To the Graduate Council:

I am submitting herewith a dissertation written by James France Brown Jr. entitled "Planning Policies and Effectiveness of Firms Engaged in Systematic Planning Processes: A Cross-Validation Study." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Business Administration.

Wayne J. Morse, Major Professor

We have read this dissertation
and recommend its acceptance:

Imogene A. Posey

Harold W. Henry

Keith G. Stanga

Accepted for the Council:

Vice Chancellor
Graduate Studies and Research

PLANNING POLICIES AND EFFECTIVENESS OF FIRMS ENGAGED IN SYSTEMATIC PLANNING PROCESSES: A CROSS-VALIDATION STUDY

A Dissertation

Presented for the

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James France Brown Jr.

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ABSTRACT

The purpose of the research is to evaluate the effectiveness of strategic planning efforts of U.S. manufacturing organizations and coincidentally to:

1. Develop a classification scheme for strategic planning systems.
2. Describe the various clusters of planning systems which result from the classification scheme.
3. Determine the global effectiveness of strategic planning systems embraced by selected U.S. manufacturing firms with respect to designated measures of financial performance.
4. Determine effectiveness, with respect to financial performance measures, of strategic planning efforts which exist in the various industrial classifications of U.S. manufacturing organizations.
5. Determine the degree of effectiveness, with respect to financial performance measures, of the various clusters resulting from the classification scheme for strategic planning systems developed by this study.

The experimental design encompasses four distinct phases. The initial phase results in the identification of 1015 manufacturing organizations which comprise the study's population. Five-hundred manufacturing organizations are randomly selected for inclusion in the study's second phase concerned with the development and dissemination of a questionnaire. The third phase of the experimental design involves the classification of the

168 respondents to the questionnaire with regard to common dimensions exhibited by a firm's planning system. The classification phase is accomplished through the use of cluster analysis. The fourth phase evaluates the effectiveness of strategic planning systems on the basis of five performance measures--return on assets, asset turnover, profit maragin, return on equity, and net sales. The analysis of variance model is used to test for significance of the differences in performance of firms with strategic planning systems.

The results of the study are presented in three basic areas--(1) description of a modal firm for the three planning system classifications resulting from the cluster analysis methodology, (2) determination of effectiveness of strategic planning systems embraced by U.S. manufacturing firms with respect to the designated measures of financial performance, and (3) determination of the degree of effectiveness of firms in the three clusters which resulted from the classification phase.

The results of the study reveal that none of the financial performance measures exhibit a performance pattern that would support the overall conclusion that strategic planning improves a firm's performance. The conclusion advanced by this study is that strategic planning assists a firm in maintaining its relative performance position within the industry. In order to support this conclusion, firms are evaluated at three points in time--(1) the firm's performance the third year after adoption of a strategic planning system versus the firm's performance the third year before adoption of a strategic planning system; (2) the firm's performance the third year after adoption of a strategic planning system versus the

industry's mean performance over the same time period; (3) the firm's performance the third year before adoption of a strategic planning system versus the industry's mean performance over the same time period.

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CHAPTER I

INTRODUCTION

The importance of planning has been discussed by accountants and management theorists since the beginnings of the scientific management movement. In the early 1900s, Frederick W. Taylor and Henri Fayol, among others, advocated the importance of a systematic process of planning for the successful management of the activities of business organizations. Since the early sixties, planning has been addressed in terms of a comprehensive system; as such, planning has developed into a major management tool with strategic planning at the core of this process.[1]

Strategic planning is concerned with (1) identifying issues which are pertinent to the firm's long-term success and (2) defining the organization's future. Consequently, the strategic planning process results in the identification of missions, objectives, policies, and strategies which are appropriate for the company's long-term health and vitality. The management accountant, either directly or indirectly, participates in the strategic planning process through the qualitative and quantitative information provided by the organization's information system.

The American Accounting Association Committee on Management Accounting in 1958 advocated the involvement of accountants in the planning process. Specifically, the committee charged the management accountant

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[1]George A. Steiner. "Comprehensive Managerial Planning," Contemporary Management: Issues and Viewpoints, ed. Joseph W. McGuire (New Jersey: Prentice-Hall, Inc., 1974) p. 325.

to assist in the organization's planning process.[2] The committee's charge is still appropriate since management accounting has recently been defined as follows:

> Management accounting is the process of identification, measurement, accumulation, analysis, preparation, interpretation, and communication of financial information used by management to plan, evaluate, and control within an organization and to assure appropriate use of and accountability for its resources....[3]

Consequently, the management accountant could, indeed should, provide evidence as to the effectiveness of strategic planning systems to top-management in profit oriented concerns.

This study integrates the management accountant's charge to assist management in the corporate planning process with the management theorist's concern that systematic corporate planning systems prove to be an effective tool for use in the management processes of profit oriented organizations. Accordingly, the focus of this study is with corporate planning systems characterized by a concern for strategic issues.

The Problem

Statement of Problem

The planning literature asserts that prior to 1960 corporate planning systems were used by very few organizations. The years 1962 through

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[2]American Accounting Association, Committee on Management Accounting, The Accounting Review, XXXIV (April, 1959) 210.

[3]National Association of Accountants, Management Accounting Practices Committee. "MAP Committee Promulgates Definition of Management Accounting," Management Accounting, LXII (January, 1981), 58-59.

1965 witnessed a surge of corporate interests in systematic planning processes. Currently, corporate planning systems enjoy almost universal acceptance among management teams in medium and large companies. Indeed, strategic planning systems are generally regarded as an integral part of effective organizations. In the late 1960's and early 1970's management theorists began advocating the preeminent inclusion of strategic issues in the organization's systematic planning processes.

Several studies in the early 1970's attempted to evaluate the effectiveness of formal planning systems. Generally, these studies neglected to distinguish between the types of plans--strategic or operational--which were under investigation. Additionally, conclusions concerning effectiveness of planning systems, as measured by improvements in selected financial performance measures, did not consider a situation in which the improvements could have been related to improvements experienced uniformly throughout the industry. Thus, statements concerning effectiveness of planning systems could be biased as a result of the researcher's design of the study.

Since the 1960s, researchers have attempted to determine (1) the nature of formal planning systems and (2) the relevant dimensions that should be considered in the design of a systematic corporate planning system. The research indicates that there is no universal planning system because organizations differ with respect to dimensions such as size, diversity of operations, organization structures, and managerial style and philosophy.

Previous research has not identified a complete set of planning system dimensions which can be utilized to determine the overall effectiveness

of existing corporate planning systems. Thus, additional studies are needed (1) to identify dimensions which can be used to differentiate existing planning systems and (2) to identify dimensions which seem to be directly related to financial performance of organizations.

Purpose of Study

This study focuses on the effectiveness of strategic planning systems currently utilized by manufacturing organizations. As a prerequisite to a determination of effectiveness, it is necessary to classify strategic planning systems according to general dimensions exhibited by the organization's strategic planning effort.

An understanding of the concept of strategic planning is essential before the study's purposes can be validated. The definition and scope of strategic planning encompasses planning of both a static and foretelling nature. Such planning is a result of management values, assessments of external and internal opportunities and problems, and organizational strengths and weaknesses. Given the preceding premise, the strategic process results in plans containing the company's missions, objectives for the long-run, policies, and strategies. Within such a framework the organization's medium and short-range plans can be developed.

Specifically, the purpose of the research is to evaluate the effectiveness of strategic planning efforts of manufacturing organizations and coincidentally to:

1. Develop a classification scheme for strategic planning systems.
2. Describe the various clusters of planning systems

which result from the classification scheme.

3. Determine the global effectiveness of strategic planning systems embraced by selected U.S. manufacturing firms with respect to designated measures of financial performance.
4. Determine effectiveness with respect to financial performance measures, of strategic planning efforts which exist in the various industrial classifications of U.S. manufacturing organizations.
5. Determine the degree of effectiveness, with respect to financial performance measures, of the various clusters resulting from the classification scheme for strategic planning systems developed by this study.

Scope of Study

The emphasis in this study centers on the classification and subsequent evaluation of strategic planning systems currently utilized in industrial firms. The study is limited to U.S. industrial firms which belong to the Standard Industrial Classification for manufacturing. Only firms listed in either the Primary or Supplementary Industrial Files of Standard & Poor's COMPUSTAT tapes are included in the study. If at least ten annual periods of financial data are not available on the COMPUSTAT tapes, then the manufacturing organization is not included in the questionnaire phase of the study.

Organizations included in the study are not limited with respect to size as measured by the firm's total assets in dollars. Additionally, there is no limitation with respect to U.S. geographical proximity for

inclusion in the study.

The planning systems of U.S. manufacturing firms are classified with respect to the general planning dimensions contained in each organization's system. The phase of the study evaluating effectiveness of planning systems relies on financial information drawn from varying time periods since dates of adoption for strategic planning systems differ. Firms are not eligible for inclusion in the effectiveness phase of the study unless they have three years of COMPUSTAT data available prior to the date of adoption of a strategic planning system and at least three years of data after the adoption date.

Hypotheses

Determining the nature and effectiveness of corporate planning systems is important. Previous researchers have attempted to either describe the nature of existing planning systems or to empirically investigate the effectiveness of existing systems, but never both concurrently. Such a combination is perhaps even more important than singular studies concerned with planning system dimensions or planning system effectiveness. Therefore, this study tests three propositions concerning the strategic planning efforts of manufacturing organizations.

Proposition 1. Distinct groupings of organizations exist among firms with strategic planning systems. General planning system dimensions can be utilized to differentiate between the distinct groupings of organizations. An organization's planning policies and practices are concerned with dimensions such as the goal setting process, the means of communicating goals for corporate performance, the degree of environmental

scanning, the subordinate managers focus, the corporate planners role, the linkage of planning and budgeting, and other areas. Firms differ with regard to size, diversity of operations, organization structure, and management philosophy.

Proposition 2. The adoption of a strategic planning process results in an improvement in the organization's financial performance as measured by return on equity, return on assets, asset turnover, profit margin on sales, and net sales.

Proposition 3. Given the premise that distinct groupings exist among firms with strategic planning systems, the hypothesis could be formulated that varying degrees of effectiveness result from strategic planning systems characterized by different dimensions. A corollary states that it is possible to identify general planning dimensions which relate to successful financial performance of organizations.

Methodology

The primary objectives of this research involve the development of a classification scheme and a determination of the effectiveness of strategic planning systems. A research design consisting of the following four phases is utilized:

1. The population is defined and a random sample is selected.
2. A questionnaire is developed, pretested, and disseminated.
3. Questionnaire responses are cluster analyzed in an effort to determine the number of distinct groupings of strategic planning systems.

4. A determination of the effectiveness of strategic planning systems is attempted through the use of the analysis of variance methodology.

Information about strategic planning systems is collected through the use of a close-ended questionnaire. The construction of the questionnaire involves several faculty and doctoral students at the University of Tennessee. Subsequently, the questionnaire is pretested by two executives involved with their respective organization's corporate planning system. The questionnaire requires each respondent to provide information about the following areas:

1. Organizational structure.
2. Pervasiveness of planning effort.
3. Management style and philosophy.
4. Time periods involved in the planning effort.
5. Degree of environmental scanning.
6. Communication process.
7. Goal-setting process.
8. Managerial involvement in planning process.
9. Importance of the planning effort.
10. Linkage between the planning and budgeting process.
11. Role of the corporate planner.
12. Experience with a strategic planning process.

Five hundred questionnaires are mailed to firms selected randomly from a population of 1015 firms.

Respondents to the questionnaire participate in a hierarchical clustering procedure. All of the data supplied by the respondents is

cluster analyzed in an effort to determine if distinct groupings of strategic planning systems exist.

The last phase of the research design involves the collection and analysis of selected measures of financial performance. For inclusion in the effectiveness phase of this study, respondents to the questionnaire must have established a strategic planning system by at least the 1976 calendar year. Five performance measures are included in the analysis--return on assets, asset turnover, profit margin on sales, return on equity, and net sales. The financial information required to calculate the performance measures is available from Standard & Poor's COMPUSTAT industrial tapes.

The effectiveness phase initially consists of a comparison between an organization's performance at three different time periods:

1. A comparison measuring performance before the adoption of a strategic planning system with the organization's performance after the adoption of the system.
2. A comparison involving performance after the adoption of the planning system with the mean performance of other firms within the same industry over the same time period.
3. A comparison involving performance prior to the adoption of the planning system with the mean performance of other firms within the same industry over the same time period.

Each of the five financial performance measures are subjected to the three comparisons described above. The objective of the comparisons is to determine the significance of differences resulting from the measures specified in each comparison.

The effectiveness phase also attempts to determine the relative performance of the distinct groupings of strategic planning systems which result from the clustering procedure. Two basic questions are addressed. First, do the distinct groupings of strategic planning systems differ with respect to selected performance measures? Second, if performance differences exist among the groupings of planning systems then what is the relative rankings of the groups of strategic planning systems.

All comparisons in the effectiveness phase of the study utilize the analysis of variance statistical methodology contained in the 1979 Statistical Analysis System. The clustering procedure is also contained in the same collection of statistical programs.

Limitations of Study

Occasionally an organization will adopt a professionally accepted phrase such as "strategic planning" and apply it to an inappropriate activity within their organization. This results in a problem in semantics when a researcher utilizes the term in a conceptually correct manner to measure an event and the respondent arbitrarily applies it to his own situation. Two measures are utilized to minimize this problem. First, the questionnaire is directed to an individual with primary responsibility for design and implementation of his organization's planning system. The premise is that a planning executive possesses technical expertise in the planning area. Secondly, the questionnaire is constructed in manner which permits a determination concerning whether the planning system is concerned with strategic issues. Only strategic planning systems are included in the study.

An additional area of concern relates to the accuracy of the information supplied by a firm. Does the individual responding to the questionnaire possess technical expertise in the planning area? Again, this problem was minimized through the selection process for recipients of the measurement instrument as well as a check as to who responded and the nature of his responsibilities. Only respondents possessing a title denoting the chief executive office or a planning position were utilized in the study.

The potential problem of nonresponse bias exists with any study utilizing mailed questionnaires. Although the seriousness of this problem is acknowledged, the design of this study did not involve a test for the existence of nonresponse bias. As such, the study results can be reported, the nature of the population cited, the characteristics of the responding firms noted, but the reader must utilize the information within his decision model according to the value which he assigns to the information. Also, the point should be made that the percentage of firms within each industry responding to the questionnaire is approximately equal to the industry composition of the study's sample.

The Contributions

Managerial Accounting

In 1958 the AAA Committee on management accounting advanced a definition of accounting for internal management which provides a mandate for the involvement of accounting research in the planning area. The definition states:

> Management accounting is the application of appropriate techniques and concepts in processing the historical and projected economic data of an entity to assist management in establishing plans for reasonable economic objectives and in the making of rational decisions with a view toward achieving these objectives (researchers emphasis).[4]

A Statement of Basic Accounting Theory (ASOBAT) after consideration of the definition for management accounting previously cited, concludes that accounting systems are responsible for responding to management informational needs. Specifically, ASOBAT notes that accountants do have a role in the establishment and subsequent evaluation of the effectiveness of an organization's planning effort.[5] Yet accounting research is devoid of efforts within this area. There are no treatises by accountants which provide fact or conjecture as to the informational needs of the manager engaged in planning efforts; neither are there effectiveness studies by management accounting researchers.

Consequently, studies which provide a framework for the integration of planning research by management theorists with the management accountant's role as a provider, advisor, and evaluator of management informational needs are a step forward--a missing link--between the management accountant and the other members of an organization's management team. This study directs the management accounting literature into planning areas other than modeling.

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[4]American Accounting Association, Committee on Management Accounting, The Accounting Review, April 1959, p. 210.

[5]American Accounting Association, Committee to Prepare a Statement of Basic Accounting Theory. A Statement of Basic Accounting Theory (American Accounting Association, 1966), pp. 42-43.

A current need lies in the refinement of an informational system which can assist management in the recognition and definition of the strategic issues facing the organization. The development of such a system requires an awareness of the strategic factors currently given consideration in corporate planning systems, as well as, an evaluation of the effectiveness of various combinations of these factors in strategic planning systems. This study assists in developing an awareness among management accounting researchers of the need for investigation into the informational needs of organizations engaged in strategic planning efforts.

Business Community

The industrial sector is characterized by its competitive environment. Survival or progress depends on the organization's ability to adapt to the dynamics of a competitive situation. Corporate planning which is strategic in nature is the one means for visualizing and adapting to the competitive forces within the business community. Knowledge of the general dimensions which characterize corporate planning systems can be of value to management as management attempts to improve its decision processes through the adoption or adaptation of a strategic planning system.

Since any systematic planning effort requires the expenditure of significant amounts of an organization's managerial and capital resources, the answer to the question "Does the expenditure of time and money on planning efforts actually result in improvements in overall corporate performance?" is of considerable interest. The effectiveness phase of

this study will attempt to provide additional support for the hypothesis that planning results in improved financial performance.

Organization of Study

Five chapters are utilized to present the historical perspectives of the problem, develop the investigative procedure, and interpret the results of the study. Organizationally the study consists of the:

1. Introduction
2. Review of the Literature
3. Research Methodology
4. Presentation of Findings
5. Interpretation of Findings, Summary, and Conclusions

Chapter II contains a review of the pertinent literature in managerial accounting and management theory with regard to description, dimensions, and effectiveness of formal corporate planning systems.

Chapter III sets forth the research design for the study. The basic methodology, sample selection procedure, research instrument, and plan of analysis of the data is incorporated. This chapter also develops the hypotheses to be tested.

Chapter IV presents the findings of the study. Initially, the current dimensions of corporate planning systems, as revealed through the analysis of the research instrument, are presented. Next, the global effectiveness of corporate planning systems is presented. In an ancillary relationship, the findings with regard to effectiveness of planning systems when differentiated by industry and firm criteria are presented. The

concluding phase presents a discussion of the effectiveness of clusters of strategic planning systems characterized by general planning dimensions.

Chapter V presents a review of the major findings. The chapter concludes with the implications of the study to management accounting and management theory and suggests directions for future research.

CHAPTER II

REVIEW OF THE LITERATURE

The literature reviewed in this section comes primarily from research by management theorists in the area of formal corporate planning systems. Previous research in this area can be organized into six basic categories:

1. The nature of corporate planning systems.
2. Effectiveness of planning systems.
3. Informational requirements of planning systems.
4. Organization theory with respect to the planning function.
5. Impact of political and social systems' variables on the planning process.
6. Content of effective organizational strategies.

The objective of this review is to develop an awareness of research in the area of strategic planning in order to utilize and build on the previous work. Consequently, the primary concern of this review is with the literature encompassed in the first two basic categories of planning research cited above. The literature reviewed is divided into three sections--(1) literature describing planning systems, (2) literature suggesting appropriate dimensions for classifying planning systems, and (3) literature evaluating the effectiveness of planning systems. Before the literature is reviewed, operational definitions associated with this literature are provided.

Definition of Terms

In reviewing the literature it became apparent that terms used by planners suffered from semantic differences. In the interest of clarity and consistency, the following terms are defined and/or described to show how they will be used in this study.

Planning

"Planning is the process that leads to a plan. A plan is a set of instructions to someone and the planning process ends when these are ready to be issued."[1] Since planning involves the selection of a course of action from available alternatives, one can view planning as a composition of decisions.

Long-range Planning

A planning process which is characterized by assignment of responsibilities, development of administrative procedures, and the subsequent inclusion of the assignments and procedures in a written plan document. The process results in the development of an organizational course of action which affects a time period greater than one year or one business cycle. Consequently, the term futurity can be used to characterize the process. The literature uses synonymously these words: (1) comprehensive corporate planning, (2) comprehensive managerial planning, (3) corporate planning, (4) formal planning, (5) integrated planning, (6) long-range planning, (7) overall planning, and (8) total planning.

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[1]John Argenti, Systematic Corporate Planning (London: Thomas Nelson and Sons, Ltd., 1974), p. 13.

Short-range Planning

Any planning process resulting in the development of a course of action which affects a time period of one year or less. If the organization's business cycle extends beyond one year, then short-range planning is limited to one business cycle.

Strategic Planning

A classification of long-range planning "...involved with making decisions about issues which are of fundamental or crucial importance to a company's long-term health and vitality."[2] Consequently, strategic planning is the process of formulating (1) objectives, purposes, and goals (2) the principle policies and plans for achieving these goals, (3) the range of business the company is to pursue, (4) the kind of economic and human organization it intends to be, and (5) the nature of the economic and noneconomic contribution it intends to make to its shareholders, employees, customers, and communities.

Operational Planning

A planning process which contends with the operational problems associated with the determination of the proper allocation of resources to the various functions, divisions, or geographic regions of a business environment. Thus, decisions with regard to specific programs and action plans required for implementing strategic plans are included in the operational planning process. These plans usually involve a time

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[2]Robert J. Litschert, "Some Characteristics of Organization for Long-Range Planning," Academy of Management Journal, X (September, 1967), 247.

period of only one to two years.

Description of Planning Systems

In the light of the growing use of formal organizational arrangements for long-range planning, the characteristics associated with a specific industrial environment or the planning effort in general has received an increasing amount of attention among researchers. Most of the early studies, such as those by Thompson (1962), Scott (1965), and Henry (1967), describe the nature of planning processes, including the informational requirements of planning systems and the ways the planning systems are organized. In particular, Litschert identified the functions of full time, long-range planners to include the establishment of procedures for the development of long-range plans, to provide periodic market information, to contribute to the definition of planning premises, and to assess organizational opportunities.[3] Hofer reviewed studies published during the 1960s and concluded that there are four key strategic variables controllable by management. These variables are: (1) geographic scope, (2) product/market scope, (3) distinctive organizational competencies and competitive advantages, and (4) planning synergies.[4]

A major limitation of these early descriptive studies lies with each study's sample. Generally, these studies surveyed organizations

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[3]Ibid., p. 252

[4]Charles W. Hofer, "Research on Strategic Planning: A survey of past studies and suggestions for future efforts," Journal of Economics and Business, 28: 261, 1975-76.

characterized by a homogeneous product line. Consequently, the problems associated with multi-industry firms were ignored by some early studies.

In 1974 Rue surveyed the techniques, tools, and approaches to planning currently being used. He reported that a majority of firms prepare a long-range planning document which includes objectives for sales and earnings; strategies for growth through plant expansion and new product development; and consideration of national economic trends. Further, he concluded that 50 percent of the plans are revised quarterly, 20 percent of the planners utilize outside consultants, and 40 percent utilize computer or mathematical models in their long-range planning efforts.[5]

In 1976 Naylor addressed the issue of current and future uses of computerized corporate planning models. He reported that corporate planning models were used by firms with sales in excess of $500 million for purposes of cash flow analysis, financial forecasting, balance sheet projections, financial analysis, pro forma financial reports, and profit planning.[6] He noted that managements were turning to computerized planning models due to factors such as economic uncertainty, shortages of energy and basic raw materials, a leveling off of productivity, international competition, tight money and inflation, political upheavals, environmental problems, and new business opportunities.[7]

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[5]Leslie W. Rue, "Tools and Techniques of Long-Range Planners," Long-Range Planning, VII (October, 1974), 65.

[6]Thomas H. Naylor, "The Future of Corporate Planning Models," Managerial Planning, XXIV (March-April, 1976), 9.

[7]Ibid., p. 1.

Planning systems have not existed in a static state. A 1977 study by Henry found that many firms had redesigned their planning system in the early 1970s. The dynamics of the area resulted from problems related to management attitude and values, design of the formal planning system, and the method of introducing and administering the system.[8]

In summary, existing studies incorporate data on the role of the corporate planner, informational needs of a planning system, tools and techniques providing utility to planning systems, and organizational considerations for planning system design. Although descriptive studies have been undertaken, there is a need for additional studies for two reasons: (1) identification of multi-industry planning variables is needed and (2) planning systems continue to change in response to the organization's strengths and weaknesses.

Dimensions of Planning Systems

A major objective of this study is the empirical classification of existing strategic planning systems within U.S. manufacturing firms. Several studies have proffered selected dimensions of planning systems as being indicative of success in corporate planning. However, empirical testing of the discriminating ability of planning dimensions has not received adequate attention. In fact, the literature is void of empirically based classification schemes for corporate planning systems.

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[8]Harold W. Henry, "Formal Planning in Major U.S. Corporations," Long-Range Planning, X (October, 1977), 41.

In 1979 Lorange and Vancil studied the differences between the planning systems of small versus large firms with respect to eight issues which should receive consideration during the design phase of a planning system. The issues were:

1. Size of the firm.
2. Diversity of operations.
3. Communication of goals for corporate performance.
4. The goal setting process.
5. Environmental scanning.
6. Subordinate managers focus.
7. Role of the corporate planner.
8. Linkage of planning and budgeting.[9]

They concluded, on an a priori basis, that there was significant differences between the planning procedures used by small versus large companies.

Specifically, Lorange and Vancil advanced five conclusions with respect to the planning system utilized by small, non-diversified, and functionally organized companies. These conclusions were:

1. Small companies rely heavily on corporate management for the strategic planning activities for the firm.
2. Formality in the strategic aspects of the planning process is not a necessity due to the small number of managers involved.
3. The planning system consists of top-down goal setting.
4. Tight linkage exists between the plan and the budget.
5. The corporate planners role is that of a cross functional program analyst and environmental scanner.[10]

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[9]Peter Lorange and Richard F. Vancil, "How to Design a Strategic Planning System," Harvard Business Review, LIV (September-October,1979), 75-76.

[10]Ibid., p.81.

Additionally, Lorange and Vancil suggested that for large diversified, product/market oriented firms the strategic planning process should be formally structured. As the system matured the expectation was that both corporate and divisional executives would make better strategic decisions.[11]

In a 1975 study Vancil and Lorange identified three cycles in the planning process. The cycles include:

1. Formulation of the company's objectives and goals, including the determination of which and how many lines of businesses to engage in.
2. Acquiring the resources needed to attain these objectives.
3. Allocating the resources among the different businesses so that objectives are achieved.[12]

In smaller firms, the three cycles in the planning process could be characterized as continuous, with frequent interface between managers, and the absence of a need for elaborate, formalized planning systems. Vancil and Lorange expressed the belief that the description above could also apply to large but undiversified corporations. The reasoning for this belief is based in the firm's organization structure. If the firms are functionally organized, the small number and closeness of involved executives would permit continuous, informal planning.[13]

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[11]Ibid.

[12]Richard F. Vancil and Peter Lorange, "Strategic Planning in Diversified Companies," Harvard Business Review, LII (January-February, 1975), 82.

[13]Ibid.

The preceding discussion highlights the pervasive nature of a corporate planning process. In order for the system to be effective managers at all levels must be involved. However, the specific plans developed through this process require varying degrees of involvement on the part of the organization's managers. Therefore, another dimension of planning systems can be advocated--managerial involvement.

It is important to note that with a diversified corporation comes an increase in organizational complexity. No longer is it appropriate to plan only within the context of functional operating areas. Now, an intermediate hierarchical level between the chief executive and the functional level requires involvement--the product division level. As a result, when strategy is developed within a firm's planning process, three levels of strategy must be reconciled--the corporate manager's (corporate level), the business manager's (divisional level), and the activity manager's (functional level).

In 1976 Vancil explored some of the problems associated with the development of strategy in a diversified corporation. He concluded that strategy could not be viewed in terms of a single all encompassing activity if it is to be effective. Instead, strategy should be viewed in a collective sense with each manager developing and linking his individual strategy into an integrative whole.[14]

Gilbert and Lorange concluded that there are five essential ingredients, irrespective of the firm's environmental situation, for any

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[14]Richard F. Vancil, "Strategy Formulation in Complex Organizations," Sloan Management Review, XVII (Winter, 1976), 18.

successful corporate planning system. These ingredients are:

1. Utilization of the formal planning process as a support mechanism for the formulation of strategic choices.
2. Effective communication of the overall purpose for a formal planning process throughout the firm's organization structure.
3. Development of common requirements regarding the standardization of contents, formats, deadlines methods, etc., of the formal planning system.
4. Integration of the formal planning system with the other management systems of the company, such as, its management information system.
5. Involvement of line managers in the formal planning process.[15]

Robert Ackerman addressed still another dimension of formal planning processes--the role of the corporate planning executive. He concludes that there are three distinct roles possible.[16] The first role is that of a planning broker. In this role, the corporate planner struggles to maintain neutrality and impartiality in his relationships with other managers. He manages the long-run planning system, insures that the plans are comprehensive, and promotes the ideas and techniques of planning. However, he avoids taking positions whenever possible on the strategic issues confronting the corporation or its components. A second role is that of a presidential advisor. The corporate planner

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[15]Xavier Gilbert and Peter Lorange, "Five Pillars for Your Planning," European Business (Autumn, 1974), 37.

[16]Robert W. Ackerman, "Role of the Corporate Planning Executive," Strategic Planning Systems, ed. Peter Lorange and Richard F. Vancil (New Jersey: Prentice-Hall, Inc., 1977), pp. 94-95.

sees the president as his client and the president's needs as his concerns. Rather than attempting to maintain neutrality, the planner strives to assist the president achieve his goals. The third role is that of a strategic evaluator. The planner attempts to define a role that permits him to have his own position on strategic issues. In this case, he seeks independence rather than neutrality or subjugation to the chief executive. His client is the corporation and his efforts are directed toward defining strategy that will benefit the firm in the long-run.

In summary, this section serves as the basis for determining the general dimensions of planning systems which can be utilized in the development of a classification scheme for strategic planning systems. A major criticism of prior research in this area is the lack of empirical analysis accompanying the studies. Dimensions are advocated and discussed from the intuitive level only. The researcher has experience in the area; thusly, a given dimension is discussed in that light. Empirical justification for the dimension is very desirable.

This study attempts to empirically differentiate the planning systems of U.S. firms with respect to the general dimensions of:

1. Organizational structure.
2. Pervasiveness of the planning effort.
3. Management style and philosophy.
4. Time periods involved in the planning effort.
5. Degree of environmental scanning.
6. Communication process.
7. Goal-setting process.

8. Managerial involvement in the planning process.
9. Importance of the planning effort.
10. Linkage between the planning and budgeting process.
11. Role of the corporate planner.
12. Experience with a strategic planning process.

Effectiveness of Planning Systems

Corporate planning systems require the commitment of both managerial and capital resources. The costs associated with such systems must be matched with their economic benefits to ascertain the relative payoff. The validity of corporate planning systems has gained intuitive acceptance within the professional managerial community. However, empirical research supporting the general effectiveness of corporate planning systems has been limited to five studies: (1) Thune and House (1970), (2) Ansoff and others (1970), (3) Herold (1972), (4) Schoeffler and others (1974), and (5) Fulmer and Rue (1974). Since a major thrust of this study is a determination of effectiveness of strategic planning systems, these studies will be reviewed in depth in order to gain an appreciation for the strengths and weaknesses of the methodology employed in the various studies.

In 1970 Thune and House reported the results of the first study which strongly indicated that long-range planning resulted in changes in financial performance.[17] They analyzed the performance of thirty-six

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[17]Stanley S. Thune and Robert J. House, "Where Long-Range Planning Pays Off," Business Horizons, XIII (August, 1970), 81-87.

firms with annual sales greater than $75 million over a period of seven years in six different industry groups (drug, chemical, machinery, oil, food, and steel). Their objective was to determine the effect of long-range planning on selected financial performance measures.

The base year for the Thune and House study was 1965. A total of 145 firms were included in the study's sample. A questionnaire seeking to identify the extent of involvement of the sample firms with a long-range planning process was returned by ninety-two firms. The respondents were classified as formal planners if they determined corporate strategy and goals for at least a three year time period; otherwise, respondents were classified as informal planners. A matched pairs research design resulted in the selection of seventeen formal and nineteen informal planners for use in the effectiveness phase of the study.

The Thune and House study contained two separate parts. The first part involved three comparisons of the formal planning group versus the informal planning group. In the first comparison, performance of the planning group since adoption of a formal planning system was compared with the performance of informal planners over the same time periods. Five financial performance measures were utilized in the analysis: (1) sales, (2) stock prices, (3) earnings per common share, (4) return on common equity, and (5) return on total capital employed. The following specific time periods were studied: drugs, 1960-65; food, 1958-65; chemicals, 1958-65; steel, 1955-65; oil, 1959-65; and machinery, 1959-65.

The second comparison involved only the formal planning group. The performance from the time of initiation of the formal planning system through 1965 was compared with the firm's performance over an equal time period prior to the adoption date. Three performance measures were utilized: (1) sales, (2) earnings per share, and (3) stock price appreciation. Data for the remaining performance measures was not available for the period prior to adoption of a formal planning system. Also, the steel industry was not included in this comparison due to its early involvement in formal planning efforts brought about by World War II.

The third comparison involved the performance of formal planners versus informal planners prior to the adoption date for the formal system. The time period selected was a period of years equal to the total from the adoption date to 1965.

The statistical methodology utilized in determining the significance of the comparisons was a two-way analysis of variance. The independent variables were identified to be industrial classification and formal versus informal planners. The dependent variable for each of the analysis of variance models was selected from financial performance measures which included (1) sales, (2) stock prices, (3) earnings on common equity, (4) earnings per share, and (5) earnings on total capital.

The conclusions of this first part were: "...formal planners, from the time they initiated long-range planning through 1965, significantly outperformed informal planners with respect to earnings per share, earnings on common equity, and earnings on total capital employed.

Furthermore, these companies outperformed their own records based on an equal period of time before they began formal planning. Finally, informal planners did not surpass formal planners on any measures of economic performance after long-range planning was introduced."[18]

The second part of the study involved an analysis of the formal and informal planners segmented by industrial classification. The research design involved a comparison of performance for formal versus informal planners during the planning period as contrasted with their performance during an equal period of time prior to the adoption date for the formal system. The six industries and the five performance measures previously cited were utilized in this phase. Again, the analysis of variance methodology was selected.

The results of the second part were not conclusive. The evidence supported the statement that performance on all five measures improved significantly after adoption of a formal planning process in the drug, chemical, and machinery industries. However, the food, oil, and steel industries did not experience the same improvement cited above.

Thune and House addressed the question of why industrial differences occurred. They hypothesized that three factors could have accounted for the differences: (1) political or governmental factors, (2) company size, and (3) degree of competitiveness within the market place. A correlation analysis was utilized to test for the influence of size. Correlations were computed between sales of the company and

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[18]Ibid., p. 84.

the changes in the five financial performance measures. Negative correlations were found to exist. With respect to the market competitiveness factor, they proffered that the advantages of formal planning systems was concentrated in the medium size companies characterized by changing markets.

The study was concluded with the caution that formal planning should not be viewed as an industrial panacea. Instead, a long-range planning system provides additional evidence of an effective management team.

In 1972 Herold attempted to validate and extend the Thune and House study.[19] The validation effort was directed to the questionnaire utilized as a classificatory device for formal versus informal planning systems. The premise offered was that a correlation with a new dependent variable which measured success of the firm would provide construct validation for the questionnaire. The criterion selected was pretax profit of the firm. The hypothesis being that firms with formal planning systems would demonstrate greater pretax profits than an informal system. Additionally, it was hypothesized that research and development expenditures would be higher for organizations with formal planning systems.

The sample utilized in the Thune and House study was to be utilized in the validation effort. However, mergers, acquisitions, and the lack of availability of research and development data, limited the Herold sample to the three matched pairs comprising Thune and

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[19]David M. Herold, "Long-range Planning and Organizational Performance: A Cross-Valuation Study," Academy of Management Journal, XV (March, 1972), 91-102.

House's drug industry and the two of the three pairs from the chemical industry group. Due to the small number of firms available to Herold, no statistical tests measuring the significance of differences between formal and informal planners was utilized. The time period for the performance comparison was 1962 to 1969; with the base year being 1962.

Percentage increases in sales and pretax profits were charted for each of the seven years for both formal and informal planners. The resulting distributions did not overlap in any year.

The results of Herold's research indicated that companies which actively engaged in formal long-range planning in the drug and chemical industries outperformed those who did not. Also, a possible relationship between research and development expenditures and improved financial performance was noted. Lastly, the study advocated profit as another variable which would support the Thune and House findings with regard to long-range planning systems.[20]

In 1970 Ansoff and others undertook a study whose purpose was to provide evidence indicating a positive relationship between corporate level planning and successful organizational performance.[21] Data to support the hypothesis was derived from an analysis comparing firms which utilized corporate mergers and acquisitions as a means of growth

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[20]Ibid., pp. 100-101.

[21]H. Igor Ansoff, Jay Avner, Richard G. Brandenburg, Fred E. Portner, and Raymond Radosevich, "Does Planning Pay? The Effect of Planning on Success of Acquisitions in American Firms," Long-Range Planning, III (December, 1970), 2-7.

with firms which grew through internal development. A questionnaire was constructed to capture the central activities utilized by firms using acquisition as the principle means of growth. The questionnaire was designed to determine the essence of the firm's planning, search, evaluation, and integrative processes with regard to merger activities.

Essentially the research design required a comparison of a firm's performance prior to the acquisition process with its performance after effecting the acquisition. Firms eligible for inclusion in the study had to satisfy four criteria: (1) be listed on Standard and Poor's COMPUSTAT tapes, (2) have a period of at least four years without acquisitions, (3) have a period in which acquisitions occurred with no more than one year elapsing between two successive acquisitions, and (4) have a minimum post acquisition period of two years. The resulting population consisted of 412 firms. All 412 firms were included in the questionnaire phase; 93 usable replies resulted.

The performance phase of the study involved the manipulation of thirteen variables: (1) sales, (2) earnings, (3) earnings/share, (4) total assets, (5) earnings/equity, (6) dividends/share, (7) stock price (adjusted), (8) debt/equity, (9) common equity, (10) earnings/total equity, (11) P/E ratio (adjusted), (12) payout (dividends/earnings), and (13) price/equity ratio. For each of these variables performance was determined from three measures: (1) average of annual percentage change, (2) average percentage change over the period, and (3) average value over the period. Several of the variables were calculated in more than one way in order to minimize the effects of bias from any one type of measure. The result was twenty-one different measures of performance.

The results of the study were as follows:

1. Firms which engage in acquisition activity tend to take one of two distinctive approaches to acquisition planning. The first is an unplanned opportunistic approach and the other, a systematic planned approach. If a firm fails to plan any phase of the programme, it is likely to forego planning altogether. If a firm does plan a phase, it is likely to make a complete strategic and operating plan.
2. Firms which do plan tend to use these plans and to exhibit deliberate and systematic acquisition behaviour.
3. Although subjective evaluation of results by management does not differ greatly between planners and non-planners, objective financial measurements show a substantial difference.
4. On virtually all relevant financial criteria, the planners in our sample significantly outperformed the non-planners.
5. Not only did the planners do better on the average, they performed more predictably than non-planners. Thus, planners appear to have narrowed the uncertainty in the outcomes of acquisition behaviour.[22]

In early 1972 the Marketing Science Institute commenced an ongoing profit impact of market strategies (PIMS) study.[23] Initially the study involved fifty-seven corporations with 620 diverse businesses. The objective was to determine the relationship between strategic planning and profit performance. Companies enlisting in the study were asked to provide industry descriptions, market characteristics, and financial information covering the years 1970-1972. From this information models were developed which answered two questions: (1) To what extent did selected factors influence profitability in a business? (2) How did ROI change in response to changes in strategy and market conditions?

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[22]Ibid., pp. 6-7.

[23]Sidney Schoeffler, Robert D. Buzzell, and Donald F. Heany, "Impact of Strategic Planning on Profit Performance," Harvard Business Review, LII (March-April, 1974), 137-145.

Factors believed to influence profitability by economic theorist and experienced executives were considered. The resulting model explained 80 percent of the variation in profitability among the 620 businesses participating. The profit equation included more than 60 terms derived from combinations of the 37 basic factors. Some of the key profit influences were: (1) market share, (2) product (service) quality, (3) marketing expenditures, (4) R&D expenditures, (5) investment intensity, and (6) corporate diversity.

The PIMS findings have been applied to organizations to assist in profit forecasting, measuring management performance, and appraising new business opportunities. Specifically, the PIMS project involves an analysis known as "PAR" return on investment. Reports are prepared for each business which show how ROI is influenced by each of the 37 distinct factors in the profit model. One potential application of this model is concerned with estimating the effects of strategic changes.

In 1974 Fulmer and Rue presented the results of a study they performed to determine:

1. The relationship between long-range planning and financial performance of U.S. firms.
2. The level of sophistication exhibited by a firm's long-range planning process.
3. The relative effectiveness of the various levels of sophistication of long-range planning processes.[24]

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[24]Robert M. Fulmer and Leslie W. Rue, "The Practice and Profitability of Long-Range Planning," Managerial Planning, XXII (May-June, 1974), 1-7.

From the firms listed in Standard & Poor's COMPUSTAT data tapes, 1333 firms from the following industrial groupings were sampled: (1) non-durables (food and kindred products, textiles, paper products, chemicals, refining), (2) durables (steel and other metals, machinery, electrical equipment, vehicles and accessories, mining), and (3) services (transportation, communication, wholesale and retail trade, finance, insurance, real estate). The initial phase of the research design involved a questionnaire which was returned by 432 members of the sample.

Using data gathered by questionnaire, Fulmer and Rue classified the planning systems of respondents into one of four a priori levels of planning sophistication:

1. Impoverished Planners (Class 1)--No formal long-range planning process.
2. Primary Planners (Class 2)--Written, documented plan covering at least three years in advance and including specification of objectives and goals plus the selection of long-range strategies.
3. Pro Forma Planners (Class 3)--Class 2 requirements plus the determination of resources required in the form of pro forma financial statements and other quantitative projections.
4. Progressive, Predictive Planners (Class 4)--Class 3 requirements plus procedures for anticipating or detecting errors in, or failures of, the plan and for preventing or correcting them on a continuing basis, plus some attempt to account for factors outside of the immediate environment of the firm.[25]

In the second phase of the study Fulmer and Rue sought to relate levels of planning sophistication with financial performance. Four financial measures were selected: (1) sales growth, (2) earnings growth, (3) earnings/sales ratio, and (4) earnings/total capital. The research design combined primary planners, pro forma planners, and progressive,

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[25]Ibid., pp. 2-3.

predictive planners into one group; subsequently, the combined group's financial performance was compared with the impoverished planners performance. A three year time period was selected for determination of the mean and standard deviation for each of the financial measures.

The results indicated that non-planners in the service industry consistently outperformed the planners on all financial measures; with the exception of sales growth, non-planners outperformed planners for the non-durable industrial grouping. The durable industrial grouping indicated that planners outperformed non-planners on all measures. Whether the differences in performance were significant was not addressed in the study.

Discussion of Effectiveness Studies

Generally, the five effectiveness studies reviewed conclude that long-range planning results in improved financial performance. However, a causative statement for the relationship between planning and performance cannot be made due to the following weaknesses intrinsic to the studies:

1. The question of potential benefits arising from different types of planning approaches was ignored.
2. Performance measures contained aggregate values which could change for any number of reasons other than improvements derived from a formal corporate planning process.
3. The use of a research design that is problematic in nature.

Perhaps the most glaring deficiency of these effectiveness studies was the failure to disect corporate planning systems into their component

parts so that a determination could be made as to whether strategic or operational planning or neither was responsible for changes in corporate performance. As a rule, these studies opted for a simplistic, dichotomous classification of planning systems--planners versus non-planners. Consequently, the reader has no basis for developing a statement as to the effectiveness of the various types of planning processes encompassed in a corporate planning system.

Several of the studies incorporated measures such as stock prices, total assets, dividends per share, debt/equity, and price/equity in their evaluative processes for planning systems. Changes in these financial measures would appear to have no direct relationship to corporate planning systems activities. Instead, these measures would be subject to fluctuations in the social, economic, and political variables which are characteristic of an industrial environment or society in general. When these financial measures are used to support the hypothesis of planning effectiveness, one has to view the resulting causative statements as suspect.

Of the studies cited, the Thune and House study utilized the best research design. They attempted to control for variances in the financial measures through the use of a matched pairs design. However, they did not attempt to control for intrinsic improvements in an industry's financial outlook. Consequently, the significant changes reported in the study could have arisen for reasons other than value-added through a formal planning system. The central problem with the Thune and House study, as with the others reviewed, was the small sample available for analysis. Consequently, the results of the studies would have to be

interpreted as being indicative but not conclusive as to the effectiveness of corporate planning systems.

Summary

The literature reviewed was divided into three separate but distinct sections:

1. Literature describing planning system.
2. Literature suggesting appropriate dimensions for classifying planning systems.
3. Literature evaluating the effectiveness of planning systems.

The review of the studies describing planning systems indicates that multi-industry planning variables need to be identified. Furthermore, even the studies available in this area are dated due to the state of fluxion of planning systems. The literature addressing planning system dimensions suffers from a lack of empirical evidence which supports a given dimension as being appropriate for differentiating planning systems. The effectiveness studies all point to the conclusion that the adoption of planning systems did result in significant changes in a firm's financial performance for selected measures. However, the results of the studies must be interpreted as being indicative but not conclusive as to the effectiveness of corporate planning systems.

Basically, the literature reviewed assisted the researcher in (1) the determination of appropriate planning system dimensions which could be used as a basis for differentiation between existing strategic planning systems; (2) the decision to concentrate on the effectiveness of a

specific corporate planning activity--namely, strategic planning; (3) the incorporation of comparisons of financial performance between the firm and its industry grouping so as to control for general improvement in the overall industrial outlook.

CHAPTER III

RESEARCH METHODOLOGY

This chapter sets forward the basic research design, research hypotheses, and data analysis plan. Initially, the overall research objectives are presented, followed by a graphic portrayal of the research design. The population and sample are defined. Next, the mail survey procedure is discussed. The pretest procedure which contributed to the development of the survey instrument is also highlighted. The last section presents a discussion of the general methodological approach employed for the analysis of the study's data. The hypotheses are formulated and stated in null form. Performance measures utilized are discussed. The clustering and analysis of variance procedures utilized in the data analysis are presented.

Overall Research Objectives

The research design encompasses the following five major objectives as part of an endeavor to evaluate the effectiveness of strategic planning efforts of manufacturing organizations:

1. Development of a classification scheme for strategic planning systems.
2. Description of the various clusters of planning systems which result from the classification scheme.
3. Determination of the global effectiveness of strategic planning systems embraced by selected U.S. manufacturing

firms with respect to designated measures of financial performance.

4. Determination of effectiveness, with respect to financial performance measures, of strategic planning efforts which exist in the various industrial classifications of U.S. manufacturing organizations.
5. Determination of the degree of effectiveness, with respect to financial performance measures, of the various clusters resulting from the classification scheme for strategic planning systems developed by this study.

Figure 3.1 provides an overview of the steps followed in this research study and provides an overview of the balance of this chapter.

Population and Sample Definition

Population Definition

The emphasis in this study centers on the classification and evaluation of the corporate planning systems utilized by manufacturing firms. The study is limited to manufacturing organizations as specified in the Standard Industrial Classification Code. Additionally, only, U.S. manufacturing firms listed in either the Primary or Supplementary Files of Standard & Poor's COMPUSTAT tapes are included in the study. The last population parameter requires the availability of at least ten annual periods of financial data on the COMPUSTAT tapes before the manufacturing organization can be included in this study's population.

The population parameters result in the inclusion of 1015 manufacturing organizations. The composition of this population according

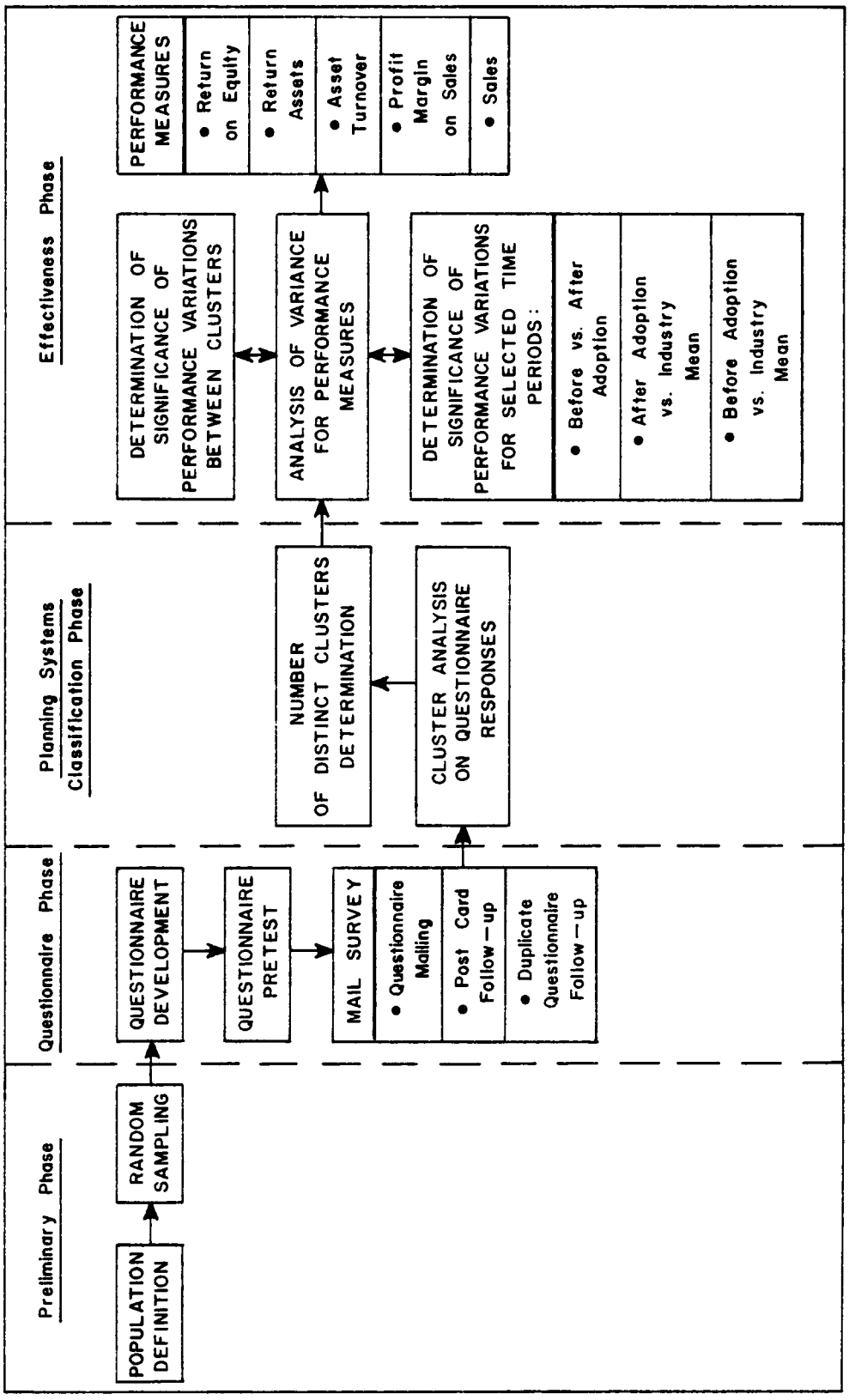


Figure 3.1
Overview of Research Methodology

to industry membership is depicted in Table 3.1. As shown in Table 3.2, this population contains firms of varying asset size.

Sample Definition

Time and cost factors frequently prohibit the survey of an entire population. Fortunately, statisticians have amply demonstrated that a sample survey can be utilized to make an inference about a population of interest. Two factors influence the informational content of the sample--(1) size of the sample selected from the population and (2) the amount of variation in the data.

In this study a random sample of 500 manufacturing organizations (for a listing of companies see Appendix A) is selected from the population of interest. The sample aligns closely with the composition of the population, as can be seen through a comparison of Tables 3.1 and 3.3.

The recipient of the survey instrument is limited to two groups of corporate level executives. The primary recipient is the senior vice-president in charge of corporate planning activities. The five most frequently encountered titles in Standard & Poor's Register of Corporations, Executives and Directors for these executives are:

1. Vice President--Corporate Development
2. Vice President--Corporate Planning
3. Vice President--Planning
4. Vice President--Planning & Development
5. Vice President--Corporate Development & Planning

In the absence of a planning executive the survey instrument is addressed to the chief executive officer for the corporation. Incidentally, 72

Table 3.1

Decomposition of Current Manufacturing Firms
With Ten Consecutive Years of Annual COMPUSTAT Data

SIC Code	Manufacturing Classifications	Number of Firms	Percent of Total
20	Food & Kindred Products	99	10
21	Tobacco	9	1
22	Textile Mill Products	35	4
23	Apparel & Other Finished Products	36	4
24	Lumber & Wood Products	17	2
25	Furniture & Fixtures	13	1
26	Paper & Allied Products	31	3
27	Printing, Publishing, Allied Products	40	4
28	Chemicals & Allied Products	101	10
29	Petroleum Refining & Related Industries	43	4
30	Rubber & Miscellaneous Plastic Products	31	3
31	Leather Goods	14	2
32	Glass, Concrete, Abrasives	38	4
33	Metal Manufacturing	55	5
34	Metal Products	61	6
35	Industrial & Farm Equipment, Computers	123	12
36	Electronics	115	11
37	Motor Vehicles, Aerospace	84	8
38	Measuring, Scientific, Photographic Equipment	45	4
39	Jewelry, Musical Instruments, Toys	25	2
	Total	1,015	100

Table 3.2

Percent of Manufacturing Firms
With Ten Consecutive Years of Annual
COMPUSTAT Data Ranked According to Asset Size

Asset Size In Millions	Percent of Firms
0 - 50	23
51 - 100	15
101 - 200	17
201 - 1000	27
Over 1000	18

Table 3.3

Decomposition of the Study's Sample

SIC Code	Manufacturing Classifications	Number of Firms	Percent of Total
20	Food & Kindred Products	50	10
21	Tobacco	5	1
22	Textile Mill Products	15	3
23	Apparel & Other Finished Products	18	4
24	Lumber & Wood Products	6	1
25	Furniture & Fixtures	4	1
26	Paper & Allied Products	17	3
27	Printing, Publishing, Allied Products	21	4
28	Chemicals & Allied Products	55	11
29	Petroleum Refining & Related Industries	19	4
30	Rubber & Miscellaneous Plastic Products	15	3
31	Leather Goods	5	1
32	Glass, Concrete, Abrasives	20	4
33	Metal Manufacturing	24	5
34	Metal Products	42	8
35	Industrial & Farm Equipment, Computers	65	13
36	Electronics	60	12
37	Motor Vehicles, Aerospace	31	6
38	Measuring, Scientific, Photographic Equipment	19	4
39	Jewelry, Musical Instruments, Toys	9	2
	Total	500	100

percent of the respondents to the survey instrument are planning executives.

Mail Survey Procedure

Questionnaire Construction

As previously explained, the first three objectives of this research study involve (1) the development of a classification scheme for strategic planning systems utilized by U.S. manufacturing firms, (2) the description of the various clusters of planning systems which result from the classification scheme, and (3) the determination of effectiveness (in terms of selected performance measures for individual firms) of the strategic planning systems.

Before a classification scheme is developed for strategic planning systems, information about these systems must be collected. Data collection is accomplished through the use of a close-ended questionnaire. The construction and administration of the questionnaire is based on the guidelines recommended by Dillman's (1978) Total Design Method (TDM).[1] The TDM construction process attempts to overcome common objections to questionnaires by presenting an attractive, well-organized questionnaire that looks easy to complete.

A copy of the questionnaire is shown in Appendix B. The questions provide a means for differentiating corporate planning systems with respect to the following general dimensions:

1. Organizational structure.
2. Persuasiveness of planning effort.

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[1]Don A. Dillman, Mail and Telephone Surveys (New York: John Wiley & Sons, 1978).

3. Management style and philosophy.
4. Time periods involved in the planning effort.
5. Degree of environmental scanning.
6. Communication process.
7. Goal-setting process.
8. Managerial involvement in planning process.
9. Importance of the planning effort.
10. Linkage between the planning and budgeting process.
11. Role of the corporate planner.
12. Experience with a strategic planning process.

Appendix I provides a breakdown of the specific questions which address each of the dimensions listed above. The general dimensions for differentiating planning systems are the result of a review of the current literature in the planning area and the researcher's judgment concerning appropriate planning system dimensions.

Permission was obtained from the North American Society for Corporate Planning to use their name and an endorsement credit in all correspondence associated with this study. Consequently, the Society's endorsement of the study is noted in coverletters and questionnaires mailed to firms chosen for inclusion in the study.

Questionnaire Pretest

Pretesting has as its objective the identification of construction defects in questionnaire design. The pretest dilemma for a researcher is that it is costly and time consuming to print a few questionnaires and run them through the carefully timed mailings specified by data collection

procedures. Additionally, since the researcher does not observe the respondents while they are answering the questionnaire, he achieves no insights into respondents' difficulties. Therefore, during the initial construction phase of this questionnaire, several faculty and doctoral students at The University of Tennessee were asked to participate in an evaluation of the questionnaire's design by responding to the following questions:

1. Are all the words understood?
2. Are questions interpreted similarly by all respondents?
3. Does the questionnaire create a positive impression, one that motivates people to answer it?
4. Does any aspect of the questionnaire suggest bias on the part of the researcher?

The actual pretesting of the questionnaire involves a face-to-face discussion with two executives involved with the planning efforts of firms based in Tennessee and North Carolina. During the first pretesting session for the questionnaire, the participating executive is asked to evaluate each question after completing it. Specifically, the executive is asked if the question is concisely stated and easily understood. Suggested changes are incorporated into the questionnaire before the second pretest is held. The same evaluation procedure is followed during the second pretest. Very few changes were recommended. The pretest procedure is also utilized in a timing capacity. After adjusting for clarifications, the time to complete the questionnaire appears to be twenty minutes.

In addition to providing feedback on the extent questions measure what they are intended to measure and the identification of respondent difficulties with the questionnaire, the pretest procedure solicits impressions of the total mailing package. The executives' suggestions are subsequently incorporated into the total mailing package.

Data Collection Procedures

The implementation procedure for the mail survey consists of several steps. First, in the initial mailing a cover letter (see Appendix C) and questionnaire are sent to potential respondents. The cover letter explains what the study is about; why the recipient is important; promises confidentiality; and what to do if questions arise. Each questionnaire is stamped with individual identification numbers so that follow-up mailings need be sent only to those not responding to earlier mailings. The cover letter explains the reasons for the prominently displayed identification number. First class postage in the form of a stamp is utilized on all correspondence. Names and addresses are individually typed on the envelopes. The names of company representatives used in this study are secured from Standard & Poor's Register of Corporations, Directors and Executives (1979 edition). The individual selected to receive the correspondence is the individual bearing a title dealing with the planning efforts of the firm. If such a title is not in evidence, the president of the firm receives the correspondence. The mailout package consists of the cover letter, questionnaire, and business reply envelope. The mailing date for the initial correspondence is a Tuesday so as to insure that questionnaires arrive the same week they are mailed.

The second step in the implementation of the mail survey is the follow-up sequence. Two mailings comprise the follow-up procedure. Ten days after the original mailout a postcard reminder (see Appendix D) is sent to everyone. It serves as both a thank you for those who have responded and as a friendly and courteous reminder for those who have not. Three weeks after the original mailout a letter and replacement questionnaire are sent only to non-respondents. Nearly the same in appearance as the original mailout, it has a shorter cover letter that informs non-respondents that their questionnaire has not been received and appeals for its return (see Appendix E). The cutoff date for inclusion in the study is two weeks after the second follow-up mailing. The mailing phase of the study is completed in six weeks.

General Methodological Approach

This section presents a discussion of the general methodological approach employed for the analysis of the study's data. The hypotheses are formulated and stated in null form. Performance measures utilized are discussed. The clustering and analysis of variance procedures utilized in the data analysis are presented.

Hypotheses

The experimental design for this study consists of four phases (see Figure 3.1, p. 43). The first phase is concerned with defining the population and selecting the sample. The second phase involves the collection of information for use in the classification of strategic planning systems (third phase) with regard to predetermined planning system dimensions. The concluding phase of this research study is concerned

with a determination of the effectiveness of firms after adopting strategic planning systems. Two basic questions are addressed. First, does the adoption of a strategic planning system result in a significant improvement in the firm's performance? Secondly, for firms which share industry affiliation is there a difference between the clusters of firms resulting from the classification phase with regard to selected financial performance measures?

The answer to the preceding questions requires the formulation of various hypotheses. Therefore, the null hypotheses tested in this study are:

H_{N1}: There is no significant difference between the collective profitability and growth rate of sample firms three years after the adoption of a strategic planning process when contrasted with their performance over an equal time period prior to the adoption date.

H_{N2}: There is no significant difference between the profitability and growth rate of firms within the same industry three years after the adoption of a strategic planning process when contrasted with their performance over an equal time period prior to the adoption date.

H_{N3}: There is no significant difference between the collective profitability and growth rate of firms with strategic planning systems when contrasted with industry means three years after the adoption of a strategic planning process.

H_{N4}: For firms with the same industrial classification, there is no significant difference between the profitability

and growth rate three years after the adoption of a strategic planning system when contrasted with industry means for identical time periods.

H_{N5}: There is no significant difference between the collective profitability and growth rate of firms three years prior to the adoption of a strategic planning system when contrasted with industry means for the same time horizon.

H_{N6}: For firms with the same industrial classification, there is no significant difference between the profitability and growth rate three years prior to the adoption of a strategic planning system when contrasted with industry means for identical time periods.

H_{N7}: Three years after the adoption of a strategic planning system, there is no significant difference between the collective profitability and growth rate of firms belonging to the different clusters which are characterized by firms with common planning system dimension.

H_{N8}: Three years after the adoption of a strategic planning system, firms with the same industrial classification display no significant difference between their profitability and growth rate even though the firms exhibit different planning dimensions in their strategic planning systems.

Selection of Performance Measures

The testing of hypotheses for the purpose of determining effectiveness of planning systems utilizes five performance measures:

1. Return on Assets
2. Profit Margin
3. Asset Turnover
4. Return on Common Stockholder Equity
5. Net Sales

These financial statement components are the result of an a priori selection process. The definition of these ratios is found in Appendix F.

Since planning systems require the use of significant amounts of managerial and capitial resources, the organization's profitability should, at the very least, equal the performance of other firms within the same industry. The ratios previously listed assist in answering the question "How profitable are planning systems to a firm?"

Clustering Procedure

Figure 3.1 (p. 43) illustrates the overall research plan for this study. The third phase is concerned with the classification of questionnaire respondents with respect to the common dimensions exhibited by their planning systems. Previous research has not attempted an empirical classification of planning systems. Consequently, there is no universally accepted classification scheme. In the absence of an accepted classification scheme, the most logical procedure is to look for similarities in the data base resulting from the questionnaire. Therefore, every response contained in the questionnaire serves as input to the cluster analysis

procedure explained below.

Cluster analysis can be described as an empirical procedure concerned with the similarity of objects. Ultimately, this procedure produces groupings of firms which are more like other firms in their group than they are to firms outside the group. Consequently, clustering procedures can be viewed as "preclassificatory" in the sense that the identity of natural groupings in the data are sought instead of the assignment of objects according to some a priori criteria.

In this analysis a hierarchical clustering approach developed by Johnson (1967) is utilized. A clustering procedure available in SAS 79 is based on an algorithm outlined by Johnson. His "Maximum Method" is the basis for the SAS algorithm and is represented as follows:

> For each cluster in the clustering, compute the diameter of the cluster (the largest intra-cluster distance). For a given maximum method clustering, the value of the clustering is the maximum diameter of the clusters in the clustering. At any stage, the distance from object/cluster x to object/cluster y is exactly the diameter of the set x union y. This gives us a simple means of visualizing the clusterings--the maximum method attempts at each stage to minimize the diameter of the clusters.[2]

Therefore, a clustering function C_j is created as follows: if x and y are clustered in C_j and not in C_{j-1}, the distance from the cluster [x,y] to any third object or cluster, z, is defined by

$$d([x,y], z) = \min [d(x,z), d(y,z)]$$

Two basic problems exist in cluster analysis--(1) how many clusters are appropriate and (2) how should clusters be interpreted. Resolution

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[2]Stephen C. Johnson, "Hierarchical Clustering Schemes," Psychometrika (September, 1967), 249.

of these problems is based on the researchers intuition, sound judgment, and common sense. These attributes of the researcher are essential to the success of the clustering effort.

The clustering procedure contained in SAS 79 is utilized in the classification phase and provides the following elements of information:

1. The number of clusters.
2. The maximum distance between two observations in a cluster (called the maximum diameter of a cluster).
3. The number of distances within clusters (these are all less than the maximum diameter).
4. The total number of distances less than the maximum diameter.
5. The ratio of 3 to 4 which indicates the percent of all distances within the clusters which are less than or equal to the maximum distance.
6. A cluster map.
7. The minimum, average, and maximum distances within and between clusters.
8. A listing of the observations within each cluster.
9. The means of the variables within each cluster.

From the 168 firms that responded to the questionnaire (see Table 3.4 and Appendix G), 139 of these firms are included in the clustering procedure (see Table 3.5 and Appendix H). The remaining twenty-nine firms are excluded due to incomplete data in their questionnaire.

Two areas of information are utilized in the decision concerning the actual number of natural groupings contained in the data. First, the ratio of all distances within the clusters which are less than or

Table 3.4

Decomposition of Questionnaire Respondents

SIC Code	Manufacturing Classifications	Number of Firms	Percent of Total
20	Food & Kindred Products	16	10
21	Tobacco	2	1
22	Textile Mill Products	5	3
23	Apparel & Other Finished Products	3	2
24	Lumber & Wood Products	2	1
25	Furniture & Fixtures	0	0
26	Paper & Allied Products	5	3
27	Printing, Publishing, Allied Products	5	3
28	Chemicals & Allied Products	21	12
29	Petroleum Refining & Related Industries	13	8
30	Rubber & Miscellaneous Plastic Products	9	5
31	Leather Goods	0	0
32	Glass, Concrete, Abrasives	9	5
33	Metal Manufacturing	10	6
34	Metal Products	10	6
35	Industrial & Farm Equipment, Computers	17	10
36	Electronics	16	10
37	Motor Vehicles, Aerospace	13	8
38	Measuring, Scientific, Photographic Equipment	10	6
39	Jewelry, Musical Instruments, Toys	2	1
	Total	168	100

Table 3.5

Decomposition of Sample Subjected to the Cluster Analysis Methodology

SIC Code	Manufacturing Classifications	Number of Firms	Percent of Total
20	Food & Kindred Products	14	10
21	Tobacco	2	1
22	Textile Mill Products	5	4
23	Apparel & Other Finished Products	2	1
24	Lumber & Wood Products	1	1
25	Furniture & Fixtures	0	0
26	Paper & Allied Products	4	3
27	Printing, Publishing, Allied Products	4	3
28	Chemicals & Allied Products	14	10
29	Petroleum Refining & Related Industries	10	7
30	Rubber & Miscellaneous Plastic Products	9	7
31	Leather Goods	0	0
32	Glass, Concrete, Abrasives	9	7
33	Metal Manufacturing	10	7
34	Metal Products	10	7
35	Industrial & Farm Equipment, Computers	15	10
36	Electronics	13	9
37	Motor Vehicles, Aerospace	9	7
38	Measuring, Scientific, Photographic Equipment	7	5
39	Jewelry, Musical Instruments, Toys	1	1
	Total	139	100

equal to the maximum distance is used. The researcher made the determination that at least 60 percent of all distances within the clusters must be less than or equal to the maximum distance. The 60 percent criterion denotes the greatest degree of compactness available within the clusters which resulted from the questionnaire data base. The actual ratio for various numbers of clusters is as follows:

Clusters	Ratio
1	1.00000
2	0.61637
3	0.61632
4	0.45627
5	0.43955

The 60 percent criterion results in the selection of three clusters (hereafter referred to as basic clusters) with the following sizes:

Clusters	Number of Firms
1	97
2	21
3	21
Total	139

A breakdown of each cluster by manufacturing classification is shown in Table 3.6.

The second area of information utilized in the determination of the number of natural groupings contained in the data involves the size of the clusters. The size factor is utilized as an adjunct to the ratio criterion discussed above. An analysis of the cluster map reveals that additional clusters are formed within the set of firms represented by

Table 3.6

Decomposition of Firms which
Successfully Clustered

SIC Code	Industry	Number of Firms		
		Cluster 1	Cluster 2	Cluster 3
20	Food	12	0	2
21	Tobacco	1	0	1
22	Textile	4	0	1
23	Apparel	2	0	0
24	Lumber	0	1	0
25	Furniture	0	0	0
26	Paper	2	1	1
27	Printing	2	2	0
28	Chemicals	9	3	2
29	Petroleum	7	1	2
30	Rubber	5	4	0
31	Leather	0	0	0
32	Glass	7	0	2
33	Metal Mfg.	4	1	5
34	Metal Products	7	1	2
35	Equipment	12	3	0
36	Electronics	11	2	0
37	Vehicles	8	0	1
38	Scientific Equipment	4	1	2
39	Jewelry	0	1	0
	Total	97	21	21

the three basic clusters selected by the 60 percent criterion. For example, if ten clusters are required, the first basic cluster decomposes into seven clusters; the second basic cluster remains stable; and the third basic cluster decomposes into two clusters. Consequently, the conclusion is advanced that even though the three basic clusters vary with respect to size (as determined by the number of firms belonging to the cluster), the three basic clusters represent the only natural groupings contained in the questionnaire data set.

After identifying the number of appropriate clusters, a problem still exists with regard to the interpretation of the clusters. A hypothetical modal firm is used to describe each of the three basic clusters of strategic planning systems. Consequently, when the basic clusters are described in Chapter IV of this study, the most frequently occurring response (mode) for each of the elements of the questionnaire is cited as being representative of the responses of all firms classified into each of the three clusters described.

Analysis of Variance Procedure

The identification of the natural groupings in the data base which results from the individual firm's responses to the questionnaire represents an important phase of the study. Once this third research phase is completed the effectiveness phase can commence (see Figure 3.1 p. 43). Several basic questions are addressed in the fourth phase:

1. Does the adoption of a strategic planning system result in significant improvement in a firm's performance?

2. Which industries benefit most from strategic planning systems?
3. Do clusters of strategic planning systems with common dimension result in differing levels of performance?

Answering the preceding questions requires the collection of performance data for the measures of return on assets, asset turnover, profit margin, return on equity, and net sales. Before a firm can be included in the effectiveness phase of the study two requirements have to be satisfied:

1. The firm must respond to the questionnaire.
2. The firm must have financial data for each of the five performance measures for the third year before their initial adoption date for their planning system and financial data for the third year after their systems adoption date.

Table 3.7 indicates that 100 firms from the classificatory phase of the study meet the two criteria.

The decisions with regard to the significance of the performance differences are based on the use of the analysis of variance statistical model. The eight hypotheses previously cited are tested through the use of a single factor model of the fixed effects variety. A representation of the model follows:

$$Y_{ij} = \mu_j + \varepsilon_{ij}$$

where

Table 3.7

Decomposition of Sample Subjected to the Analysis of Variance Methodology

SIC Code	Manufacturing Classifications	Number of Firms
20	Food & Kindred Products	5
21	Tobacco	0
22	Textile Mill Products	5
23	Apparel & Other Finished Products	2
24	Lumber & Wood Products	1
25	Furniture & Fixtures	0
26	Paper & Allied Products	3
27	Printing, Publishing, Allied Products	3
28	Chemicals & Allied Products	13
29	Petroleum Refining & Related Industries	11
30	Rubber & Miscellaneous Plastic Products	7
31	Leather Goods	0
32	Glass, Concrete, Abrasives	5
33	Metal Manufacturing	6
34	Metal Products	4
35	Industrial & Farm Equipment, Computers	8
36	Electronics	9
37	Motor Vehicles, Aerospace	9
38	Measuring, Scientific, Photographic Equipment	7
39	Jewelry, Musical Instruments, Toys	2
	Total	100

Y_{ij} is the value of the response variable in the $\underline{i}$th trial for the $\underline{j}$th factor level or treatment

μ_j are parameters

ε_{ij} are independent, normally distributed error terms

$i = 1, \ldots, n_j; \quad j = 1, \ldots, r$

The analysis of a single factor study begins with a determination of whether or not the factor level means μ_j are equal. Thus, the alternative conclusions considered are:

C_1: $\mu_1 = \mu_2 = \ldots = \mu_r$

C_2: not all μ_j are equal

The test statistic for choosing between the alternatives is the F-statistic. For each hypothesis tested, the dependent variable is one of the five performance measures shown in Appendix F. The independent effect is either a time factor or a cluster grouping reference factor.

The general ANOVA procedure followed in this study involves three steps. Initially, all firms included in the ANOVA procedure are tested to determine the overall significance of existing differences in firm performance at two time periods--(1) after adoption of the planning system and (2) before adoption of the planning system. The second step involves a contrast between the firms performance the third year after adoption of a strategic planning system with the industry's mean for that same year. The industry mean is calculated from the firms contained in the COMPUSTAT data tapes. The third step in the ANOVA procedure involves a contrast between the firm's performance the third year prior to the adoption date for the strategic planning system with the industry's mean for that same year.

The ANOVA procedure described above is designed to answer the following three questions:

1. Is a firm's performance after adoption of a strategic planning system better than its performance before adoption of the system?
2. Is a firm's performance after adoption of strategic planning system better than the industry's mean performance for the same time period?
3. Is a firm's performance before adoption of a strategic planning system worse than or equal to the industry's mean performance for the same time period?

The answers to these three questions enable the researcher to draw conclusions concerning the effectiveness of strategic planning systems.

The three step general ANOVA procedure is also utilized to determine the significance of differences arising within each industry in the manufacturing industrial classification scheme. Consequently, not only is it possible to reach conclusions concerning the global effectiveness of strategic planning systems but also the effect of strategic planning on individual industries is discernable.

The effectiveness phase of the study also addresses the question "Do the various clusters, containing firms with common planning system dimensions, result in differing degrees of profitability?" In answering this question, only those 100 firms participating in the ANOVA procedure outlined earlier (p. 63) are eligible for inclusion in this phase of the study. In addition, only those industries which have firms classified in more than one of the planning clusters is selected for this

phase of the study. Table 3.8 indicates that eighty-three firms from seventeen different industries met the criteria. Table 3.9 indicates which industries are included in the three contrasts outlined below. Note that only thirteen industries are included in Table 3.9. The discrepancy with respect to the number of industries contained in Table 3.8 and Table 3.9 is due to the fact that three industries--apparel and other finished products, lumber and wood products, and jewelry, musical instruments, toys--listed in Table 3.8 contain only one firm eligible for the study. Consequently, a contrast is impossible. Also, the metal products industry consists of firms which belong only to cluster 1. Note also from Table 3.9 that only four industries--chemicals and allied products, petroleum refining, metal manufacturing and measuring, scientific, photographic equipment--contain firms from the three groups identified by the cluster analysis procedure.

To test the significance of differences in performance arising from the three clusters of planning systems, a one step ANOVA procedure is utilized. The performance of each firm the third year after adoption of the planning system is utilized for each of the five performance measures. Three contrasts are made:

1. Performance of cluster 1 versus cluster 2 firms.
2. Performance of cluster 1 versus cluster 3 firms.
3. Performance of cluster 2 versus cluster 3 firms.

These three contrasts are performed for all firms collectively, as well as, for firms within specific industry classifications.

The preceding step indicates whether the clusters differ but it does not indicate which cluster outperforms the others. The solution to

Table 3.8

Number of Firms Involved in the Determination of the Effectiveness of the Three Classifications of Planning Systems

SIC Code	Manufacturing Classifications	Number of Firms	Percent of Total
20	Food & Kindred Products	5	6
21	Tobacco	0	0
22	Textile Mill Products	5	6
23	Apparel & Other Finished Products	1	1
24	Lumber & Wood Products	1	1
25	Furniture & Fixtures	0	0
26	Paper & Allied Products	2	3
27	Printing, Publishing, Allied Products	3	4
28	Chemicals & Allied Products	8	10
29	Petroleum Refining & Related Industries	9	11
30	Rubber & Miscellaneous Plastic Products	7	8
31	Leather Goods	0	0
32	Glass, Concrete, Abrasives	5	6
33	Metal Manufacturing	6	7
34	Metal Products	4	6
35	Industrial & Farm Equipment, Computers	7	8
36	Electronics	7	8
37	Motor Vehicles, Aerospace	7	8
38	Measuring, Scientific, Photographic Equipment	5	6
39	Jewelry, Musical Instruments, Toys	1	1
	Total	83	100

Table 3.9

Contrasts Involved in the Determination of the Effectiveness of the Three Classifications of Planning Systems

SIC Code	Manufacturing Classification	Cluster Contrasts		
		1 vs 2	1 vs 3	2 vs 3
20	Food & Kindred Products		x	
22	Textile Mill Products		x	
26	Paper & Allied Products			x
27	Printing, Publishing, Allied Products	x		
28	Chemicals & Allied Products	x	x	x
29	Petroleum Refining & Related Industries	x	x	x
30	Rubber & Miscellaneous Plastic Products	x		
32	Glass, Concrete, Abrasives		x	
33	Metal Manufacturing	x	x	x
35	Industrial & Farm Equipment, Computers	x		
36	Electronics	x		
37	Motor Vehicles, Aerospace		x	
38	Measuring, Scientific, Photographic Equipment	x	x	x

this problem is accomplished through an examination of the means for the contrasts under consideration. The greater mean among the two clusters in each contrast is determined to be the superior performer. All clusters are contrasted so a rank order can be determined.

Summary

This chapter presents a description of the experimental design utilized in the four phases of this study (see Figure 3.1 p. 43). The chapter begins with a synopsis of the overall research plan and then precedes with a description of each phase of the study.

The initial phase of the experimental design results in the identification of 1,015 manufacturing organizations which comprise the study's population. Through the use of a simple random sampling procedure, 500 manufacturing organizations are selected for inclusion in the classificatory phase of the study. Prior to the classification phase information is collected through the use of a mail survey procedure. A questionnaire is initially mailed; subsequently, the mail survey procedure utilizes follow-up mailings.

The third phase involves the classification of the 168 respondents to the survey with regard to the common dimensions exhibited by each firm's planning system. The classification is accomplished through the use of the cluster analysis methodological procedure. Three natural groupings (clusters) are imputed from this analysis.

Eight null hypotheses are formulated during the fourth phase concerned with the effectiveness of strategic planning systems. Five performance measures--return on assets, asset turnover, profit margin,

return on equity, and sales growth--are selected as the basis for evaluating improvement in performance. The analysis of variance model is determined to be the appropriate test for significance of the differences in performance of firms with strategic planning systems.

In conclusion, the experimental design accomplishes the following five objectives:

1. Development of a classification scheme for strategic planning systems.
2. Description of the various clusters of planning systems which result from the classification scheme.
3. Determination of the global effectiveness of strategic planning systems embraced by selected U.S. manufacturing firms with respect to designated measures of financial performance.
4. Determination of the effectiveness, with respect to financial performance measures, of strategic planning efforts which existed in the various industrial classifications of U.S. manufacturing organizations.
5. Determination of the degree of effectiveness, with respect to financial performance measures, of the various clusters resulting from the classification scheme for strategic planning systems developed by this study.

CHAPTER IV

PRESENTATION OF FINDINGS

This chapter presents the results of the study. The discussion is divided into three parts--(1) description of the modal firm for the three planning system classifications, (2) determination of effectiveness of strategic planning systems embraced by U.S. manufacturing firms with respect to designated measures of financial performance, and (3) determination of the degree of effectiveness of firms with three different clusters of planning system characteristics.

Description of Planning System Clusters

One of the primary objectives of this study centers on the classification of strategic planning systems according to common dimensions exhibited by a firm's planning efforts. Previous studies have used a priori bases for classifying systems; however, empirical modeling has been lacking. This section relates the results of a cluster analysis methodology which is applied to a questionnaire designed to collect information about strategic planning systems of U.S. manufacturing firms.

Previously, this study reported that three natural groupings in the questionnaire data were revealed by the clustering procedure (Table 3.7 p. 64). Since the clustering procedure results in groups of firms with common planning system dimensions, a measure of central tendency for each cluster must be identified. In Chapter III the modal firm is advocated as being the appropriate basis for describing each cluster.

The modal firm is a hypothetical firm which results from an examination of the modal response to each element of information contained in the questionnaire. Thus, a firm may not exist within each cluster whose response to the questionnaire exactly matches the responses advanced for the modal firm. The three classifications of strategic planning systems will now be described.

Modal Description of Cluster 1

Ninety-seven firms are assigned to cluster 1. Table 4.1 provides a breakdown of the percent of cluster 1 firms belonging to each manufacturing classification. Note that seventeen industries are included in the cluster analysis phase of the study. Cluster 1 has firms from each of the included industries except two--(1) lumber and wood products and (2) jewelry, musical instruments, toys.

The description of the three cluster groupings is based on a hypothetical modal firm resulting from the modal response for each of the planning dimensions surveyed by the questionnaire. These dimensions are as follows:

1. Organizational structure.
2. Pervasiveness of the planning effort.
3. Management style and philosophy.
4. Time periods involved in the planning effort.
5. Degree of environmental scanning.
6. Communication process.
7. Goal-setting process.
8. Managerial involvement in the planning process.

Table 4.1

Percent of Firms Within Each Planning System Classification Belonging to the Various Manufacturing Classifications

SIC Code	Industry	Percentage of Firms*		
		Cluster 1 (n = 97)	Cluster 2 (n = 21)	Cluster 3 (n = 21)
20	Food	13	0	9
21	Tobacco	1	0	5
22	Textile	4	0	5
23	Apparel	2	0	0
24	Lumber	0	5	0
25	Furniture	0	0	0
26	Paper	2	5	5
27	Printing	2	9	0
28	Chemicals	9	14	9
29	Petroleum	7	5	9
30	Rubber	5	19	0
31	Leather	0	0	0
32	Glass	7	0	9
33	Metal Mfg.	4	5	26
34	Metal Products	7	5	9
35	Equipment	13	14	0
36	Electronics	12	9	0
37	Vehicles	8	0	5
38	Scientific Equipment	4	5	9
39	Jewelry	0	5	0
	Total	100	100	100

*Percentages are based on Table 3.7 (see p. 64)

9. Importance of the planning effort.
10. Linkage between the planning and budgeting process.
11. Role of the corporate planner.
12. Experience with the strategic planning process.

A guide to the focus of each part of the questionnaire can be found in Appendix I. This guide relates each question to one of the twelve dimensions of planning systems. The discussion which follows is based on the twelve general dimensions cited above.

The pervasiveness of the strategic planning system is evidenced by the fact that each of the five organizational levels--(1) corporate level, (2) group (sectional) level, (3) business unit (divisional) level, (4) major functional level, and (5) supporting functional level-- is involved in the negotiation of the goals developed for a modal cluster 1 firm. The negotiation of organizational goals, as opposed to their development through a top-down or bottom-up process, is an integral part of the strategic planning process.

The major corporate goals, objectives, and strategies for the modal cluster 1 firm are prepared for a strategic planning period or cycle which involves a time period of 3-5 years. Within this planning period yearly performance goals are prepared for each of the following organizational structure levels:

1. Corporate level.
2. Group (section) level.
3. Product/market division level.
4. Major functional level.

The only exception to the 3-5 year planning period occurs with performance goals prepared by the supporting functions of organizations. At this level, a 1-2 year time period is deemed to be appropriate for performance goals resulting from the strategic planning process.

Involvement of executives with the development of strategic plans can be cited as essential for the success of any planning process whether it be operational or strategic in orientation. Participation can range from no involvement to a state of continuous involvement with the process. Between these extremes an executive's participation can be either limited entirely to review, critique, and approval of plans prepared by subordinates or the executive can provide input to his subordinates in the developmental stage of the strategic plans. Such input can be frequent in nature as opposed to continuous involvement. Regardless of the degree of involvement, the participation by executives in the planning process results in a heightened appreciation for the process on the part of the subordinate managers.

In cluster 1 the chief executive officer's (CEO) involvement is limited to review, critique, and approval of the strategic plans prepared by subordinates. Yet, the CEO does provide direction for subordinates use in the planning process. The following elements of strategy are developed by the CEO:

1. Performance expectations for each line of business for several years.
2. Constraints and policies applicable to the firm's current corporate activities, as well as, criteria for approving new resource commitments.

3. Financial constraints and policies for such areas as debt structure, dividend policy, and diversity of risk constraints.
4. Non-financial objectives such as creeds and ethical guidelines.
5. Personalization of the firm's financial objectives for stakeholders such as societal groups and stockholders.

The hypothesis can be advanced that successful strategic planning systems must be pervasive. Therefore, each level in the organization structure must be involved in the planning process. This hypothesis is logical given the fact that the modal cluster 1 firm's goal setting process is accomplished through negotiation. A pervasive planning system occurs in cluster 1. Group managers provide frequent input during the development process in addition to the review, critique, and approval of the plans. The divisional and functional managers also provide continuous input during the development of strategic plans.

The hypothesis can also be advanced that the importance of the planning effort is demonstrated through the personal commitment of a firm's top level management personnel. The degree of involvement of executives in the development process has been cited. Respondents to the questionnaire were asked to express their opinion of the aims of top management for the utilization of the formal planning process. The results indicate agreement with the statement that top management utilized the formal planning process as either the primary one or one of several procedures for formulating strategic choices. Thus, the planning effort is regarded as an important managerial activity.

An additional area demonstrating the importance of the strategic planning process is the weight assigned during compensation decisions to a manager's efforts and effectiveness within the planning process. Conversely, the weighting scheme can be the result of difficulties in quantifying managerial effectiveness within a planning system characterized by managerial decisions which affect a period of several years. Within cluster 1, the CEO's performance accounts for 21-30 percent of his overall evaluation for compensation purposes. For product/market division managers, 11-20 percent of their evaluation relates to strategic planning performance. Group managers, major functional managers, and supporting functional managers are not evaluated on their performance within the strategic planning system.

Formality within strategic planning systems can be measured by the degree of written documentation required during the development procedure. The modal cluster 1 firm, at all levels in the organization structure, utilizes the same procedure for developing and communicating plans. Each level develops and initially communicates their plans in a written format. Subsequently, the plans are reviewed verbally. The formality of the process is further supported by the fact that respondents to the survey strongly agree with the statement indicating that there are common requirements with respect to planning content, formats, deadlines, and methods of reporting within the formal planning system. Therefore, the argument can be advanced that the degree of formality influences the degree of understanding and subsequent acceptance of the planning process. The modal cluster 1 firm agrees with the statement that the overall purpose for the formal planning process is understood at all levels of the

organization involved with the planning process.

At times financial analysis or marketing analysis obscure the major purposes of strategic planning. Firms can become overly concerned with numbers and percentages to the detriment of the identification of organizational strengths and weaknesses which determine the firm's long-term health and vitality. The modal cluster 1 firm did not display this weakness. The major focus of managers involved in the planning process is with strategic issues and alternatives. The strategic plans include financial detail, but the level of detail is less than the requirements for the annual operating budgets.

A weakness in the strategic planning process occurs if planners choose to operate in an idealistic realm. Essential to the utility of planning systems is their subsequent inclusion in the firm's control system. The modal cluster 1 firm indicates agreement with the statement that planning systems are formally integrated with the management control system. Consequently, the strategic planning system provides the elements for a useful and effective internal control system.

The degree of environmental scanning can be determined through an analysis of the content of strategic plans. Table 4.2 indicates the degree of environmental scanning for selected strategic planning variables. These variables will be discussed within the general framework which follows:

1. Organizational characteristic variables.
2. Industry structure variables.
3. Market and consumer behavior variables.
4. Supplier variables.

Table 4.2

Degree of Importance Assigned to the Various Variables in the Strategic Planning System of a Typical Cluster 1 Firm

Planning Variable	Degree of Importance				
	No	Slight	Moderate	Great	Maximum
Market share				x	
Quality of products				x	
Market segmentation				x	
Market size				x	
New market development			x		
Degree of customer concentration		x			
Length of production cycle		x			
Newness of plant and equipment			x		
Relative wage rate		x			
Discretionary cash flow/gross capital investment				x	
Rate of technological change in products or processes				x	
Degree of product differentiation		x			
Transportation and distribution costs			x		
Industry price/cost structure				x	
Economies of scale				x	
Degree of automation in industry			x		
Buyer loyalty			x		
Purchase frequency		x			
Degree of supplier concentration		x			
Buyer loyalty			x		
Purchase frequency		x			
Degree of supplier concentration		x			
Major changes in availability of raw materials				x	
GNP trend			x		
Interest rates			x		
Money supply		x			
Energy availability				x	
Political forecasting		x			
Antitrust regulations		x			
Environmental protection laws		x			
Social forecasting		x			
Age distribution of population		x			
Regional shifts of population		x			
Life style changes		x			
Consumer activism		x			
Business unit segmentation			x		
Experience curves		x			
Stage of the life cycle				x	

5. Social, economic, and political variables.

6. Quantitative measurement techniques.

A breakdown of the environmental scanning variables by the six categories listed above is found in Appendix J.

The modal cluster 1 firm attaches great importance to the elements of market share, quality of products, market segmentation, market size, and discretionary cash flow available for gross capital investment during the development of their strategic plans. Other organizational characteristics, such as the development of new markets and the obsolescence of plant and equipment, receive moderate consideration during the planning process. The degree of customer satisfaction, length of the production cycle, and relative wage structure are deemed to be of only slight importance to planners during the preparation of strategic plans.

With respect to industry structural variables, only the industry's cost/price structure and economies of scale factors are considered to be of great importance during the developmental phase of the strategic plan. The rate of technological change in the industry's products or processes, the degree of automation, and the transportation and distribution costs associated with the various firms within an industry are assigned moderate importance during the planning process. Only slight importance is attached to the degree to which the firm's products are differentiated from the products of other firms in the industry.

Market and consumer behavior variables as well as supplier variables are included on a limited basis in this study. Buyer loyalty and purchase frequency are the only variables comprising the market and consumer behavior group of variables. These elements receive moderate

and slight emphasis, respectively, during the planning process. The degree of supplier concentration and major changes in availability of raw materials are the only two variables associated with the supplier group of planning variables. Within the supplier area, changes in availability of raw materials receive great consideration during the planning process. The degree of supplier concentration is only slightly important.

A result worth noting is the slight importance attached to many of the social, economic, and political variables frequently considered during the developmental phase of a strategic plan. For example, the following nine variables receive only slight consideration:

1. Money supply.
2. Political forecasting.
3. Antitrust regulations.
4. Environmental protection laws.
5. Social forecasting.
6. Age distribution of the population.
7. Regional shifts of population.
8. Life style changes.
9. Consumer activism.

However, energy availability is of great importance; while GNP trends and interest rate levels are of moderate importance to strategic planners.

Five quantitative measurement techniques are utilized during the formulation of a strategic plan by the modal cluster 1 firm. Great importance is attached to business portfolio analysis and life cycle stages of the firm's products. Business unit segmentation and development of a product/market profile are moderately important. Development

of experience curves for production processes is only slightly important to strategic planners.

A planning executive is employed by the modal firm. Typically, this executive views his role as that of a strategic evaluator. Robert Ackerman describes the strategic evaluator as an executive who defines his own position on strategic issues. He displays independence rather than subjugation in his interaction with the CEO.[1] Great importance is assigned to the modal cluster 1 corporate planner's performance with regard to his role as advisor, analyst, coordinator, and reviewer. Absolutely no inclination is in evidence for the corporate planner to be described as dictatorial in his relationship with others.

The modal cluster 1 firm has been involved with strategic planning systems since 1970. Although the planning systems require continuous adaptation, the learning time associated with the initial system is three years. During this time period, planning participants, at all organizational levels, attempt to familiarize themselves with the strengths and weaknesses of the strategic planning system.

Modal Description of Cluster 2

Twenty-one firms from twelve industries are assigned to cluster 2. Table 4.1 (see p. 74) provides a breakdown of the percent of cluster 2 firms belonging to each manufacturing classification. The industries which belonged exclusively to cluster 2 are (1) lumber and wood products and (2) jewelry, musical instruments, toys.

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[1]Robert W. Ackerman, "Role of the Corporate Planning Executive," Strategic Planning Systems, ed. Peter Lorange and Richard F. Vancil (New Jersey: Prentice-Hall, Inc., 1977), pp. 94-95.

Many similarities exist between the modal cluster 1 and cluster 2 firm. For example, the cluster 2 firm can be characterized as having a negotiated strategic planning system which pervades each of the five basic organizational areas--corporate, group, business unit, major functional, and supporting functional. Major corporate goals, objectives, and strategies also are prepared for each of the organizational areas, except the supporting functions, for a strategic planning cycle involving a 3-5 year time period. The supporting functions utilize a 1-2 year time frame.

The CEO's participation in the strategic planning process is limited to review, critique and approval of plans prepared by subordinates. The group managers provide frequent input during the developmental phase of the plans in addition to their role as reviewers, critics, and approvers of the plans. The divisional and functional managers provide continuous input during the development of the strategic plans. Thus, the strategic planning system of the modal cluster 2 firm is pervasive.

A distinct difference from cluster 1 occurs with regard to the elements of strategy developed by the CEO. The modal cluster 2 CEO did not develop performance expectations for each line of business over a time period of several years. However, these executives did develop (1) financial objectives in terms of stakeholders, (2) nonfinancial objectives, and (3) constraints and policies for such areas as debt structure, dividend policy, diversity of risk constraints, and criteria for approving new resource commitments.

The importance of the planning process is demonstrated by the personal commitment made by the firm's top level management personnel.

The belief is expressed that one of the aims of top management is to utilize the formal planning process as either the primary or one of several procedures for formulating strategic choices.

A major area of difference between the first two clusters rests with the weight assigned to a managers performance within the strategic planning system. As has been indicated, the modal cluster 1 firm gives minimal consideration to strategic planning performance during compensation decisions for the CEO and product/market division managers. However, the modal cluster 2 firm fully recognizes the importance of strategic planning efforts to the success of the firm. This group of firms devotes over 50 percent of the compensation decision to the strategic planning efforts of a manager. This weighting applies to each of the five organizational areas within the firm.

Formality within the planning system is identical to cluster 1 for the corporate, group, and business unit levels in the organizational hierarchy. Each of these levels develop and communicate plans in a written format; subsequently, the plans are reviewed verbally. The functional areas, both major and supporting, verbally develop their plans. Communication of the completed plan is in a written format. Although the agreement is not as strong as for the modal cluster 1 firm, the modal cluster 2 firm agrees with the statement that there are common requirements regarding the standardization of contents, formats, deadlines and methods for the formal planning system. Both clusters agree that the overall purpose of going through a formal planning process is understood at all levels within the organization.

The CEO's focus is with financial analysis instead of strategic

issues and alternatives. A strategic planning system should have as its primary focus the organization's future direction. The argument could be advanced that too great a concern with financial analysis of numbers can result in a failure to identify the strategic issues essential to a firm's long-term health and vitality. Confusing results are obtained for the modal cluster 2 firm. However, the group managers are concerned with strategic issues. Again, at the divisional level the executive's focus is not with strategic issues, but instead with marketing analysis. These varying focuses may lead to a breakdown in the effectiveness of the modal cluster 2 firm's planning process.

The linkage between plans and budgets is consistent with that of the modal cluster 1 firm. The strategic plans include financial detail but not to the same degree as the annual operating budgets. Also, the modal cluster 2 firm strongly agrees with the statement that its planning system is integrated with its management control system.

The degree of environmental scanning which characterizes the strategic plans prepared by the modal cluster 2 firm is shown in Table 4.3. There are significant differences between the modal cluster 1 and cluster 2 firm. With respect to organizational structure variables, the modal cluster 2 firm assigns maximum importance to market share considerations. The degree of customer concentration is deemed to be moderately important within the firm's planning process. The length of the production cycle is identified as being of great importance to a cluster 2 planner. The attention devoted to the production cycle is the organization structure variable which displays the greatest amount of difference. Moderate importance is assigned to the relative wage rate and the discretionary

Table 4.3

Degree of Importance Assigned to the Various Variables in the Strategic Planning System of a Typical Cluster 2 Firm

Planning Variable	Degree of Importance				
	No	Slight	Moderate	Great	Maximum
Market share					x
Quality of products				x	
Market segmentation				x	
Market size				x	
New market development			x		
Degree of customer Concentration			x		
Length of production cycle				x	
Newness of plant and equipment			x		
Relative wage rate			x		
Discretionary cash flow/gross capital investment			x		
Rate of technological change in products or porcesses			x		
Degree of product differentiation			x		
Transportation and distribution costs		x			
Industry price/cost structure					x
Economies of scale				x	
Degree of automation in industry			x		
Buyer loyalty		x			
Purchase frequency			x		
Degree of supplier concentration		x			
Major changes in availability of raw materials			x		
GNP trend			x		
Interest rates			x		
Money supply		x			
Energy availability				x	
Political forecasting			x		
Antitrust regulations	x				
Environmental protection laws	x				
Social forecasting		x			
Age distribution of population		x			
Regional shifts of population		x			
Life style changes		x			
Consumer activities		x			
Business unit segmentation			x		
Product/market profile			x		
Business portfolio analysis			x		
Experience curves		x			
Stage of the life cycle				x	

cash flows for capital investment.

The modal cluster 2 firm's consideration of industry structural variables during the development of a strategic plan differs from the modal cluster 1 firm in three respects. Less importance is assigned to transportation and distribution costs than was true for the modal cluster 1 firm. The degree of product differentiation and industry price/cost structure is given greater consideration. Moderate importance is associated with product differentiation. Maximum importance is given to considerations of the industry's cost/price structure.

Market and consumer behavior variables, as well as, supplier variables exhibit differences from the modal cluster 1 firm. Slight importance is attached to buyer loyalty. Purchase frequency is moderately important.

Political, economic, and social factors are regarded differently in the modal cluster 2 firm. The modal cluster 1 firm considers political forecasting, antitrust regulation, and environmental protection laws to be of only slight importance to the planning process. The modal cluster 2 firm attaches no importance to the consideration of antitrust regulations or environmental protection laws. However, moderate importance is associated with political forecasting.

The profile of the modal cluster 1 firm versus the modal cluster 2 firm is virtually identical with respect to the quantitative measurement techniques utilized in the strategic planning process. The one exception to the preceding statement is that moderate, instead of great importance, is assigned to business portfolio analysis by the modal cluster 2 firm.

The services of a planning executive are utilized by the modal cluster 2 firm. However, his role is viewed as being that of a presidential advisor. In such a role the president's policies are viewed as being the most appropriate for inclusion in the firm's strategic plan. Consequently, maximum importance is assigned to the planning executive's advisory role. Great importance is associated with his role as an analyst, coordinator, and reviewer. The modal cluster 2 firm's planning executive is characterized by a complete lack of dictatorial power.

The modal cluster 2 firm has been involved with a strategic planning system for a shorter period of time than the modal cluster 1 firm (1974 versus 1970). The learning time associated with the strategic planning system is three years for both the modal cluster 1 and cluster 2 firm.

Modal Description of Cluster 3

Twenty-one firms from ten industries were assigned to cluster 3. Table 4.1 (see p. 74) provides a breakdown of the percent of cluster 3 firms belonging to each manufacturing classification. Note that every industry represented in cluster 3 is also represented in cluster 1 but not visa versa.

Many similarities exist between the modal cluster 1 and cluster 3 firm. For example, the modal cluster 3 firm can be characterized as having a strategic planning system which pervades each of the five basic organizational areas--corporate, group, business unit, major functional, and supporting functional. Unlike the negotiated planning system of the modal cluster 1 and 2 firm, the modal cluster 3 firm's goal setting process

is characterized as top-down in nature. Major corporate goals, objectives, and strategies are prepared for a strategic planning cycle involving a 3-5 year planning period for the group, division, major and supporting functional areas of the organization. However, the corporate level specifies goals as an average for a period of several years.

Divisional and functional managers of the modal cluster 3 firm are continuously involved with the development of strategic plans. Such is not the case for the CEO or group executives. The CEO's involvement in the developmental process is greater than his counterparts in the other two clusters. He provides frequent input during the developmental process instead of being content with his role as reviewer, critic, and approver of the finished plan. Likewise, the modal cluster 3 firm group executives participate to a greater extent than managers in the other clusters. The group executives provide continuous input during the development of the strategic plan.

Although the modal cluster 3 firm's CEO develops the same elements of strategy as clusters 1 and 2, his commitment to the strategic planning process is greater than for the other clusters. The CEO's commitment is evidenced not only by his greater involvement in the preparation of plans, but also through the strong agreement with the statement that top management utilizes the formal planning process as either the primary or one of several procedures for formulating strategic choices.

Each of the modal firms differ with regard to the weight assigned to a managers performance within the strategic planning system. The modal cluster 3 firm compares very favorably with the modal cluster 2 firm in the importance assigned to strategic planning performance when compensation

decisions are being made. For example, the modal cluster 3 firm devotes between 41-50 percent of the compensation decision to the strategic planning efforts of the following managerial levels--CEO, group, division, major function. The supporting function managers are evaluated on a 21-30 percent criteria. At all organizational levels the modal cluster 2 firm attaches more importance to strategic planning performance than did the modal cluster 3 firm. However, cluster 2 and 3 firms attach significantly more importance to strategic planning performance than the modal cluster 1 firm.

Complete duplication exists between the modal cluster 1 and 3 firm with respect to the degree of formality characteristic of the firm's planning system for each organizational area. Plans are developed and communicated in a written format before being reviewed verbally. The modal cluster 3 firm agrees with the statement that the overall purpose of going through a formal planning process is understood at all levels of the organization. Agreement is also expressed for the statement that common requirements regarding the standardization of contents, formats, deadlines, and methods exist within the formal planning system.

The major focus of the modal cluster 3 firm's CEO, group managers, and division managers is with strategic issues and alternatives. The strategic plans include financial detail, but the level of detail is less than the requirements for the annual operating budgets. The modal cluster 3 firm also agrees that its planning system is formally integrated with the management control system.

Table 4.4 contains a breakdown of the content of the strategic plans prepared by the modal cluster 3 firm. Differences with respect to

Table 4.4

Degree of Importance Assigned to the Various Variables in the Strategic Planning System of a Typical Cluster 3 Firm

Planning Variable	Degree of Importance				
	No	Slight	Moderate	Great	Maximum
Market share				x	
Quality of products				x	
Market segmentation				x	
Market size				x	
New market development				x	
Degree of customer concentration			x		
Length of production cycle			x		
Newness of plant and equipment			x		
Relative wage rate			x		
Discretionalry cash flow/gross capital investment					x
Rate of technological change in products or processes				x	
Degree of product differentiation				x	
Transportation and distribution costs			x		
Industry price/cost structure				x	
Economies of scale				x	
Degree of automation in industry			x		
Buyer loyalty			x		
Purchase frequency			x		
Degree of supplier concentration			x		
Major changes in availability of raw materials				x	
GNP trend			x		
Interest rates				x	
Money supply				x	
Energy availability				x	
Political forecasting			x		
Antitrust regulations			x		
Environmental protection laws				x	
Social forecasting			x		
Age distribution of population		x			
Regional shifts of population		x			
Life style changes		x			
Consumer activism			x		
Business unit segmentation				x	
Product/market profile				x	
Business portfolio analysis				x	
Experience curves			x		
Stage of the life cycle				x	

the modal cluster 1 firm are noted below. The modal cluster 3 firm attaches great importance to the development of new markets. This contrasts with the moderate importance assigned to the planning variable by cluster 1 and 2 firms. Like the modal cluster 2 firm, moderate importance is attached to the degree of customer concentration. The length of the production cycle is moderately important during the development of the firm's strategic plans. Moderate importance is also assigned to relative wage rates. With regard to discretionary cash flows for capital investments, maximum importance is assigned to this planning variable. In general, the modal cluster 3 firm attaches equal or greater importance to all of the organizational structure planning variables than is true of the modal cluster 1 and 2 firm.

Great importance is attached to the rate of technological change in products or processes and to the degree of product differentiation by the modal cluster 3 firm. Transportation and distribution costs are moderately important within the planning system. The industry's cost/price structure is determined to be an important planning variable. Again, as a general characterization, the modal cluster 3 firm attaches equal or greater importance to all industry structure variables than is true of the modal cluster 1 and 2 firm.

With regard to market and consumer behavior variables, the modal cluster 3 firm attaches moderate importance to buyer loyalty and purchase frequency. Supplier variables such as degree of supplier concentration is also assigned moderate importance. Major changes in availability of raw materials are deemed to be of great importance within the planning system. Buyer loyalty and changes in availability of raw materials are

the only two planning variables which duplicate the degree of importance associated with the modal cluster 1 firm. Each of the remaining market and consumer behavior variables, as well as the supplier variables are assigned greater importance than was true in the other clusters within the strategic planning system of the modal cluster 3 firm.

Social factors also receive equal or greater consideration within the modal cluster 3 firm's planning systems than was true of the modal cluster 1 or 2 firm. For example, great importance is assigned to factors such as interest rates, money supply, energy availability, and environmental protection laws. Moderate importance is associated with GNP trends, political forecasting, antitrust regulations, and consumer activism. The only social factors deemed to be of slight importance are regional shifts in the population and life style changes.

The modal cluster 3 firm assigns greater importance to quantitative planning techniques than is true of the modal cluster 1 and 2 firm. Business unit segmentation, business portfolio analysis, product/market profiles, and life cycle stages are all considered to be of great importance. Experience curves are moderately important. In summary, the modal cluster 3 firm demonstrates a greater awareness of the planning variables considered within their strategic planning system than was true of the other firms.

The modal cluster 3 firm utilizes a planning executive to administer the elements of the firm's planning system. The planning executive views his role as that of a strategic evaluator. In such a capacity great importance is assigned to his role as advisor, analyst, and reviewer within the strategic planning system. Maximum importance is associated

with his coordination activities within the system. As is true of the preceding two clusters, no importance is associated with a dictatorial role for the corporate planner of the modal cluster 3 firm.

The modal cluster 1 and 3 firm began a system of formal strategic planning in 1970. Three years are required to develop an efficient strategic planning system. After such a time period, even though changes within the system continue, the learning process is believed to be stabilized.

Contrasts and Similarities Between Clusters

The three clusters of planning systems are described above in terms of a modal firm. In this section both similarities and contrasts are noted with regard to each cluster's modal firm. Figures 4.1 and 4.2 contain detailed statements about the commonalities and dissimilarities of the three modal firms.

The modal clusters 1 and 3 firm commenced their strategic planning systems in the same year (1970). Yet, significant differences exist in the manner these systems are administered. The management style and philosophy is distinctly different in these two systems. The modal cluster 1 and 2 firm are characterized by a participatory management style. Executives at all levels of the organization are expected to enter in a negotiation process which culminates with the development of organizational goals. The modal cluster 3 firm displays a more authoritorian management style since the goal-setting process is essentially top-down in its orientation. Consequently, the CEO accepts a greater role in the development of the strategic plans than is true for the modal cluster 1 and 2 firm.

- Corporate objectives and strategies are prepared for the strategic planning period or cycle.
- The strategic planning system pervades all organization structural levels--corporate, group (section), business unit (division), major functions, and supporting functions.
- All levels of management are involved with review, critique, and approval of strategic plans.
- The divisional and functional managers provide continuous input during the development of the strategic plan.
- The corporate level, group level, and business unit level develop and communicate their strategic plans in a written format. Subsequently, the plans are verbally reviewed.
- The corporate level, group level, and business unit level establish performance goals for their strategic plans for each of the next 3-5 years.
- Group managers always focus on strategic issues during the strategic planning process.
- During the development of the firm's strategic plan great importance is assigned to the following variables:

  + Quality of Products
  + Market segmentation
  + Market size
  + Economies of scale
  + Energy Availability
  + Stage of the life cycle

- During the development of the firm's strategic plan moderate importance is assigned to the following variables:

  + Newness of plant and equipment
  + Degree of automation in industry
  + GNP trend

Figure 4.1

Commonalities of the Strategic Planning Systems
of the Three Cluster Groupings

- During the development of the firm's strategic plan slight importance is assigned to the following variables.

  + Regional shifts in population
  + Life style changes

- With regard to the linkage of plans and budgets, strategic plans include financial detail but the detail is less than the requirements for the annual operating budgets.

- Agreement exists for the statement that the overall purpose of going through a formal planning process is understood at all levels of the organization that are involved.

- A planning executive position exists for the purpose of administering the planning process.

- Great importance is assigned to the corporate planner's performance in his role as an analyst.

- Corporate planners do not dictate within the planning system.

- Three years are required to learn the intricacies of the strategic planning system.

Figure 4.1 (Continued)

Dimension	Cluster 1	Cluster 2	Cluster 3
Goal Setting Process	Negotiated	Negotiated	Top-down
Managerial involvement with strategic planning process	CEO participation limited to review, critique and approval	CEO participation limited to review, critique and approval	CEO provides frequent input during development process
	Group manager provides frequent input during development	Group manager provides frequent input during development	Continuous for group managers
Degree of formality characteristic of planning system	Major & Supporting functions develop & communicate in written format; verbally reviewed	Major & Supporting functions verbally develop plans but communicate in a written format	Major & Supporting functions develop & communicate in written format; verbally reviewed
Weight given to a manager's strategic planning efforts in decisions relating to compensation	CEO--21-30 percent	CEO-over 50 percent	CEO 41-50 percent
	Group Manager-- No consideration	Group Manager over 50 percent	Group Manager 41-50 percent
	Division manager-- 11-20 percent	Over 50 percent	41-50 percent
	Major functional managers-- no consideration	Over 50 percent	41-50 percent

Figure 4.2

Contrasts Between the Three Clusters of Strategic Planning Systems

Dimension	Cluster 1	Cluster 2	Cluster 3
	Supporting functional managers no consideration	Over 50 percent	21-30 percent
Time periods utilized in establishing performance goals for strategic plans	CEO--each of the next 3-5 yrs.	CEO--each of the next 3-5 yrs.	CEO-an average for a period of several years
	Supporting functional managers--each of the next 1-3 years	Supporting functional managers--each of the next 1-2 years	Supporting functional managers--each of the next 3-5 years
Managerial focus in strategic planning process	CEO--strategic issues and alternatives	CEO--financial analysis	CEO--strategic issues and alternatives
	Division managers--strategic issues and alternatives	Division Managers--financial analysis	Division Managers--strategic issues and alternatives
Use of planning system in the formulation of strategic choices	Agree with the statement that it is either the primary support mechanism or one of several procedures	Agree	Strongly agree
Common requirements with regards to format, deadlines, and methods within the planning system	Strongly agree that there are common requirements	Strongly agree	Agree

Figure 4.2 (Continued)

Dimension	Cluster 1	Cluster 2	Cluster 3
Integration of planning and management control system	Agree that the two systems are formally integrated	Strongly Agree	Agree that the two systems are formally integrated
Role of the senior planning executive	Strategic evaluator	Presidential advisor	Strategic evaluator
Functional roles of the corporate planner	Advisor role is of great importance	Maximum	Great
	Coordinator role is of great importance	Great	Maximum
	Reviewer role is of great importance	No	Great
Initiation of strategic planning system	1970	1974	1970

Figure 4.2 (Continued)

The importance of the planning effort represents another distinct difference between the modal cluster 1 and 2 firm. Minimal consideration is devoted to a cluster 1 manager's performance within the strategic planning system when the firm is engaged in its annual compensation decisions. However, at all managerial levels, strategic planning performance receives major consideration during executive compensation decisions for the modal firm in cluster 3. Thus, if the strategic planning system holds a major position of importance within the organization, that importance should be correlated with a manager's performance. The primacy of the strategic planning system is also evidenced by the strong agreement of the modal cluster 3 firm with a statement indicating that the system is of primary importance in the formulation of strategic choices for the organization. The modal cluster 1 firm may be overly concerned with the mechanics of a planning system instead of devoting sufficient time to the identification of strengths and weaknesses within the organization. This conclusion is supported by the fact that the modal cluster 1 firm strongly agrees that common requirements with respect to format, deadlines, and methods exists within the planning system. Yet, when the planning variables comprising the firms environmental scanning are examined, the modal cluster 1 firm attaches less importance to organizational characteristic variables, industry structure variables, market and consumer behavior variables, supplier variables, social factors, and quantitative planning techniques than did the modal cluster 3 firm.

The modal cluster 2 firm commenced strategic planning efforts more recently than did the other two clusters. The modal cluster 2 firm displays characteristics common to either cluster 1 or cluster 2. For

example, the cluster 2 modal firm's management style and philosophy is participatory as evidenced by its negotiated goal-setting process. The modal cluster 1 firm also is characterized by the same leadership style.

The management of the modal cluster 2 firm appears to rely on its planning system to identify organizational strengths and weaknesses. Support for this assertion rests with the maximum importance assigned to a managers performance within the planning system. No other cluster equals the weight given to strategic planning performance during compensation decisions for the executives of the modal cluster 2 firm.

The modal cluster 2 firm devotes considerable attention to the mechanics of its planning system. Such devotion could result from the strong belief that planning and management control systems should be formally integrated. Cluster 2 assigns a greater agreement to the integration of the two systems than is true of the modal firm in cluster 1 and 3. Attention to the mechanics of the planning system does not result in the modal cluster 2 firm's failure to consider organization characteristics, industry structure, market and consumer behavior, supplier, and social elements within its planning process. Although the attention devoted to the planning elements is not as great as is true of the modal cluster 3 firm, the effort did indicate greater concern than is true in cluster 1. The surprising trend in clusters 1 and 2 is the slight importance attached to social, economic and political factors within the planning system by the modal firms.

The role of the corporate planner in cluster 2 also differs from clusters 1 and 3. As contrasted with the role of strategic evaluator, the modal cluster 2 firm's planning executive adopts the role of

presidential advisor. In such a role the key executive opinion in the formulation of strategic choices is the CEO's. The planning executive administers the system by interpreting the CEO's policies to executives at all levels in the organization. Even though a negotiated goal-setting process exists, the CEO's policies are of prominent importance in the planning process. Consequently, maximum importance is associated with the planning executive's role as any advisor within the modal cluster 2 firm.

In summary, the three clusters differ with respect to the following planning dimensions:

1. Management style and philosophy.
2. Goal setting process.
3. Managerial involvement in the planning process.
4. Importance of the planning effort.
5. Degree of environmental scanning.
6. Role of the corporate planner.
7. Experience with the strategic planning process.

In general, commonalities exist in the following five dimensions of a strategic planning system:

1. Organizational structure.
2. Pervasiveness or the planning effort.
3. Time periods involved in the planning effort.
4. Communication process.
5. Linkage between the planning and budgeting process.

Classification Network for Effectiveness Conclusions

Before presenting the effectiveness results, the classification scheme utilized to reach effectiveness conclusions is discussed. Figure 4.3 delineates the classification scheme used to reach the following conclusions:

1. Strategic planning improves a firm's performance.
2. Strategic planning assists a firm in maintaining its relative performance position within the industry.
3. Strategic planning does not improve a firm's performance.

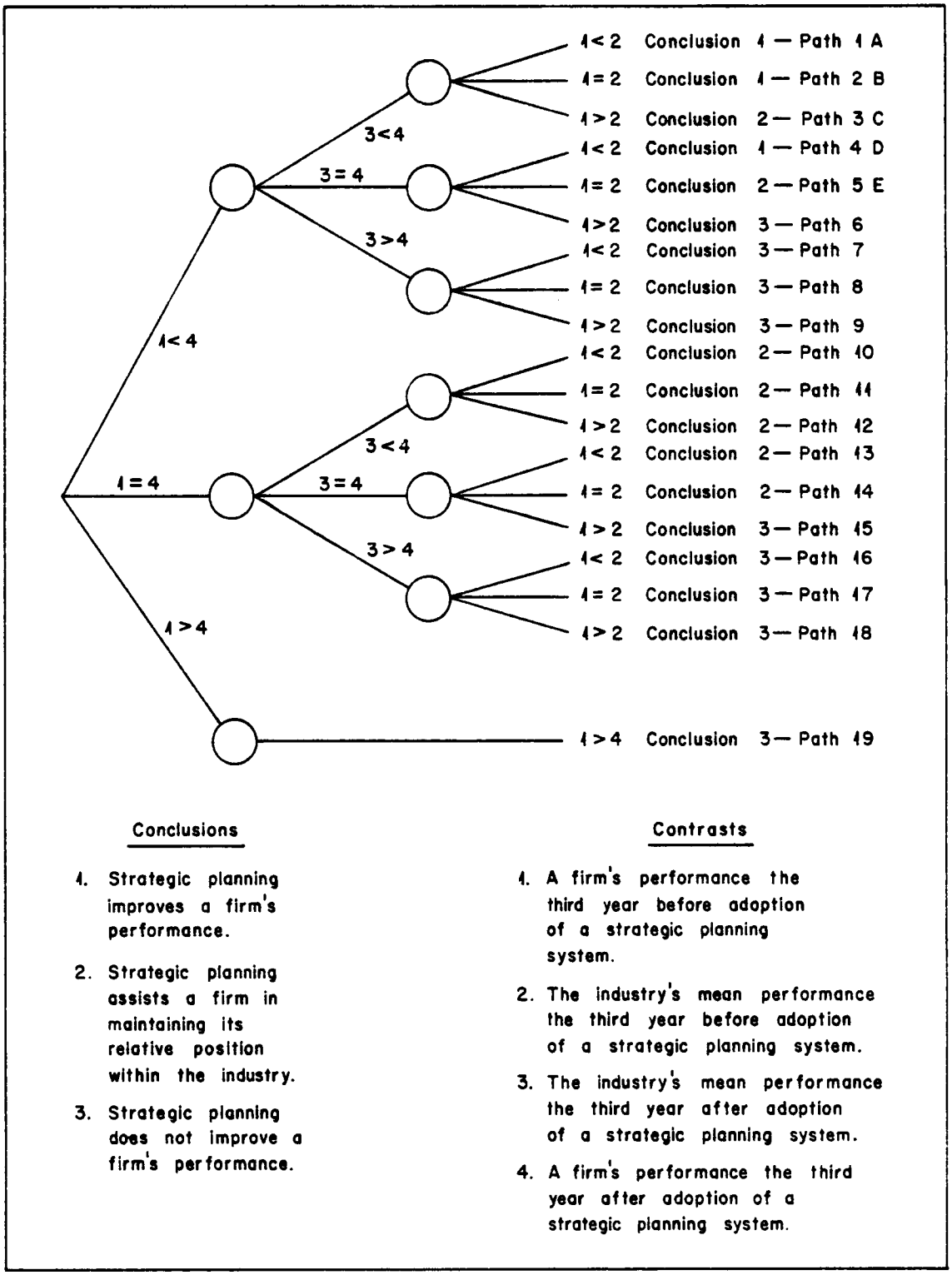
The classification schemes leading to the three conclusions cited above will now be discussed.

Conclusion 1

Three basic questions are utilized to determine if the adoption of a strategic planning system results in significant improvements in performance (see paths 1 and 2 in Figure 4.3):

1. Is a firm's performance after adoption of a strategic planning system better than its performance before adoption of the system?
2. Is a firm's performance after adoption of a strategic planning system better than the industry's mean performance for the same time period?
3. Is a firm's performance before adoption of the strategic planning system worse than or equal to the industry's mean performance for the same time period?

If the answer to the three questions is affirmative, then the appropriate



Conclusions

1. Strategic planning improves a firm's performance.
2. Strategic planning assists a firm in maintaining its relative position within the industry.
3. Strategic planning does not improve a firm's performance.

Contrasts

1. A firm's performance the third year before adoption of a strategic planning system.
2. The industry's mean performance the third year before adoption of a strategic planning system.
3. The industry's mean performance the third year after adoption of a strategic planning system.
4. A firm's performance the third year after adoption of a strategic planning system.

Figure 4.3
Classification Scheme for the
Determination of Effectiveness of Firms
Since the Adoption of a Strategic Planning System

conclusion is that the significant improvement in the firm's performance results from the adoption of a strategic planning system. Such a conclusion can also be reached if the following profile exists (see path 4 in Figure 4.3):

1. A firm's performance after adoption of a strategic planning system is better than its performance before adoption of the system.
2. A firm's performance after adoption is equal to the industry's mean performance for the same time period.
3. A firm's performance before adoption is worse than the industry's mean performance for the same time period.

However, if neither of the profiles exist, then alternate conclusions have to be advanced.

Conclusion 2

Three classification schemes support the conclusion that a firm's performance neither improves nor worsens after the adoption of a strategic planning system. Consequently, a firm maintains its relative position within the industry. The first profile follows (see paths 3 and 5 in Figure 4.3):

1. A firm's performance after adoption is better than its performance before adoption of a strategic planning system.
2. A firm's performance after adoption of a strategic planning process is at least equal to the industry's mean performance for the same time period.

3. A firm's performance before adoption of a strategic planning system is better than or equal to the industry's mean performance for the same time period.

If such a profile exists, the conclusion can not be advanced that a strategic planning system accounts for the improvement in a firm's performance since the profile indicates that the firm occupies a superior performance position in the industry prior to adopting a strategic planning system.

The second profile follows (see paths 10, 11, and 12 in Figure 4.3):

1. A firm's performance after adoption is equal to its performance before adoption of a strategic planning system.
2. A firm's performance is better than the industry's mean performance after the adoption of a strategic planning system.
3. A firm's performance before adoption of a strategic planning system is better than, equal to, or worse than the industry's mean performance for the same time period.

Again the performance profile reflects that a firm's relative position in the industry is not negated by the adoption of a strategic planning system. In some instances a firm's relative position in the industry improves.

The third profile follows (see paths 13 and 14 in Figure 4.3):

1. A firm's performance after adoption is equal to its performance before adoption of a strategic planning system.
2. A firm's performance after adoption of a strategic planning system is equal to the industry's mean performance for the same time period.
3. A firm's performance before adoption of a strategic planning system is worse than or equal to the industry's mean performance for the same time period.

If any of the three profiles cited above occur, then the conclusion is advanced that strategic planning assists a firm in maintaining its relative position within the industry.

Conclusion 3

Other things being equal, if a firm's performance is better before adoption than after adoption, the conclusion is advanced that a strategic planning system does not improve performance (see path 19 in Figure 4.3). Three additional profiles lead to this conclusion. The first profile follows (see paths 7, 8, 9, 16, 17, and 18 in Figure 4.3):

1. A firm's performance after adoption is better than or equal to its performance before adoption of a strategic planning system.
2. A firm's performance is worse than the industry's mean performance after the adoption of a strategic planning system.
3. A firm's performance before adoption of a strategic planning system is better than, equal to or worse

than the industry's mean performance for the same time period.

The second profile follows (see path 6 in Figure 4.3):

1. A firm's performance after adoption is better than its performance before adoption of a strategic planning system.
2. A firm's performance is equal to the industry's mean performance after the adoption of a strategic planning system.
3. A firm's performance before adoption of a strategic planning system is better than the industry's mean performance for the same time period.

The third profile follows (see path 15 in Figure 4.3):

1. A firm's performance after adoption is equal to its performance before adoption of a strategic planning system.
2. A firm's performance is equal to the industry's mean performance after the adoption of a strategic planning system.
3. A firm's performance before adoption of a strategic planning system is better than the industry's mean performance for the same time period.

Significance Levels

The remaining decisional problem involves the determination of what significance level should be used as the basis for answering each

of the decision points in the classification scheme shown in Figure 4.3. The decision points are derived from the study's hypotheses (see section below). The significance level selected is 30 percent. Such a level means that a 30 percent probability exists that a hypothesis would be rejected when it is true. The 30 percent level represents the greatest level of significance contained in the ANOVA results. Note that at the 10 percent significance level, the null hypotheses underlying the classification scheme presented in Figure 4.3 could not be rejected.

Relationship Between the Study's Hypotheses and Figure 4.3

Five performance measures are included in the analysis of variance procedure (ANOVA) for the determination of significant differences--return on assets, asset turnover, profit margin, return on equity, and net sales. The contrasts used in the ANOVA procedure are based on the following null hypotheses:

H_{N1}: There is no significant difference between the collective profitability and growth rate of sample firms three years after the adoption of a strategic planning process when contrasted with their performance over an equal time period prior to the adoption date.

H_{N2}: There is no significant difference between the profitability and growth rate of firms within the same industry three years after the adoption of a strategic planning process when contrasted with their performance over an equal time period prior to the adoption date.

H_N : There is no significant difference between the collective profitability and growth rate of firms with strategic planning systems when contrasted with industry means three years after the adoption of a strategic planning process.

H_{N4}: For firms with the same industrial classification, there is no significant difference between the profitability and growth rate three years after the adoption of a strategic planning system when contrasted with industry means for identical time periods.

H_{N5}: There is no significant difference between the collective profitability and growth rate of firms three years prior to the adoption of a strategic planning system when contrasted with industry means for the same time horizon.

H_{N6}: For firms with the same industrial classification, there is no significant difference between the profitability and growth rate three years prior to the adoption of a strategic planning system when contrasted with industry means for identical time periods.

Null hypotheses H_{N1}, H_{N3}, and H_{N5} are concerned with the determination of whether there is a significant difference, without regard to specific industries, between financial performance under three distinct situations:

1. Is performance after adoption of a strategic planning system better than performance before adoption of the system?

2. Is performance after adoption of a strategic planning system better than the industry's mean performance for the same time period?
3. Is performance before adoption of a strategic planning system worse than or equal to the industry's mean performance for the same time period?

Null hypotheses H_{N2}, H_{N4}, and H_{N6} are also concerned with a determination of significant differences for the three situations listed above. The difference between the odd and even numbered hypotheses is that the even numbered hypotheses are concerned with specific industries while odd numbered hypotheses are concerned with specific firms.

If and examination is made of the three basic questions (see p. 104) which underlie the classification scheme developed in Figure 4.3 (p. 105) and the three situations examined by this study's hypotheses, the resulting conclusion would be that Figure 4.3 is based on the six null hypotheses presented above. Consequently, a relationship is established between this study's hypotheses and the classification scheme (Figure 4.3) utilized to describe the results of the ANOVA procedure.

Effectiveness of Strategic Planning Systems As Determined by the Analysis of Variance Methodology

The effectiveness phase of the study addresses three basic questions:

1. Does the adoption of a strategic planning system result in significant improvement in a firm's performance?

2. Which industries benefit most from strategic planning systems?
3. Do strategic planning systems of the three clusters result in differing levels of performance?

This section of the study is concerned with answering the first two questions cited above.

Table 4.5 contains a summary of the results of the ANOVA test for significant differences. This table is based on the same three questions previously utilized in an effort to establish a relationship between this study's hypotheses and Figure 4.3 (p. 105). These research questions are as follows:

1. Is a firm's performance after adoption of a strategic planning system better than its performance before adoption of the system?
2. Is a firm's performance after the adoption of a strategic planning system better than the industry's mean performance for the same time period?
3. Is a firm's performance before adoption of a strategic planning system worse than or equal to the industry's mean performance for the same time period?

Figure 4.3 (see p. 105) can be used to reach three conclusions:

1. Strategic planning improves a firm's performance.
2. Strategic planning assists a firm in maintaining its relative performance position within the industry.
3. Strategic planning does not improve a firm's performance.

Table 4.5 can be utilized to reach the same three conclusions presented

Table 4.5

Results of the ANOVA Test for Significant Difference

SIC Code	Industry	Return On Assets			Asset Turnover			Profit Margin			Return On Equity			Net Sales		
		Research Question			Research Question			Research Question			Research Question			Research Question		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
20	Food	●									●			●		
22	Textile	●	●			x	●					●		●	●	
23	Apparel									x						
26	Paper	●	●								●	●				
27	Printing					x	●		●	x			x			
28	Chemicals	●	●								●		●			
29	Petroleum		x					●		●	●			●		
30	Rubber					x			●						x	●
32	Glass	●			●						●			●		
33	Metal Mfg.		x	●		x	●			●			●		●	x
34	Metal Pdts.														x	
35	Equipment									x						x
36	Electronics			x			x		x							
37	Vehicles		x			x				x	●	●		●		
38	Scientific Equipment			x			x			x	x	x		●	x	
39	Jewelry	●			●						●	●				
	Overall	●						●			●			●	●	x

* Research Question 1 -- Is a firm's performance after adoption of a strategic planning system better than its performance before adoption of the system?

Research Question 2 -- Is a firm's performance after adoption of a strategic planning system better than the industry's mean performance for the same time period?

Research Question 3 -- Is a firm's performance before adoption of a strategic planning system worse than the industry's mean performance for the same time period?

** An explanation of the symbols used in the table can be found on 115. Note that ● indicates an affirmative and significant response while x indicates a negative and significant response to a research question.

above. For example, the three research questions are presented for each of the five performance measures. If the response to any of the questions is affirmative and significant (as determined from an examination of the F-statistic used in the ANOVA test) then the • symbol is presented in Table 4.5. If the response to any of the questions is negative and significant then the x symbol is presented in Table 4.5. If there is no symbol presented for any of the questions then the response to the question is not significant in either an affirmative or negative direction. Therefore, the firm's performance, in the situation presented in the question, does not differ.

The following configurations are found in Table 4.5 to support the three conclusions offered in this study:

Conclusion	Configuration for Research Question 1	2	3
3		x	
3		x	•
3			x
3	x	x	
3	•	x	
2	•		
2		•	
2			•
2		•	x
2	•	•	x
1	•		•
1	•	•	

The results of the ANOVA test with respect to the five performance measures will be presented in the sections which follow.

A final note should be made with respect to Table 4.5. A detailed presentation of (1) F-values, (2) probability of a greater F-value, and (3) the element with the larger mean value in each contrast is presented

in Appendices K-O. A separate appendix exists for each of the five performance measures. Also, each exhibit presents results on an industry by industry basis, as well as on an overall basis.

Return on Assets Effectiveness Contrast

In general, this performance measure indicates that the adoption of a strategic planning system assists a firm in maintaining its relative performance position within the industry (conclusion 2 in Figure 4.3 p. 105). Although the classification scheme for the majority of the industries is consistent with that of the overall scheme, several industries display classification schemes which support the conclusion that the adoption of a strategic planning system results in improved financial performance (conclusion 1 in Figure 4.3). These industries are--(1) textile mill products, (2) paper and allied products, and (3) chemicals and allied products. However, using the classification scheme in Figure 4.3 and Table 4.5, five industries display a worsening financial outlook after adoption of a strategic planning system. Consequently, it appears that the adoption of a strategic planning system did not improve their performance. These industries are as follows:

1. Petroleum refining and related industries
2. Metal manufacturing
3. Electronics
4. Motor vehicles, aerospace
5. Measuring, scientific, photographic equipment

For firms in the remaining manufacturing industries listed in Table 4.5, financial performance did not improve or worsen as a result of adopting

a strategic planning system. Therefore the conclusion advanced is that the firms maintained their relative performance position within their respective industries after adopting a strategic planning system.

Table 4.5 indicates that for the asset turnover measure the overall results support the conclusion that the adoption of a strategic planning system assists a firm in maintaining its relative performance position within the industry. The results for the individual industries do not contain a single example of an industry in which a firm's performance improves as a result of the adoption of a strategic planning system. Seven industries contain firms with classification schemes from Figure 4.3 (p. 105) or Table 4.5 which support the conclusion that the firms fail to maintain or improve their relative performance position within the industry. These industries are as follows:

1. Textile mill products
2. Printing, publishing, allied products
3. Rubber and miscellaneous plastic products
4. Metal manufacturing
5. Electronics
6. Motor vehicles, aerospace
7. Measuring, scientific, photographic equipment

The remaining manufacturing industries present a classification scheme which supports the conclusion that the firms maintained their relative performance position within their respective industries.

Classification of the remaining component of return on assets--profit margin on sales--also leads to the overall conclusion that the adoption of a strategic planning system assists a firm in maintaining

its relative performance position within the industry. Support for this conclusion in global or specific industry cases is contained in Table 4.5. Only the petroleum refining industry displays a classification scheme leading to the conclusion that the adoption of a strategic planning system results in improvement in a firm's financial outlook. Again, five industries present a profile which indicates that their financial outlook worsens after adoption of a strategic planning system. The industries are as follows:

1. Apparel and other finished products
2. Industrial and farm equipment, computers
3. Electronics
4. Motor vehicles, aerospace
5. Measuring, scientific, photographic equipment

Although the financial condition of these industries worsened after the adoption of the planning system, the conclusion advanced does not attempt to indicate that a causative relationship exists between adoption of the system and a worsening of financial outlook. Indeed, the strategic planning system may have been adopted in an attempt to improve the firm's relative performance position in the industry. The failure to realize an improvement can result from numerous exogenous factors within the firm's industrial environment.

In summary, the return on assets measure and the related components of profit margin and asset turnover indicate that the overall profitability of firm's adopting a strategic planning system can not be traced, in a causative fashion, to the adoption of a strategic planning system. However, the conclusion offered is that the presence of a strategic

planning system assists a firm in maintaining its relative performance position within the industry.

Return on Equity Effectiveness Contrast

An investor in the common stock would probably be more interested in the rate of return on common shareholder's equity than the rate of return on assets. Consequently, this profitability measure is included in the analysis of variance methodology for the determination of significant differences. Table 4.5 (p. 114) delineates the results of the return on equity profitability measure.

The overall classification scheme indicates that the adoption of a strategic planning system assists a firm in maintaining its relative performance position within the industry. Sixty-two and one-half percent of the manufacturing industries support this global conclusion. However, 25 percent of the industries realize a significant improvement in return on equity after the adoption of the strategic planning system. Firms whose financial outlook worsened after the adoption of the planning system comprise 12½ percent of the total manufacturing industrial classification.

Four industries contain firm's which display a classification scheme indicative of the conclusion that the adoption of a strategic planning system improves a firm's performance. The industries are as follows:

1. Paper and allied products
2. Chemicals and allied products
3. Motor vehicles, aerospace
4. Jewelry, musical instruments, toys.

Only two industries display classification schemes indicative of the conclusion that the adoption of a strategic planning system does not result in the firm maintaining its relative performance position. The two industries are (1) printing, publishing, allied products and (2) measuring, scientific, photographic equipment.

In summary, the return on equity measure, as is true of return on assets, indicates that the overall profitability of firms adopting a strategic planning system is not improved as a direct result of the existence of the planning system. The industries did maintain their relative performance position within the industry.

Net Sales Effectiveness Contrast

Consistent with the overall conclusion for return on assets and return on equity, the net sales performance measure also indicates an overall classification scheme which supports the conclusion that the adoption of a strategic planning system assists a firm in maintaining its relative performance position within the industry. As is true of the other profitability measures cited, not all industries benefit from the adoption of a strategic planning system. Four industries present classification schemes indicative of the conclusion that strategic planning does not improve a firm's performance. In fact, the firm's relative performance declined within their industry. The industries are as follows:

1. Rubber and miscellaneous plastic products
2. Metal products
3. Industrial and farm equipment, computers
4. Measuring, scientific, photographic equipment.

Although 69 percent of the industries display classification schemes consistent with the overall conclusion for the net sales performance measure, one industry experienced a classification scheme which indicates that the adoption of a strategic planning system improves the firm's performance. The performance pattern was for the textile mill products industry.

In summary, the net sales performance measure indicates that, overall, firms adopting a strategic planning system can not credit the planning system solely for any improvement in performance. Consequently, the conclusion is advanced that the adoption of a strategic planning system assists a firm in maintaining its relative performance within the industry.

Recapitulation of Effectiveness Contrasts

Two basic questions are addressed in the initial steps of the effectiveness phase of this study.

1. Does the adoption of a strategic planning system result in significant improvement in a firm's performance?
2. Which industries benefit most from strategic planning systems?

The classification scheme presented in Figure 4.3 (see p. 105) is utilized to reach three effectiveness conclusions:

1. Strategic planning improves a firm's performance.
2. Strategic planning assists a firm in maintaining its relative performance position within the industry.
3. Strategic planning does not improve a firm's performance.

Table 4.5 (see p. 114) can also be utilized to reach the three conclusions presented above.

The results of the study reveal that none of the five performance measures--return on assets, profit margin, asset turnover, return on equity, or net sales--display a classification scheme, from either Figure 4.3 (p. 105) or Table 4.5, which supports the overall conclusion that strategic planning systems are solely responsible for improvements in performance. With regard to the two aggregate measures of profitability utilized in this study--(1) return on assets and (2) return on equity--two industries experience a performance pattern, for both performance measures, which support the conclusion that the adoption of the strategic planning system improves a firm's performance. These industries are (1) paper and allied products and (2) chemicals and allied products. The textile mill products industry displays classification schemes which justifies the same conclusion for the return on asset and net sales performance measures.

Again using Figure 4.3 or Table 4.5, none of the five performance measures display a classification scheme supporting the overall conclusion that performance worsens after adoption of a strategic planning system. Various industries do, however, display classification schemes indicative of the failure of strategic planning systems to either improve or to maintain the firm's relative performance position within the industry. For the return on assets profitability measure, the results of the ANOVA tests for five industries display classification schemes justifying such a conclusion. These industries are:

1. Petroleum refining and related industries
2. Metal manufacturing

3. Electronics

4. Motor vehicles, aerospace

5. Measuring, Scientific, Photographic equipment.

With regard to the return on equity profitability measure, two industries--(1) printing, publishing, allied products and (2) measuring, scientific, photographic equipment--display classification schemes leading to a no improvement conclusion. The following four industries display classification schemes which justify the same conclusion for the net sales performance measure:

1. Rubber and miscellaneous plastic products

2. Metal products

3. Industrial and farm equipment, computers

4. Measuring, scientific, photographic equipment.

One industry--measuring, scientific, photographic equipment--displays a classification scheme leading to the no improvement conclusion for each of the five performance measures utilized in the study.

The final conclusion advanced in the initial effectiveness phase of the study is that the adoption of a strategic planning systems assists a firm in maintaining its relative performance position within the industry. This conclusion is advanced when a firm displays a classification scheme (see Figure 4.3 p. 105 or Table 4.5 p. 114) indicating that the firm neither improves nor maintains its relative performance position within the industry after adopting a strategic planning system. The results of the effectiveness phase indicate that all five performance measures present classification schemes supporting this overall conclusion. The following six industries present classification schemes justifying this conclusion

for the aggregate profitability measures of return on assets and return on equity:

1. Food and kindred products
2. Apparel and other finished products
3. Rubber and miscellaneous plastic products
4. Glass, concrete, abrasives
5. Metal products
6. Industrial and farm equipment, computers.

Three of these same industries--(1) food and kindred products, (2) apparel and other finished products, and (3) glass, concrete, abrasives--present classification schemes justifying the relative performance position conclusion for each of the five performance measures.

An interesting result of this phase of the study is the percent of firms within an industry whose performance after adoption of the strategic planning system is significantly better than before; yet, the conclusion has to be advanced that a relative performance position is maintained. These percentages are as follows--(1) 50 percent for the return on asset performance measure, (2) 43 percent for the return on equity performance measure, and (3) 67 percent for the net sales performance measure.

An additional point of note concerns the percent of firms with classification schemes indicating that performance after adoption of the strategic planning system is better than before (not necessarily significant differences). These percentages are as follows--(1) 81 percent for the return on asset performance measure, (2) 75 percent for the return on equity performance measure, and (3) 100 percent

for the net sales performance measure. Support for these percentages can be derived from an examination of Appendixes K-O.

Effectiveness of the Various Cluster Groupings of Strategic Planning Systems as Determined by the Analysis of Variance Methodology

This section of the study is concerned with the answer to one basic question--Do strategic planning systems of the three clusters result in differing levels of performance? In Chapter III, the analysis of variance statistical methodology is advocated as being the appropriate means for providing an answer to this question. For inclusion in this phase of the study, industries must have firms which clustered in two of the three clusters. This restriction results in two severe statistical problems--(1) small sample sizes and (2) unequal cell frequencies. Consequently, the ANOVA test could not be performed. Tables presented in this section contain the raw mean values for each of the five performance measures.

Review of Methodology

The eighty-three firms classified by the cluster analysis procedure are utilized in this phase of the study (see Table 3.8 p. 68). Only four industries--(1) chemicals and allied products, (2) petroleum refining and related industries, (3) metal manufacturing, and (4) scientific, photographic equipment--contain firms classified into each of the clusters. Three contrasts are performed in an effort to determine if differences exist in the performance of the three clusters. The contrasts are:

1. Performance of firms belonging to cluster 1 versus the performance of firms belonging to cluster 2.
2. Performance of firms belonging to cluster 1 versus the performance of firms belonging to cluster 3.
3. Performance of firms belonging to cluster 2 versus the performance of firms belonging to cluster 3.

Although the results of the contrasts are presented for each industry, only the four industries which contain firms classified into each of the three clusters will be cited in the next section.

The contrasts are performed using mean values for each of the five performance measures--(1) return on assets, (2) asset turnover, (3) profit margin, (4) return on equity, and (5) net sales--selected for the effectiveness phase of the study. A contrast is cited as being potentially significant if one of the clusters in the contrast is 20 percent greater than the other cluster. Again, the 20 percent criterion is cited as the basis for determining potentially significant differences. The researcher subjectively determined the criterion.

Delineation of Contrasts

Table 4.6 presents the results of the return on assets contrasts. Observations are offered with regard to potentially significant differences. Overall no difference between the profitability of cluster 1 and cluster 2 firms is noted. However, cluster 1 firms outperform cluster 3 firms; subsequently, cluster 2 firms outperform cluster 3 firms. Within the chemicals and allied products industry cluster 3 firms differ from cluster 1 and 2 firms. However cluster 1 and 2 firms

Table 4.6

Return on Asset Percentages for Contrasts Involving Three Clusterings of Strategic Planning Systems

SIC Code	Industry	Contrast Means Cluster 1	Contrast Means Cluster 2	Contrast Means Cluster 1	Contrast Means Cluster 2	Contrast Means Cluster 1	Contrast Means Cluster 2
20	Food			29.87	36.92		
22	Textile			20.19	18.62		
26	Paper					14.03	17.93
27	Printing	21.70	22.05				
28	Chemicals	26.50	25.57	26.50	17.38	25.57	17.38
29	Petroleum	14.32	6.77	14.32	13.98	6.77	13.98
30	Rubber	33.86	20.48				
32	Glass			15.12	24.64		
33	Metal Mfg	7.23	24.80	7.23	9.12	24.80	9.12
35	Equipment	35.55	34.73				
36	Electronics	25.65	42.87				
37	Vehicles			26.84	11.62		
38	Scientific Equipment	33.94	53.00	33.04	28.74	53.00	28.74
	Overall Value	24.77	25.60	24.77	19.78	25.60	19.78

outperform cluster 3 firms. In the petroleum refining industry cluster 1 and 3 firms do not differ in their mean values. Cluster 1 and 3 firms outperform cluster 2 firms. In the metal manufacturing industry cluster 2 firms outperform both cluster 1 and cluster 3 firms. Cluster 3 firms outperform cluster 1 firms. With respect to the scientific, photographic equipment industry, cluster 1 and 3 firms do not differ in their mean values. However, cluster 2 firms outperform both cluster 1 and cluster 3 firms.

Table 4.7 indicates the results of the profit margin contrasts. On the global level there appears to be no difference between the performance of the three clusters of firms. However, in the chemical and allied products industry cluster 1 outperforms both cluster 2 and 3 firms. Also, cluster 2 firms outperform cluster 3 firms. In the petroleum refining industry, performance of cluster 1 and 3 firms is identical; however, their performance exceeds that of cluster 2 firms. In the metal manufacturing industry cluster 2 and 3 firms do not differ in their mean values, but do outperform cluster 1 firms. With respect to the scientific, photographic equipment industry, firm performance differs between the three clusters. Cluster 2 firms outperform cluster 3 firms; subsequently, cluster 3 firms outperform cluster 1 firms.

Table 4.8 presents the results of the asset turnover profitability measure. Overall, performance of cluster 1 and 2 firms appears to be equal. Also, cluster 3 firms are outperformed by both cluster 1 and 2 firms. In the chemical and allied products industry, cluster 2 firms outperform cluster 1 firms who outperform cluster 3 firms. With regard to the petroleum refining industry, the only apparent difference is

Table 4.7

Profit Margin Percentages for Contrasts Involving Three Clusterings of Strategic Planning Systems

SIC Code	Industry	Contrast Means Cluster 1	Contrast Means Cluster 2	Contrast Means Cluster 1	Contrast Means Cluster 2	Contrast Means Cluster 1	Contrast Means Cluster 2
20	Food			4.69	6.59		
22	Textile			6.24	6.08		
26	Paper					9.03	8.44
27	Printing	8.02	7.38				
28	Chemicals	9.85	5.42	9.85	6.54	5.42	6.54
29	Petroleum	9.29	5.78	9.29	8.79	5.78	8.79
30	Rubber	7.63	6.43				
32	Glass			6.29	7.51		
33	Metal Mfg	3.96	6.13	3.96	7.03	6.13	7.03
35	Equipment	5.78	8.97				
36	Electronics	4.74	3.99				
37	Vehicles			5.73	1.92		
38	Scientific Equipment	4.19	12.36	4.19	9.10	12.36	9.10
	Overall Value	6.31	7.48	6.31	7.12	7.48	7.12

Table 4.8

Asset Turnover Times for Contrasts Involving
Three Clusterings of Strategic Planning Systems

SIC Code	Industry	Contrast Means Cluster 1	Contrast Means Cluster 2	Contrast Means Cluster 1	Contrast Means Cluster 2	Contrast Means Cluster 1	Contrast Means Cluster 2
20	Food			7.25	5.59		
22	Textile			3.49	3.01		
26	Paper					1.55	2.12
27	Printing	2.64	2.98				
28	Chemicals	2.42	5.97	2.42	1.03	5.97	1.03
29	Petroleum	1.82	1.17	1.82	1.57	1.17	1.57
30	Rubber	4.26	3.33				
32	Glass			2.39	3.35		
33	Metal Mfg	2.01	4.04	2.01	1.38	4.04	1.38
35	Equipment	7.69	3.87				
36	Electronics	5.38	10.72				
37	Vehicles			4.89	6.03		
38	Scientific Equipment	7.95	4.28	7.95	3.15	4.28	3.15
	Overall Value	4.55	3.95	4.55	2.92	3.95	2.92

between cluster 1 and 2 firms with cluster 1 firms being the superior performers. In the scientific, photographic equipment industry, cluster 1 firms outperform cluster 2 firms who outperform cluster 3 firms.

The overall results of the return on equity profitability measure presented in Table 4.9 indicates no difference between any of the clusters. However, each of the four industries whose contrast results are specifically cited in this section have differences existing between the firms in the three clusters. With regard to the chemical and petroleum industries, cluster 2 firms are the poorest performers. In the chemical and allied products industry, cluster 1 firms outperform cluster 3 firms. The performance order is reversed in the petroleum refining industry. In the metal manufacturing and scientific, photographic equipment industries, the performance order is identical. Cluster 2 firms outperform cluster 3 firms which outperform cluster 1 firms.

The only performance measure indicating overall differences between the three planning system clusters is net sales. Each of the four industries cited in this section also indicate performance differences between the three clusters. Three performance patterns exist--(1) cluster 3 firms outperform cluster 1 and cluster 2 firms, (2) cluster 1 firms outperform cluster 3 and cluster 2 firms, or (3) cluster 1 firms outperform cluster 2 and cluster 3 firms. The first performance pattern applies to the results in the petroleum refining industry and the scientific, photographic equipment industry. The second performance pattern applies to the metal manufacturing industry. The third performance pattern applies to the chemical and allied products industry. Table 4.10 contains the raw mean values for the net sales performance measure.

Table 4.9

Return on Equity Percentages for Contrasts Involving Three Clusterings of Strategic Planning Systems

SIC Code	Industry	Contrast Means Cluster 1	Contrast Means Cluster 2	Contrast Means Cluster 1	Contrast Means Cluster 2	Contrast Means Cluster 1	Contrast Means Cluster 2
20	Food			15.74	12.40		
22	Textile			9.43	11.22		
26	Paper					12.65	14.05
27	Printing	14.54	13.54				
28	Chemicals	15.44	8.78	15.44	10.57	8.78	10.57
29	Petroleum	11.32	5.05	11.32	13.74	5.05	13.74
30	Rubber	12.83	7.74				
32	Glass			11.05	11.72		
33	Metal Mfg	4.72	16.55	4.72	6.57	16.55	6.57
35	Equipment	10.48	7.96				
36	Electronics	9.17	11.70				
37	Vehicles			11.55	3.68		
38	Scientific Equipment	6.16	14.08	6.16	11.73	14.08	11.73
	Overall Value	10.84	10.69	10.84	11.01	10.69	11.01

Table 4.10

Net Sales in Millions for Contrasts Involving
Three Clusterings of Strategic Planning Systems

SIC Code	Industry	Contrast Means Cluster 1	Contrast Means Cluster 2	Contrast Means Cluster 1	Contrast Means Cluster 2	Contrast Means Cluster 1	Contrast Means Cluster 2
20	Food			1060.36	1471.35		
22	Textile			472.60	1244.06		
26	Paper					504.29	1483.73
27	Printing	206.04	825.56				
28	Chemicals	3124.56	603.61	3124.56	100.24	603.61	100.24
29	Petroleum	1228.10	211.80	1228.10	5583.99	211.80	5593.99
30	Rubber	104.26	185.32				
32	Glass			871.85	638.54		
33	Metal Mfg	3778.90	223.08	3778.90	1449.75	223.00	1449.75
35	Equipment	479.55	1043.03				
36	Electronics	908.94	162.94				
37	Vehicles			2067.32	7999.33		
38	Scientific Equipment	117.69	11.84	117.69	456.03	11.84	456.03
	Overall Value	1242.21	486.57	1242.21	2422.69	486.57	2422.69

Recapitulation of Contrasts

Although the results of the contrasts between clusters can not lead to conclusive statements concerning the performance of the clusters, indicative statements can be made. The results indicate that the three clusters do exhibit differing performance characteristics. For example, the overall results affirm differences between clusters as follows:

1. The return on asset and asset turnover measures indicate that performance of cluster 1 and 2 firms does not differ. However, both cluster 1 and cluster 2 firms outperform cluster 3 firms.
2. The profit margin and return on equity measures indicate no difference between the performance of firms in the three clusters of strategic planning systems.
3. The net sales performance measure indicates that each of the three clusters of firms differ. Cluster 3 firms outperform cluster 1 firms which outperform cluster 2 firms.

Again, the point is made that these results are indicative only. Conclusions cannot be advanced due to the statistical limitations of this part of the study.

Summary

The objective of this chapter is to present the findings of the research study. The findings are presented in three areas:

1. A descriptive analysis of the common dimensions of planning systems identified through the cluster analysis procedure.
2. A determination of the effectiveness of the firms engaged

in strategic planning processes at three points in time--before adoption versus after adoption, after adoption versus industry mean, and before adoption versus industry mean. Five performance measures--return on assets, profit margin, asset turnover, return on equity, and net sales--are utilized in the effectiveness determination. Such an analysis assists in determining whether the adoption of the planning system improves the firm's performance.

3. A determination of the effectiveness of the three classifications of strategic planning processes.

A descriptive analysis of the three clusters of planning systems identified in this study reveals differences between the clusters with respect to the following planning dimensions:

1. Management style and philosophy.
2. Goal setting process.
3. Management involvement in the planning process.
4. Importance of the planning effort.
5. Degree of environmental scanning.
6. Role of the corporate planner.
7. Experience with the strategic planning process.

In general, commonalities exist in the following five planning system dimensions:

1. Organizational structure.
2. Pervasiveness of the planning effort.
3. Time periods involved in the planning effort.
4. Communication process.

5. Linkage between the planning and budgeting process.

The results of the research phase responsible for a determination of the degree of improvement in a firm's performance after adoption of the strategic planning system is based on three global hypotheses. One null hypothesis is stated as follows:

> There is no significant difference between the collective profitability and growth rate of sample firms three years after the adoption of a strategic planning process when contrasted with their performance over an equal time period prior to the adoption date (H_{N1}).

The results of the effectiveness study indicate that, at the 30 percent significance level, this hypothesis can be rejected for the aggregate return on assets measure, the return on equity measure, and the net sales measure. A second global hypothesis is as follows:

> There is no significant difference between the collective profitability and growth rate of firms with strategic planning systems when contrasted with industry means three years after the adoption of a strategic planning process (H_{N3}).

The results of the analysis of variance statistical procedure permit this hypothesis to be rejected only for the net sales measure. With respect to the third global hypothesis, the results, again, permit rejection only for the net sales measure. The third hypothesis is as follows:

> There is no significant difference between the collective profitability and growth rate of firms three years prior to the adoption of a strategic planning system when contrasted with industry means for the same time horizon (H_{N5}).

These same three hypotheses are also tested for specific industries; the results are delineated within this chapter.

Conclusions are offered as an adjunct to the three global hypotheses. A classification scheme is developed to support the conclusions (see Figure 4.3 and Table 4.5 p. 105 and 114 respectively). For each of the five performance measures one conclusion applies to their overall classification scheme. The conclusion indicates that the adoption of a strategic planning system assists a firm in maintaining its relative performance position within the industry.

The last phase of the study involves a determination of the effectiveness of the three classifications of planning systems which result from the clustering procedure. Conclusions are not offered due to statistical limitations associated with this phase of the study.

CHAPTER V

INTERPRETATION OF FINDINGS, SUMMARY, AND CONCLUSIONS

This study attempts to integrate the management accountant's charge to assist management in the corporate planning process with the management theorist's concern that systematic corporate planning systems prove to be an effective tool for use in the management processes of profit oriented organizations. The study focuses on corporate planning systems characterized by a concern with strategic issues.

Specifically, the purpose of the research, as outlined in Chapter I, is to evaluate the effectiveness of strategic planning efforts of manufacturing organizations and coincidentally to:

1. Develop a classification scheme for strategic planning systems.
2. Describe the various clusters of planning systems which result from the classification scheme.
3. Determine the global effectiveness of strategic planning systems embraced by selected U.S. manufacturing firms with respect to designated measures of financial performance.
4. Determine effectiveness, with respect to financial performance measures, of strategic planning efforts which exist in the various industrial classifications of U.S. manufacturing organizations.
5. Determine the degree of effectiveness, with respect to financial performance measures, of the various clusters resulting from the classification scheme for strategic

planning systems developed by this study.

Chapter II, the review of literature, facilitates the development of the conceptual and methodological approach for studying planning system effectiveness. Basically, the literature reviewed assists the researcher in (1) the determination of appropriate planning system dimensions which can be used as a basis for differentiation between existing strategic planning systems; (2) the decision to concentrate on the effectiveness of a specific corporate planning activity--namely, strategic planning; (3) the incorporation of contrasts of financial performance between the firm and its industry groupings so as to control for general improvement in overall industrial outlook.

Chapter III presents the research methodology. The experimental design encompasses four distinct phases. The initial phase results in the identification of 1015 manufacturing organizations which comprise the study's population. Five-hundred manufacturing organizations are selected at random for inclusion in the questionnaire and classificatory phases of the study. The questionnaire phase of the study provides a data base which allows the differentiation of firms with strategic planning systems on the basis of twelve planning dimensions.

The third phase involves the classification of the 168 respondents to the survey with regard to the common dimensions exhibited by the firm's planning system. The classification is accomplished through the use of cluster analysis. Three natural groupings (clusters) are imputed from this analysis.

Eight null hypotheses are formulated during the fourth phase which is concerned with the effectiveness of strategic planning systems. Five

performance measures--return on assets, asset turnover, profit margin, return on equity, and net sales--are selected as the basis for evaluating improvement in performance. The analysis of variance model is used to test for significance of the differences in performance of firms with strategic planning systems.

Chapter IV presents the results of the study. The discussion is divided into three basic areas--(1) description of the modal firm for the three planning system classifications, (2) determination of effectiveness of strategic planning systems embraced by U.S. manufacturing firms with respect to designated measures of financial performance, and (3) determination of the degree of effectiveness of the firms in the three clusters resulting from the classification phase of this study. A summary of the results of the study with regard to the classification and effectiveness phases follows.

Summary of the Classificatory Phase

Figures 4.1 and 4.2 (see pp. 96-100) contain detailed statements regarding the respective commonalities and dissimilarities of the three clusters resulting from the classification phase of this study. Each of the three clusters is described in terms of a hypothetical modal firm which results from the modal response for each of the planning dimensions surveyed by the questionnaire. Consequently, a firm may not exist within each cluster whose response to the questionnaire exactly matches the responses advanced for the modal firm.

The three clusters differ with regard to the following planning dimensions:

1. Management style and philosophy.
2. Goal setting process.
3. Managerial involvement in the planning process.
4. Importance of the planning effort.
5. Degree of environmental scanning.
6. Role of the corporate planner.
7. Experience with the strategic planning process.

In general, commonalities exist in the following five dimensions of a strategic planning system:

1. Organizational structure.
2. Pervasiveness of the planning effort.
3. Time periods involved in the planning effort.
4. Communication process.
5. Linkage between the planning and budgeting process.

Again, detailed statements regarding the commonalities and dissimilarities of the three clusters can be found in Figures 4.1 and 4.2 (see pp. 96-100).

Summary of the Effectiveness Phase

The effectiveness phase of the study addresses three basic questions:

1. Does the adoption of a strategic planning system result in significant improvement in a firm's performance?
2. Which industries benefit most from adoption of strategic planning systems?
3. Do strategic planning systems of the three clusters result in differing levels of performance?

The answer to the preceding questions requires the formulation of eight hypotheses. The null hypotheses tested are:

H_{N1}: There is no significant difference between the collective profitability and growth rate of sample firms three years after the adoption of a strategic planning process when contrasted with their performance over an equal time period prior to the adoption date.

H_{N2}: There is no significant difference between the profitability and growth rate of firms within the same industry three years after the adoption of a strategic planning process when contrasted with their performance over an equal time period prior to the adoption date.

H_{N3}: There is no significant difference between the collective profitability and growth rate of firms with strategic planning systems when contrasted with industry means three years after the adoption of a strategic planning process.

H_{N4}: For firms with the same industrial classification, there is no significant difference between the profitability and growth rate three years after the adoption of strategic planning system when contrasted with industry means for identical time periods.

H_{N5}: There is no significant difference between the collective profitability and growth rate of firms three years prior to the adoption of a strategic planning system when contrasted with industry means for the same time horizon.

H_{N6}: For firms with the same industrial classification, there is no significant difference between the profitability and growth rate three years prior to the adoption of a strategic planning system when contrasted with industry means for identical time periods.

H_{N7}: Three years after the adoption of a strategic planning system, there is no significant difference between the collective profitability and growth rate of firms belonging to the different clusters which are characterized by firms with common planning system dimensions.

H_{N8}: Three years after the adoption of a strategic planning system, firms with the same industrial classification display no significant difference between their profitability and growth rate even though the firms exhibit different planning dimensions in their strategic planning systems.

Table 4.5 (p. 114) and Appendixes K-O contain the results of the contrasts required by the first six hypotheses cited above. The odd numbered hypotheses focus on the global results for the required contrasts. The even numbered hypotheses address the results of the contrasts with respect to the specific industries comprising the manufacturing industrial classification. The contrasts performed on the 100 firms are as follows:

1. A contrast measuring performance the third year before adoption of a strategic planning system with the organization's performance the third year after

the adoption of the system.

2. A contrast involving performance the third year after the adoption of the planning system with the mean performance of other firms within the same industry over the same time period.
3. A contrast involving performance the third year prior to the adoption of the planning system with the mean performance of other firms within the same industry over the same time period.

The results of these three contrasts are reported at the 30 percent significance level. Only the global results are cited in this section.

The initial null hypothesis (H_{N1}) is rejected for the aggregate return on asset measure, the return on equity measure, and the net sales measure. Thus, significant differences exist between the two time periods for three of the basic performance measures utilized in the study. In each of these three cases performance after adoption of the strategic planning system is greater than the prior time period. In fact, the difference is significant at the 10 percent level (see Appendixes K-O). One of the disaggregate measures of return on assets--profit margin--is also significant at the 30 percent level. With respect to the contrast involving performance after adoption of a strategic planning system versus industry mean performance (H_{N3}), the results permit the hypothesis to be rejected only for the net sales measure. The same results are obtained when a firm's performance prior to adoption is contrasted with the industry's mean performance--namely, only the net sales measure permits the rejection of the hypothesis (H_{N5}).

The concluding phase of the effectiveness study answers the question--Do strategic planning systems of the three clusters result in differing levels of performance? Eighty-three firms are included in the three contrasts required in this phase. The contrasts are as follows:

1. Does a cluster 1 firm's performance differ from a cluster 2 firm's performance?
2. Does a cluster 1 firm's performance differ from a cluster 3 firm's performance?
3. Does a cluster 2 firm's performance differ from a cluster 3 firm's performance?

Tables 4.6 through 4.10 (see pp. 127, 129, 130, 132, and 133 respectively) delineate the results of the three contrasts cited above for the performance measures of return on assets, profit margin, asset turnover, return on equity, and net sales, respectively. The hypotheses tested by these contrasts are the last two cited previously (H_{N7} and H_{N8}).

Due to statistical limitations of this phase of the study, the results of the contrasts between clusters cannot lead to conclusive statements concerning the performance of the clusters. Indicative statements can be made. The results indicate that the three clusters exhibit differing performance characteristics. For example, the overall results affirm differences between clusters as follows:

1. The return on asset and asset turnover measures indicate that performance of cluster 1 and 2 firms does not differ. However, both cluster 1 and cluster 2 firms outperform cluster 3 firms.

2. The profit margin and return on equity measures indicate no difference between the performance of firms in the three clusters of strategic planning systems.
3. The net sales performance measure indicates that each of the three clusters of firms differ. Cluster 3 firms outperform cluster 1 firms which outperform cluster 2 firms.

Again, the point is made that these results are indicative only. Conclusions cannot be advanced due to the statistical limitations of this part of the study.

Conclusions

Two basic questions are addressed in the initial steps of the effectiveness phase of this study.

1. Does the adoption of a strategic planning system result in significant improvement in a firm's performance?
2. Which industries benefit most from strategic planning systems?

The classification scheme presented in Figure 4.3 (p. 105) is utilized to reach three effectiveness conclusions:

1. Strategic planning improves a firm's performance.
2. Strategic planning assists a firm in maintaining its relative position within the industry.
3. Strategic planning does not improve a firm's performance.

Table 4.5 (p. 114) can also be utilized to reach the three conclusions presented above.

The results of the study reveal that none of the five performance measures--return on assets, profit margin, asset turnover, return on equity, or net sales--display a classification scheme, from either Figure 4.3 (p. 105) or Table 4.5 (p. 114), which supports the overall conclusion that strategic planning systems are solely responsible for improvements in performance. With regard to the two aggregate measures of profitability utilized in this study--(1) return on assets and (2) return on equity--two industries experience a performance pattern, for both performance measures, which support the conclusion that the adoption of the strategic planning system improves a firm's performance. These industries are (1) paper and allied products and (2) chemicals and allied products. The textile mill products industry displays classification schemes which justifies the same conclusion for the return on asset and net sales performance measures.

Again using Figure 4.3 or Table 4.5, none of the five performance measures display a classification scheme supporting the overall conclusion that performance worsens after adoption of a strategic planning system. Various industries do, however, display classification schemes indicative of the failure of strategic planning systems to either improve or to maintain the firm's relative performance position within the industry. For the return on assets profitability measure, the results of the ANOVA tests for five industries display classification schemes justifying such a conclusion. These industries are:

1. Petroleum refining and related industries
2. Metal manufacturing
3. Electronics

4. Motor vehicles, aerospace

5. Measuring, scientific, photographic equipment.

With regard to the return on equity profitability measure, two industries--(1) printing, publishing, allied products and (2) measuring, scientific, photographic equipment--display classification schemes leading to a no improvement conclusion. The following four industries display classification schemes which justify the same conclusion for the net sales performance measure:

1. Rubber and miscellaneous plastic products

2. Metal products

3. Industrial and farm equipment, computers

4. Measuring, scientific, photographic equipment.

One industry--measuring, scientific, photographic equipment--displays a classification scheme leading to the no improvement conclusion for each of the five performance measures utilized in the study.

The final conclusion advanced in the initial effectiveness phase of the study is that the adoption of a strategic planning system assists a firm in maintaining its relative performance position within the industry. This conclusion is advanced when a firm displays a classification scheme (see Figure 4.3 p. 105 or Table 4.5 p. 114) indicating that the firm neither improves nor maintains its relative performance position within the industry after adopting a strategic planning system. The results of the effectiveness phase indicate that all five performance measures present classification schemes supporting this overall conclusion. The following six industries present classification schemes justifying this conclusion for the aggregate profitability measures of return on assets

and return on equity:

1. Food and kindred products
2. Apparel and other finished products
3. Rubber and miscellaneous plastic products
4. Glass, concrete, abrasives
5. Metal products
6. Industrial and farm equipment, computers.

Three of these same industries--(1) food and kindred products, (2) apparel and other finished products, and (3) glass, concrete, abrasives--present classification schemes justifying the relative performance position conclusion for each of the five performance measures.

An interesting result of this phase of the study is the percent of firms within an industry whose performance after adoption of the strategic planning system is significantly better than before; yet, the conclusion has to be advanced that a relative performance position is maintained. These percentages are as follows--(1) 50 percent for the return on asset performance measure, (2) 43 percent for the return on equity performance measure, and (3) 67 percent for the net sales performance measure.

An additional point of note concerns the percent of firms with classification schemes indicating that performance after adoption of the strategic planning system is better than before (not necessarily significant differences). These percentages are as follows--(1) 81 percent for the return on asset performance measure, (2) 75 percent for the return on equity performance measure, and (3) 100 percent for the net sales performance measure. Support for these percentages can be derived from an examination of Appendixes K-O.

The Contributions

In Chapter I, anticipated contributions of this research effort are advanced (see pp. 11-13). These contributions are directed to the managerial accounting area and the business community. The actual contributions resulting from this study are also directed to the same two areas.

It was noted in Chapter I that several studies in the 1970s attempted to evaluate the effectiveness of formal planning systems. The results of these early studies suffered from several potential biases which are addressed in this study. Consequently, the methodological approach utilized by this study can be offered as one contribution of the study.

Generally, these studies neglected to consider whether strategic or operational planning was responsible for improvements in performance. This study narrows its focus to strategic planning; consequently, the conclusions which result are reported in the context of benefits derived from the adoption of a strategic planning process. Also, previous planning system effectiveness studies did not control for a condition in which an entire industry's financial outlook improved during the period that the effectiveness of a planning system was being evaluated. This study does control for this situation. Previous researchers failed to integrate general dimensions of planning into a study seeking to determine effectiveness of planning systems. This study attempts to overcome this limitation. Lastly, this study utilizes an empirical classification scheme to identify the existence of different groupings of firms with common planning system dimensions. Each of the methodological considerations

cited above should result in improved perceptions of the validity of strategic planning system effectiveness.

An additional contribution of this study applies directly to the managerial accounting area. The 1958 AAA Committee on management accounting mandated that managerial accountants concern themselves with planning processes of industrial firms. Yet, with the exception of the area of planning models, accounting research has been devoid of efforts within the planning area. There are no treatises by accountants which provide fact or conjecture as to the informational needs of the manager engaged in planning efforts; neither are there effectiveness studies by management accounting researchers. This study attempts to fill this void. Since the management accountant's role is one of provider, advisor, and evaluator of management's informational needs in the firm's planning and controlling processes, an awareness of the strategic factors currently given consideration in strategic planning systems, is of definite benefit to the business community. Also, an evaluation of the effectiveness of various combinations of planning system dimensions in strategic planning systems is of use to the professional manager.

The industrial sector is characterized by its competitive environment. Survival or progress depends on the organization's ability to adapt to the dynamics of a competitive situation. Corporate planning which is strategic in nature is the one means for visualizing and adapting to the competitive forces within the business community. Knowledge of the common planning system dimensions of the three clusters identified by this study can be of value to management teams as they attempt to improve their decision processes through the adoption or adaptation of

of a strategic planning system.

The effectiveness phase of this study provides insights into the benefits to firms adopting strategic planning systems with regard to improvements in a firm's financial performance. The effectiveness of these planning systems is of concern to profit-oriented organizations because any systematic planning effort requires the expenditure of significant amounts of an organization's managerial and capital resources. This study does not conclude that performance improves as a direct result of the adoption of a strategic planning system. Instead, the conclusion offered stresses that the presence of a strategic planning system assists a firm in maintaining its relative performance position within the industry. This conclusion is significant because of its implications for successful organizations. A management team, charged with the responsibility of providing direction for the organization, can benefit from the inclusion of strategic planning in its managerial activities.

Suggestions for Further Research

A research endeavor is like any modeling process. An objective is established; inputs are provided for the model; output results. The output depends not only on the inputs but to a great extent on the mysterious "black box" referred to as the model. The model utilized for the processing of data in this study contains limitations which should be identified. One limitation occurs with the time period utilized for evaluating performance. A single point in time is utilized. This decision point results from (1) the fact that a number of study participants only recently adopted strategic planning for their organizations and (2) the study's

respondents indicate that the learning time associated with a strategic planning system is three years. Consequently, performance results for the year selected could be atypical of general operating conditions. Also, the firm may not have realized the full benefits of the strategic planning system by the third year after its adoption. For these reasons an average time period is suggested for future studies. In particular, a question which could be addressed concerns the identification of the average time required before a firm's average performance improves.

The clustering phase of the study reveals three natural groupings in the data collected for the various dimensions of planning systems. An interesting research question involves a determination of the relationship between the planning clusters and firm size, operating diversity, and industry membership. Also, factor analysis could be utilized to identify the most significant planning system dimensions in each of the three planning clusters.

Lastly, the effectiveness of the three clusters reveals information of an exploratory nature. Additional research studies which investigate whether strategic planning systems of the three clusters result in differing levels of performance would be beneficial.

These are but a few of the questions which need to be addressed by planning researchers. The dynamic nature of a planning system's evolution will continue to require investigations, conjecture, and conclusions as to the most beneficial mix of planning policies and practices if planning systems are to continue to be an effective means of assisting firms in maintaining their relative performance positions within dynamic industrial environments.

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APPENDIXES

APPENDIX A

LISTING OF FIRMS COMPRISING THE STUDY'S SAMPLE

APPENDIX A

LISTING OF FIRMS COMPRISING THE STUDY'S SAMPLE

SIC Code	Manufacturing Firms
20	Action Corp
20	Amalgamated Sugar Co
20	American Distilling Co
20	American Maise-Products-CL A
20	Amstar Corp
20	Anderson, Clayton & Co
20	Archer-Daniels-Midland Co
20	Beatrice Foods Co
20	Bluebird Inc
20	Borden Inc
20	Brown-Forman Distillers-CL B
20	Campbell Soup Co
20	Campbell Taggart Inc
20	Carnation Co
20	Central Soya Co
20	Chock Full O Nuts Corp
20	Coca-Cola Bottling Co of NY
20	Coca-Cola Co
20	Conagra Inc
20	Consolidated Foods Corp
20	Dellwood Foods
20	Fanny Farmer Candy Shops Inc
20	Flowers Industries Inc
20	General Host Corp
20	Heileman (G.) Brewing Inc
20	Heublein Inc
20	Holly Sugar Corp
20	Hormel (Geo. A.) & Co
20	Ingredient Technology Corp
20	Iroquois Brands LTD
20	Kellogg Co
20	MacAndrews & Forbes
20	Michigan Sugar
20	Mickelberry Corp
20	Norton Simon Inc
20	Olympia Brewing
20	Pepcom Industries
20	Pepsico Inc
20	Pillsbury Co

APPENDIX A (Continued)

SIC Code	Manufacturing Firms
20	Pittsburgh Brewing
20	Quaker Oats Co
20	Rath Packing Co
20	Smucker (J.M.) Co
20	Staley (A.E.) Mfg Co
20	Standard Brands Inc
20	Tasty Baking Co
20	U & I Inc
20	Ward Foods Inc
20	Wometco Enterprises Inc
20	Wrigley (Wm.) Jr Co
21	American Brands Inc
21	Liggett Group
21	Philip Morris Inc
21	Reynolds (R.J.) Inds
21	U S Tabacco Co
22	Akzona
22	Armstrong Cork Co
22	Avondale Mills
22	Burlington Industries Inc
22	Chelsea Industries Inc
22	Collins & Aiman Corp
22	Crompton Co Inc
22	Decorator Industries Inc
22	Graniteville Co
22	Huyck Corp
22	Opelika Mfg Corp
22	Reeves Brothers Inc
22	Springs Mills Inc
22	Stevens (J.P.) & Co
22	West Point-Pepperell
23	Aileen Inc
23	Angelica Corp
23	Blue Bell Inc
23	Chromalloy American Corp
23	Fairfield-Noble Corp
23	Hanes Corp
23	Hart Schaffner & Marx Co
23	Irvin Industries Inc
23	Leslie Fay Inc
23	Manhattan Industries Inc
23	McGregor-Doniger Inc-CL a
23	Phillips-Van Heusen
23	Ross Togs Inc

APPENDIX A (Continued)

SIC Code	Manufacturing Firms
23	U S Industries
23	V.F. Corp
23	Venice Industries, Inc
23	Warnaco Inc
23	Winter (Jack) Inc
24	Boise Cascade Corp
24	Georgia-Pacific Corp
24	Redman Industries Inc
24	Skyline Corp
24	Southwest Forest Industries
24	Weyerhaeuser Co
25	American Seating Co
25	Kroehler Mfg Co
25	Simmons Co
25	Tab Products
26	APL Corp
26	Bowater Corp LTD-ADR
26	Brown Co
26	Chesapeake Corp of VA
26	Crown Zellerbach
26	Dennison Mfg Co
26	Federal Paper Board Co
26	Intl Paper Co
26	Kimberly-Clark Corp
26	Ludlow Corp
26	Maryland Cup Corp
26	Potlatch Crop
26	Simkins Industries
26	Sorg Paper Co
26	Stone Container Corp
26	Technical Tape Inc
26	Union Camp Corp
27	Arcata Corp
27	Blair (John) & Co
27	Cadence Ind Corp
27	Dow Jones & Co Inc
27	Electrographic Corp
27	Grolier Inc
27	Hall (W.F.) Printing Co
27	Harcourt Brace Jovanovich
27	International Banknote
27	Knight-Ridder Newspapers Inc

APPENDIX A (Continued)

SIC Code	Manufacturing Firms
27	McGraw-Hill Inc
27	New York Times Co
27	Reynolds & Reynolds
27	Rust Craft Greeting Cards
27	Scott Foresman Co
27	Simplicity Pattern Co
27	Time Inc
27	Times Mirror Co
27	Uarco Inc
27	Wallace Business Forms
27	Western Publishing Co., Inc.
28	Abbott Laboratories
28	Air Products & Chemicals Inc
28	Alberto-Culver Co
28	American Cyanamid Co
28	American Home Products Corp
28	Bristol-Myers Co
28	Cabot Corp
28	Celanese Corp
28	Clorox Co
28	Colgate-Palmolive Co
28	Crompton & Knowles Corp
28	Dexter Corp
28	Du Pone (E.I.) De Nemours
28	Dutch Boy Inc
28	Economics Laboratory Inc
28	Essex Chemical Corp
28	Ferro Corp
28	First Mississippi Corp
28	FMC Corp
28	Forest Laboratories Inc
28	Great Lakes Chemical Corp
28	Grow Chemical Corp
28	Guardsman Chemicals Inc
28	Hercules Inc
28	ICN Pharmaceuticals Inc
28	Intl Flavors & Fragrances
28	Kin-Ark Corp
28	La Maur Inc
28	Lubrizol Corp
28	Marion Laboratories

APPENDIX A (Continued)

SIC Code	Manufacturing Firms
28	Mem Co
28	Monsanto Co
28	Morton-Norwich Products
28	NCH Corp
28	Nestle-Lemur Co
28	Olin Corp
28	Pantasote Inc
28	Pennwalt Corp
28	Pfizer Inc
28	Pratt & Lambert Inc
28	Procter & Gamble Co
28	Products Research & Chemical
28	Reichhold Chemicals Inc
28	Richardson-Merrell Inc
28	Robintech Inc
28	Rohm & Haas Co
28	Schering-Plough
28	SCM Corp
28	Searle (G.D.) & Co
28	Stauffer Chemical Co
28	Sun Chemical Corp
28	Union Carbide Corp
28	Upjohn Co
28	Valspar Corp
28	Warner-Lambert Co
29	Atlantic Richfield Co
29	Certain-Teed Corp
29	Cities Service Co
29	Clark Oil & Refining Corp
29	Conoco Inc
29	Exxon Corp
29	Gulf Canada LTD
29	Gulf Oil Corp
29	Holly Corp
29	Husky Oil LTD
29	Marathon Oil Co
29	Murphy Oil Corp
29	Phillips Petroleum Co
29	Quaker State Oil Refining
29	Shell Oil Co
29	Standard Oil Co (Ohio)
29	Sun Co

APPENDIX A (Continued)

SIC Code	Manufacturing Firms
29	Union Oil Co of California
29	Witco Chemical Corp
30	Amerace Corp
30	Armstrong Rubber
30	Bandag Inc
30	Cellu-Craft Inc
30	Clopay Corp
30	Congoleum Corp
30	Firestone Tire & Rubber Co
30	General Tire & Rubber Co
30	Glasrock Products
30	Mansfield Tire & Rubber Co
30	Monogram Industries Inc
30	Rogers Corp
30	Rubbermaid Inc
30	Uniroyal Inc
30	Voplex Corp
31	Interco Inc.
31	Kleinerts Inc
31	Stride Rite Corp
31	Vulcan Corp
31	Weyenberg Shoe Mfg. Co
32	Ameron Inc
32	Basic Inc
32	Brockway Glass Co
32	Corning Glass Works
32	Dorsey Corp
32	General Refractories Co
32	Giant Portland & Masonry Cem
32	Interpace Corp
32	Johns-Manville Corp
32	Lone Star Industries
32	Medusa Corp.
32	MWA Co.
32	National Gypsum Co
32	Norton Co
32	Owens-Corning, Fiberglass Corp
32	Owens-Illinois Inc
32	PPG Industries Inc
32	Southdown Inc
32	U S Gypsum Co

APPENDIX A (Continued)

SIC Code	Manufacturing Firms
32	Vulcan Materials Co
33	Aluminum Co of America
33	Ampco-Pittsburgh Corp
33	Armada Corp
33	Armco Inc
33	Belden Corp
33	Bethlehem Steel Corp
33	Bristol Brass Corp
33	Bundy Corp
33	Carpenter Technology
33	Copperweld Corp
33	General Cable Corp
33	Handy & Harman
33	Interlake Inc
33	McClouth Steel Corp
33	National Steel Corp
33	Northwestern Steel & Wire Co
33	Porter (H.K.) Inc-Del
33	Quanex Corp
33	Reynolds Metals Co
33	Roblin Industries
33	RSC Industries Inc
33	U S Steel Corp
33	Washington Steel Corp.
33	Welded Tube of America
34	Allied Products
34	American Can Co
34	Automated Bldg Components Inc
34	Barnes Group Inc
34	Brooks & Perkins Inc
34	Callahan Mining Corp
34	Carrier Corp
34	Ceco Corp
34	Chicago Bridge and Iron Co
34	Chicago Rivet & Machine Co
34	Condec Corp
34	Crane Co
34	Crown Cork & Seal Co Inc
34	Diebold Inc
34	Eastern Co
34	Florida Steel Corp
34	Graham Mfg Inc
34	HMW Industries Inc
34	Illinois Tool Works

APPENDIX A (Continued)

SIC Code	Manufacturing Firms
34	Keller Industries Inc
34	Lamson & Sessions Co
34	Masco Corp
34	Mirro Aluminum Co
34	National Can Corp
34	National Standard Co
34	Nucor Corp
34	P & F Industries Inc
34	Park Electrochemical Corp
34	Penn Engineering & Mfg Corp
34	Pentron Industries
34	Philips Industries Inc
34	Plant Industries Inc.
34	Premier Industrial Corp
34	Raymond Industries Inc
34	Season-All Industries Inc
34	Standex International Corp
34	Stanley Works
34	Sunshine Mining Co
34	TRE Corp
34	Tyler Corp
34	Wallace-Murray Corp
34	Watsco Inc
35	A-T-O Inc
35	Acme-Cleveland Corp
35	Ansul Co
35	Big Three Industries
35	Black & Decker Mfg Co
35	Brown & Sharpe Mfg Co
35	Brunswick Corp
35	BTU Engineering Corp
35	Burroughs Corp
35	California Computer Products
35	Caterpillar Tractor Co
35	Chicago Pneumatic Tool Co
35	Cincinnati Milacron Inc
35	Clark Equipment Co
35	Comp Inds
35	Control Data Corp
35	Copeland Corp
35	Crutcher Resources Corp

APPENDIX A (Continued)

SIC Code	Manufacturing Firms
35	Curtiss-Wright Corp
35	Deere & Co
35	Dictaphone Corp
35	Dorr-Oliver Inc
35	Dover Corp
35	Eagle-Picher Inds
35	Electronic Associates Inc
35	Embart Corp
35	Ex-Cell-O Corp
35	Foster Wheeler Corp
35	Gardner-Denver Co
35	Gearhart Owen Industries
35	Genisco Technology
35	Giddings & Lewis Inc
35	Gleason Works
35	Harnischfeger Corp
35	Hobart Corp
35	Honeywell Inc
35	IMC Magnetics Corp
35	Intl Business Machines Corp
35	Kearney and Trecker Corp
35	Koehring Co
35	Lee Corp
35	Memorex Corp
35	Mesta Machine Co
35	Mohawk Data Sciences
35	New Hampshire Ball Bearings
35	Omark Industries Inc
35	Outboard Marine Corp
35	Pall Corp
35	Pitney-Bowes Inc
35	Rockaway Corp
35	Scott & Fetzer Co
35	Selas Corp of America
35	Skil Corp
35	Speed-O-Print Bus Machines
35	Systems Engineering Labs
35	Teleflex Inc
35	Tenney Engineering Inc
35	Timken Co
35	Toro Co
35	Trane Co

APPENDIX A (Continued)

SIC Code	Manufacturing Firms
35	Trico Industries
35	Tyco Laboratories Inc
35	U S.Filter Corp
35	Vendo Co
35	Wylain Inc
36	Amp Inc
36	Andrea Radio Corp
36	Automatic Radio Mfg Co
36	Champion Spark Plug
36	Conrac Corp
36	Crouse-Hinds Co
36	CTS Corp
36	Cutler-Hammer Inc
36	Duro-Test Corp
36	Echlin Mfg Co
36	EG&G Inc
36	Electronic Research Assoc
36	Electronics Corp of America
36	Esquire Inc
36	Esquire Radio & Electron Inc
36	Executone Inc
36	General Electric Co
36	General Instrument Corp
36	Granger Associates
36	GTI Corp
36	Hazeltine Corp
36	High Voltage Engineering
36	Hoover Co
36	Intl Rectifier Corp
36	La Pointe Industries
36	Lynch Corp
36	M A Com Inc
36	Mallory (P.R.) and Co., Inc.
36	Medtronic Inc
36	National Presto Inds Inc
36	National Semiconductor Corp
36	North American Philips Corp
36	Oak Industries Inc
36	RTE Corp
36	Raytheon Co
36	RCA Corp
36	Reliance Electric Co
36	Sanders Associates Inc
36	Scovill Inc

APPENDIX A (Continued)

SIC Code	Manufacturing Firms
36	Sealectro Corp
36	Servo Corp of America
36	SGL Industries Inc
36	Singer Co
36	Sparton Corp
36	Square D Co
36	Suanir Electronics Inc
36	Sunbeam Corp
36	Tappan Co
36	Tensor Corp
36	Texas Instruments Inc
36	Thomas & Betts Corp
36	Thomas Industries Inc
36	Varian Associates Inc
36	Vard Inc
36	Vernitron Corp
36	Wabash Inc
36	Westinghouse Electric Corp
36	Whirlpool Corp
36	White Consolidated Inds Inc
36	Zenith Radio Corp
37	Ace Inds
37	Allen Group
37	Allied Artists Industries
37	American Ship Building Co
37	American Standard Inc
37	Arvin Industries Inc
37	Beech Aircraft Corp
37	Borg-Warner Corp
37	Buell Industries Inc
37	CCI Corp
37	Cessna Aircraft Co
37	Chrysler Corp
37	Dana Corp
37	Easton Corp
37	Fairchild Industries Inc
37	Federal-Mogul Corp
37	Fruehauf Corp
37	Gates Learjet Corp
37	Grumman Corp

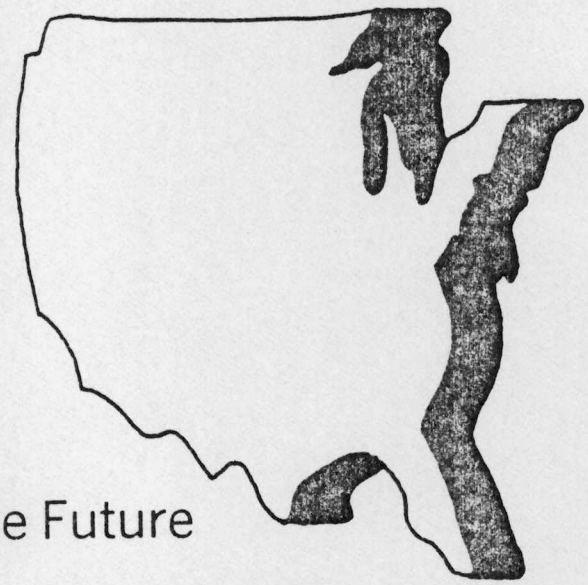
APPENDIX A (Continued)

SIC Code	Manufacturing Firms
37	Heath Techa Corp.
37	Intl Harvester Co.
37	Maremont Corp.
37	Napco Industries Inc
37	Northrop Corp
37	Rockwell Intl Corp
37	Sierracin Corp
37	Smith (A.O.) Corp
37	Standard Motor Products Inc
37	Standard Products Co
37	TRW Inc
37	United Technologies Corp
38	American Science Engineering
38	American Sterilizer Co
38	Anken Industries
38	Bard (C.R.) Inc
38	Beckman Instruments Inc
38	Becton, Dickinson & Co
38	Bell & Howell Co
38	Esterline Corp
38	Fischer & Porter Co
38	Fisher Scientific Co
38	Fluke (John) Mfg Co.
38	General Signal Corp
38	Heinicke Instruments
38	Hycel Inc.
38	Johnson Controls Inc
38	Mangood Corp
38	Narco Scientific Inc
38	Polaroid Corp
38	Tektronix Inc
39	AMF Inc
39	Binney & Smith Inc
39	Evans-Aristocrat Inds
39	Jostens Inc
39	Mattel Inc
39	Pennsylvania Engineering Co
39	Shakespeare Co
39	Starrett (L.S. Co
39	Swank Inc

APPENDIX B

THE QUESTIONNAIRE

PLANNING



Deciding the Future

WHICH PRACTICES FOR YOUR FIRM?

Please answer all of the questions. If you wish to comment on any questions or qualify your answers, please use the margins or a separate sheet of paper.

Return this questionnaire to:
James F. Brown Jr.
The University of Tennessee
P. O. Box 8221
Knoxville, Tennessee 37916

This study is endorsed by:

North American Society for Corporate Planning Inc.

Q-1 Which of the following organizational areas are included in your firm's planning system?

(Circle all numbers which are appropriate)

1 CORPORATE
2 GROUP (Section)
3 BUSINESS UNITS (Divisions)
4 MAJOR FUNCTIONS
5 SUPPORTING FUNCTIONS

Q-2 Would you characterize your firm's goal setting process as top-down, negotiated, or bottom-up?

(Circle one number only)

1 TOP-DOWN GOAL SETTING
2 NEGOTIATED GOAL SETTING
3 BOTTOM-UP GOAL SETTING

Q-3 In your firm during what time period are major corporate objectives and strategies prepared?

(Circle one number only)

1 STRATEGIC PLANNING PERIOD OR CYCLE
2 OPERATIONAL PLANNING PERIOD OR CYCLE
3 BUDGETING PERIOD OR CYCLE

Q-4 Which of the following organization patterns is <u>most</u> representative of your firm?

(Circle one number only)

1 CHIEF EXECUTIVE OFFICE
FUNCTIONAL AREAS

2 CHIEF EXECUTIVE OFFICE
PRODUCT/MARKET DIVISIONS
FUNCTIONAL AREAS

3 CHIEF EXECUTIVE OFFICE
GROUP AREAS
PRODUCT/MARKET DIVISIONS
FUNCTIONAL AREAS

4 CHIEF EXECUTIVE OFFICE
PRODUCT/MARKET <u>AND</u> FUNCTIONAL AREAS

Q-5 Which of the following elements of strategy are developed by the Chief Executive Office in your firm?

(Circle all numbers which are appropriate)

1 FINANCIAL OBJECTIVES STATED IN TERMS OF STOCKHOLDERS OR SOCIETAL GROUPS
2 NON-FINANCIAL OBJECTIVES SUCH AS CREEDS AND ETHICAL GUIDELINES
3 FINANCIAL CONSTRAINTS AND POLICIES SUCH AS DEBT STRUCTURE, DIVIDEND POLICY, AND DIVERSITY OF RISK CONSTRAINTS
4 CONSTRAINTS AND POLICIES COVERING DIVERSITY OF CORPORATE ACTIVITIES OR CRITERIA FOR APPROVING NEW RESOURCE COMMITMENTS
5 PERFORMANCE EXPECTATIONS FOR EACH LINE OF BUSINESS OVER THE NEXT SEVERAL YEARS

The next four questions will be concerned with the involvement of various managerial levels in your firm's strategic planning process.

Q-6 From the following statements, select the one which is most characteristic of the degree of involvement of the Chief Executive Office with the development of strategic plans.

(Circle one number only)

1 DOES NOT PARTICIPATE IN THE DEVELOPMENT PROCESS
2 PARTICIPATION IS LIMITED TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS PREPARED BY SUBORDINATES
3 IN ADDITION TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS, FREQUENT INPUT IS PROVIDED DURING THE DEVELOPMENT PROCESS
4 IN ADDITION TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS, CONTINUOUS INPUT IS PROVIDED DURING THE DEVELOPMENT PROCESS

Q-7 Which of the following statements is most characteristic of the involvement of Group managers (those with several divisions reporting to them) in the development of strategic plans.

(Circle one number only)

1 DOES NOT PARTICIPATE IN THE DEVELOPMENT PROCESS
2 PARTICIPATION IS LIMITED TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS PREPARED BY SUBORDINATES
3 IN ADDITION TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS, FREQUENT INPUT IS PROVIDED DURING THE DEVELOPMENT PROCESS
4 IN ADDITION TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS, CONTINUOUS INPUT IS PROVIDED DURING THE DEVELOPMENT PROCESS
5 MANAGERIAL LEVEL IS NOT PRESENT IN THIS FIRM

Q-8 Which of the following statements is most characteristic of the degree of involvement of Divisional (profit-center or business unit) managers in the development of strategic plans.

(Circle one number only)

1 DOES NOT PARTICIPATE IN THE DEVELOPMENT PROCESS
2 PARTICIPATION IS LIMITED TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS PREPARED BY SUBORDINATES
3 IN ADDITION TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS, FREQUENT INPUT IS PROVIDED DURING THE DEVELOPMENT PROCESS
4 IN ADDITION TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS, CONTINUOUS INPUT IS PROVIDED DURING THE DEVELOPMENT PROCESS
5 MANAGERIAL LEVEL IS NOT PRESENT IN THIS FIRM

Q-9 From the following statements, select the one which is most characteristic of the degree of involvement of the Functional managers with the development of strategic plans.

(Circle one number only)

1 DOES NOT PARTICIPATE IN THE DEVELOPMENT PROCESS
2 PARTICIPATION IS LIMITED TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS PREPARED BY SUBORDINATES
3 IN ADDITION TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS, FREQUENT INPUT IS PROVIDED DURING THE DEVELOPMENT PROCESS
4 IN ADDITION TO REVIEW, CRITIQUE, AND APPROVAL OF PLANS, CONTINUOUS INPUT IS PROVIDED DURING THE DEVELOPMENT PROCESS

Q-10 Which of the following degrees of formality is most characteristic of your firm's planning system for each of the organizational areas specified in items 1-5 below?

A means verbally developed and communicated
B means verbally developed but communicated in a written format
C means developed and communicated in a written format
D means developed and communicated in a written format and reviewed verbally
E means organizational area is not included in the system

	Formality Involved (Circle one Letter)
1 CORPORATE	A B C D E
2 GROUP (Section)	A B C D E
3 BUSINESS UNITS (Divisions)	A B C D E
4 MAJOR FUNCTIONS	A B C D E
5 SUPPORTING FUNCTIONS	A B C D E

Q-11 In your firm's performance evaluation system, what weight is given to a manager's strategic planning efforts and/or effectiveness in decisions related to compensation for the managerial levels specified in items 1-5 below?

A means no consideration
B means 1-10 percent
C means 11-20 percent
D means 21-30 percent
E means 31-40 percent
F means 41-50 percent
G means over 50 percent

		Long-run Performance Consideration Percent (Circle one Letter)
1	CHIEF EXECUTIVE OFFICE	A B C D E F G
2	GROUP MANAGER	A B C D E F G
3	PRODUCT/MARKET DIVISIONAL MANAGER	A B C D E F G
4	MAJOR FUNCTIONAL MANAGER	A B C D E F G
5	SUPPORTING FUNCTIONAL MANAGER	A B C D E F G

Q-12 For each organization structural level specified in items 1-5 below, which of the following time periods is utilized in establishing performance goals for your firm's strategic plans?

A means performance goals are not specified
B means goals specified for each of the next 1-2 years
C means goals specified for each of the next 3-5 years
D means goals specified for next year and 1 or 2 years in the next 10
E means goals specified as an average for a period of several years

		Time Period Involved (Circle one Letter)
1	CORPORATION LEVEL	A B C D E
2	GROUP (Section) LEVEL	A B C D E
3	PRODUCT/MARKET DIVISION LEVEL	A B C D E
4	MAJOR FUNCTIONAL LEVEL	A B C D E
5	SUPPORTING FUNCTIONAL LEVEL	A B C D E

Q-13 For the managerial levels specified in items 1-3 below, what the major focus of managers involved in the strategic planning process?

A means focus is with financial analysis
B means focus is with marketing analysis
C means focus is with all strategic issues and alternatives
D means managerial level is not included in the planning system

	Managerial Focus (Circle one Letter)
1 CHIEF EXECUTIVE OFFICE	A B C D
2 GROUP LEVEL	A B C D
3 DIVISION LEVEL	A B C D

Q-14 Below you will find a series of statements which are concerned with the linkage of plans and budgets. Select those statements which apply to your firm.

(Circle all numbers which are appropriate)

1 STRATEGIC PLANS INCLUDE FINANCIAL DATA WITH THE SAME LEVEL OF DETAIL AS IN THE ANNUAL OPERATING BUDGETS

2 STRATEGIC PLANS INCLUDE FINANCIAL DATA BUT THE LEVEL OF DETAIL IS LESS THAN THE REQUIREMENTS FOR THE ANNUAL OPERATING BUDGETS

3 STRATEGIC PLANS DO NOT INCLUDE FINANCIAL DATA

4 THERE IS CONFORMITY BETWEEN STRATEGIC PLAN AND BUDGET NUMBERS FOR THOSE YEARS WHICH ARE COMMON TO BOTH

Q-15 What is the organizational title of the manager (other than the Chief Executive Officer) with ultimate responsibility for implementing your firm's strategic planning process?

TITLE_____

Q-16 If planning is not this manager's sole responsibility, what are his other areas of responsibility?

AREAS_____

_____

_____

Q-17 Below you will find a series of variables which may receive consideration in your firm's strategic planning system. You are to indicate, within your planning system, the degree of importance associated with each of these variables.

NO means variable is of no importance
SI means variable is of slight importance
MI means variable is of moderate importance
GI means variable is of great importance
MAX means variable is of maximum importance

	Degree of Importance (Circle one Answer)
• MARKET SHARE	NO SI MI GI MAX
• QUALITY OF PRODUCTS	NO SI MI GI MAX
• MARKET SEGMENTATION	NO SI MI GI MAX
• MARKET SIZE	NO SI MI GI MAX
• NEW MARKET DEVELOPMENT	NO SI MI GI MAX
• DEGREE OF CUSTOMER CONCENTRATION	NO SI MI GI MAX
• LENGTH OF PRODUCTION CYCLE	NO SI MI GI MAX
• NEWNESS OF PLANT AND EQUIPMENT	NO SI MI GI MAX
• RELATIVE WAGE RATE	NO SI MI GI MAX
• DISCRETIONARY CASH FLOW/GROSS CAPITAL INVESTMENT	NO SI MI GI MAX
• RATE OF TECHNOLOGICAL CHANGE IN PRODUCTS OR PROCESSES	NO SI MI GI MAX
• DEGREE OF PRODUCT DIFFERENTIATION	NO SI MI GI MAX
• TRANSPORTATION AND DISTRIBUTION COSTS	NO SI MI GI MAX
• INDUSTRY PRICE/COST STRUCTURE	NO SI MI GI MAX
• ECONOMIES OF SCALE	NO SI MI GI MAX
• DEGREE OF AUTOMATION IN INDUSTRY	NO SI MI GI MAX
• BUYER LOYALTY	NO SI MI GI MAX
• PURCHASE FREQUENCY	NO SI MI GI MAX
• DEGREE OF SUPPLIER CONCENTRATION	NO SI MI GI MAX
• MAJOR CHANGES IN AVAILABILITY OF RAW MATERIALS	NO SI MI GI MAX
• GNP TREND	NO SI MI GI MAX
• INTEREST RATES	NO SI MI GI MAX
• MONEY SUPPLY	NO SI MI GI MAX
• ENERGY AVAILABILITY	NO SI MI GI MAX
• POLITICAL FORECASTING	NO SI MI GI MAX
• ANTITRUST REGULATIONS	NO SI MI GI MAX
• ENVIRONMENTAL PROTECTION LAWS	NO SI MI GI MAX
• SOCIAL FORECASTING	NO SI MI GI MAX
• AGE DISTRIBUTION OF POPULATION	NO SI MI GI MAX
• REGIONAL SHIFTS OF POPULATION	NO SI MI GI MAX
• LIFE STYLE CHANGES	NO SI MI GI MAX
• CONSUMER ACTIVISM	NO SI MI GI MAX
• BUSINESS UNIT SEGMENTATION	NO SI MI GI MAX
• PRODUCT/MARKET PROFILE	NO SI MI GI MAX
• BUSINESS PORTFOLIO ANALYSIS	NO SI MI GI MAX
• EXPERIENCE CURVES	NO SI MI GI MAX
• STAGE OF THE LIFE CYCLE	NO SI MI GI MAX

Q-18 In this question a series of six statements are presented. In your opinion, how representative are these statements of your firm's planning system?

SD means strongly disagree
D means moderately disagree
N means neither agree nor disagree
A means moderately agree
SA means strongly agree

	Extent of Agreement (Circle one Answer)
• ONE OF THE AIMS OF TOP MANAGEMENT IS TO MAKE USE OF THE FORMAL PLANNING PROCESS AS THE PRIMARY SUPPORT MECHANISM FOR FORMULATING STRATEGIC CHOICES.	SD D N A SA
• ONE OF THE AIMS OF TOP MANAGEMENT IS TO MAKE USE OF THE FORMAL PLANNING PROCESS AS ONE OF SEVERAL PROCEDURES FOR FORMULATING STRATEGIC CHOICES.	SD D N A SA
• THE OVERALL PURPOSE OF GOING THROUGH A FORMAL PLANNING PROCESS IS UNDERSTOOD AT ALL LEVELS OF THE ORGANIZATION THAT ARE INVOLVED.	SD D N A SA
• THERE ARE COMMON REQUIREMENTS REGARDING THE STANDARDIZATION OF CONTENTS, FORMATS, DEADLINES, METHODS, ETC., OF THE FORMAL PLANNING SYSTEM.	SD D N A SA
• FUNCTIONAL MANAGERS ARE PERSONALLY INVOLVED IN THE FORMAL PLANNING PROCESS.	SD D N A SA
• THE PLANNING SYSTEM IS FORMALLY INTEGRATED WITH THE MANAGEMENT CONTROL SYSTEM.	SD D N A SA

Q-19 In many instances in which there is a planning system, there is also a planning executive responsible for managing the planning process. Below you will find a description of three roles a corporate planner could perform in an organization. Which role best describes the role performed by your firm's corporate planner?

(Circle one number only)

1 FIRM HAS NO CORPORATE PLANNER

2 PLANNING BROKER ROLE--the corporate planner attempts to maintain neutrality and impartiality in his relationships with other managers. He avoids taking positions whenever possible on the strategic issues confronting the corporation.

3 PRESIDENTIAL ADVISOR ROLE--the corporate planner sees the president as his client and the president's needs as his concerns. Rather than attempting to maintain neutrality, the planner may take and make use of "the president's ear" to further his client's purposes.

4 STRATEGIC EVALUATOR ROLE--the corporate planner attempts to define a role that permits him to have his own position on strategic issues. He seeks independence rather than neutrality or subjugation to the chief executive.

Q-20 For the functional roles specified in items 1-5 below, how would you characterize your firms corporate planner's performance within the planning system?

NO means role is of no importance
SI means role is of slight importance
MI means role is of moderate importance
GI means role is of great importance
MAX means role is of maximum importance

		Degree of Importance (Circle one Answer)				
1	ADVISOR	NO	SI	MI	GI	MAX
2	ANALYST	NO	SI	MI	GI	MAX
3	COORDINATOR	NO	SI	MI	GI	MAX
4	DICTATOR	NO	SI	MI	GI	MAX
5	REVIEWER	NO	SI	MI	GI	MAX

Your participation in the following question is of extreme importance to the researcher!

Q-21 In what year did your firm begin a system of formal strategic planning?

YEAR_____

Q-22 New planning systems generally involve a "period of learning" before managers adapt to the changes necessitated by the system. In your opinion, what time period was associated with the learning process?

LEARNING TIME (Years)_____

Q-23 Please indicate your organizational title and major areas of responsibility.

TITLE_____

RESPONSIBILITIES_____

_____

_____

_____

_____

The following question is optional. Responses to the question can provide additional insight as to the nature of the evolutionary process of planning systems. Your participation will be appreciated.

Q-24 Several firms have experienced a need for significantly modifying their planning system. In the space provided below or on a separate sheet of paper, please indicate the major events in the evolution of your firm's planning system.

	Year	Planning System Evolutionary Event
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____

Is there any additional information which you would like to provide about your firm's strategic planning system? If so, please use this space for that purpose.

Also, any comments you wish to make that you think may help this researcher in future efforts to understand the nature of planning systems in use by U.S. manufacturing firms will be appreciated. Please make these comments here or in a separate letter.

Your contribution to this effort is greatly appreciated. Check the block below if you desire a summary of the results of this study.



APPENDIX C

THE INITIAL COVERLETTER

THE UNIVERSITY OF TENNESSEE
KNOXVILLE 37916
COLLEGE OF BUSINESS ADMINISTRATION

DEPARTMENT OF ACCOUNTING

In an effort to cope with change, formal planning systems became popular in the 1960s and have continued to evolve in the 1970s. However, no one really knows what kinds of planning systems are being used or how effective these systems have been in improving a firm's performance. Your firm is one of a small number in which managers are being asked to provide information on these matters.

This study is conducted in partial fulfillment of the doctoral requirements in managerial accounting at The University of Tennessee. The study has been endorsed by the North American Society for Corporate Planning. In order that results of the study will truly represent planning systems as they currently exist, it is important that each questionnaire be completed by the individual with primary responsibility for your firm's planning process. Please return the questionnaire in its enclosed envelope as soon as possible.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes. This is so that your name may be checked off the mailing list when your questionnaire is returned. You or your firm's name will never appear on the results.

The results of this study will be made available to interested individuals. You may receive a summary of results by marking the space provided on the back cover of the questionnaire.

I would be happy to answer any questions you might have. Please write or call. The number is (615) 581-3054.

Thank you for your assistance.

Sincerely yours,

James F. Brown Jr.

APPENDIX D

THE POSTCARD FOLLOW-UP

November 16, 1979

Recently a questionnaire seeking information about your firm's planning system was mailed to you. If you have already completed and returned the questionnaire, please accept my sincere thanks.

The questionnaire was sent to a small but representative sample of U.S. firms; therefore, it is extremely important that your firm also be included in the study if the results are to accurately represent planning systems in use by manufacturing firms.

If you did not receive the questionnaire, or it has been misplaced, please call (615) 581-3054 and another one will be mailed to you.

Sincerely,

James F. Brown Jr.

APPENDIX E

THE FOLLOW-UP COVERLETTER

THE UNIVERSITY OF TENNESSEE
KNOXVILLE 37916
COLLEGE OF BUSINESS ADMINISTRATION

DEPARTMENT OF ACCOUNTING

About three weeks ago I wrote to you seeking information about your firm's planning system. As of today your firm's completed questionnaire has not been received.

This study has been undertaken because of the belief that additional knowledge concerning the nature of existing planning systems is needed. The study has been endorsed by the North American Society for Corporate Planning.

I am writing you again because of the significance each questionnaire has to the usefulness of this study. Your firm was selected through a carefully designed sampling process. In order for the results of this study to be truly representative of the planning systems of U.S. manufacturing firms, it is essential that each firm in the sample return their questionnaire. The questionnaire should be completed by the individual with primary responsibility for the implementation of your firm's planning system.

In the event that your questionnaire has been misplaced, a replacement is enclosed.

Your cooperation is greatly appreciated.

Cordially,

James F. Brown Jr.

APPENDIX F

DEFINITION OF PERFORMANCE RATIOS

APPENDIX F

DEFINITION OF PERFORMANCE RATIOS

Ratio	Definition
Return on Assets	Annual return on assets will be defined as the ratio of income before extraordinary items and discontinued operations plus interest expense to net plant assets.
Profit Margin	Annual profit margin will be defined as the ratio of income before extraordinary items and discontinued operations plus interest expense to net sales.
Asset Turnover	Annual asset turnover will be defined as the ratio of net sales to net plant assets.
Return on Common Stockholders Equity	Annual return on equity will be defined as the ratio of income before extraordinary items and discontinued operations minus preferred dividends to the common shareholders interest in the company.
Sales	Annual net sales represent gross sales and other operating revenue less discounts, returns and allowances.

APPENDIX G

LIST OF FIRMS RESPONDING TO THE QUESTIONNAIRE

APPENDIX G

LIST OF FIRMS RESPONDING TO THE QUESTIONNAIRE

SIC Code	Manufacturing Firms
20	Beatrice Foods Co
20	Brown-Forman Distillers-Cl B
20	Campbell Soup Co
20	Central Soya Co
20	Coca-Cola Bottling Co of NY
20	Conagra Inc
20	Flowers Industries Inc
20	Ingredient Technology Corp
20	Norton Simon Inc
20	Olympia Brewing
20	Pepcom Industries
20	Pepsico Inc
20	Pillsbury Co
20	Pittsburgh Brewing
20	Staley (A.E.)Mfg Co
20	Wrigley (Wm.) Jr Co
21	Liggett Group
21	U S Tobacco Co
22	Akzona
22	Armstrong Cork Co
22	Huyck Corp
22	Reeves Brothers Inc
22	Springs Mills Inc
23	Angelica Corp
23	Hart Schaffner & Marx Co
23	U S Industries
24	Boise Cascade Corp
24	Weyerhaeuser Co
26	Bowater Corp LTD-Adr
26	Kimberly-Clark Corp
26	Potlatch Corp
26	Sorg Paper Co
26	Union Camp Corp
27	Arcata Corp
27	Grolier Inc
27	Reynolds & Reynolds
27	Scott Foresman Co
27	Time Inc
28	Air Products & Chemicals Inc
28	Celanese Corp
28	Crompton & Knowles Corp

APPENDIX G (Continued)

SIC Code	Manufacturing Firms
28	Dexter Corp
28	DePont (E.I.) De Nemours
28	FMC Corp
28	Great Lakes Chemical Corp
28	Kin-Ark Corp
28	Marion Laboratories
28	Monsanto Co
28	Olin Corp
28	Pennwalt Corp
28	Richardson-Merrell Inc
28	Rohm & Haas Co
28	Schering-Plough
28	SCM Corp
28	Searle (G.D.) & Co
28	Stauffer Chemical Co
28	Union Carbide Corp
28	Valspar Corp
28	Warner-Lambert Co
29	Atlantic Richfield Co
29	Certain-Teed Corp
29	Cities Service Co
29	Conoco Inc
29	Exxon Corp
29	Husky Oil LTD
29	Marathon Oil Co
29	Murphy Oil Corp
29	Phillips Petroleum Co
29	Shell Oil Co
29	Standard Oil Co (Ohio)
29	Union Oil Co of California
29	Witco Chemical Corp
30	Amerace Corp
30	Armstrong Rubber
30	Bandag Inc
30	Cellu-Craft Inc
30	Firestone Tire & Rubber Co
30	Glasrock Products
30	Monogram Industries Inc
30	Rogers Corp
30	Rubbermaid Inc
32	Ameron Inc
32	Brockway Glass Co
32	Corning Glass Works
32	Interpace Corp

APPENDIX G (Continued)

SIC Code	Manufacturing Firms
32	Lone Star Industries
32	Owens-Corning Fiberglass Corp
32	Owens-Illinois Inc
32	PPG Industries Inc
32	Vulcan Materials Co
33	Aluminum Co of America
33	Armco Inc
33	Bethlehem Steel Corp
33	Bristol Brass Corp
33	Carpenter Technology
33	Copperweld Corp
33	Northwestern Steel & Wire Co
33	Reynolds Metals Co
33	U S Steel Corp
33	Washington Steel Corp
34	Allied Products
34	American Can Co
34	Automated Bldg Components Inc
34	Callahan Mining Corp
34	Chicago Bridge and Iron Co
34	Graham Mfg Inc
34	Keller Industries Inc
34	Nucor Corp
34	Philips Industries Inc
34	Tyler Corp
35	Ansul Co.
35	Black & Decker Mfg Co
35	California Computer Products
35	Caterpillar Tractor Co
35	Deere & Co
35	Dorr-Oliver Inc.
35	Ex-Cell-O Corp
35	Foster Wheeler Corp
35	Giddings & Lewis Inc
35	Harnischffger Corp
35	Honeywell Inc
35	Intl Business Machines Corp
35	Kearney and Trecker Corp.
35	Memorex Corp
35	Omark Industries Inc
35	Toro Co
35	Wylain Inc

APPENDIX G (Continued)

SIC Code	Manufacturing Firms
36	Conrac Corp
36	Duro-Test Corp
36	Echlin Mfg. Co.
36	EG&G Inc
36	General Electric Co
36	Hazeltine Corp
36	Hoover Co
36	Medtronic Inc
36	National Semiconductor Corp
36	Oak Industries Inc
36	RCA Corp
36	Sunair Electronics Inc
36	Texas Instruments Inc
36	Varian Associates Inc
36	Westinghouse Electric Corp
36	Zenith Radio Corp
37	Borg-Warner Corp
37	Chrysler Corp
37	Eaton Corp
37	Federal-Mogul Corp
37	Fruehauf Corp
37	Heath Recha Corp
37	Intl Harvester Co
37	Maremont Corp
37	Napco Industries Inc
37	Rockwell Intl Corp
37	Smith (A.O.) Corp
37	TRW Inc
37	United Technologies Corp
38	Bard (C.R.) Inc
38	Beckman Instruments Inc
38	Becton, Dickinson & Co
38	Bell & Howell Co
38	Fischer & Porter Co
38	Fisher Scientific Co
38	Heinicke Instruments
38	Johnson Controls Inc
38	Narco Scientific Inc
38	Tektronix Inc
39	AMF Inc
39	Binney & Smith Inc

APPENDIX H

LISTING OF FIRMS CLASSIFIED BY THE CLUSTERING METHODOLOGY

APPENDIX H

LISTING OF FIRMS CLASSIFIED BY THE CLUSTERING METHODOLOGY

SIC Code	Manufacturing Firms
20	Beatrice Foods Co
20	Brown-Forman Distillers-Cl B
20	Campbell Soup Co
20	Central Soya Co
20	Coca-Cola Bottling Co of NY
20	Conagra Inc
20	Ingredient Technology Corp
20	Norton Simon Inc
20	Pepcom Industries
20	Pepsico Inc
20	Pillsbury Co
20	Pittsburgh Brewing
20	Staley (A.E.) Mfg Co
20	Wrigley (Wm.) Jr Co
21	Liggett Group
21	U S Tobacco Co
22	Akzona
22	Armstrong Cork Co
22	Huyck Corp
22	Reeves Brothers Inc
22	Springs Mills Inc
23	Hart Schaffner & Marx Co
23	U S Industries
24	Weyerhaeuser Co
26	Kimberly-Clark Corp
26	Potlatch Corp
26	Sorg Paper Co
26	Union Camp Corp
27	Arcata Corp
27	Reynolds & Reynolds
27	Scott Foresman Co
27	Time Inc
28	Air Products & Chemicals Inc
28	Celanese Corp
28	Dexter Corp
28	Du Pont (E.I.) De Nemours
28	FMC Corp
28	Great Lakes Chemical Corp
28	Marion Laboratories
28	Monsanto Co
28	Richardson-Merrell Inc

APPENDIX H (Continued)

SIC Code	Manufacturing Firms
28	Rohm & Haas Co
28	Schering-Plough
28	Union Carbide Corp
28	Valspar Corp
28	Warner-Lambert Co
29	Certain-Teed Corp
29	Conoco Inc
29	Exxon Corp
29	Husky Oil LTD
29	Marathon Oil Co
29	Murphy Oil Corp
29	Phillips Petroleum Co
29	Shell Oil Co
29	Union Oil Co of California
29	Witco Chemical Corp
30	Amerace Corp
30	Armstrong Rubber
30	Bandag Inc
30	Cellu-Craft Inc
30	Firestone Tire & Rubber Co
30	Clasrock Products
30	Monogram Industries Inc
30	Rogers Corp
30	Rubbermaid Inc
32	Ameron Inc
32	Brockway Glass Co
32	Corning Glass Works
32	Interpace Corp
32	Lone Star Industries
32	Owens-Corning Fiberglas Corp
32	Owens-Illinois Inc
32	PPG Industries Inc
32	Vulcan Materials Co
33	Aluminum Co of America
33	Armco Inc
33	Bethlehem Steel Corp
33	Bristol Brass Corp
33	Carpenter Technology
33	Copperweld Corp
33	Northwestern Steel & Wire Co
33	Reynolds Metals Co
33	U S Steel Corp
33	Washington Steel Corp
34	Allied Products
34	American Can Co
34	Automated Bldg Compnents Inc
34	Callahan Mining Corp
34	Chicago Bridge and Iron Co
34	Graham Mfg. Inc

APPENDIX H (Continued)

SIC Code	Manufacturing Firms
34	Keller Industries Inc
34	Nucor Corp
34	Philips Industries Inc
34	Tyler Corp
35	Ansul Co
35	Black & Decker Mfg. Co
35	California Computer Products
35	Caterpillar Tractor Co
35	Deere & Co
35	Dorr-Oliver Inc.
35	Ex-Cell-O Corp
35	Foster Wheeler Corp
35	Harnischfeger Corp
35	Honeywell Inc
35	Kearney and Trecker Corp
35	Memorex Corp
35	Omark Industries Inc
35	Toro Co
35	Wylain Inc
36	Conrac Corp
36	Duro-Test Corp
36	Echlin Mfg Co
36	EG&G Inc
36	Hazeltine Corp
36	Hoover Co
36	National Semiconductor Corp
36	Oak Industries Inc
36	RCA Corp
36	Sunair Electronics Inc
36	Varian Associates Inc
36	Westinghouse Electric Corp
36	Zenith Radio Corp
37	Chrysler Corp
37	Eaton Corp
37	Federal-Mogul Corp
37	Fruehauf Corp
37	Intl Harvester Co
37	Maremont Corp
37	Smith (A.O.) Corp
37	TRW Inc
37	United Technologies Corp
38	Bard (C.R.) Inc
38	Becton, Dickinson & Co
38	Fischer & Porter Co
38	Fisher Scientific Co
38	Heinicke Instruments
38	Johnson Controls Inc
38	Narco Scientific Inc
39	Binney & Smith Inc

APPENDIX I

RELATIONSHIP BETWEEN PLANNING DIMENSIONS AND THE QUESTIONNAIRE COMPONENTS

Dimension	Questions																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Organization structure				x																		
Pervasiveness of planning effort	x																					
Management style and philosophy		x				x	x	x	x				x					x				
Time periods involved in the planning effort			x																			
Degree of environmental scanning																	x					
Communication process										x								x				
Goal-setting process		x										x										
Managerial involvement in planning process					x	x	x	x	x									x				
Importance of planning effort											x											
Linkage between the planning and budgeting process														x				x				
Role of corporate planner															x	x			x	x		
Experience with a strategic planning proce process																					x	x

APPENDIX J

CATEGORIZATION OF ENVIRONMENTAL SCANNING VARIABLES

APPENDIX J

CATEGORIZATION OF ENVIRONMENTAL SCANNING VARIABLES

ORGANIZATIONAL CHARACTERISTICS

- Market share
- Quality of products
- Degree of Customer concentration
- Length of production cycle
- Newness of plant and equipment
- Relative wage rate
- Discretionary cash flow/ gross capital investment

INDUSTRY STRUCTURE

- Rate of technological change in products or processes
- Degree of product differentiation
- Industry price/cost structure
- Economics of scale
- Degree of automation in industry
- Transportation and distribution costs

MARKET & CONSUMER BEHAVIOR

- Market segmentation
- Market size
- New market development
- Buyer loyalty
- Purchase frequency

SUPPLIER

- Major changes in availability of raw materials

SOCIAL, ECONOMIC, & POLITICAL

- GNP trend
- Interest rates
- Money supply
- Energy availability
- Political forecasting
- Antitrust regulations
- Environmental protection laws
- Social forecasting
- Age distribution of population
- Regional shifts of population
- Life style change
- Consumer activism

QUANTITATIVE MEASUREMENT TECHNIQUES

- Business unit segmentation
- Product/market profile
- Business portfolio analysis
- Experience curves
- Stage of the life cycle

Note: The environmental scanning variables were listed in question 17 of the survey instrument.

APPENDIX K

RETURN ON ASSET CONTRASTS FOR FIRMS ADOPTING STRATEGIC PLANNING SYSTEMS

APPENDIX K

RETURN ON ASSET CONTRASTS FOR FIRMS ADOPTING STRATEGIC PLANNING SYSTEMS

SIC Code	Industry	Before vs. After[1] F-Value	Pr>F	Greater Mean	After vs. Mean[2] F-Value	Pr>F	Greater Mean	Before vs. Mean[3] F-Value	Pr>F	Greater Mean
20	Food	2.74	0.14	After	1.03	0.34	After	0.58	0.47	Mean
22	Textile	1.27	0.29	After	0.84	0.39	Mean	1.48	0.26	Mean
23	Apparel	0.30	0.64	After	0.80	0.46	After	0.00	1.00	Before
26	Paper	21.49	0.01	After	0.46	0.53	After	1.73	0.26	Mean
27	Printing	0.01	0.92	After	1.05	0.36	Mean	0.07	0.80	Mean
28	Chemicals	2.19	0.15	After	0.00	1.00	Mean	4.00	0.06	Mean
29	Petroleum	0.92	0.35	After	1.54	0.23	Mean	0.02	0.89	Before
30	Rubber	0.69	0.42	After	0.39	0.55	After	0.40	0.54	Before
32	Glass	2.80	0.12	After	0.01	0.94	After	0.57	0.47	Mean
33	Metal Mfg.	0.17	0.69	After	4.12	0.07	Mean	5.53	0.04	Mean
34	Metal Products	0.17	0.69	After	0.00	1.00	After	0.02	0.90	Before
35	Equipment	0.04	0.83	Before	0.01	0.92	Mean	0.16	0.70	Before
36	Electronics	0.04	0.84	Before	0.67	0.42	Mean	1.43	0.25	Before
37	Vehicles	0.19	0.67	After	2.01	0.17	Mean	0.23	0.64	Before
38	Scientific Equipment	0.19	0.67	Before	0.23	0.64	Mean	7.07	0.02	Before
39	Jewelry	3.09	0.22	After	0.10	0.78	After	0.97	0.43	Mean
Overall F and Significant		3.01	0.08	After	0.70	0.40	Mean	0.08	0.78	Mean

[1]Firm performance before versus after adoption.

[2]Firm performance after adoption versus industry mean performance.

[3]Firm performance before adoption versus industry mean performance

APPENDIX L

ASSET TURNOVER CONTRASTS FOR FIRMS ADOPTING STRATEGIC PLANNING SYSTEMS

APPENDIX L

ASSET TURNOVER CONTRASTS FOR FIRMS ADOPTING STRATEGIC PLANNING SYSTEMS

SIC Code	Industry	Before vs. After[1] F-Value	Pr>F	Greater Mean	After vs. Mean[2] F-Value	Pr>F	Greater Mean	Before vs. Mean[3] F-Value	Pr>F	Greater Mean
20	Food	0.16	0.70	After	0.06	0.81	After	0.13	0.73	Mean
22	Textile	0.46	0.52	After	5.38	0.05	Mean	1.18	0.22	Mean
23	Apparel	0.18	0.71	After	0.02	0.90	Mean	1.39	0.36	Before
26	Paper	0.72	0.44	After	0.00	0.95	After	0.03	0.87	Mean
27	Printing	0.01	0.93	Before	110.58	0.00	Mean	8.86	0.04	Mean
28	Chemicals	0.85	0.36	After	0.01	0.91	Mean	0.88	0.36	Mean
29	Petroleum	0.06	0.81	Before	0.60	0.45	Mean	0.39	0.54	Before
30	Rubber	0.39	0.54	After	1.36	0.27	Mean	0.00	0.95	Before
32	Glass	3.73	0.08	After	0.01	0.93	Mean	0.23	0.64	Mean
33	Metal Mfg.	0.65	0.44	After	3.41	0.09	Mean	5.00	0.05	Mean
34	Metal Products	0.07	0.80	After	0.05	0.83	After	0.33	0.59	Before
35	Equipment	0.02	0.90	Before	0.04	0.85	After	0.35	0.58	Before
36	Electronics	0.35	0.56	Before	0.29	0.60	After	2.84	0.11	Before
37	Vehicles	0.59	0.45	Before	1.18	0.29	Mean	0.13	0.72	Mean
38	Scientific Equipment	0.07	0.80	After	0.08	0.78	After	2.54	0.14	Before
39	Jewelry	0.29	0.64	After	0.82	0.46	Mean	19.01	0.04	Mean
Overall F and Significance		0.74	0.39	After	0.79	0.37	Mean	0.01	0.93	Mean

[1]Firm performance before versus after adoption.

[2]Firm performance after adoption versus industry mean performance

[3]Firm performance before adoption versus industry mean performance

APPENDIX M

PROFIT MARGIN ON SALES CONTRASTS FOR FIRMS ADOPTING STRATEGIC PLANNING SYSTEMS

APPENDIX M

PROFIT MARGIN ON SALES CONTRASTS FOR FIRMS ADOPTING STRATEGIC PLANNING SYSTEMS

SIC Code	Industry	Before vs. After[1] F-Value	Pr>F	Greater Mean	After vs. Mean[2] F-Value	Pr>F	Greater Mean	Before vs. Mean[3] F-Value	Pr>F	Greater Mean
20	Food	0.88	0.37	After	0.46	0.52	After	0.05	0.83	Mean
22	Textile	0.01	0.94	Before	1.13	0.32	After	0.57	0.47	Before
23	Apparel	0.18	0.71	After	1.06	0.41	After	2.21	0.27	Before
26	Paper	0.86	0.40	After	0.05	0.83	After	0.17	0.70	Mean
27	Printing	0.03	0.87	After	1.51	0.29	After	1.41	0.30	Before
28	Chemicals	0.40	0.53	After	0.01	0.93	After	0.87	0.36	Mean
29	Petroleum	1.13	0.30	After	0.44	0.51	Mean	1.56	0.23	Mean
30	Rubber	0.99	0.34	After	2.39	0.15	After	0.36	0.56	Before
32	Glass	0.00	0.96	After	0.11	0.75	Mean	0.02	0.90	Mean
33	Metal Mfg.	0.24	0.63	Before	0.17	0.69	Mean	1.50	0.25	Mean
34	Metal Products	0.20	0.67	After	0.78	0.41	Mean	0.00	0.96	Mean
35	Equipment	0.15	0.70	After	1.02	0.32	After	1.34	0.27	Before
36	Electronics	0.11	0.75	After	2.27	0.15	Mean	0.52	0.48	Before
37	Vehicles	0.29	0.60	Before	0.07	0.79	After	3.22	0.09	Before
38	Scientific Equipment	0.05	0.83	Before	0.00	1.00	Mean	3.01	0.11	Before
39	Jewelry	0.76	0.47	After	1.49	0.35	After	0.23	0.68	Mean
Overall F and Significance		1.36	0.24	After	0.90	0.34	After	0.52	0.47	Before

[1]Firm performance before versus after adoption.

[2]Firm performance after adoption versus industry mean performance.

[3]Firm performance before adoption versus industry mean performance.

APPENDIX N

RETURN ON EQUITY CONTRASTS FOR FIRMS ADOPTING STRATEGIC PLANNING SYSTEMS

APPENDIX N

RETURN ON EQUITY CONTRASTS FOR FIRMS ADOPTING STRATEGIC PLANNING SYSTEMS

SIC Code	Industry	Before vs. After[1] F-Value	Pr>F	Greater Mean	After vs. Mean[2] F-Value	Pr>F	Greater Mean	Before vs. Mean[3] F-Value	Pr>F	Great Mean
20	Food	4.30	0.07	After	0.63	0.45	After	0.16	0.70	Mean
22	Textile	0.73	0.42	After	1.90	0.21	After	0.40	0.54	Mean
23	Apparel	0.01	0.94	Before	0.94	0.43	After	0.04	0.87	Before
26	Paper	36.75	0.00	After	1.90	0.24	After	0.11	0.76	Mean
27	Printing	0.00	1.00	Before	0.67	0.46	After	2.69	0.18	Before
28	Chemicals	3.13	0.09	After	0.13	0.73	Mean	3.46	0.07	Mean
29	Petroleum	1.19	0.29	After	0.00	0.95	Mean	0.31	0.59	Before
30	Rubber	0.05	0.83	Before	0.63	0.44	After	0.49	0.50	Before
32	Glass	3.10	0.12	After	0.01	0.91	Mean	0.20	0.66	Mean
33	Metal Mfg.	0.04	0.84	After	0.76	0.40	Mean	2.03	0.18	Mean
34	Metal Products	0.01	0.91	After	0.06	0.81	Mean	0.00	1.00	Mean
35	Equipment	0.01	0.92	After	0.22	0.65	After	0.61	0.45	Before
36	Electronics	0.13	0.72	After	0.09	0.77	Mean	0.75	0.40	Before
37	Vehicles	2.00	0.18	After	1.46	0.25	After	0.25	0.63	Before
38	Scientific Equipment Equipment	1.54	0.24	Before	2.89	0.11	Mean	0.00	0.96	Before
39	Jewelry	5.53	0.14	After	3.34	0.21	After	0.81	0.46	Mean
Overall F and Significance		4.76	0.03	After	1.04	0.31	After	0.01	0.92	Before

[1]Firm performance before versus after adoption.

[2]Firm performance after adoption versus industry mean performance.

[3]Firm performance before adoption versus industry mean performance.

APPENDIX O

NET SALES CONTRASTS FOR FIRMS ADOPTING STRATEGIC PLANNING SYSTEMS

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NET SALES CONTRASTS FOR FIRMS ADOPTING
STRATEGIC PLANNING SYSTEMS

SIC Code	Industry	Before vs. After[1] F-Value	Pr>F	Greater Mean	After vs. Mean[2] F-Value	Pr>F	Greater Mean	Before vs. Mean[3] F-Value	Pr>F	Greater Mean
20	Food	3.30	0.11	After	0.78	0.40	After	0.25	0.63	Before
22	Textile	1.76	0.23	After	2.12	0.19	After	0.56	0.48	Before
23	Apparel	0.15	0.74	After	0.14	0.74	After	0.21	0.69	Before
26	Paper	1.07	0.36	After	0.63	0.47	After	0.89	0.40	Before
27	Printing	0.31	0.61	After	0.78	0.43	After	0.60	0.48	Before
28	Chemicals	1.01	0.32	After	0.13	0.72	After	0.23	0.63	Before
29	Petroleum	2.16	0.16	After	0.21	0.65	Mean	0.19	0.67	Mean
30	Rubber	0.82	0.38	After	5.15	0.04	Mean	4.92	0.04	Mean
32	Glass	2.22	0.17	After	1.12	0.31	After	0.91	0.36	Before
33	Metal Mfg	0.63	0.45	After	2.35	0.14	After	2.60	0.14	Before
34	Metal Products	0.62	0.45	After	1.67	0.24	Mean	0.18	0.68	Mean
35	Equipment	0.98	0.34	After	0.97	0.34	After	1.45	0.25	Before
36	Electronics	0.25	0.62	After	0.35	0.56	After	0.43	0.53	Before
37	Vehicles	1.71	0.21	After	0.77	0.39	After	0.23	0.64	Before
38	Scientific Equipment	2.13	0.17	After	1.61	0.23	Mean	0.54	0.47	Mean
39	Jewelry	0.28	0.65	After	0.69	0.49	After	0.79	0.47	Before
Overall F and Significance		7.39	0.01	After	2.03	0.15	After	2.11	0.15	Before

[1]Firm performance before versus after adoption.

[2]Firm performance after adoption versus industry mean performance.

[3]Firm performance before adoption versus industry mean performance.

VITA

James France Brown Jr. was born in Knoxville, Tennessee on August 3, 1946. He attended elementary schools in that city and was graduated from Young High School in June 1964. The following September he entered The University of Tennessee, Knoxville, and in December 1968 he received a Bachelor of Science degree in Industrial Management. In January 1969 he accepted a teaching assistantship at East Tennessee State University and began study toward a Master's degree. This degree was awarded in June 1970.

After a two-year tour of duty with the United States Army, he accepted an instructorship at Walter State Community College. He resigned as an assistant professor in June 1978. During this period he entered the Graduate School of The University of Tennessee, Knoxville (September 1974). He received the Doctor of Business Administration degree with a major in Accounting in June 1981.

The author is a member of Alpha Phi Omega, Delta Sigma Pi, American Accounting Association, and the National Association of Accountants. Mr. Brown is an assistant professor with the Accounting faculty of The University of Nebraska, Lincoln.

He is married to the former Diane Viator of Knoxville, Tennessee. They have one daughter, Zandra Lee.