization will be in the long-run) and to allocation of organizational resources to accomplish these goals (how the organization is going to get there). Strategic decisions have the following characteristics:
• They affect the entire organization in the long-term.
• They have a long-term horizon (3-5 years).
• They have a strong degree of irreversibility.

Personal, group and organizational attributes influence the strategic decisions made by the managers. These attributes are depicted as moderating variables in Figure 10.

The following chapter (Conclusion) answers the six research questions and based on the results of this study, makes recommendations to practicing managers and strategic decision making researchers.
5.0 Conclusion

The objective of this qualitative study was to gain a better understanding of strategic decision-making in manufacturing organizations. To accomplish this objective, an eight-step action-research methodology was developed (see Figure 1 on page 8). As part of this research methodology, six research questions were identified and later answered based on the synthesis of data collected from the literature review and the interviews with practicing managers in manufacturing organizations. These questions are:

1. What is a strategic decision?
2. How are strategic decisions made, what factors influence strategic decisions?
3. Who has made the strategic decisions in the past?
4. Who will make the strategic decisions in the future?
5. Why is it important to study strategic decision-making?
6. How can the quality of strategic decisions be improved?

In addition to answering these research questions, an improved conceptual model describing the formulation step of the strategic decision making process has been developed (see Figure 10 on page 69). Because of the qualitative nature of this study, this conceptual model and the answers
to the research questions have not been statistically tested and validated. However, the literature review suggests the generalizability of the findings of this study for all manufacturing organizations.

The following section presents the answers to the research questions.

5.1 Research Questions Revisited

Literature review and interviews were used as data collection tools to answer the research questions. This section answers these questions based on data collected from previous strategy-related literature, and interviews with twelve practicing managers in three manufacturing organizations.

5.1.1 What is a Strategic Decision?

Strategic decisions are defined as those decisions related to organizational goals (where the organization will be in the long-run) and to allocation of organizational resources to accomplish these goals (how the organization is going to get there). Strategic decisions have the following characteristics:

- They affect the entire organization in the long-term.
- They have a long-term horizon (3-5 years).
- They have a strong degree of irreversibility.
5.1.2 What Factors Influence the Strategic Decisions?

This research question will be answered in the context of Figure 10 on page 69.

In the conceptual model depicted in Figure 10, managers incorporate the information they perceive from the task environment and the internal environment into their strategic decision making efforts. Customer demands, upper management, level of competition, technology, union demands and vendors are the elements of the task environment that influence strategic decisions. Internal strengths and weaknesses, information provided by management tools, past performance levels and employee demands are the internal factors affecting their strategic decisions.

In this model, personal attributes (such as experience, education, knowledge and cognitive style) function as moderating variables shaping the managers' perception of external and internal factors. These perceptions are depicted as intervening variables, because it is only through the managerial perceptions that the environment becomes known to the organization.

In addition, personal, group and organizational attributes influence the strategic decisions made by the managers. These attributes are depicted as moderating variables in Figure 10.

5.1.3 Who has Made the Strategic Decisions in the Past?

Data collected from three manufacturing organizations in this study suggest that, in the past strategic decisions have been made by either corporate management or the president of the organization, with little or no input from the top managers.
5.1.4 Who will Make Strategic Decisions in the Future?

Practitioners interviewed in this study reported that although they did not think the strategic decision making level would move down in the organization, they said there would be more participation from the lower levels in the future for two reasons. First, involving people who would be affected by a certain decision increases commitment and the chances of successful implementation. Second, involving people from different parts of the organization will provide a wider range of information to decision-makers on internal strengths and weaknesses, a factor that is important in strategic decision making.

5.1.5 Why is it Important to Study Strategic Decision Making?

Strategic decisions affect the long term performance of manufacturing organizations by shaping the organizations' response to environmental changes. In manufacturing organizations the outcomes of strategic decisions cannot be predicted when they are made, because the environmental conditions frequently change. Understanding what factors influence the strategic decisions, and how these factors influence them may increase the likelihood of improved outcomes from strategic decisions in manufacturing organizations.

5.1.6 How can the Quality of Strategic Decisions be Improved?

Data collected in this study suggest that it is very difficult to predict the outcome of strategic decisions, with a high degree of certainty, when these decisions are made. Predicting the outcome of a certain process requires complete understanding of the variables in that process, and the relationships between these variables. If a process cannot be deterministically modeled, the outcome can
still be improved by heuristically testing the process and modifying the variables based on the outcome, until a satisfactory result is achieved.

Strategic decisions define the relationship between the manufacturing organization and its environment. The complex nature of the environment in which manufacturing organizations function, and the significant influence of managerial perceptions shaped by personal attributes (education, experience, knowledge, cognitive style) do not allow the rational formulation of strategic decisions followed by their systematic implementation.

The review of strategy-related research suggests that to this date a predictive model describing the strategic decision making process has not been developed. In fact, there is even a general disagreement among researchers on what they are studying. Several researchers have used their own definitions of “strategic decisions” in their studies, raising construct validity questions. The fact that strategic decisions affect the very survival of manufacturing organizations does not allow the testing of strategic decisions and modifying them based on the outcomes. This is not to suggest that the quality of the outcome of strategic decisions cannot be improved until the day when a predictive model of strategic decision making process is developed. The outcome of strategic decisions can be improved by minimizing the potential negative impacts of certain variables that affect the outcome.

Data collected from strategy-related literature and twelve practitioners in three manufacturing organizations suggest that the quality of strategic decisions can be improved by:

- improving communication among strategic decision makers,
- involving the people who will be affected by strategic decisions in formulating those decisions,
- giving more autonomy and responsibility to strategic decision makers, and
- improving the accuracy of information provided by management tools.

Conclusion
Improving communication among strategic decision makers decreases the likelihood of making strategic decisions that adversely affect each other. Strategic decisions made to improve the performance of individual functions or departments may adversely affect the performance of other functions by taking away the resources (financial, human, capital) from the other departments, or by creating inconsistent internal systems. With improved communication, the likelihood of “global optimization,” as opposed to “local optimization,” increases, resulting in improved organizational (global) performance.

Involving people who will be affected by strategic decisions in formulating these decisions increases the likelihood of successful implementation.

Increasing the autonomy and responsibility of strategic decision makers increases the organization’s responsiveness to customer demands, reported to be the most important factor in organizational performance in three manufacturing organizations analyzed in this study.

Finally, improving the accuracy of information provided by management tools prevent strategic decision makers from making the “right” decision based on “wrong” data, a factor which might adversely affect the organization’s performance.

5.2 Recommendations for Practitioners and Researchers

The results of this study are based on data collected from the literature review and twelve managers in three manufacturing organizations. Generated in a qualitative study, these results have not been statistically tested nor validated. Data collected from the literature review however, suggest the applicability of these results to manufacturing organizations in general.
As an output of this study, the following recommendations are made to practitioners involved in making strategic decisions in manufacturing organizations:

1. Managers should be given more autonomy and flexibility in making strategic decisions. This will increase the responsiveness of the organizations to both customer and employee needs. However, more autonomy, by itself will not guarantee a "quality response."

2. To increase the likelihood of "quality response," managers should make decisions as a team, setting priorities as a group, and they should consider the effects of local strategic decisions on other parts of the organization.

3. People who will be affected by decisions should be involved in decision making at early stages to ensure successful implementation.

4. Internal systems should be designed to provide managers with accurate and timely information.

On the other hand, following suggestions are made to strategic decision making researchers:

1. Strategic decision making researchers should not lose sight of their ultimate customer - the practicing manager. It is suggested that strategic decision making researchers be sensitive to making unqualified recommendations and claims about how to improve strategic decision making, if these claims have little foundation.

2. Strategy-related research should not be constrained by distinctions such as process versus content, or formulation versus implementation. The results of this study suggest that strategic decision making processes in manufacturing organizations do not follow the rational, synoptic distinctions between formulation of a decision followed by systematic implementation. Instead, researchers should devise methods that would integrate these two steps in their research efforts. The modified Management System Model depicted in Figure 4 on page 27, for ex-
ample, may be used as a simple conceptual model describing the strategic decision making process.

3. Future research on strategic decision making should concentrate on group decision making processes among top managers, and consensus building mechanisms.
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This section contains a list of articles and books that have not been cited in the main body of this document. Since these articles constitute an interesting set of strategy-related research, they are listed for interested readers.


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Appendix A. The Evolution of Manufacturing Management in U.S.

This section provides an overview of U.S. manufacturing management history. Five periods of industrial history stand out in the development of dominant characteristics of manufacturing management in the U.S. (Skinner, 1985):

- **1780-1850**: Manufacturing managers as technological capitalists.
- **1850-1890**: Manufacturing managers as architects of mass production.
- **1890-1920**: Manufacturing management moves down in the organization.
- **1920-1960**: Manufacturing management refines its skills in controlling and stabilizing.
- **1960-1980**: Shaking the foundations of industrial management.

The following sections provide a summary of Skinner's (1985) article, except where other references are cited.
A.1 The Manufacturing Manager as Technological Capitalist - (1780-1850)

New technology first allowed production to begin to shift from the traditional enterprise of low-volume artisan shops to capital-intensive use of machinery. The harnessing of water and steam energy to power machinery was combined with new machines and equipment using recently-engineered mechanisms for power transmission and mechanization of hand-performed operations. The shift was limited as well as triggered by technological factors because there was yet inadequate means of transporting coal and of producing strong and nonbrittle metals and limited means of communication and only slow, small-scale transportation - all factors that kept markets small and local and power supplied by people, animals, or flow of water.

During this period, the main task of management was delegated to overseers, and manufacturing management was less involved in operations. It was a period where supervisory power and surveillance was well practiced. This supervisory power at the same time brought the labor problem with it: worker resistance and unrest, and formation of unions.

A big revolution had occurred on a small scale, and a real industrial revolution awaited further key technological breakthroughs in power, transportation, communication, and equipment process technologies.
A.2 Manufacturing Managers as Architects of Mass
Production - (1850-1890)

The industrial revolution which took place during the next 40 years was one of the most massive, powerful, and rapid changes in economic history. What took place was not nearly total change in how most products were made but also a large scale-up in industrial employment, in industrial output, and a total revolution in the sophistication, penetration, and contribution of equipment and process technology. What made all this possible was the end of technological constraints, in particular limitations of waterways. Because of newly dug canals, and subsequently railroads, coal could now be transported in bulk to sites where raw materials could also be gathered, closer to the sources of employees and markets. As a consequence, the factory system expanded from the notion of interchangeable parts to high volume, continuous processes of identical products, called "mass production." Increased productivity, economies of scale and increase in plant size permitted fully-integrated facilities. The manufacturing manager, involved closely enough in the design and structuring of manufacturing, and the foremen were completely in charge of their departments - technical skills were the key to power.

As Abernathy and Corcoran (1983) state, "the standard of excellence that emerged in U.S. industry during the nineteenth century owed much to a broad class of industrial entrepreneurs - men who made continuous efforts to develop and refine process equipment internally and to exploit outside sources in unrelated industries."
A.3 Manufacturing Management Moves Down the 
Organization - (1890-1920)

By the decade 1880-1890, the American factory system was flourishing. New industrial technologies, the railroad, the telegraph, coal-steam power, large-scale immigration and expanding markets had provided the impetus for this remarkable system. But the next thirty years saw it multiply tenfold in output, employment and complexity.

The growth of corporations, sales volumes and one multi-unit, multi-product enterprise led to the need for systematic controls which evolved to scientific management. The new complexity came about through more of the same growth in markets that forced expansion of facilities and multiple plant sites, and through improved process technologies that increased productive capacities and speeds of output. There was growth within the companies as well. There was a profusion of new products, new industries and new modes of power, construction, transportation and communication. Business and industry exploded in size, variety, complexity and diversity.

Gone were the days of only small plants, producing a few products for only regional markets. The modern, multi-unit, multi-product industrial enterprise produced a whole new set of tasks for management. The increased uncertainty and instability that derive from multi-unit enterprises with departments shipping to each other across the integrated production systems produced unprecedented complex coordination demands.

As technologies allowed faster production and innovations in telephone and telegraph communication reduced the big delays previously involved in placing orders and changing schedules, industrial management had to devise entirely new forms of organization and concepts and techniques with which to handle mounting problems of coordination and complexity (Bernard, 1971). The new management function, demanded by the physical realities of growth, size and complexity led
to development of a production department and a production manager responsible to tie together and coordinate all elements of manufacturing into a working, functioning and economically efficient system. This new idea added the functions of planning, analysis, operation, improvements, coordination, control and personnel management, bringing the function elaboration. All the scope and power of manufacturing management was shifted from the president-foremen team to a middle level in the organization.

The new bureaucracy of the production department, created mainly to handle complicated coordination problems, soon became the custodian of the entire manufacturing investment. Held responsible for the production function of the firm, it was their job to make production work, and to ensure adequate returns on financial investments.

If the production manager was to be granted funds for new production equipment, he had to assure the owners of a good economic return on investment. He typically was custodian of 70-85% of a firm's assets. The name of the game was efficiency and productivity for profit year by year. The management process became more bureaucratic with size and complexity. Coordination, control and stabilization of the productive unit became important because changes upset the smooth flows which were the key to efficiency, high volume and profitable operations.

A.4 Manufacturing Management Refines its Skills in Controlling and Stabilizing - (1920-1960)

The forty years following the First World War saw further growth in the American industrial system with geometrical increases in the scope and the complexity of production management problems of controlling and stabilizing.
As a consequence, management tools and techniques that built on the early effects of systematic management and scientific management were created.

Employment grew 109% from 1920 to 1960, manufacturing output by a factor of three, productivity at an average rate of 3% and market share of U.S. manufactured goods consumed in the U.S. to 97%. U.S. companies continued the tradition started in the 1880s to produce abroad, in particular in Europe, and more than 2000 U.S. factories were established outside of the United States. American products and manufacturing proficiency resulted in world-wide domination of giant industries: automobiles, trucks, construction equipment, office equipment and business machines, household appliances, industrial machinery and equipment, textile machinery, shoe machinery, communications equipment, pharmaceuticals, personal consumer goods, electrical machinery and equipment, power plants and generators, and more.

In top management, manufacturing executives played key roles. They were responsible for contributing to the profit and loss statement the difference between sales and cost of goods sold, the cash flow vital for research and development, engineering, and marketing and sales. The production department was the largest of any functional group (Hayes and Abernathy, 1980).

Management’s most difficult job in the volume expansion of 1920-1960 was principally that of coordinating sales, customer requirements and the factors of capital (engineering, equipment, materials and labor resources) required. Production managers’ objectives were the utmost in productivity and efficiency. But every factor of production is subject to change, and change is an enemy of productivity and profit. Products, sales rates, engineering product design specifications, and materials needed - all changed in kind, rate and quantity. Scientific management attempts to measure, predict, schedule and control all these elements. The great boost of management concepts and techniques[13] during the decades from 1920 to 1960 were directed toward closer and better control

[13] Such as operations research, critical path method (CPM), economic order quantity (EOQ), learning curve, and line balancing.
of all these fluctuating variables. Thus the basic nature of production management has been the attempt to stabilize, systematize, simplify and control every ingredient (Adam, 1983).

This forty years in industry was marred by a long depression and continuous labor unrest. This depression was a positive factor in one sense, namely that it promoted industrial efficiency. Depression furthered the importance of effective industrial engineering, cost reduction, productivity improvements and aggressive industrial management.

But the labor situation was another story. There was a series of battles over the unionization of millions of workers. The rising power of organized labor featured these four decades as the percentage of unionized workers rose from 6.8% in 1930 to 23.6% in 1960. In nearly every industry, strikes at contract time were common and the union strategy of isolating a company as a target, shutting them down with a strike, winning a favorable settlement and using the settlement as a pattern for the rest of the industry drove up wages far faster than productivity. But even popular wage and benefit settlements seldom seemed to lead to content and committed workers. The problem was impossible to ignore. It became clear that workers were usually not committed to their employer and to the company’s growth and prosperity, that adversarial relationships benefited neither party, that employees slowed-down production and withheld ideas.

A positive feature of this period of industrial history was continuous efforts to improve labor relations. For example, in this period, grievance procedures were improved, along with better pensions and health insurance, safety and accident prevention procedures, workers’ compensation and the emergence of a more professional industrial relations and personnel department.

In total, 1920-1960 was a period of progress primarily focused on improving controls and coordination mechanisms, but with modest technological accomplishments as well. Manufacturing managers finally began to face their heritage of employee dissatisfaction. The American industry had grown to a position of overpowering financial, technological and managerial strength. The industry looked unbeatable.
During the next twenty years American industrial leadership was severely shaken, first by a growing inability to compete in the steel and auto industries and the resulting flood of imports, then by similar catastrophes in other industries led by the electrical machinery, machine tools, textile equipment and consumer electronic industries.

By 1980 there were many indications that nationwide confidence in manufacturing leadership had largely collapsed. The business periodicals ran countless articles on industrial malaise, the loss of work ethic and the need for reindustrialization. Industrial analysts and managers returned from Japan to report that the U.S. was outthought and outclassed in every area of production management (Baranson, 1981; Schonberger, 1982; Marsland and Beer, 1983).

From Japan, Germany, Switzerland, Korea, Singapore and Taiwan came ship loads of imported goods. These countries were not only competing through cheap labor but also through better worker effort and cooperation. They had better management systems for scheduling and production control, made better use of both old and new process technologies, had better internal management communications and group problem solving, better financial controls, a massive outpouring of suggestions and ideas from employees and more committed and better trained workers (Schonberger, 1982). They had made imaginative use of the computer, excellent application of operations research techniques, disciplined preventive maintenance systems, outstanding employee benefits and job security, low work-in-process inventories, consistent support and cooperation from vendors.

They had beaten the United States (US) at many American management techniques. Either they took what the US had and did it better, as in statistical quality control and the use of engineered
standards, or they took what the US had and threw it out, as in traditional heavy use of work-in-process inventories for buffering variable rates of production between operations (Hayes, 1981).

### A.6 Summary

This history suggests that leadership of American manufacturing, which was provided at the top of the corporation for nearly a century, was steadily delegated to a lower level beginning around the late 1890s. There are two periods, therefore, in which the management responsibilities for manufacturing were handled distinctly differently.

Prior to the turn of the century, the technically competent industrial-entrepreneur developed the economic and technological concepts, poured the equipment and facilities, supervised its installation and start-up, and delegated the work-force management to overseers or foremen. There was no production staff. After 1900, the requirements of size, product and processes resulted in creation of a production department with specialized staff groups and responsibilities.

The characteristics of modern production management and its managers were much more influenced by twentieth century industrial history than by what went on before, except for one major exception - the labor problem. That problem has always been delegated to establish the greatest distance between management leadership and the source of annoying disturbances - the worker. After 1900, the delegation was even more complete, because the foremen’s power had been increased in every respect including authority over the worker, which was now ambiguously shared with personnel and labor relations departments.

The delegation of manufacturing leadership in the twentieth century to the new production department resulted in a type of bureaucratization of the function and its relationship with top man-
agement. There was a growing specialization as well as innovation of creative control and coordination techniques. Top management’s approach to production management was as custodians of fixed assets, whose performance evaluation would be based on the return on investment, and who, to receive more assets, had to project a good financial return. Timely product deliveries, good coordination of labor force, and productivity were also among top management’s expectations.

But these demands conflict. Thus the act of delegation, which created the production department also created dilemmas within the organization. In this way history has planted the deep roots of present-day management thinking: manufacturing managers are custodians of assets; and, in their secondary role, must focus on productivity, control, coordination and stabilization; they must also mechanize to the utmost to ensure simplicity and cost reduction. They became experts at control, stabilization and industrial engineering techniques, in addition to making ample use of buffer inventories and concentrating on meeting weekly schedules. They were so vulnerable to criticism that they had to focus on the short term, be systematic and detailed in their thinking, and exert unceasing control over the work force. Technological innovation of processes was lost in nonaccountable bureaucracy. The game was one of minimizing changes and uncertainty, while maximizing control to achieve economic success. Nearly every manufacturing management concept or technique has had these objectives. Since manufacturing managers had to react to change they moved toward stabilization and protection of their system from the effects of change. Manufacturing managers learned to adapt, survive and succeed by accepting the financial performance requisites, mechanizing to the utmost, keeping labor at a distance, fighting for stability and steady schedules, and developing complex mechanisms for coordination and control.

The end result of this historical process is a paradigm of thinking that conceptualizes the factory as “productivity machine,” profit as the goal, labor as a troublesome cost, change as an expensive

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14 For example the American factory system began early to use “buffer inventories” and “safety stocks” to cushion the impact of the uncertainties of the factors of production to ensure smooth flows and continuous operations. In contrast, the Japanese minimize inventories and seek to prevent changes from the outside, as well as maintenance, scrap or other discontinuities from the inside (Hayes, 1981).
intrusion, and the mass production of technology of volume production using mechanized equipment as the smoothest road to productivity. This is the “mind set” that characterized American manufacturing management thinking at the peak of its success in 1960 and is still affecting the production managers today.

A.7 Manufacturing leadership in the 1980s

In the 1960s and 1970s, manufacturing organizations in the United States lost their market share in many industries. When competition became severe and foreign competitors built products at less cost and higher quality, many manufacturing leaders did not seem to recognize that the problem was not caused only by low-cost foreign labor. Effective corrective action was not taken.

Finally, the problem was recognized sufficiently after widespread analysis of Japanese manufacturing management (Baranson, 1981; Hayes, 1981; Marsland and Beer, 1983; Schonberger, 1982; Wheelwright, 1981).

The nature of the response is important. For the most part the response took a form that focused on productivity, questioning why U.S. productivity growth had declined and what could be done to get the U.S. economy back on the track again. Companies set-up productivity committees, corporate-wide productivity coordinators, and even productivity departments, laboratories and centers. Dozens of articles about productivity began to appear in business and economic journals (Deutsch, 1980). With firms it was back to basics. Industrial engineering departments were re-staffed and standards reset, jobs and layouts studied and improved, material handling methods streamlined and all forms of waste and inefficiency scrutinized. In quality it was back to basics too with the old tools of statistical quality control and process and control charts. Companies were
advised that "high investment is the result rather than the cause of productivity growth" (Grayson, 1982). In other words, "don't try to invest your way to productivity, get back to basics first".

The premise is that rationalization, standardization, high volume, stability, large scale production and strict coordination and controls will restore healthy industrial productivity and growth, which in turn will recreate the former competitive edge and bring about genuine industrial renaissance (Abernathy, Clark and Kantrow, 1983). This premise is very debatable (Kanter, 1983). It sounds like "business as usual." Clearly there is a need for better productivity. The question is how to obtain it, and whether productivity is what is all needed (Sink, 1985).

Focusing on productivity does not deal with the fact that capital equipment is typically old, that the U.S. companies have failed to experiment or to take advantage of the new manufacturing technology (Skinner, 1980). The productivity solution does not deal with the powerful changes in markets and technology as evidenced by shorter product life cycles, more customer specials, shorter runs, an accelerated pace of technological innovations in products and processes, the rapid growth in the cost of capital equipment, and with annoying problems in the work force.

Thus, in retrospect, the failures of the years since 1960 are not difficult to understand. What hit was the competition from cheap labor combined with rapid technological change and previously unseen quality levels (Leonard and Sasser, 1982; Garvin, 1983). What was necessary to survive these new rules was rapid change in products, processes, cost mix and the use of new technologies, restructuring manufacturing to become a competitive weapon, and strategic thinking with great imagination and innovation. But the production managers, as careful conservative coordinators and controllers, were unable to play by the new rules, partly caused by the narrow-visioned approach of top management to manufacturing management. The financially dominated point of view from the top, in a way, necessitated strict coordination and control at the manufacturing level.
Appendix B. Review of Recent Research on Strategic Decision Making Process.

This section provides a summary of a review of research on the process of strategic decision making published since 1980 in seven leading journals\(^\text{15}\) provided by Huff and Reger (1987).

In classifying process-related research, Huff and Reger (1987) first divide the research broadly according to the "step" in the strategic process covered. They use Andrews' (1971) division between research which have focused on the process of strategy formulation (how decisions are generated) versus those who focus on the process of strategy implementation (how decisions are put into action). The second division is related to the "purpose" of research: normative (how things should be done) versus descriptive (how things are done). The final division is made between the rationality assumptions researchers have held: rationality reflecting individual, synoptic (organization) or political characteristics. This division results in eight distinct streams of research in strategic decision making as shown in Figure 11 on page 125. A ninth, integrative stream of research covers work in many of the eight alternatives shown in Figure 11. Research from this perspective has

tended to combine description of strategy formulation and implementation (e.g., Quinn, 1980). Although primarily descriptive, research in this area has included discussion of the normative implications of descriptive accounts of strategic decision making.

**B.1 Planning Prescriptions**

The first stream of research titled “Planning Prescriptions” includes those studies that have given normative prescriptions for how strategies should be formulated. Research in this area is directed toward helping organizations rationalize planning and strategic decision making systems, and relies primarily on logic and consulting experience to support advice on how strategy should be formulated. Recent work in this research stream is divided into four groups: (1) General Models of Planning, (2) Specific Steps in the Planning Process, (3) Specific Environments and (4) Specialized Approaches (see Figure 12 on page 126).

Articles listed under “General Models of Planning” have viewed the practice of planning as a whole, offering prescriptions for developing strategy. Within this group, Mitroff and Mason (1982), drawing on epistemology, describe twelve alternative approaches to generating policy. Camillus (1982), Gharajedaghi and Ackoff (1984) and Ansoff (1986) also developed general models of planning, but each attempted to synthesize previously dichotomous aspects of planning. The first article incorporated participation of stakeholders with research analysis, the second developed a social system model intended to supersede the dichotomy between mechanistic and organismic views of organizations, and the third integrated incremental and analytical dimensions of planning.

In the second group, “Specific Environments”, Mitchell and Mitchell (1980), Bryson (1981), Hatten (1982), Nutt (1984a) and Montanari and Bracker (1986) offered broad perspectives on planning and policy making for public/not-for-profit organizations. The prescriptions offered by these authors
Figure 11. Recent research on strategic decision making process is divided into nine streams of research.

# 1. Planning Prescriptions

## General Models of Planning

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<thead>
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<th>Author(s)</th>
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## Specific Environments

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<td>Mahon, M. D. &amp; Murray, H. R.</td>
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<td>Montanari, L. &amp; Bracker, L.</td>
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## Specific Steps in the Planning Process

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## Specialized Approaches

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<tr>
<td>Desta, A.</td>
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**Source:** Huff and Reger, 1987.

*Figure 12.* Planning Prescriptions stream of research is divided into four groups.
are also of potential utility for those interested in for-profit organizations. For example, Bryson's
discussion of the opportunities raised by crisis, or Montanari and Bracker's observation that interest
in planning varies in response to the tenure of the policy maker, might be incorporated in models
developed for for-profit organizations. The last article in this group, by Mahon and Murray (1981),
looked at strategic and structural differences affecting planning in regulated industries.

The third group of articles have focused on "specific steps in the planning process." Ansoff (1980),
Klein and Newman (1980), and King (1981) offered systematic approaches for identifying and
structuring upcoming problems or strategic issues. Honsicker (1980) and Hosmer (1982) discussed
the importance of executive leadership in defining strategic issues. Diffenbach (1982), along with
Melcher and Melcher (1980), suggested tools for mapping the causal links in influencing such issues.

The last group of articles suggested "specialized approaches" to planning. Several articles recom-
mended using a variety of specific analytical techniques such as economic scenarios (Hoffman,
1985), marketing audits (Mokwa, 1986), financial modeling (McInnes and Carleton, 1982; Naylor
and Tapon, 1982; Woo, 1984), metagame analysis (Dutta and King, 1980), and futures studies
(Edmunds, 1982; Mueller and Smith, 1984). Four articles that recognized the importance of pol-
tical issues are also included in this group on the basis of their systematic prescriptions (Blyth,
Friskey and Rappaport, 1986; Desta, 1985; Fombron and Astley, 1983; Hofer and Haller, 1980).

Many articles under planning prescriptions stream of research have attempted to retain the inte-
grating perspective traditionally associated with policy making. Again, a large number of articles
have drawn upon work in other fields such as industrial economics. However, this group of articles
has been too optimistic about the possibilities of synoptic, rational analysis. On the positive side,
this approach may provide a better vocabulary for communication within organizations than more
realistic models. The common ground provided by rational models may be particularly important
when organizations are faced with unclear problems of strategy (Huff, 1985).

Appendix B. Review of Recent Research on Strategic Decision Making Process.
B.2 Systematic Implementation

The second stream of research has focused on prescriptions for “systematic implementation” of strategy once it is formulated. Separate attention to implementation has been a relatively recent phenomenon (Galbraith and Nathanson, 1978; Hrebiniak and Joyce, 1984; Galbraith and Kazanjian, 1986; and Lorange, Morton and Ghoshal, 1986). Huff and Reger (1987) divide recent work in this area into three groups of articles: (1) Specific Implementation Issues, (2) General Models of Implementation and (3) Specific Environments (see Figure 13 on page 129).

Articles listed in “Systematic Implementation” stream have explored a number of dominant themes of implementation. Subjects covered include the importance of matching managers to strategies (Leontiades, 1982; Szilagyi and Schweiger, 1984), techniques for assuring participation (King and Rodriguez, 1981) and increasing commitment (Schwenk, 1986), and the need to match compensation schemes to strategic decisions (Stonich, 1981). Other articles explored resource allocation decisions (Northcraft and Wolf, 1984; Stonich, 1980), control (Camillus and Grant, 1980; Eisenhardt, 1985; Moltz, 1985) and measurement (Ginsberg, 1984).

These works attempt to bring a strategic perspective to implementation issues, but also fall prey to complaints about the easy acceptance of sequential rationality (Huff and Reger, 1987). Another potential problem, in theory as well as practice, is the design of implementation lagging behind current thought in strategy formulation. Stonich (1981), for example, suggested means for implementing portfolio-based concepts of strategy, but by the time his work was published many organizations were moving away from portfolio-based planning models (Huff and Reger, 1987).
### 2. Systematic Implementation

#### Specific Implementation Issues

- Barney, 1986
- Eisenhardt, 1985
- Ginsberg, 1984
- King & Rodríguez, 1981
- Leontiades, 1982
- Moltz, 1985
- Northcraft & Wolf, 1984
- Schwenk, 1986
- Stonich, 1981
- Szilágyi & Schweiger, 1984
- Wissema, Brand & Van der Pol, 1981
- Yip, 1985

#### General Models of Implementation

- Camilius & Grant, 1980
- Lorange & Murphy, 1984
- Mintzberg, 1980
- Nutt, 1983
- Stengrevics, 1984
- Stonich, 1980

#### Specific Environments

- Hax & Majluf, 1983
- Shrivastava, 1986
- Snyder, Cox & Jesse, 1982

**Source:** Huff and Reger, 1987.

Figure 13. Systematic Implementation stream of research is divided into three groups.

Appendix B. Review of Recent Research on Strategic Decision Making Process.
B.3 Decision Aids

In contrast to those with more systematically rational expectations, researchers in “Decision Aids” stream of research have assumed that strategy formulation is conceptually problematic. Since decision makers fall short of the demands of synoptic rationality, they are expected to benefit from structured decision processes and other aids to help them organize and analyze strategic alternatives. Recent work in this research stream is divided into three groups: (1) General Prescriptions, (2) Dialectical Inquiry/Devil’s Advocacy and (3) Other Decision Aids (see Figure 14 on page 131).

Those offering “general prescriptions” on strategic decision making include several authors (Bartunek, Gordon, and Weathersby, 1983; Volkema, 1983) who explored the positive benefits of methods that expand the decision-makers’ understanding of a problem. Other authors (Mazzolini, 1980; Barnes, 1984; Lenz and Lyles, 1986; Schwenk, 1986) explored psychological and organizational processes which may limit understanding of strategic issues. Ramaprasad and Mitroff (1984) drew on Piaget and Jung to understand strategic problem solving.

An interesting set of work on decision aids began with Churchman’s (1971) identification of dialectical inquiry as an approach to problem solving. The dialectic notion, which is based on Hegel’s discussion of dialectics, is more fully developed by Mason and Mitroff (1981). A key idea in dialectical inquiry is that decision makers will profit from a structured debate which systematically presents elements of more than one strategic option. The debate is specifically designed to reveal differences in assumptions that underlie the interpretation of data relevant to the choice situation.

Cosier’s (1981a, 1981b) and Schwenk’s (1984b) articles contribute to a discussion about the possible superiority of providing decision makers with a structured debate that focuses on only one plan, along with a full exploitation of its potential shortcomings. This approach, known as the devil’s advocacy procedure, was found in laboratory experiments to yield better predictions than dialectical
### 3. Decision Aids

#### General Prescriptions

<table>
<thead>
<tr>
<th>Author/Year</th>
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<tbody>
<tr>
<td>Barnes, 1984</td>
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<tr>
<td>Bartunek, Gordon &amp; Weathersby, 1983</td>
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<td>Bower, 1982</td>
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<td>Kunreuther, Linnerouth &amp; Vaupel, 1984</td>
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<td>Lenz &amp; Lyles, 1986</td>
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<td>Mazzolini, 1980</td>
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<tr>
<td>Ramaprasad &amp; Mitroff, 1984</td>
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<td>Schwenk, 1986</td>
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<td>Sethi, Etemad &amp; Luther, 1986</td>
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<td>Vokema, 1983</td>
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#### Other Decision Aids

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<tbody>
<tr>
<td>Boland, 1984</td>
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<td>Dickmeyer, 1983</td>
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<td>Hall &amp; Menzies, 1983</td>
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<td>Morecraft, 1984</td>
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<td>Mitroff &amp; Mason, 1980</td>
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<td>Mitroff, Mason &amp; Barabba, 1982</td>
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<td>Nutt, 1982</td>
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<tr>
<td>Schweiger, Sandberg &amp; Rajan, 1986</td>
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<td>Thomas, 1984</td>
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<tr>
<td>Tuggle &amp; Gervin, 1984</td>
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<td>Volkema, 1986</td>
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#### Dialectic Inquiry/Devil's Advocacy

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<th>Author/Year</th>
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<tr>
<td>Chanin &amp; Shapiro, 1985</td>
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<tr>
<td>Cosier, 1981a</td>
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<tr>
<td>Cosier, 1981b</td>
</tr>
<tr>
<td>Cosier &amp; Alpin, 1980</td>
</tr>
<tr>
<td>Mason &amp; Mitroff, 1981</td>
</tr>
<tr>
<td>Schwenk, 1984b</td>
</tr>
</tbody>
</table>

**Source:** Huff and Reger, 1987.

---

Figure 14. Decision Aids stream of research is divided into three groups.

Appendix B. Review of Recent Research on Strategic Decision Making Process.
inquiry when the decision making situation presented an alternative moderately different from the initial plan (Huff and Reger, 1987).

Among the articles listed under “Other Decision Aids” group, Schweiger, Sandberg and Ragan (1986) reported a lab study in which groups instructed in a consensus approach were found to be more satisfied than groups using either dialectical inquiry or devil’s advocacy approaches. Thomas (1984) suggested that decision theory techniques can also be used to structure debate about strategic alternatives. Morecraft (1984) made a similar argument for the role of a behavioral simulation using system dynamics modeling, in which management intuition and model-generated opinion provided the counterpoints for dialectic argument.

The overall strength of work on decision aids is that it recognizes the problematic nature of two things that many in the strategy field have assumed anyway (Huff and Reger, 1987). First, this research has recognized that coming up with new strategic ideas and a framework within which to understand them is not always easy. Second, this work has recognized that even when the individual has the means for generating new ideas, it is rarely easy to reconcile or coordinate these ideas with the opinions of others in the organization. On the other hand, Ackoff (1981) provided a critique that especially fits work on decision aids:

Most corporate planning is like a ritual rain dance: it has no effect on the weather that follows, but it makes those who engage in it feel that they are in control. Most discussions of the role of models in planning are directed at improving the dancing, not the weather.

The decision aid group also faces the dilemma of whether they are in fact even “improving the dancing.” In trying to address real limitations of decision makers, those contributing to this stream of research have devised methods that themselves have an important limitation: that is they may demand more time and staff support than generally available in strategic decision making situations (Huff and Reger, 1987).
B.4 Evolutionary Prescriptions

The fourth research stream labeled “Evolutionary Prescriptions” has maintained that the nature of people and organizations does not allow the rational, synoptic definition of strategy followed by its systematic implementation. Many early writers in this tradition (Lindblum, 1959; Braybrooke and Lindblum, 1963; and Wrapp, 1967) were suspicious of the ability to predetermine strategy at all. Therefore, their prescriptions tended to focus on the necessity of devising and implanting small, incremental changes and waiting for feedback before making further changes. More recently, Quinn (1980, 1981) suggested that incrementalism has its own logic that well serves the strategic decision-maker. Articles in this stream of research is divided into three groups: (1) General Prescriptions, (2) Applications and (3) Specific Environments (see Figure 15 on page 134).

Ruefli and Sarrazin (1981) and Tichy (1983) in “General Prescriptions” group noted that the environments of private as well as public organizations are changing, thus rendering strategic decision making process more interactive and more difficult to control. Quinn (1981) and Bourgeois and Bradwin (1984) outlined models of strategy development that closely link strategy formulation and implementation in such circumstances. Flexibility (Aaker and Mascarenhas, 1984), adaptation (Chakravarthy, 1982), and learning (Fiol and Lyles, 1985; Ginter and White, 1982) are some of the key words for the appropriate strategic decision making processes.

These works, as Huff and Reger (1987) state, can be commended as the most realistic of all the prescriptive process literature, especially in their recognition that formulation and implementation are intertwined. The work can be criticized, as can all of the prescriptive work reviewed, for being relatively insensitive to the content of the strategic decision, and to the historical context of that decision. Huff and Reger (1987) suggest that strategy formulation and implementation is affected by what is being decided.
4. Evolutionary Prescriptions

General Prescriptions

Aaker & Mascarenbas, 1984
Bourgeois & Brodwin, 1984
Bourgeois, 1985
Chakravarty, 1982
Fiol & Lyles, 1985
Ginther & White, 1982
Hrebiniak & Joyce, 1985
Quinn, 1981
Ruefli & Sarrazin, 1981
Tichy, 1983

Applications

Bourgeois, 1980a
Nutt, 1986
Wo, 1981

Specific Environments

Bartlett, 1982
Lioukas & Chambers, 1981
Ring and Perry, 1985


Figure 15. Evolutionary Prescriptions stream of research is divided into three groups.
B.5 Planning Practices

In a second group of four streams of research, which has been more interested in description than prescription, a group of researchers have focused on "Planning Practices". These researchers have surveyed strategy formulation processes and industry planning practices, usually by mailing questionnaires to large samples of firms. The objective of most of the studies in this stream was to determine whether the use of planning methods developed within the normative planning prescriptions stream leads to increased organizational performance. Recent articles reviewed by Huff and Reger (1987) in this stream of research is divided into three groups: (1) Planning-Performance, (2) Planning System Contingencies and (3) Other (see Figure 16 on page 136).

In "Planning-Performance" group, Rhyne (1986) related financial performance to planning characteristics while controlling for industry effects. He discriminated between five types of planning (ranging from short-term forecasting to strategic planning) and defined financial performance as long-term (10 year) return to investors. Ramanujam, Venkatraman and Camillus (1986) characterized planning systems using seven theoretically important dimensions, including five design elements and two organizational context dimensions. Three areas of performance, fulfillment of planning objectives, relative organizational performance, and satisfaction with the planning system were investigated. Both of these articles moved the planning practices stream of research away from single year studies employing single measures of planning and performance with no moderating variables. However almost all of the research in "Planning-Performance" group has used questionnaires mailed to one respondent per organization while concentrating on rational aspects of planning. As Huff and Reger (1987) mention, it is impossible to assert causation from correlational methodologies.

In the second group, "Planning System Contingencies", Grinyer, Al-Bazzaz and Yasai-Ardekani (1986), found that certain contextual variables, such as the vulnerability of the core technology,
5. Planning Practices

<table>
<thead>
<tr>
<th>Planning - Performance</th>
<th>Planning System Contingencies</th>
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<tbody>
<tr>
<td>Armstrong, 1982</td>
<td>Bazzaz &amp; Grinyer, 1981</td>
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<td>Armstrong, 1986</td>
<td>Boulton et al., 1982</td>
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<tr>
<td>Bracker &amp; Pearson, 1986</td>
<td>Barnett, Yeskey &amp; Richardson, 1984</td>
</tr>
<tr>
<td>Dyson &amp; Foster, 1982</td>
<td>Dickie, 1984</td>
</tr>
<tr>
<td>Foster, 1986</td>
<td>Grinyer, Al-Bazzaz &amp; Yasai-Ardekani, 1986</td>
</tr>
<tr>
<td>King, 1983</td>
<td>Henry, 1981</td>
</tr>
<tr>
<td>Kudla, 1980</td>
<td>Higgins, 1981b</td>
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<tr>
<td>Leontiades &amp; Tozel, 1980</td>
<td>Javidan, 1984</td>
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<tr>
<td>Lyles &amp; Lenz, 1982</td>
<td>Klein &amp; Linneman, 1984</td>
</tr>
<tr>
<td>Miller &amp; Friesen, 1983</td>
<td>Lenz &amp; Engledow, 1986</td>
</tr>
<tr>
<td>Ramanjuam, Venkatramane &amp; Camilius, 1986</td>
<td>Lindsay &amp; Rue, 1980</td>
</tr>
<tr>
<td>Rhyne, 1986</td>
<td>Malaska, 1985</td>
</tr>
<tr>
<td>Robinson &amp; Pearce, 1983</td>
<td>Rhyne, 1985</td>
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<tr>
<td>Shrader, Taylor &amp; Dalton, 1984</td>
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<th>Other</th>
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<tr>
<td>Bresser &amp; Bishop, 1983</td>
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<tr>
<td>Fredrickson &amp; Mitchell, 1984</td>
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<td>Mintzberg, 1981</td>
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<tr>
<td>Robinson &amp; Pearce, 1984</td>
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</table>


Figure 16. Planning Practices stream of research is divided into three groups.

Appendix B. Review of Recent Research on Strategic Decision Making Process. 136
were related to certain planning system characteristics, such as the use of more specialist planners to undertake more sophisticated analyses. In their study, they used correlation and regression analysis of approximately a dozen planning system characteristics and another dozen contextual contingency variables. Their work begins to move away from the generalities that have characterized prescriptive and descriptive work on planning to address some of the critical contingencies that shape planning systems in practice (Huff and Reger, 1987).

In the last group of “Planning Practices” research stream, Fredrickson and Mitchell (1984) recognized the need to move away from a narrow focus on the formal planning system, to an enlarged focus on the strategic decision making process that includes the formal planning system. Bresser and Bishop (1983) explored the possibility that formal planning may actually cause increased intraorganizational contradictions, contradictions partially responsible for the introduction of formal planning. Organizations, they suggested, may be trapping themselves in dysfunctional amplifying loops of more formal planning, leading to more contradictions, leading to more planning that ultimately may threaten the viability of the organization. Both of these articles called for a more integrative approach to researching planning practices. Mintzberg (1981) called attention to the field’s lack of precision in defining terms and suggested that disagreement concerning what constitutes planning may partially explain conflicting research results.

B.6 Structures, Systems and Organizational Outcomes

The sixth stream of research has been interested in documenting the relationship between “structures, systems and organizational outcomes.” Research in this area often has been directed by a global change model (Bourgeois and Baldwin, 1984), a paradigm first articulated by Andrews (1972). Articles listed in this research stream are divided into two groups: (1) Structure and (2) Systems (see Figure 17 on page 139).
6. Structures, Systems & Organizational Outcomes

<table>
<thead>
<tr>
<th>Structure</th>
<th>Systems</th>
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<tr>
<td>Bart, 1986</td>
<td>Camillus, 1981</td>
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<tr>
<td>Burgelman, 1985</td>
<td>Daft &amp; Macintosh, 1984</td>
</tr>
<tr>
<td>Daniels, Pitts &amp; Tretter, 1985</td>
<td>Freedman &amp; Montanari, 1980</td>
</tr>
<tr>
<td>Egelhoff, 1982</td>
<td>Higgins, 1981a</td>
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<tr>
<td>Ellie, Bridges &amp; O'Keefe, 1984</td>
<td>Horovitz, 1984</td>
</tr>
<tr>
<td>Grinyer, Yasai-Ardekani &amp; Al-Bazzaz, 1980</td>
<td>Horovitz and Thietart, 1982</td>
</tr>
<tr>
<td>Grinyer &amp; Yasai-Ardekani, 1980</td>
<td></td>
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<tr>
<td>Grinyer &amp; Yasai-Ardekani, 1981</td>
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<tr>
<td>Hall &amp; Saras, 1980</td>
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<td>Miller, 1986</td>
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<td>Miller &amp; Friesen, 1980b</td>
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Figure 17. Structures, Systems and Organizational Outcomes stream of research is divided into two groups.
The articles listed under “Structure” group have given greater attention to the relationship between structure and performance (Egelhoff, 1982; Grinyer and Yasai-Ardekani, 1980; Grinyer, Yasai-Ardekani and Al-Bazzaz, 1980; Burgelman, 1985) than has been given to the role of formal “Systems” in implementing strategy (Freedman and Montanari, 1980). How organizations use formal control, incentive, and information systems to implement strategy and how these subsequently affect performance are largely unexplored areas in strategic decision making research (Huff and Reger, 1987).

### B.7 Agendas and Attention

A seventh stream of research, “Agendas and Attention”, has concentrated on cognitive or psychological, bureaucratic and political impacts on strategic decision making. Early work by March and Simon (1958), Cyert and March (1963), Bower (1970), Carter (1971) and Witte (1972) on organizational-level behavioral decision models, and by Kahneman, Slovic and Tversky (1982) and others on individual-level behavioral decision making are among the forerunners of this stream of strategy research. Three groups of work are included within this stream: (1) Agendas, (2) Individual Cognitions and Perceptions, and (3) Political and Bureaucratic Decision Processes (see Figure 18 on page 140).

Two studies in this research stream have primarily focused on the way in which the agenda for decision making is shaped (Huff, 1982; Dutton, Fahey and Narayanan, 1983). A larger body of work has been directed toward describing political and bureaucratic strategic decision making processes in organizations (Fahey, 1981; Narayanan and Fahey, 1982; Nutt, 1984b; Schwenk, 1985; Shrivastava and Grant, 1985). A final group of work has concentrated on how individuals make strategic decisions (Schwenk, 1984a; Stahl and Zimmerer, 1984).
## Agendas

<table>
<thead>
<tr>
<th>Agendas</th>
<th>Political and Bureaucratic Decision Processes</th>
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<tbody>
<tr>
<td>Daft &amp; Weick, 1984</td>
<td>Fahey, 1981</td>
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<tr>
<td>Fredrickson, 1985</td>
<td>Narayanan &amp; Fahey, 1982</td>
</tr>
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<td>Humbrick, 1982</td>
<td>Nutt, 1984b</td>
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<td>Huff, 1982</td>
<td>Lyles, 1981</td>
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<td>Kiesler &amp; Sproull, 1982</td>
<td>Lyles &amp; Mitroff, 1980</td>
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<td>Smircich &amp; Stubbart, 1985</td>
<td>Pearce &amp; DeNisi, 1983</td>
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<td>Sussman, Ricchio &amp; Belohlov, 1983</td>
<td>Schwenk, 1985</td>
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<td>Walsh &amp; Fahey, 1986</td>
<td>Shrivastava, 1985</td>
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<td>Shrivastava &amp; Grant, 1985</td>
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### Individual Cognitions and Perceptions

| Duhaime & Schwenk, 1985                |
| Hambrick, 1981                        |
| Hambrick & Mason, 1984                |
| Henderson & Nutt, 1981                |
| Hogarth & Makridakis, 1981            |
| Isenberg, 1986                        |
| Schwenk, 1984a                        |
| Stahl & Zimmerer, 1984                |

### Source


Figure 18. Agendas and Attention stream of research is divided into three groups.
In addition to being concerned with psychological, bureaucratic and political processes, all three groups share other characteristics as well. Researchers have tended to analyze a small cross-section of specific individual decisions instead of studying decision making systems or patterns of decisions over time (Mintzberg and Waters, 1985). In addition, researchers have tended to trade generalizability of results for a richer understanding of a few, non-randomly chosen decision situations. Finally, these researchers are primarily concerned with the earliest stages of strategy formulation while ignoring the implementation of the decision.

Dutton et al. (1983) is a good example of emerging work on strategic issue diagnosis, or the process by which "ambiguous data and vaguely felt stimuli...are translated into focused issues (i.e., attention organizing acts) and the issues explored (i.e., acts of interpretation)." Huff (1982) suggested some of the ways the experience of other organizations, particularly similar organizations, influence this process of issue identification. Both of these works recognized that strategic decisions are complex, unique and interdependent. Because strategic issues do not come pre-formulated, formulation is open to conflicting definition and can have a significant impact on how the issue is resolved. Nutt (1984b) exemplifies current work on political and bureaucratic strategic decision making processes in organizations. He studied 78 strategic decisions, each in a separate service organization, in order to deduce organizational decision process types. Using an approach he called "process reconstruction", in which each decision process was divided into activities and profiled into decision stages, Nutt classified the decision processes into five general types. A key finding of the study was "nothing remotely resembling the normative methods described in the literature was carried out" by organizations in the study.

Fahey (1981) broadened attention from single decisions to the study of an interrelated set of decisions made over time. He found, as other studies have, that decisions can be divided into phases. He also found that different phases were emphasized at different levels in the firms: different aspects of decisions were attended to by different decisional subunits; and political and bureaucratic concerns often overwhelmed rational concerns as information and proposals were communicated between individuals, subunits and levels in the organization.
A final approach to understanding agendas and attention has focused on cognitive, perceptual, and other psychological impacts on strategic decision making processes. This research, exemplified by Schwenk (1984a), draws on data from cognitive psychology and behavioral decision theory to describe how actual individual strategic decision making processes differ from rational normative ideals. Schwenk noted several sources in the psychology literature that have listed cognitive simplification processes that strategic decision-makers may use to deal with complexity, ambiguity and uncertainty. Cognitive simplification processes are only one type of psychological process that potentially influences strategic decision making. Work on various types of “mental-maps” is also promising (McCaskey, 1982; Sussman, Ricchio and Belohlov, 1983; Huff and Fletcher, 1984; Smircich and Stubbart, 1985; Fahey and Narayanan, 1986).

### B.8 Contextual Influences

The relatively small number of studies listed under “Contextual Influences” stream of research is misleading. This is an area that overlaps substantially with organization behavior and organization theory, which contain a large number of references related to this stream of research. Five groups of works are listed under this stream: (1) Environment, (2) Sensemaking, (3) Politics, (4) Leadership and (5) Organization (see Figure 19 on page 143).

Gray and Ariss (1985) suggested strategic change can be best described as a political process. They outlined a political life cycle model with specific proportions about changes in political behavior that might be expected at each stage. Sproull and Hofmeister (1986) drew upon recent work in cognitive psychology to analyze an example of implementing an organizational innovation. Burgelman (1983a), in his complex study showed the important roles played by top and middle management in fostering corporate innovation. Miller and Friesen’s (1982) study found two sub-samples of organizations supporting two very different models of product innovation, the first
## 8. Contextual Influences

<table>
<thead>
<tr>
<th>Environment</th>
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<tr>
<td>Jauch &amp; Kraft, 1986</td>
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<td>Miller &amp; Toulouse, 1986</td>
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<tr>
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<td>Jaeger &amp; Baliga, 1985</td>
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<th>Politics</th>
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<tr>
<td>Gray &amp; Ariss, 1984</td>
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**Source:** Huff and Reger, 1987.

Figure 19. Contextual Influences stream of research is divided into five groups.
B.9 Integrative Strategic Decision Making Process

Research

Finally, the “Integrative” stream of research (see Figure 20 on page 145) has tried to encompass many of the fields covered in previous streams. Although the majority of work in this stream has concentrated on psychological, political, and bureaucratic impacts on the strategic decision making process, a few works have attempted to reconcile two sets of observed phenomena within the organization: (a) the use of formal planning and analytical techniques and (b) the emergence of patterns in streams of actions and decisions that are not always pre-planned. Mintzberg and Waters (1982) used the phrase strategy formation (as opposed to formulation) to describe their processes. Quinn (1980) also described this formation process. Researchers interested in understanding complex and subtle strategy formation processes tend to use extensive interviewing within a small number of organizations.
9. Integrative

Burgelman, 1983b
Hall, 1984
Jemison & Sitkin, 1986
Mintzberg & McHugh, 1985
Mintzberg & Waters, 1982
Mintzberg & Waters, 1985
Murray, 1984
Pondy & Huff, 1985
Van de Ven, 1986


Figure 20. Nine articles are grouped under Integrative research stream.
Appendix C. Review of Recent Research on the Content of Strategic Decision Making.

The formal distinction between content and process in strategic decision making research was first proposed by Chandler (1962). In 1975, a comprehensive review of strategy content related studies by Hofer (1975) concluded that "much greater emphasis has been placed on the organizational processes by which strategies are developed than on the content of the strategies themselves." During the following years, change has been dramatic: several researchers have focused on the content of strategic decision making since 1975. This section provides a summary of content-related studies in strategic decision making research published since 1970.

The basic characteristic of content-related research is summarized by Glueck (1972): "If a manager finds conditions X, Y and Z, then he is most likely to be more effective if he follows strategy 'A' than 'B'." Figure 21 on page 148 depicts the general approach taken by content-related studies: "What performance results arise from following specific strategies under specific conditions?" Because strategy content questions emphasize the posturing of the firm with respect to its environment, strategy content studies typically examine external conditions, with considerably less attention devoted to conditions internal to the firm. Strategy content studies have been typically
concentrating on strategy formulation decisions, and they have mostly been descriptive. Because of this dominance, this section concentrates on the strategy formulation content studies in the literature.

Fahey and Christensen (1986) define strategy content research as "research which examines the content of decisions regarding the goals, scope, and/or competitive strategies of corporations or of one or more of their business units." Goal content research focuses on survival, economic performance, social conduct, and other fundamental positions or results (e.g., superordinate goals) which the organization has made commitments to achieve. Scope content research have addressed questions regarding diversification, vertical integration, geographic expansion, strategic alliances, and methods for changing scope (e.g., internal growth, acquisitions and divestments). Competitive strategy content research have focused on strategic groups and industry segmentation, determinants of business-unit performance (of which market share has received particular attention), taxonomies of strategy types, stages of industry evolution, and signaling and competitive response. Table 5 on page 149 lists the major streams of each of the categories of strategy content research, with examples of representative studies.

In the remainder of this section, six of the major strategy content research streams as identified by Fahey and Christensen (1986) are summarized: (1) Goals and Performance, (2) Diversifications, (3) Strategic Groups, (4) Market Share and Profitability, (5) Taxonomic Approaches, and (6) Stages of Industry Evolution. This summary relies heavily on Fahey and Christensen’s (1986) article.

16 There are also content related issues associated with strategy implementation, such as whether or not to implement a product divisional organization structure.
Figure 21. Strategy content research relates environmental conditions, organizational strategies and results.
<table>
<thead>
<tr>
<th>Goals</th>
<th>Representative Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survival</td>
<td>Altman, Haldeman and Narayanan (1977)</td>
</tr>
<tr>
<td>Turnaround</td>
<td>Schendel, Patton and Riggs (1976)</td>
</tr>
<tr>
<td>Social Conduct</td>
<td>Bowman and Haire (1975)</td>
</tr>
<tr>
<td>Commitment</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scope</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversification</td>
<td>Bettis (1981)</td>
</tr>
<tr>
<td></td>
<td>Palepu (1985)</td>
</tr>
<tr>
<td>Methods of Changing Scope</td>
<td></td>
</tr>
<tr>
<td>Internal Development</td>
<td>Biggadike (1979)</td>
</tr>
<tr>
<td>Merger/Acquisition</td>
<td>Kusewitt (1985)</td>
</tr>
<tr>
<td>Divestiture</td>
<td>Porter (1976)</td>
</tr>
<tr>
<td></td>
<td>Duhaime and Grant (1984)</td>
</tr>
<tr>
<td>Vertical Integration</td>
<td>Galbraith and Stiles (1983)</td>
</tr>
<tr>
<td>Geographic Expansion</td>
<td>Wolf (1975)</td>
</tr>
<tr>
<td>Strategic Alliances</td>
<td>Harrigan (1985)</td>
</tr>
</tbody>
</table>

| Competitive Strategy       |                                                             |
| Strategic Groups           | Hatten and Schendel (1977)                                  |
| Determinants of Business-  |                                                             |
| Unit Performance           | Hambrick, MacMillan and Day (1982)                          |
| Market Share               | Woo and Cooper (1981)                                       |
| Taxonomies of Strategy Types| Miller and Friesen (1984)                                   |
| Stages of Market Evolution | Harrigan (1980)                                             |
| Signaling and Competitor Response | Iwata (1974)                                 |

Source: Fahey and Christensen, 1986.

Table 5. Major streams of strategy content research.

Appendix C. Review of Recent Research on the Content of Strategic Decision Making.
C.1 Goals and Performance

Reflecting the literature's dominant conception of the firm as an economic institution, organizational goals and performance are almost exclusively conceptualized in economic, or, more precisely, in financial terms (Hofer, 1983). Accounting-based measures (e.g., profitability, earnings per share, sales growth) have most frequently been employed as performance criteria. Some strategy studies have adapted value-based measures (Kudla, 1980; Montgomery, Thomas and Kamath, 1984), or concentrated on financial risk (Bowman, 1980; Montgomery and Singh, 1984).

Whereas the careful attention given to financial performance measures has been a strength of the literature, the absence of emphasis on other legitimate organizational goals has been a weakness (Fahey and Christensen, 1986). First, product-market measures, with the exception of market share, have not been adequately studied. Attention to product-market measures such as product development and innovation, perceived value added, and technological advances could add considerably more to the understanding of determinants of organizational performance than financial measures. As an example, a study by Schendel and Patton (1978) has sought to operationalize performance as a set of interrelated variables. Second, in this research stream, satisfying the needs and concerns of stakeholders other than stockholders has received little attention.

C.2 Diversification

It is in the area of corporate diversification that empirical research on strategy content began (Wrigley, 1970), and that the first large-sample study on strategy-performance relationship was conducted (Rumelt, 1974). Rumelt's study concluded that diversification strategy significantly af-
fected economic performance and that constrained diversification,\textsuperscript{17} in particular, was associated with strong economic performance. However, Christensen and Montgomery (1981) were not able to replicate the significant overall relationship between diversification strategy and performance when the “outlier” dominant vertical firms were removed from the sample.

The high performance levels of firms with constrained diversification received considerable attention, and industry effects, market share, and high advertising and research and development expenditures were identified as intervening variables (Bettis, 1981; Bettis and Hall, 1982; Christensen and Montgomery, 1981; Rumelt, 1982). Considerable attention has also been devoted to measurement issues (Pitts and Hopkins, 1982). Rumelt’s classification system has been found to be more easily replicated than was initially expected (Christensen and Montgomery, 1981), and positive correlation between the Rumelt system and product-count measures has been found for some strategy categories (Montgomery, 1981).

In addition to the strengths mentioned above, in “Diversification” research stream, theory from related fields has been incorporated into research designs, and research studies has built upon one another to a great degree. Despite these successes, Fahey and Christensen (1986) note two problems. First, although several studies using Rumelt’s initial (1974) sample enabled researchers differentiate between sample difference effects and industry and strategic decision effects, new samples are now needed to test the generalizability of these findings. Second, continued research is needed to determine whether (or to what extent) the diversification strategy findings are specific to a given point in time.

\textsuperscript{17} Diversification by building on a single strength or resource associated with the original business.
C.3 Strategic Groups

Strategic management researchers have employed the concept of strategic groups as a means of studying intra-industry variation in the linkages between strategic behavior and performance (Fahey and Christensen, 1986). "Strategic Group" stream of research focuses on one or both of the following questions: (1) Can the firms within an industry be subdivided into groups following similar strategies, and (2) Are strategic group membership differences systematically related to differences in profitability across the firms in the industry?

Researchers in this stream of research have empirically addressed issues of strategic group definition and/or the strategic group performance in such diverse industries as consumer appliance industries (Hunt, 1972), producer-goods (Newman, 1978), brewing (Hatten and Hatten, 1985; Hatten and Schendel, 1977; Schendel and Patton, 1978), banking (Hayes, Spence and Marks, 1983; Ramsler, 1983) and airlines (Ryans and Wittink, 1985). In addition, a few multi-industry studies have also been conducted. In a study of business units spanning 50 U.S. manufacturing industries, Hergert (1983) used cluster analysis to observe strategic groups in a majority of markets and identified four factors (buyer diversity, product complexity, life-cycle stage, and relative size of managerial input) which influence the number of strategic groups in an industry, but he received ambiguous results in his efforts to relate strategic group structure to rivalry and performance. Oster (1982) investigated strategic groups in several industries, and concluded that the durability of a firm's investments in its strategies (she looked explicitly at advertising) is the key to maintaining group structure.

In spite of the multidimensionality of the strategy construct, strategic groups have been narrowly defined in all of the single-industry studies noted above. Schendel and Patton (1978) used geographic focus; Porter (1979) explicitly utilized relative firm size; and Ryans and Wittink (1985) adopted the perspective of the finance literature and used security price returns as the determinants of strategic groups.
The "strategic group" perspective is potentially very valuable to the field because it recognizes the important external forces operating in all or part of an industry (Fahey and Christensen, 1986). Unfortunately, substantial data-related problems (such as increased corporate diversification across industries) restrict the range of settings in which the perspective can be applied.

C.4 Market Share and Profitability

Empirical evidence of the positive association between market share and profitability was published as early as 1972 (Buzzell, Gale and Sultan, 1975; Gale, 1972). In this stream of research, a number of research studies have been undertaken to examine: (1) whether market share and profitability are mutually reinforcing or conflicting goals, (2) what circumstances would be favorable to attempt to gain market share, (3) what strategies lead to the enhancement of market share and (4) whether or not market share is even relevant as an independent or dependent variable in strategy-performance studies.

In spite of confirming evidence (Catto, 1980; Ham, 1980), a number of studies presented ambiguous evidence, or raised methodological concerns about the positive correlation findings. Hammermish, Anderson and Harris (1978) and Woo and Cooper (1981) investigated businesses which were moderately profitable in spite of low market share positions, and Woo (1983) investigated businesses where the leading market share position did not translate into high profitability. Hambrick, MacMillan and Day (1982) found that only among "star" businesses there was an inverse relationship between market share change and any measures of performance. Zeithaml and Fry (1984) identified circumstances under which market share and profitability increases occur simultaneously in mature businesses.

Appendix C. Review of Recent Research on the Content of Strategic Decision Making. 153
Two methodological challenges have been raised in interpreting this relationship. First, in their study of the beer industry, Schendel and Patton (1978) found a positive relationship between market share and profitability for the industry as a whole, but discovered a negative relationship within each of the constituent strategic groups. To the degree that the positive relationship is an artifact of planning businesses with different strategies, it is not meaningful as either a basis for explanation or a guide to action in a particular product-marketing setting (Fahey and Christensen, 1986). Second, Rumelt and Wensley (1981), building on the earlier work of Simon and Bonini (1958) and of Mancke (1974, 1977), found support for the hypothesis that the robust economic performance of high market share firms was due to stochastic shocks which influenced both market share and profitability, rather than market share first and profitability next.

Although this research stream has expanded knowledge and understanding of the market share-profitability relationship, Fahey and Christensen (1986) highlight four problematic issues. First, the research does not establish causality. Second, these studies do not clarify how market share gains are achieved and how these gains get reflected in various measures of profitability. Third, this research stream is one step removed from the intentions of the firms: realized strategy is substituted for intended strategy. Unless the intentions of strategic decision-makers are somehow incorporated into these research designs, they are greatly circumscribed in what they can tell about market share-profitability trade-offs: what trade-offs are made, in what direction, over what time period, for what purpose, and for what results. Fourth, little investigation has been made of the conditions under which firms can secure firm market share gains or profitability gains or both. To the extent that this connection is addressed, research in this stream remains at a very general level.
C.5 Taxanomical Approaches

Studies on this stream of research aim to: (1) provide an analytical (i.e., empirical) mechanism through which different strategies or patterns of strategic behavior can be classified (i.e., are there generic strategies sufficiently common that they can be observed across a variety of industry like conditions?); and (2) to investigate the differential performance implications of generic strategies (ideally, within different profiles of environmental conditions).

In this research stream, Robinson and Pearce (1985), in a study of 97 manufacturing firms across six industries, observed four “distinct, internally consistent patterns of strategic behavior,” that they labeled efficiency, service, product innovation, and brand identification. Galbraith and Schendel (1985) discerned six “meaningful strategy types” in consumer goods industries: harvest, builder, continuity, climber, niche, and cashout. Howes and Crittenden (1984) identified “three relatively unique strategic behavior patterns” among retailers marketing generic-brand grocery products: aggressive initiators, conservative reactors, and submissive defenders. Hambrick (1983) found partial support for Miles and Snow’s (1978) strategic typology (defenders, prospectors and analyzers), but observed different performance tendencies depending on the environment in which the business operated. Dess and Davis (1984) found clusters of firms pursuing strategies closely resembling Porter’s (1980) generic types (low-cost producer, differentiation, and focus). Those firms identified with one of these strategies performed better than those which were “stuck-in-the-middle.” Miller and Friesen (1984) developed the most elaborate taxonomies or archetypes, showing the “intricate and multifaceted nature of relationships among organizational environments, structures and strategies.” They described 10 distinct archetypes, each involving an elaborate scenario with complex networks of mutual causality among a large number of variables.

“Taxanomical Approaches” stream of research is a movement toward the empirical testing of conceptual typologies or strategy types. It also holds theoretical potential: taxonomic research may
allow the identification of interrelated strategy components, recognizing that competitive strategies "represent a network of interactions among the various constituent elements that ultimately make up a business strategy" (Galbraith and Schendel, 1983).

However as Fahey and Christensen (1986) state, this work also reflects many of the characteristics of an emerging research area. So far the research effort is largely non-cumulative: it is a set of unrelated efforts to taxanomically identify strategy or environmental types. In addition, taxanomic approaches have largely neglected the linkage between environmental conditions and strategy type or performance.

C.6 Stages of Industry Evolution

This stream of research has focused on the strategy-performance linkage under different stages of industry evolution. Researchers have investigated the strategies pursued and the related performance results in the industry stages of emergence, growth, shake-out, maturity, and decline (Anderson and Zeithaml, 1984; Hambrick and Schecter, 1983; Hammermesh and Silk, 1979; Harrigan, 1980; Willard and Cooper, 1985). Maturity has, to date, received the most attention.

Anderson and Zeithaml (1984) found that "growth stage businesses appeared to capitalize on their high levels of relative product breadth, relative product quality, relative quality of services, product research and development expenses, and relative vertical integration backward for superior market share." Willard and Cooper (1985), in a study of the survivors of an industry shake-out found that "non-survivors had a significantly lower pre-shake-out market share, lower product quality, lower product value, spent a greater percentage of sales revenue on advertising,...were less committed to research and development, and had weaker distribution systems than survivors." In the maturity phase, there seems to be a clear relationship between efficiency and profitability. The investments
required to generate growth are no longer necessary, and efficiency in the form of asset utilization translates directly into comparative profitability (Anderson and Zeithaml, 1984; Hambrick, MacMillan and Day, 1982).

Fahey and Christensen (1986) identify four problems of this research stream. First little systematic empirical work has been done on the emergent, growth and shake-out stages. Second, transitions from one stage to another and how firms adapt their strategies under these changing circumstances have received almost no attention. Third, even though the maturity phase has been studied most, the parameters delineating maturity have often been reduced to one or two variables, such as market growth rate or decline in number of competitors. Fourth, studies on industry evolution are constrained by the limitations of cross-sectional research.
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