

AD-A063 413

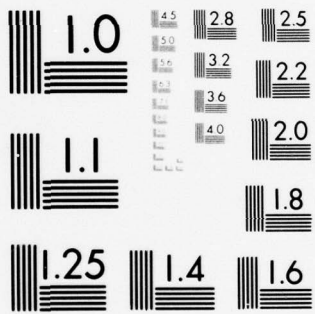
ALFRED P SLOAN SCHOOL OF MANAGEMENT CAMBRIDGE MASS
TOWARDS THE FORMALIZATION OF STRATEGIC PLANNING - A CONCEPTUAL --ETC(U)
DEC 78 A C HAX; N S MAJLUF
TR-7

F/G 5/1
N00014-76-C-1033
NL

UNCLASSIFIED

| OF |
AD A063413
1 OF 1





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

AD A063413

LEVEL #

12/w

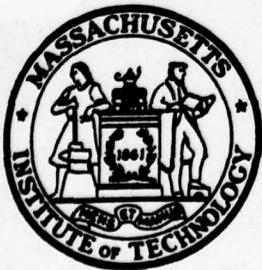
TOWARDS THE FORMALIZATION OF STRATEGIC
PLANNING - A CONCEPTUAL FRAMEWORK

by
ARNOLDO C. HAX
and
NICOLAS S. MAJLUF

DDC FILE COPY

Technical Report No. 7
SLOAN SCHOOL OF MANAGEMENT

DDC
RECEIVED
JAN 18 1979
A



MASSACHUSETTS INSTITUTE
OF
TECHNOLOGY

December 1978

DISTRIBUTION STATEMENT A
Approved for public release
Distribution Unlimited

79 01 02 012

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report No. 7 ✓	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER ⑨
4. TITLE (and Subtitle) ⑥ TOWARDS THE FORMALIZATION OF STRATEGIC PLANNING - A CONCEPTUAL FRAMEWORK,		5. TYPE OF REPORT & PERIOD COVERED Technical Report, December 1978
7. AUTHOR(s) ⑩ Arnoldo C. Hax Nicolas S. Majluf		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS M.I.T. Sloan School of Management 50 Memorial Drive Cambridge, MA 02139		8. CONTRACT OR GRANT NUMBER(s) ⑮ N00014-76-C-1033 ✓
11. CONTROLLING OFFICE NAME AND ADDRESS ONR Navy Dept. 800 North Quincy St. Arlington, VA 22217		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS NR 347-038
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE December 1978
16. DISTRIBUTION STATEMENT (of this Report) Releasable without limitation on dissemination.		13. NUMBER OF PAGES 53
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		15. SECURITY CLASS. (of this report) Unclassified
18. SUPPLEMENTARY NOTES		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Strategic Planning Diversified Corporation		D D C RECEIVED JAN 18 1979 A
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) See page		

TOWARDS THE FORMALIZATION OF STRATEGIC PLANNING - A CONCEPTUAL FRAMEWORK

by

Arnoldo C. Hax and Nicolas S. Majluf

Technical Report No. 7

Work Performed Under

Contract N00014-76-C-1033, Office of Naval Research
Mergers, Conglomerates, and Diversification

NR 347-038

LPN - M.I.T. OSP 84297

L Alfred P. Sloan School of Management
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

SEARCHED BY		
ATB	DATE INDEXED	<input checked="" type="checkbox"/>
NO	DATE INDEXED	<input type="checkbox"/>
CLASSIFIED		<input type="checkbox"/>
<i>Wittman</i>		
BY	DATE	
CLASSIFICATION AUTHORITY CODE		
EXPL.	EXPL. NO.	EXPL. SYMBOL
<i>A</i>		

December 1978

Reproduction in whole or in part is permitted for any purpose of the United States Government.

FOREWORD

The Alfred P. Sloan School of Management at the Massachusetts Institute of Technology uniquely combines management programs for undergraduate, graduate, and executive development education and research. The work of the School is supported, in part, by government contracts and industrial grants-in-aid. The work reported herein was supported (in part) by the Office of Naval Research under Contract N00014-76-C-1033.

William F. Pounds
Dean

ABSTRACT

This report presents a general framework to develop strategic planning in complex organizations. This framework is especially suited to the needs of diversified business corporations. It has to be recognized that a specific strategic plan has to be designed to fit the particular conditions of the corresponding situational setting. Consequently, the intent of this paper is to make available a set of concepts, steps, and factors that may suggest creative strategic options, and could provide an orderly strategic planning process in a business firm.

1. FORMAL STRATEGIC PLANNING SYSTEMS: REASONS FOR THEIR DEVELOPMENT.

↘ This paper presents a conceptual framework that organizes the principal elements of the strategic planning process in business firms, and that facilitates the conduction of this process in a coordinated and effective manner.

The essence of strategic planning is to provide long term directives to the overall corporation and to each one of its business components. Broadly speaking, strategic planning is aimed at maintaining a viable interaction between the organization and its environment, by elucidating the strengths and weaknesses of the firm in the underlying setting of environmental opportunities and threats. The strategic planning effort is centered in the generation of a feasible set of options to take advantage of potentially favorable situations or deactivate potentially explosive ones. The final objective of this effort is to select a course of action that insures the long run growth and profitability of the firm. ↗

The need to formalize the strategic planning process may be argued on the basis of two of the most celebrated taxonomies which have been suggested to analyze the nature of the managerial work. The first one of these taxonomies is proposed by Herbert Simon [48], who distinguishes a sequential set of three stages in the decision making process: intelligence (problem finding), design (generation of alternatives), and choice (selection of the best alternative). The second influential taxonomy is due to Anthony [5], who identifies three different levels in the planning process: strategic planning (the process of setting objectives and allocating resources), management control (the process of obtaining those resources and defining specific tasks for their effective and efficient use), and operational control (the process of assuming that tasks are performed in

an effective and efficient way).

The three planning levels suggested by Anthony require the completion of the three decision making stages proposed by Simon. This is immediately apparent from Figure 1, where we have crossed both taxonomies. Each one of the nine cells in the figure constitutes sources of demand for managerial attention. As several empirical studies seem to recognize (Fortune [20], Mintzberg [36]), an undue amount of time is normally being spent in making operational control choices (the bottom-right corner of the nine-cell matrix in Figure 1). Decisions at that level have a sense of urgency, are action oriented, and imply a great deal of familiarization with the tasks. All of these factors tend naturally to attract a high level of attention from managers.

Although day-to-day activities are certainly important, and cannot be ignored if the business is to be properly run, managers also should be concerned with higher, though less immediate, levels of decisions. Actions oriented toward the strategic planning-intelligence stage of decision making are responsible for shaping the future of the organization, and have long term consequences affecting its ultimate success or failure. Nevertheless, they do not receive their share of managerial attention, because they do not possess a sense of urgency calling for immediate action.

When viewed against this framework, the primary contribution of a formal strategic planning process is the orderly identification of a well structured set of tasks, their delegation to the proper individuals within the organizational structure, and their execution in accordance to a prescribed schedule. The final effect of this process is a coordinated effort that demands a better balanced time allocation to each managerial activity.

Simon's decision making stages

		Intelligence	Design	Choice
Anthony's planning levels	Strategic Planning			
	Management Control			
	Operational Control			

Figure 1: The Composition of Anthony's Planning Framework with Simon's Decision Making Stages

2. A FRAMEWORK FOR STRATEGIC PLANNING.

Many firms have recognized the need to carry out a formal strategic planning process. Normally, a number of activities are scheduled along a full calendar year, starting with the release of general guidelines from corporate headquarters, and culminating with a well defined budget for the following period. The completion of one cycle of strategic planning is followed by the starting of a new one. In this way, strategic decisions may be viewed as a final product of a process that may span many years, rather than as an unexpected and isolated change in direction.

If the one year cycle for strategic planning is to have any meaning, the normal maturity and implementation of a strategic change should be timed over many years. In other words, the evolution and implementation of a strategic change must be addressed along many cycles of formal strategic planning. Consequently, though the strategic planning process is aimed at modifying the structure of the corporation, this transformation is only marginally completed in the one year cycle.

A formal strategic planning system is focused in the one year cycle. In its initial stages, it is important to recognize those structural components that define the setting in which the planning process should be conducted, since they condition the overall strategic actions of the corporation. For this reason, we will refer to these components as the structural conditioners of a strategic planning cycle. There are three such conditioners: the internal structure of the firm, the environmental structure that affects the totality of the firm, and the composition of the strategic business units, which identify the businesses the firm is engaged in.

A formal planning system addresses, first, the characteristics of each one of the three structural conditioners, and then the basic stages of the strategic planning cycle: objective setting, strategic programming, and budgeting. These elements are portrayed in Figure 2.

This paper concentrates on the description of major tasks to be performed in the development of a strategic planning cycle. Some reflections pertaining to the internal and external structures are given in Appendices II and III. Figures 3 and 4 provide the reader with a summarized view of those two strategic conditioners.

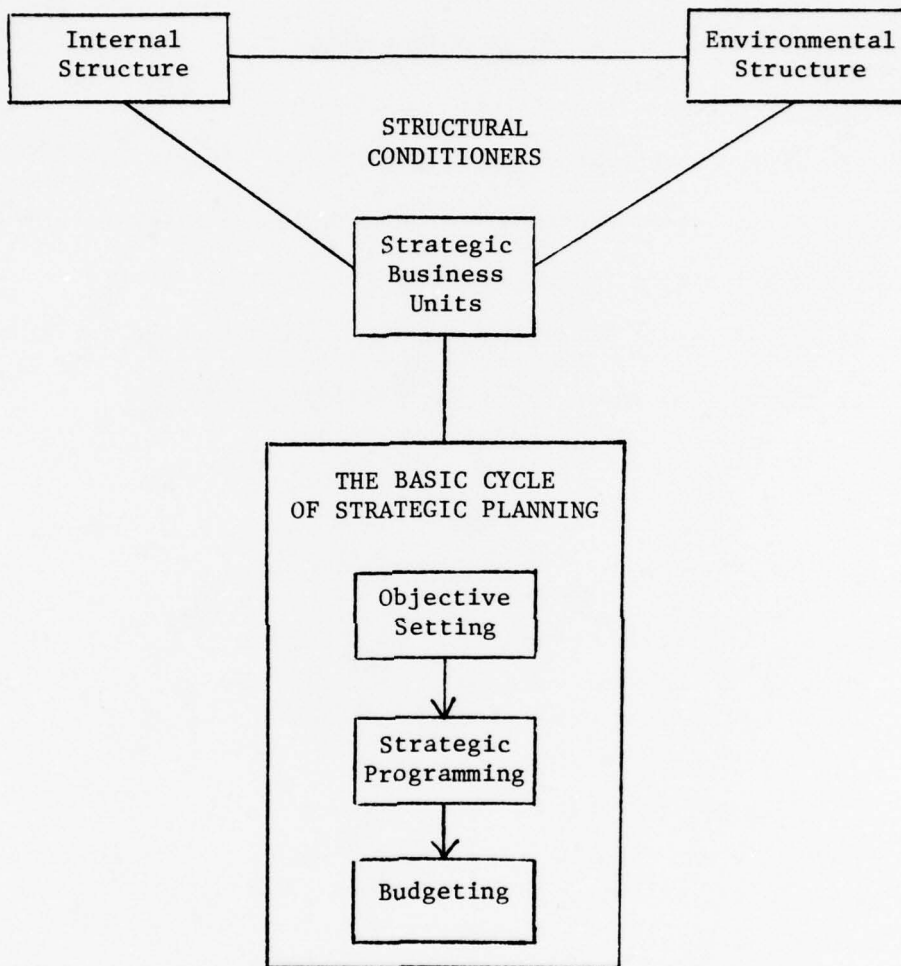


Figure 2: The Fundamental Elements in Formal Strategic Planning

The most distinctive elements in the description of an organization are:

- The groups of people

- They constitute the human side of the organization
- Their capabilities, needs, objectives, strengths, and resistance to change, if not properly incorporated in the planning process, will threaten the successful realization and implementation of the strategic plan.

- The objectives

- The objectives of the organization are indeed the objectives of certain groups associated with it.
- The aspirations of all groups are represented in different degrees in the objectives of the organization.
- These objectives drive the functioning of the organization.
- These important objectives are the ones implicit in the actions of the organization. They may not be the ones initially specified in the definition of the organization, may change with time, may not be explicitly enunciated, may not be well known.

- The internal structure and mode of operation

- Units are defined
- in a hierarchical structure that must recognize the strategic business units
- with rules of operation (explicit or implicit)
- and different modes of operation, which may be analyzed in terms of:
 - the degree of interaction (autonomous vs. interactive activities),
 - the degree of centralization (in the same hierarchical line),
 - the degree of coordination (in different hierarchical lines).
- These interactions among units reverberate along the communication network as:
 - information flows
 - along formal (vertical and horizontal) and informal channels
 - that, when are part of the formal information process of the organization, they are:
 - filtered (selected),
 - condensed (summarized by means of key internal variables, in a state and a trend),
 - reported (preferably to allow an intuitive grasp),
 - projected (under different circumstances).
 - Informal channels:
 - are not well defined,
 - appear and disappear as a direct function of people's interaction,
 - they can be faster, more accurate, and more significant than formal channels.

Figure 3: The Internal Structure of the Organization

The environmental study is intended to produce two main results:

- The identification of the basic, environmental variables to be addressed by a strategic plan.
- A first insight on the kind of strategic option that the organization should follow.

The different characteristics used to represent the environment are:

- The form of change:
 - Expected, Evolutionary, Systematic, Predictable
 - Unexpected, Unsystematic, Unpredictable.
- The speed of change.
- The underlying structure in the organization-environment interaction:
 - Competitive
 - Regulated
 - Social.

This information about the environment, coming from formal and informal sources, is summarized by a set of key external dimensions. For the organization to deal with different forms of environmental change, it has to develop sensible different strategies:

- Adaptation to evolutionary change, which may be strained by the speed of change.
- Control of some dimension of change, and negotiation with the environment if unsystematic and unpredictable forms of change are manifested.
- Creation and control of niche in a mainly competitive environment.
- Negotiation of stable regulatory rules and smooth political relationship with the regulatory body in a mainly regulated environment.
- or:
 - Work on the constraints that prevent adaptation in a social environment, if that is possible;
 - Muddle through;
 - Decipher the environment and learn of expectations about the organization's activities to incentivate some corrective action at a proper level;
 - Smooth the impact that externally generated adjustments may have on the organization (Government intervention in public organizations, take over in private firms).

The strategy of the organization is indeed:

- A succession of decisions reinforcing each other.
- A continuous trade-off between long-range objectives and short-range goals.

Figure 4: The Environmental Structure

3. IDENTIFICATION OF STRATEGIC BUSINESS UNITS.

The primary focus of the strategic planning process is directed to a well defined unit of the organization, which is given the name of strategic business unit, strategic center, or business segment. A strategic business unit (SBU), is "composed of a product or products lines with identifiable independence from other products or products lines in terms of competition, prices, substitutability of products, style-quality, and impact of product withdrawal" (Arthur D. Little [8]).

The role of the SBU as the subject of attention in the strategic planning cycle may be appreciated when contrasted with attempts to provide strategic objectives for the overall firm. Normally, objectives that are stated at the corporate level do not carry any operational meaning; for example, "we want to grow at 7 percent per year", or "we have to achieve a 12 percent ROI after taxes". Expressions like these, which are commonly offered as corporate objectives, are simple motherhood statements with very little, if any, practical value. However, by lowering the attention to the SBU level, one can begin to perform a rich analysis of the existing strengths and weaknesses of each unit, as well as opportunities and threats in the environment. The condensation of all this analysis in the formulation of a strategic program will carry a wealth of managerial information.

As a first approximation, one might think of an SBU as the intersection of products and markets. Certainly, this is a simplistic way of characterizing an SBU, since very often other dimensions and location, are of importance in identifying a meaningful set of SBU's. Day and Shocker [18] suggest that the definition of boundaries for SBU's may be affected by environmental influences (technological change, product development, price changes,

government regulation, social demands, international competition), and public policy influences (concentration of industry, antitrust legislation). Also, different levels of detail in the identification of a product-market may be required. Day and Shocker define a hierarchy that narrows down from generic product classes, to product types, product variants, and brands.

The crucial issue to be addressed in defining an SBU is finding the largest monolithic segment that allows for a proper assessment of internal strengths and environmental opportunities, and that can be treated as a separate entity in terms of the resource allocation process. Of foremost importance is the ability for strategic business managers to operate an SBU with a high level of independence with respect to other business units in the firm, in order to respond in an effective way to competitive pressures.

In a corporation that has lived for many years with a formal strategic planning process based on an SBU definition, the existing SBU structure is similar to that of an organizational structure. That is to say, SBU's are well defined and only suffer relatively minor modifications through a given planning cycle. On the other hand, a company that is just starting a formal strategic planning process might find the identification of SBU's a very taxing task. Normally, a temporary definition of SBU's is suggested at an early stage, and as the planning system evolves, major redefinitions may be required. The definition of SBU's is self-corrected in the repeated realization of the strategic planning cycle.

In either case, whether we are dealing with an established planning system or a recently developed one, the outcome of the strategic process may have an important impact in the definition of SBU's. For example,

the addition of a new SBU by the acquisition of a firm, or the exploitation of internal opportunities that further diversify the corporation, change the portfolio of SBU's. Also, the expansion or contraction of an existing SBU by the addition or suppression of products and markets are strategic decisions that affect the existing SBU's definition.

Since the purpose of this paper is to provide a conceptual framework, we will not address ourselves to the problem of how to define an SBU. The literature is fairly tentative in this area. For some elaboration on the subject, the reader is referred to Day and Shocker [18] and Abell [1].

4. THE BASIC STRATEGIC PLANNING CYCLE.

The internal structure, the environmental structure, and the definition of SBU's constitute the fundamental premises that have to be recognized when initiating the strategic planning process. Our attention now will be focused on the specific tasks to be undertaken for the development of formal strategic planning.

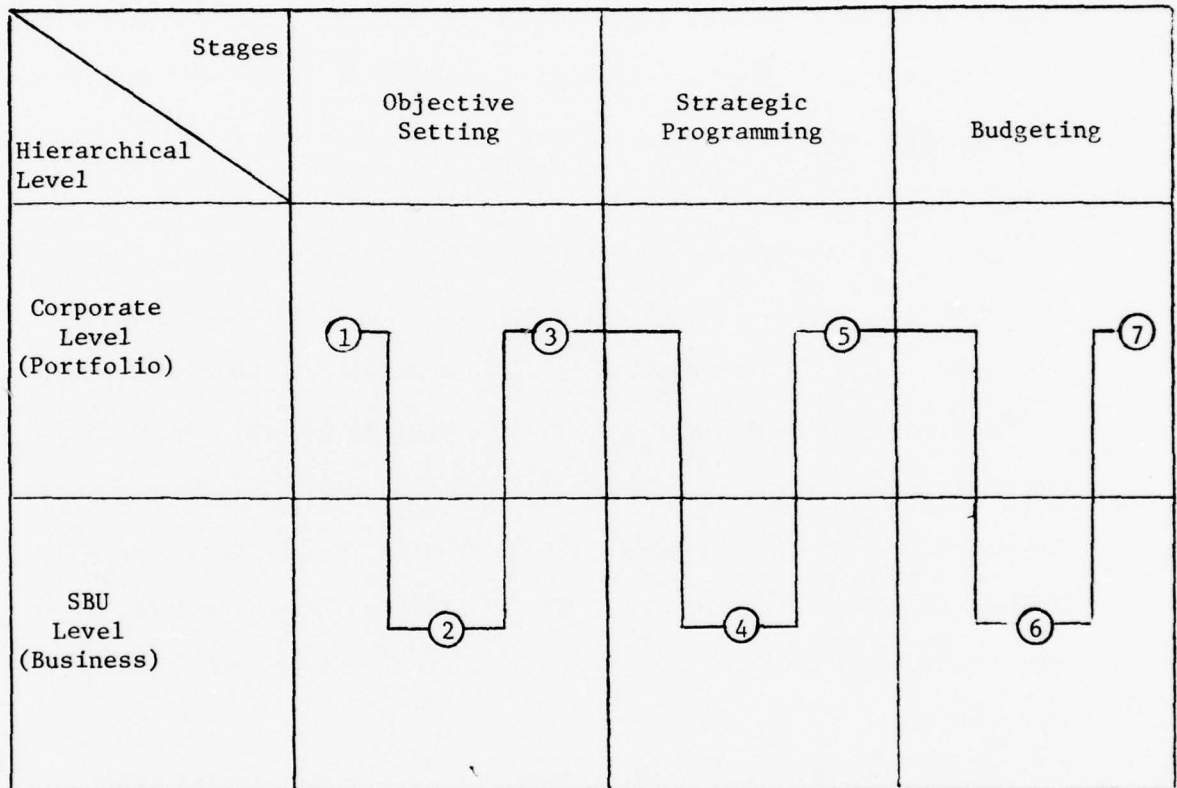
4.1 Process Description of the Strategic Planing Cycle.

A first conceptualization of this process may be established by distinguishing two hierarchical levels in business firms: the corporate or central level, and the business or SBU level.

The primary roles assumed by the corporate level are; first, to provide initial expectations, guidelines and directives; and second, to consolidate and sanction the proposals being presented from the business level. At the SBU level, the initial guidelines provided by the corporation are first translated into broadly defined strategic options (action programs). In turn, these are reviewed by corporate officers in order to insure their consistency with corporate resources and goals. After this initial stage, more specific and detailed strategic programs emerge at the SBU level, that must go to a second round of corporate consolidation. The process finally terminates with the preparation of detailed budgets.

Figure 5 illustrates the interaction existing between corporate and SBU levels in the realization of the strategic planning process, along the three major stages of objectives setting, strategic programming, and budgeting.

Although the previous discussion merely recognizes two hierarchical



- Major Tasks:
- ① Formulation of general guidelines
 - ② Formulation of broad strategic action programs
 - ③ Consolidation of action programs
 - ④ Generation, evaluation, and selection of strategic programs
 - ⑤ Consolidation of strategic programs
 - ⑥ Development of tactical programs and budgets
 - ⑦ Consolidation of budgets

Figure 5: The Basic Strategic Planning Cycle: Process Description

levels in the planning process, amply diversified corporations tend to insert one or more intermediate levels to coordinate the activities of related business units. For example, General Electric currently has adopted an organizational structure with five hierarchical levels, namely: corporate, sector, group, division, and department. Within that setting, business segments are located normally at either the departmental or divisional levels. Groups and sectoral managers act as intermediate coordinating managers for a set of related business activities.

Moreover, the process captured in Figure 5 does not detail the role played by hierarchical levels below the SBU. These levels, typically functional units, contribute the detailed disciplinary knowledge required to flesh out the strategic programs and budgeting stages. By collapsing the role played by the SBU manager and the functional departments into one single hierarchical stage in our discussion, we are stressing the need to reconcile two main issues in the strategic planning process: the corporate portfolio, and the development of each individual business of the portfolio.

Another notion emerging from Figure 5 is the recognition that strategic planning is neither a top down nor a bottom up process. Rather, it involves a complex iterative interaction among the hierarchical levels in the firm. The full extent of this interaction is not captured in that figure, which presents only the major tasks that the formal planning process is supposed to complete along one realization of a planning cycle.

This interactive view of the planning process was first formalized by Vancil and Lorange [55]. For a discussion of pitfalls commonly observed in the practice of planning, see Lorange [34].

4.2 Major Tasks in the Strategic Planning Cycle.

The major tasks to be undertaken when implementing a full cycle of the planning process are presented in Figure 6. The sequence of these tasks closely follows the outline in Figure 5 showing the participation of different hierarchical levels along the stages of the planning process. (The numbers in both figures are consistent.)

Task 1: Formulation of General Guidelines at the Corporate Level.

The preliminary step of identifying meaningful objectives for strategic planning has to be the result of the formal recognition of opportunities and threats in the environment, and internal strengths and weaknesses. At the corporate level, both the environmental scanning and the internal scrutiny processes have a much broader scope than similar tasks to be undertaken at the SBU level.

Environmental scanning attempts to diagnose the general health of the industrial sector relevant to the businesses in which the corporation is engaged. Furthermore, it concentrates on assessing the overall economical, political, technological, and social climate that affect the corporation as a whole.

Likewise, the subject of the internal scrutiny at the corporate level is concerned with a broad evaluation of the human, financial, productive, physical, and technological resources available to the corporation.

This dual assessment has to be conducted, first, from an historical perspective to determine how well the corporation has mobilized its resources to meet the challenges presented by the external environment: and also, with a futuristic view in mind to forecast future trends in the environment and seek a repositioning of the internal resources to adapt the organization to those environmental trends.

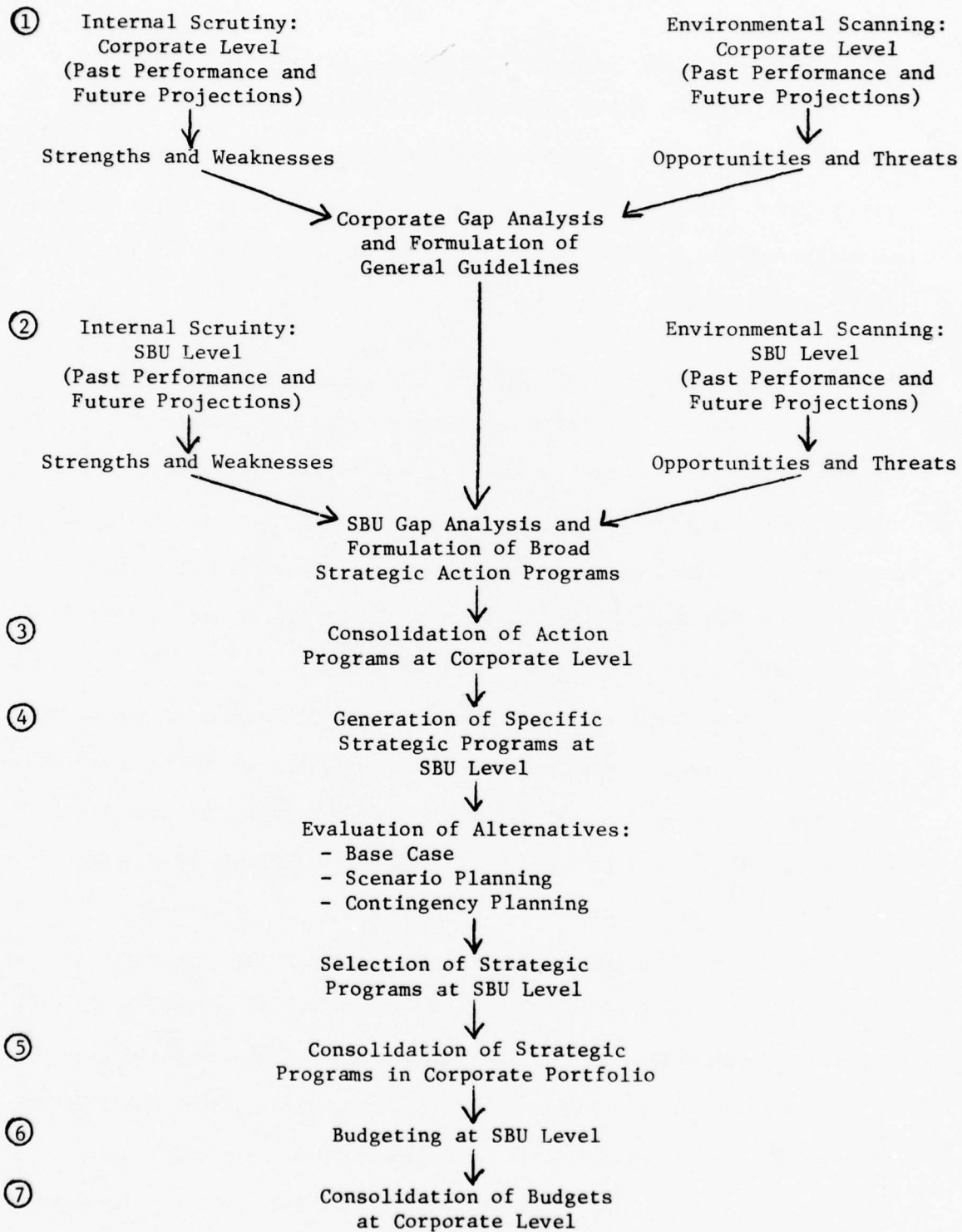


Figure 6: The Basic Strategic Planning Cycle: Major Tasks

The gap analysis conducted at the corporate level is deeply rooted in a comprehensive understanding of the internal and external structural conditions discussed in Appendices II and III, and Section 3, respectively.

Some of the basic disciplines that contribute to the analysis at this stage are:

- From an internal point of view^{*}
 - Organizational Design (Galbraith [21]; Vancil [54]).
 - Management Control System (Solomons [50]; Anthony, Dearden, Vancil [6]).
 - Incentives, Motivation, Compensation (Porter, Lawler, and Hackman [42]; Steers and Porter [51]; Murphy [38]).
 - Decision Support and Information System (Keen and Scott Morton [28]).
- From an external point of view
 - Industrial Economic Structure (Caves [13]; Scherer [45]).
 - Macroeconomic projection (Data Resources, Inc. [16]; Wharton [58]; MIT-PENN-SSRC [37]).
 - Technological Forecasting (Bright and Schoeman [11]).
 - Political, Governmental, and Social Trends.

Task 2: Formulation of Broad Strategic Action Programs at SBU Level.

To establish preliminary objectives and strategic programs at the SBU level it is also necessary to conduct a gap analysis between the internal strengths and weaknesses of each SBU, and the opportunities and threats in their local environment. There is, however, a significant qualitative distinction between this type of analysis at the SBU and the corporate level. In the case of SBU's, the analysis must be more sharply focused on the identification of those internal and external factors that

* The references suggested in this list are not intended to be exhaustive, and have been selected on the grounds of relevance and readability.

contribute to the competitive strengths of the business.

The process starts by tailor-making a list of internal critical dimensions (which have some degree of controllability by the SBU manager), and a list of external critical dimensions that characterize the competitive climate of the SBU. An historical assessment allows positioning the SBU regarding the degree of attractiveness of its environment, and the degree of its internal strength.

A useful way to condense this knowledge is in a set of graphic snapshots like the one indicated in Figure 7 for an SBU. In this example, the environment looks more and more attractive, and the firm has been able to develop its internal capabilities accordingly, except for the current state (number 4), which shows some erosion of the internal strength of the SBU.

The formulation of a general strategy must consider, in the first place, the likely evolution of the environment. Then, the SBU must decide if it is going to maintain or change its position in the market. In the example of Figure 7, a continuing high degree of attractiveness in the environment is projected, and the firm has decided to commit its internal resources to improve its current position. This exercise has several implications that cannot be ignored. First, it is done for an SBU; therefore, the suggested proposals have to be subsequently sanctioned at a corporate level. Second, the projected attractiveness of the environment is the conclusion attained when forecasting all critical dimensions that encapsulate that environment. Third, the strategy chosen by the firm must be translated into specific targets for the critical dimensions that represent the internal environment. Fourth, the broad strategic programs that emerge from this process are evaluated on qualitative grounds, and

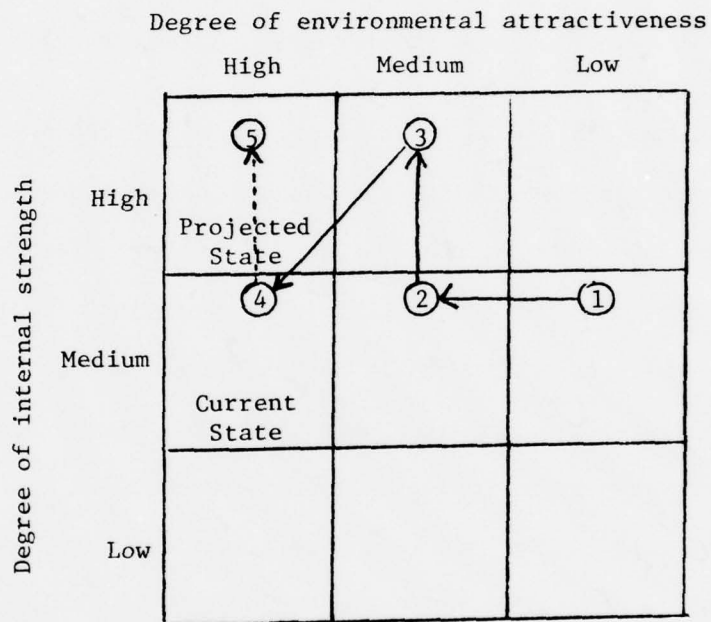


Figure 7: The Evolution of an SBU: Historical Data, Current State, and Projected State

are still tentative. Finally, it is worth stressing the difficulty inherent in projecting the behavior of some critical environmental dimensions, since they might have a reactive power against the internal actions of the firm. For example, a key competitor might assume a counter-strategy to neutralize the firm's decision. In this setting, determining the existence of a stable equilibrium situation is a primary task of the strategic planning effort.

Task 3: Consolidation of Action Programs at Corporate Level

The process conducted so far involves a few number of key individuals at the top level of the organizational hierarchy. The primary output at this stage is reaching a consensus among those individuals, on the guidelines and objectives that should be considered in the structuring of specific strategic options for each SBU. This can be accomplished in a fairly informal way by conducting interpersonnel and committee discussions with relatively little hard core data assisting them. The fundamental ingredient in these discussions is the managerial talent, supported by sound experience and good judgement. This may seem anticlimatic in a paper that is intended to provide a framework for formal strategic planning, but it is essential to recognize that no formalization can substitute for creativity. It is at this stage, free from any involved procedural mechanisms and over-saturation of irrelevant data, when the most important strategic thinking has to be exercised.

The matrix described in Figure 7 used to position SBU's in terms of environmental attractiveness and internal strengths, can also be used at the corporate level to represent graphically the portfolio of SBU's. A healthy situation should exhibit a well balanced portfolio with regard to a variety of objectives pursued by the corporation, such as sources and

uses of cash, and trade-offs between short term profitability vs. long term growth, and business risk vs. profitability. The matrix representation might be helpful in detecting potential gaps in the portfolio of SBU's.

Task 4: Generation, Evaluation, and Selection of Strategic Programs at SBU Level.

At the beginning of this stage, we have moved from a statement of mere expectations to a well conceived set of strategic actions programs oriented toward the SBU level. The major task to be accomplished now is to identify programs that have functional relevance. The actions programs, which are broadly characterized in the previous stages, need to be reassessed in terms of the specific contributions of each functional area. There is a need to incorporate in the definition of strategic programs individuals located at lower levels of the organizational hierarchy who have unique knowledge of details pertaining to traditional functional disciplines: production, marketing, distribution, engineering, finance, personnel, etc.

As a result of this effort, a coordinated set of well defined programs emerges, requiring the mobilization of specific resources through time. This is the essence of a strategic program.

The broad ideas generated in the initial stage need to be characterized in quantitative terms. Each program has to be assessed in terms of financial cash flow implications. This is not to say that the only measure of performance to be used in addressing the degree of attractiveness of a given program is purely financial, but financial performance unavoidably will occupy a very central place in any program evaluation.

Another issue to be analyzed is the implication of the uncertainties inherent in a long term program. One way to approach this question is by initially defining a base case, and then performing scenario planning and contingency planning. The base case recognizes from the outset two dimensions in the characterization of a strategic program. The first dimension pertains to those environmental factors which are external to the decision maker. The second dimension is represented by those factors which are the key strategic decision variables under the control of the decision maker.

The base case is designed by assigning the most likely values to all the external uncontrollable parameters, and the most desirable values to the controllable factors, as perceived at this stage of the strategic planning process. Conventional cash flow models that generate pro-forma income statements, balance sheet statements, and overall measures of performance (such as net present values, and internal rates of return), can assist the decision maker in identifying the level of attractiveness of proposed strategic programs (Hax and Majluf [24]).

Clearly, this is not enough. We still do not have a sense of the impact that a change in the environmental conditions may have on a proposed strategic program. This is the central concern of the scenario planning process. This process postulates a coherent set of well related scenarios, each one of which assigns consistent values to the external uncontrollable factors that identify potential future situations. The strategic program chosen for the base case analysis, and other alternative strategic programs, are tested against the set of possible scenarios. From here emerges a sense of the robustness of the strategic options that might be adopted, under different scenarios.

It is worth noticing that the preferred strategic program is not necessarily the one that is optimum under a given set of conditions, but rather one that is effective under a wide variety of possible uncontrollable scenarios.

Task 5: Consolidation of Strategic Programs in the Corporate Portfolio.

A consolidation of the plans generated by all SBU's must be performed at the corporate level to select the most attractive strategic options. This analysis considers all businesses controlled by the firm in a unique portfolio. Trade-offs among different investment opportunities must be made to "balance" this portfolio according to the multiple objectives defined by the firm.

At this stage in the analysis, there is a quantitative assessment of the consolidated set of cash flows originated by all SBU's of the corporation. There are two kinds of problems that can be identified. One is the inability of the corporation to fund all proposed strategic investments. To some extent, this is not a situation of major concern. It will be resolved either by funding only those programs with the highest degree of attractiveness, or by raising external funds that might allow a full implementation of the suggested portfolio of programs. The concept of maximum sustainable growth developed by Zakon [59] might be helpful in determining an upper bound for the expansion of the firm.

What is of most concern is a situation where a firm might find itself with ample resources available and with high expectation for future growth on the part of its shareholders, but unable to identify opportunities to properly fulfill those aspirations. This might be the present condition of some of the oil companies in America.

Tasks 6 and 7: Development of Tactical Programs and Budgets: The Implementation Process.

The strategic planning exercise has produced well defined strategic programs that the organization will try to follow in their future activities. The implementation process is oriented toward the translation of those programs in terms of annual operational budgets, and the monitoring of their execution to assure an adequate performance.

To facilitate the exposition of the implementation process, we will distinguish four primary phases which are schematized in Figure 8:

- Definition of tactical programs,
- goals definition,
- budgeting process,
- monitoring.

1) Definition of tactical programs

In this phase of the planning process, the necessary activities to be carried out in the first year of implementation of the selected strategic program must be identified. All related tasks are consolidated in terms of homogeneous packages designated as tactical programs. Inherent in their description there is a recognition of the delegation of responsibilities associated with the execution of each operating program throughout the organizational hierarchy.

In the definition of tactical programs, it is important to recognize the relevant characteristics of the internal structure, particularly the degree of centralization of the various organizational units and the degree of coordination among them. When new programs requiring capabilities and procedures that greatly deviate from the existing practices are adopted, some structural transformation in the organization may be

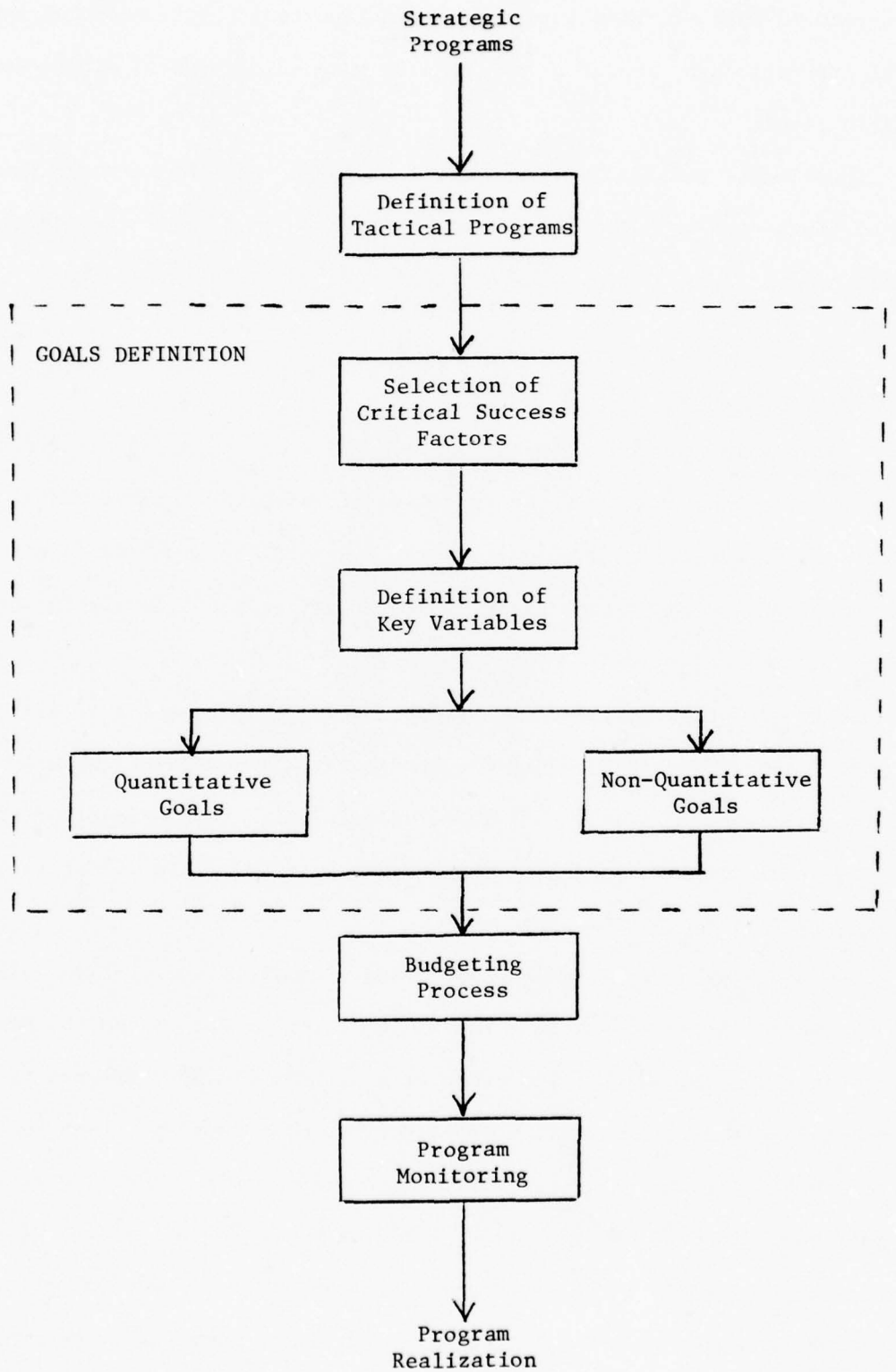


Figure 8: The Implementation Process

required, because the firm structure is an important conditionant of the final strategic behavior, that may require some adjustment to attain the desired result.

Invariably, tactical programs are translated into the standard budgeting system of the organization, because they have to be reflected in the apportionment of available money among the different units and the different activities.

2) Goals definition

Goals definition is needed to monitor the realization of a tactical program. These goals have to be in consonance with the organizational objectives of each individual unit, which decrease in scope and increase in specificity as we go from higher to lower hierarchical levels (Granger [23]).

It is not practical, and not even possible, to keep track of all the myriad of activities involved in the realization of a tactical program. Therefore, the first step toward goals definition is the abstraction of the essential characteristics of the program by means of the identification of its critical success factors.

The measures of performance associated with these factors are called key variables (Anthony, Dearden, Vancil [6]). Often the values the key variables assume during the execution of a program are not captured by the formal information and reporting system of the organization. Even worse, there might be instances where critical success factors are not or cannot be measured. Careful consideration should be given to the process of identifying the critical success factors of a project and serious efforts should be allocated to attempt to describe their performance by measurable key variables.

Quantitative goals are defined in terms of what is considered a desirable outcome for each key variable. This determines standard levels of performance which can be modified as the tactical program execution evolves.

Two problems are apparent in the definition of goals. First, goals are multiple in number and conflicting in nature; second, the process of translation of objectives into goals may fail to recognize the true objectives of the organization, thus goals becoming poor proxies whose attainment does not mean any true achievement. A good example to illustrate the process of identifying objectives, goals, and their corresponding measures of performance in the public sector environment is given by Ellis and Keeney [19].

There is no easy way to overcome these two problems. When goals are conflicting, trade-offs among them must be explicitly stated by fixing priorities, assigning weights, or simply by relying on more subjective choices.

A number of formal procedures have been developed recently to address the issue of trade-offs among multiple objectives. The most promising methodologies are multiattribute decision theory (Keeney & Raiffa [29]) and goal programming (Lee [32]).

To make the attainment of goals a more faithful measure of the realization of the true underlying objectives, many different performance indices may be used. A good example is given by all "quick-ratios" and financial indices which evaluate the performance of a firm from the point of view of return, capital structure, liquidity, growth potential, etc. (Seitz [46], Weston and Brigham [57]). No single index, standing alone, is a sufficient indicator, but the set of all of them (present and historical) coupled with a criterion for their analysis allow some understanding of

the underlying financial situation.

3) Budgeting process.

After goals have been specified, a budget for each tactical program has to be developed. Traditionally, the budget simply represents the projections of incomes and expenditures for a given program (as is the case of an operational budget), or the major allocation of resources, especially financial resources (as is the case of an investment budget). More broadly defined, a budget is equivalent to a detailed one year plan.

Regardless of the degree of comprehensiveness and sophistication adopted in defining a budget, invariably it represents the basic instrument used by the organization to coordinate, implement, and communicate the programmatic decisions being made at the strategic planning and management control levels.

In discussing budgetary allocations, the basic planning issues fall sharply into focus, and final agreements are reached in the negotiation stages that underline the conclusion of the planning process.

Besides the more conventional ways to prepare a budget (Welsch [56]), several methods have been proposed to make the budget a more responsive participatory process, and to recognize formally the programs and goals of all units in the organization. Among these methods, the most widely implemented are: Management by Objectives (MBO) (Olsson [40]), Planning and Programming Budgeting System (PPBS) (Hinrichs and Taylor [26]), and Zero-Base Budgeting (ZBB) (Pyhrr [43]).

The central concepts behind these methods are:

- To define a program, preferable by the people who are in charge of its realization.
- To define certain measureable goals that should be achieved with the

completion of this program.

- To define some benchmarks to monitor the progress along the way.
- To translate all these programs into the normal annual budget of the organization.

The experience with these comprehensive budgeting methods has been rather mixed. Failures invariably take place whenever these methods are forced externally to organizations which are not prepared to change drastically their modus operandi. The set of programs, rules, and decision making processes cannot be improvised anew. If a change is wanted, time has to be given for the organization to internalize that change. This is reported in one of the rare successful implementations of PPBS at the time it was imposed by the Federal Government (Lee, Chap. 6 [31]), and in Casselman's analysis [12] of the failure of a formal system in the state of Massachusetts. Also, Peterson [41] stresses this point: the impact of a new system, like PPBS, in the normal activities in the university is not just the introduction of a new measurement system, but the complete transformation of the working style.

4) Monitoring

After specifying tactical programs, goals, and budgets, the next step is to supervise the actual realization of programs to seek the attainment of the stated goals (by checking benchmarks along the way) and the effective and efficient utilization of resources. If some distortion is observed, either the program has proved to be inappropriate and it should be adjusted, or some corrective action may be suggested to bring the program back to the right track.

Often the monitoring system attempts to map the way in which the organizational units are structured within the hierarchy. Five standard

types of control centers are recognized (Vancil [53]), depending on the decision options left as responsibility of the unit manager.

- Standard Cost Centers, whose objective is to minimize the variance between actual and standard cost.
- Revenue Centers, whose objective is to maximize revenues subject to a budget constraint.
- Discretionary Expense Centers, whose objective is to produce the best quality of service subject to a budgetary constraint.
- Profit Centers, whose objective is to maximize its profit. Notice that, contrary to what happens in cost and revenue centers, in this case the manager is allowed to set prices.
- Investment Centers, whose objective is the maximization of the return on investment. The manager is now accountable both for profit and assets utilization.

The control of a strategic program is done in terms of the resources required and output generated. Input of resources are usually measured in terms of costs. The goodness of this measure depends on many subjective criteria used to distribute indirect costs and overhead among the units employing these inputs. If these criteria are fair, a reliable measure of the resources inputed to each unit is obtained.

Outputs may well be measured in terms of revenue in profit oriented organizations. For non-profit organizations, however, the true measure of output is a problem for which there is not yet a completely valid solution. They measure their output in terms of hardly quantifiable characteristics which are not revenue. Often, these organizations are just happy to operate in a zero-deficit situation.

Non-profit organizations have to use surrogate measures of output,

which may well fail to capture the underlying process; therefore, by using many different complementary indices, a more comprehensive determination of output is likely to be obtained. In addition to the physical amount of output generated, non-profit organizations add many other dimensions like quality, prestige, employee and consumer attitudes, etc.

Particularly taxing is the problem of short versus long term performance. Most of the existing control systems are myopic in character, centering all the managerial attention to the achievement of short term financial goals. In practice, such systems could jeopardize the healthy development of the organization in the long run.

Finally, one of the most important roles of management control is to seek congruence of goals among all the individuals in the organization hierarchy, so as to facilitate a coordinated pursuit of the overall objectives. A good control system first and foremost should provide adequate motivation for everyone. It should constitute the basis for a fair reward and penalty system which generates a driving stimulus for employees at all levels.

5. SUMMARY.

The strategic planning process has been shown as focused in the interface between the organization and the environment. It has been presented as an essential activity needed to understand the environment, and establish an interactive relationship with the environment in a direction which might reinforce the purposes of the organization.

A conceptual model to develop strategic planning has been discussed, in which the primary steps are the analysis of the organization strengths and weaknesses with regard to the environment opportunities and threats.

This analysis is followed by the formulation of general action programs first and more specific strategic programs afterward. A process of evaluation and final selection of one of these options will lead to the definition of the tactical programs and budgets which capture the agreement on the strategy chosen.

The strategic planning process is conducted within the constraints imposed by the internal and external structures of the firm. The realization of one complete planning cycle is an interactive process between the corporate and SBU levels. At the corporate level, the main concern is with the coordination and consolidation of programs proposed by SBU's. Conversely, SBU's try to generate strategic programs with the guidelines provided by the corporation. The planning cycle formally concludes with the definition of detailed tactical programs and budgets, but the realization of these programs must be carefully monitored to insure that the desired objectives are being achieved. Strategic planning cannot be an isolated effort conducted once in a while. The full value of a formal planning system is obtained when all entities in the corporation fully understand the role they are supposed to play.

Only the sustained commitment of the overall corporation to the strategic planning effort can insure the ultimate success of a formal system.

REFERENCES

1. Abell, D. F., Defining the Business, Prentice Hall, New York, to be published.
2. Ackoff, R. L., "Management Information Systems", Management Science, Vol. 14, No. 24, December 1967.
3. Aguilar, F. J., Scanning the Business Environment, Macmillan, New York, 1967.
4. Allison, G. T., Essence of Decision, Little, Brown & Co., Boston, 1971.
5. Anthony, R. N., Planning and Control Systems: A Framework for Analysis, Harvard Business School, Boston, 1965.
6. Anthony, R. N., J. Dearden, and R. F. Vancil, Management Control Systems: Text, Cases, and Readings, Irwin, Homewood, IL, 1972.
7. Argyris, C., "Management Information Systems", Management Science, Vol. 17, No. 6, February 1971.
8. Arthur D. Little, A System for Managing Diversity, Cambridge, MA, December 1974.
9. Beer, S., Brain of the Firm, Penguin, New York, 1972.
10. Boston Consulting Group, Growth and Financial Strategies, Boston, 1971.
11. Bright, J. R., and M. E. F. Shoeman, A Guide to Practical Technological Forecasting, Prentice Hall, Englewood Cliffs, NJ, 1973.
12. Casselman, R. C., "The State of State Management", Technology Review, Vol. 75, No. 3, January 1973.
13. Caves, R., American Industry: Structure, Conduct, Performance, Prentice Hall, Englewood Cliffs, NJ, 1964.
14. Curran, W. J., "Present at the Creation: Health Planning and the Inevitable Reorganization", Health Care Management Review, Vol. 1, No. 1, Winter 1976.
15. Cyert, R. M., and J. G. March, A Behavioral Theory of the Firm, Prentice Hall, Englewood Cliffs, NJ, 1963.
16. Data Resources, Inc., The Data Resources Quarterly Model. Econometric Forecasting System, Boston, 1975.
17. Davis, S. M., and P. R. Lawrence, Matrix, Addison Wesley, Reading, MA, 1977.
18. Day, G. S., and A. D. Shocker, Identifying Competitive Product-Market Boundaries: Strategic and Analytical Issues, Marketing Science Institute, Cambridge, MA, August 1976.

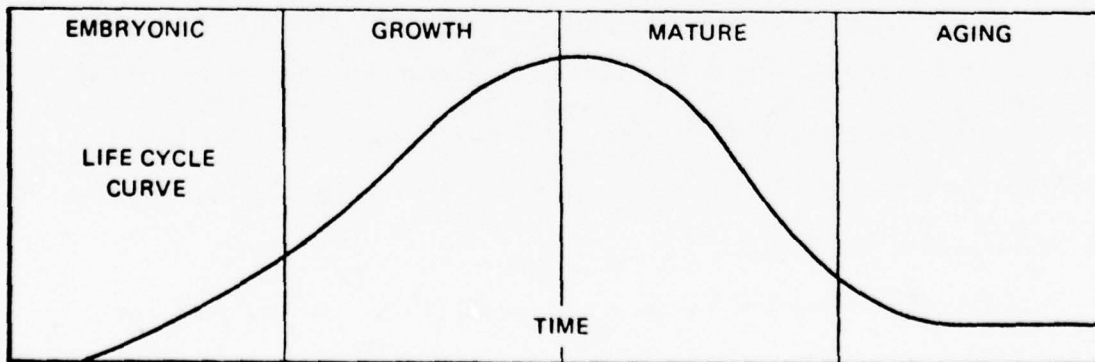
19. Ellis, H. M., and R. L. Keeney, "A Rational Approach for Government Decisions Concerning Air Pollution", Chapter 18 in Analysis of Public Systems, edited by A. W. Drake, R. L. Keeney, and P. M. Morse, MIT Press, Cambridge, MA, 1972.
20. Fortune, "Keeping the Clock From Running Out", Fortune, Vol. 98, No. 9, November 6, 1978.
21. Galbraith, J., Designing Complex Organizations, Addison Wesley series on Organization Development, Reading, MA, 1973.
22. Goggin, W. C., "How the Multidimensional Structure Works at Dow Corning", Harvard Business Review, Vol. 52, No. 1, January-February, 1974.
23. Granger, C. H., "The Hierarchy of Objectives", Harvard Business Review, Vol. 42, No. 3, May-June 1964.
24. Hax and Majluf, "A Methodological Approach for the Development of Strategic Planning in Diversified Corporations", Chapter 2 in Studies in Operations Management, edited by A. C. Hax, North Holland Publishers, Amsterdam, 1978.
25. Heller, W. W., The Economy: Old Myths and New Realities, W. W. Norton, New York, 1976.
26. Hinrichs, H. H., and G. M. Taylor, Program Budgeting and Benefit-Cost Analysis, Goodyear Publishing Co., Pacific Palisades, CA, 1969.
27. Hofer, C. W., "Research on Strategic Planning: A Survey of Past Studies and Suggestions for Future Efforts", Journal of Economics and Business, Vol. 28, No. 3, Spring 1975-1976.
28. Keen, P. G. W., and M. S. Scott Morton, Decision Support Systems: An Organizational Perspective, Addison-Wesley Series on Decision Support, Reading, MA, 1978.
29. Keeney, R. L., and H. Raiffa, Decisions with Multiple Objectives: References and Value Tradeoffs, Wiley, New York, 1976.
30. Levitt, T., "Marketing Myopia", Harvard Business Review, Vol. 38, No. 4, July-August 1960; and the updated version of the same article, Vol. 53, No. 5, September-October 1975.
31. Lee, R. D., Public Budgeting Systems, University Park Press, Baltimore, MD, 1973.
32. Lee, S. M., Goal Programming for Decision Analysis, Auerbach Publishers, Philadelphia, PA, 1972.
33. Lindblom, C. E., "The Science of Muddling Through", Public Administration Review, Vol. 19, 1959.
34. Lorange, P., "Implementation of Strategic Planning", Chapter 3 in Studies in Operations Management, edited by A. C. Hax, North Holland Publishers, Amsterdam, 1978.

35. Lyman, G., "The Anonymous Leader on Higher Education", Journal of Higher Education, Vol. 43, No. 1, January 1972.
36. Minzberg, H., "The Manager's Job: Folklore and Fact", Harvard Business Review, Vol. 53, No. 4, July-August 1975.
37. MIT-PENN-SSRC, Equations in the MIT-PENN-SSRC Econometric Model of the United States, unpublished notes, May 1977.
38. Murthy, K. R. S., Corporate Strategy and Top Executive Compensation, Harvard University Press, Cambridge, 1977.
39. Myers, S. C., "What Was A.T.&T. Cost of Capital in Early 1971?", Unpublished paper, Sloan School of Management, M.I.T., Cambridge.
40. Olsson, D. E., Management of Objectives, Pacific Book Publishers, Palo Alto, CA, 1968.
41. Peterson, M. W., "The Potential Impact of PPBS on Colleges and Universities", Journal of Higher Education, Vol. 42, No. 1, January 1971.
42. Porter, L. W., E. E. Lawler III, and J. R. Hackman, Behavior in Organizations, McGraw Hill, New York, 1975.
43. Pyhrr, P. A., "Zero-Base Budgeting", Harvard Business Review, Vol. 48, No. 6, November-December 1970.
44. Rumelt, R. P., Strategy, Structure, and Economic Performance, Harvard University, Graduate School of Business Administration, Division of Research, Boston, 1974.
45. Scherer, F. M., Industrial Market Structure and Economic Influence, Rand McNally College Publishing Co., Chicago, IL, 1970.
46. Seitz, N., Financial Analysis: A Programmed Approach, Reson Publishing Co., Reston, VA, 1976.
47. Silverman, D., The Theory of Organizations, Heinemann Publishers, London, 1970.
48. Simon, H. A., The Shape of Automation for Men and Management, Harper & Row, New York, 1965.
49. Simon, H. A., Administrative Behavior, third edition, Macmillan, New York, 1976.
50. Solomons, D., Divisional Performance: Measurement and Control, Irwin, Homewood, IL, 1965.
51. Steers, R. M., and L. W. Porter, Motivation and Work Behavior, McGraw Hill, New York, 1975.
52. Vancil, R. F., "Strategy Formulation in Complex Organizations", Sloan Management Review, Vol. 17, No. 2, Winter 1976.

53. Vancil, R. F., "What Kind of Management Control Do You Need?", Harvard Business Review, Vol. 52, No. 2, March-April 1973.
54. Vancil, R. F., Decentralization: Managerial Ambiguity by Design, prepublication edition, Financial Executives Research Foundation, July 1978.
55. Vancil, R. F., and P. Lorange, "Strategic Planning in Diversified Companies", Harvard Business Review, Vol. 53, No. 1, January-February, 1975.
56. Welsch, G. A., Budgeting: Profit Planning and Control, Prentice Hall, Englewood Cliffs, NJ, 1976.
57. Weston, J. F., and E. F. Brigham, Managerial Finance, Dryden Press, Hinsdale, IL, 1972.
58. Wharton Model, by McCarthy, M. D., The Wharton Quarterly Econometric Forecasting Model Mark III, Studies in Quantitative Economics No. 6, Economic Research Unit, Department of Economics, Wharton School of Finance and Commerce, University of Pennsylvania, Philadelphia, PA, 1972.
59. Zakon, A. J., "Capital Structure Optimization", in Treasurer's Handbook, edited by J. F. Weston and M. B. Goudzwaard, Dow Jones-Irwin, Homewood, IL, 1976.

APPENDIX I: MANAGEMENT CHARACTERISTICS BY STAGE OF INDUSTRY MATURITY.

Management Activity or Function	Embryonic Industry	Growth Industry	Mature Industry	Aging Industry
Managerial Role	Entrepreneur	Sophisticated market manager	Critical administrator	"Opportunistic milker"
Planning Time Frame	Long enough to draw tentative life cycle (10)	Long-range investment payout (7)	Intermediate (3)	Short-range (1)
Planning Content	By product/customer	By product and program	By product/market/function	By plant
Planning Style	Flexible	Less flexible	Fixed	Fixed
Organization Structure	Free-form or task force	Semi-permanent task force, product or market division	Business division plus task force for renewal	Pared-down division
Managerial Compensation	High variable/low fixed, fluctuating with performance	Balanced variable and fixed, individual and group rewards	Low variable-high fixed group rewards	Fixed only
Policies	Few	More	Many	Many
Procedures	None	Few	Many	Many
Communication System	Informal/tailor-made	Formal/tailor-made	Formal/uniform	Little or none, by direction
Managerial Style	Participation	Leadership	Guidance/loyalty	Loyalty
Content of Reporting System	Qualitative, marketing, unwritten	Qualitative and quantitative, early warning system, all functions	Quantitative, written, production oriented	Numerical, oriented to written balance sheet
Measures Used	Few fixed	Multiple/adjustable	Multiple adjustable	Few/fixed
Frequency of Measuring	Often	Relatively often	Traditionally periodic	Less often
Detail of Measurement	Less	More	Great	Less
Corporate Departmental Emphasis	Market research; new product development	Operations research; organization development	Value analysis; Data processing; Taxes and insurance	Purchasing



Reference: Arthur D. Little, Inc. [8]

APPENDIX II: THE INTERNAL STRUCTURE.

An organization may be defined as a "formal association of people that has been established to achieve certain goals, and that has a hierarchy and a set of rules that allow them to act in a coordinated way" (Silverman [47]). The essential components of an organization, as abstracted from this definition, are: groups of people, objectives, and the organizational structure and mode of operation.

1) Groups of People in the Organization.

It can be especially valuable for the success of a strategic change to acknowledge that the organization is a meeting place for groups with different needs, different objectives, and different strengths, that interact in many different ways.

Allison [4] recognizes the role of individuals within an organization when he describes the Bureaucratic (or Governmental Politics) model of decision making. This model sees no unitary actor (as in the Rational Actor model) but rather many actors and players. Moreover, these actors are not a monolithic group focusing on a single strategic issue (as in the Organizational Process model) but on many diverse issues. Thus, members of the organization can be perceived as individuals who act in terms of no consistent set of strategic objectives but rather according to various concepts or organizational and personal goals. They make corporate decisions not by a single, rational choice, but by the pulling and hauling that is politics.

The correct assessment of people's capabilities, needs, attitudes, values, motivation, behaviour, pattern of interaction, working drive, posture with regard to the organization's objectives, etc., impinge in

a decisive way on the quality and level of participation, and on the emotional ties and compromises with the agreed strategic plan. Establishing conditions that assure a high degree of congruence among individual and corporate objectives is one of the most challenging and demanding tasks of any planning and control system.

The proper identification of the managerial style that better fits with the implementation of a strategic decision, and the selection of a person whose leadership characteristics correspond with that style, is another important variable which, if not adequately considered, may threaten the success of a strategic plan.

The appropriate managerial style and the nature and content of the planning system change as the organization grows. An excellent summary of the essential characteristics of a managerial process by stage of industrial maturity (embryonic, growth, mature, and aging) has been prepared by Arthur D. Little, Inc. [8] and is given in Appendix I.

These brief statements on the people, and their association and interactions, are intended only to highlight the importance the human side of the planning process may have on the successful realization and implementation of a planning experience. The strategic planning process may affect the internal balance of human interactions in the organization. Therefore, this process has to be lived by all people, they have to commit themselves to it, to reconcile their personal beliefs to integrate them under a common purpose. As Vancil [52] points out: "Dozens, literally hundreds of two persons agreements must be negotiated, many of them almost simultaneously".

The recognition of the profound social, psychological, and political ramifications derived from the introduction of formal planning into a

firm, can spell the difference between a successful and an unsuccessful experience. Also, the planning process cannot ignore the traumatic effect that some strategic options may have over the people in the organization, because they may have the power to stop or completely change the implementation of a decision.

2) The Objectives of the Organization.

The objectives of an organization are indeed the objectives of certain groups associated with it. In a profit oriented corporation, these may be the objectives of shareholders or of the managerial group. For public services, the objective setting process is much more complex because the measures of performance of the organization are harder to define, are multiple in number, and often conflictive in nature, and the groups represented in the organization (managers, professional staff, other employees, government, and general public) may have contradictory interests with regard to the way it should be managed.

In general, the aspirations of all groups associated with an organization should be represented in its objectives. But there is an essential difference in the character and emphasis of this representation depending on the group that is actually leading the organization. This leading group could impose its objectives to the organization, but it should qualify them according to the purposes of other groups (and to the perceived strengths of those groups).

The identification of the implicit objectives of an organization should be done by looking at what the organization does, and not at what it is intending to do. The written statements of objectives in the enactment of a public service or in the president's annual report in a

private corporation are often too general or too far away from reality. The character of an organization is represented in its implicit objectives which are guiding its operation. Unfortunately, these objectives may be many, change with time, and sometimes non-explicit even at senior levels. Nonetheless, they are molded in the activities of the organization, and all effort spent in gaining a better understanding and clearer statement of objectives is surely worthwhile.

In a subsequent stage, when specific strategic options have been selected and defined in terms of programs, there is a need to establish much more precise objectives affecting all the hierarchical levels involved in the execution of that program. Moreover, more quantifiable measures of performance have to be developed to allow for the proper tracking and control of the plan being formulated. The issue is addressed in Section 4 of this paper.

3) The Organizational Structure and Mode of Operation.

An organization may be seen as a well ordered aggregation of units in a hierarchical network. The definition of a unit is arbitrary. It may be as small as an individual or as large as the whole organization. The criterion to be used in the selection of these units depends on the degree of detail chosen to represent the internal environment of the organization and the application that is going to be made with that representation. Each one of these units, in turn, can be viewed as a smaller organization.

The following issues will be addressed in discussing the organizational structure and its mode of operation:

- the hierarchical structure

- The rules of operation
- The dimensions underlying the activities of a unit
- The communication network.

The hierarchical structure that supports the units of the organization is pictured normally by means of the organization chart, which shows the different hierarchical levels and the accountability lines. The most common ways to set up these charts is by functions or by products or programs. This leads to the two basic forms of organizational design: functional organization, and product division organization. Sometimes both criteria are used in what is known as matrix organizations, but this extension leaves accountability more ambiguous, and it needs to be especially indicated (Davis and Lawrence [17], Galbraith [21], Goggin [22]).

An empirical study conducted by Rumelt [44], covering the years 1949 to 1969, for more than two hundred companies drawn from the Fortune 500, shows that product division organizations are increasing significantly and they seem to perform better than functional organizations. The author argues that product division organizations are a natural trend for a firm when it increases in size and diversification. This step from functional to product division organizations generates a new level of general management, that changes in a fundamental way the management process in the firm.

There is another dimension that neither of these organizational schemes comprehend, and that is crucial in the formalization of strategic planning: the strategic dimension. In general, the organization structure provides a formal hierarchy and a set of rules that determines the operational responsibility of managers at different hierarchical levels. But, there is no measure of the long term viability of the firm. The right balance between operating and strategic responsibilities is an issue that has not

been given sufficient attention in a firm's formal hierarchical structure. This practice is in conflict with the formalization of strategic planning, which requires the recognition of well defined strategic business units in the hierarchical structure of the firm.

The organization structure goes far beyond the representation provided by the organization chart. It is the framework for the organization to operate, and for the full range of transactions among people to be made. Formal and informal information channels are the network of this structure. They define the communication patterns in the organization, that result in a hidden organization hierarchy, representing the real levels of influence which might be markedly different from the ones shown in the organization chart. Stafford Beer [9] has proposed a five level recursive model that could be useful in uncovering the hidden organizational hierarchy.

With regard to the rules of the operation, the ones governing accountability have been mentioned as imbedded in the organization chart. But there are many other rules represented by the procedures, habits, and regulations the organization uses to handle specific situations (Allison [4], Simon [49]). Sometimes these rules are enunciated explicitly, but often they are just the experience accrued in the organization and are implicit in the activities that are set in motion in a more or less routine way. The rules will change with time as long as old and new situations being faced by the organization allow it to keep on learning and improving the existing procedures.

From the point of view of the full organization, the main dimensions underlying the activities of a unit are the following:

- The degree of interaction, that measures the intensity by which the activity of a given unit affects other units in the organization.

An activity is considered to be autonomous if it generates no appreciable interaction. Some activities that are autonomous under normal operation may become interactive if some anomaly is presented.

- The degree of centralization for activities in the same hierarchical line.
- The degree of coordination for activities in different hierarchical lines.

Coordination and centralization are greatly influenced by the size of the organization, geographic location of units, and the existence of some entities in the structure of the organization whose specific role is that of coordination of activities, as is the case with some managerial committees.

All these interactions among units reverberate along the communication network of the organization in the form of information flow that may go through formal or informal channels:

- Formal channels are well defined in the organization structure and go basically along and across hierarchical lines (vertical and horizontal communication patterns).
- Informal channels are not defined and they appear and disappear as a direct function of people's interactions (external personal contacts, human sources of information, informal relations between people). It is important to keep their presence in mind, because they have proven to be more significant and faster than formal channels (Aguilar [3]).

Not all information generated inside a unit is valuable from the organizational perspective (Ackoff [2], Argyris [7]). This observation impacts directly in the specification of some characteristics that the information system has to have:

1. It has to filter information which is considered not valuable for the management of the overall organization. Operational information does not need to be reported unless an exceptional situation arises.
2. If the limited human capability to process, absorb, and relate numerical information is taken into consideration, it may be added that the filter function is not only one of refinement of the information, but also one of condensation. Some key internal variables need to be defined to summarize the state and trend of the organization activities.
3. One step beyond the mere summarization of all data in a set of numbers is to present all the information in a way which has intuitive meaning for the manager; that is to say, in a way in which information may be easily internalized by just looking at it. This point is nicely made in Beer's book [9]:

... The fact is that the human brain is singularly incompetent in the matter of handling figures.

Consider the following situation. You are trying to judge whether a piece of furniture will fit into a particular alcove. Try to estimate the length of this sideboard in feet and inches; try to estimate the width of the alcove in feet and inches. The likelihood is that you will be anything up to 20 percent out in each estimate, and therefore your "calculation" as to the possibility of fitting the furniture in will be nonsense. No; the best thing you can do is to "guess" whether the piece will fit or not. Except in the most critical cases you are likely to be right. More dramatically still, as a second example, think of yourself successfully dodging across a major traffic flow in the heart of London. Then contemplate your chances of survival if you are attempting to calculate the maneuver in terms of distances and relative speeds...

In short, everything we know in psychology about perception, pattern recognition, and (in general) awareness of the state of affairs, says that we should try to reach our judgements in terms of relative size and shape, relative color, relative movement. When we draw graphs and histograms we pay attention to the first of these desiderata - but even then, having reached the judgement as a matter of fact, we hasten to make it look "respectable" by quoting rows of digits.

4. A desirable component coupled to (or included as part of) the formal information system, is a testing device for managers to assess beforehand the way in which certain decisions may impact the functioning of the organization. Simulation models are partly playing this role, but they are also providing a mechanism to learn about the organization (both during the design stage and under normal running mode), by uncovering the manner in which units interact and the effect that this interaction may have in the output of the organization.
5. Given the convenience of having an intuitive grasp of a situation, coupled with the capability to foresee the impact of a decision, some authors have forecasted a symbiosis of man-machine as a way to complement human potentialities. This would enhance the possibilities of including in the analysis of a problem subjective information and complex value trade-offs that are not easily handled by present techniques.

In this way, the internal world of an organization has been explored and described in general terms. The main components of this description are summarized in Figure 3.

In order to continue the analysis of the interaction between the organization and its environment, the next section will comment on the environmental structure, which, when joined with internal structure, opens the possibility to study the organization-environment inter-relationship.

APPENDIX III: THE ENVIRONMENTAL STRUCTURE.

This section develops a characterization of the external structure and of the kind of strategies that the organization may follow in dealing with it.

The importance of this information cannot be over-emphasized. A negligence or miscalculation at this point of the strategic planning process may lead to severe damages affecting the long term survivability of the organization, as has been lucidly described in Levitt's famous "marketing myopia" article [30].

Additional pressures for a careful environmental study have been added in the last decade, due to the unprecedented economic and social changes acting upon the organization. Heller [25] has summarized these changes as follows:

- . a menacing double-digit inflation curbed but not cured either by our first "peacetime" price-wage controls or by the highest unemployment rates in 35 years;
- . the longest and deepest recession since the Great Depression of the 1930's;
- . an energy crisis that caught us unaware and hence unprepared and remains unresolved;
- . startling jumps in the relative prices of farm prices and energy, the end of an era of cheap food and oil;
- . the highest interest rates and the biggest budget deficit in U.S. history;
- . the near bankruptcy of one of the world's great cities;
- . in the international economy the acceptance of the unacceptable, namely, dollar devaluation, the dethroning of gold, and floating (though managed) exchange rates.

The basic parameters that have to be described are the ones governing the change in the environment and its interaction with the organization.

These parameters are summarized in terms of:

- the form and speed of change in the environment;
- the underlying structure in the organization-environment interaction;
- some additional comments on the kind of strategic options open to

the organization.

1) The Form and Speed of Change in the Environment.

The form in which the environment changes may be viewed somewhere between fully predictably to fully unpredictable. That is to say, there is an expected evolutionary component of change, and an unexpected and unsystematic one.

For the organization to deal with these two very unequal forms of change, it has to develop sensible different strategies. There are two basic modes the organization might use to deal with environmental changes. One is to maintain a degree of flexibility or adaptability to adjust itself to the new conditions imposed by a change, including the development of contingency actions depending upon the realization of various predictable scenarios. The second mode is the ability of the organization to negotiate with or exercise some control to the environment, in order to avoid the damage resulting from a sudden, unpredictable change. This second case requires the readiness of the organization to recognize opportunities and threats in the environment and to influence on-going patterns in a way to preserve future viability (Cyert and March [15]).

The speed of change adds another component which may challenge the adaptation capability of the organization to cope with the pattern of change.

2) The Underlying Structure in the Organization-Environment Interaction.

An effort has been made to elucidate some typical structures in the interaction organization-environment. The correct identification of these structures allows the understanding of the main forces driving the

change in the organization and, consequently, gives an insight on the appropriate strategic courses of action under different scenarios.

We can suggest three basic forms of environment structures to be designated as competitive, regulated, and social environments.

In the competitive environment the survival game is one of finding new opportunities which have not already been exploited. Organizations are looking for a comfortable niche which may preserve their future viability from actions taken by competitors. This is the typical situation of a profit oriented firm in a competitive market, a situation which is neither perfect competition nor monopoly, but rather an oligopolistic middle ground. Economic theory does not provide a clear answer to explain the behavior of a firm in this environment. However industrial economics is helpful in suggesting descriptive measures for the degree of competitiveness in the environment (Caves [13], and Scherer [45]).

An organization in a mainly competitive environment has to develop the capability to create and control its own environment (for example, through marketing activities). That is to say, to look for that secure niche mentioned above and try to hold it. The Boston Consulting Group's approach to strategic planning [10] tends to emphasize the importance of market leadership as a primary criteria for long term success. This approach has been applied in Hax and Majluf [24].

The second type of structure is the regulated environment. In this case, organizations are subject to one or many forms of regulatory actions; for example, regulation of prices, of quality, of the fairness of opportunities open to minorities, of foreign trades, etc. The most typical regulatory authority is the government, but there is an increasing number of different groups (professionals, workers, customers, foreign businesses

and governments, etc.), which are having an impact in the organization's behavior. Survival in this setting is concentrated in the political relationship established with all these different regulatory bodies. That is to say, the organization has to develop negotiation capabilities to secure certain stability of regulatory rules and to avoid having these rules actually threatening future operations. For example, public utilities may have obtained a fairly stable regulated environment (Myers [39]), while universities may be suffering from excessive control (Lyman [35]).

Finally, the third structural form is the social environment, which is characterized by the difficulty of the organization to keep adjusting its operation to the changes in demands coming from it. Contrary to the case of competitive environment, in which organizations are strongly influencing their own environment, in this case organizations are being shaken by the forces in the environment, they are persistently falling behind of what is expected from them. Under these circumstances, the effectiveness of the organization will deteriorate continuously and, usually, only a major external action can reestablish an adequate degree of fitness. A good example showing the difficulties to actually manage the situation in the health field is given in Curran [14].

Some of the reasons that may explain this state of affairs are: the speed of change in the environment, the sluggishness in the administrative process required to produce the change in the organization, the size of the organization, and the difficulty of achieving consistency among the different political positions. The most characteristic organization falling in this category is the governmental public service.

Given the unmanageable situation which an organization has to face under this form of environment, there is not much room for action. The

main strategy is focused on removing the constraints that are paralyzing the organization's capabilities to adapt. But this is not always easy and may be even impractical. What may be done in this case is just to develop a capability to understand the environment, to learn about it, to decipher it. That is to say, to become aware of the expectations that people hold and the organization is not fulfilling, in the hope that this knowledge may trigger some corrective actions at a proper level.

These three environmental structures are not mutually exclusive. In a given organization they may coexist, thus adding to the complexity of the strategic planning process.

3) Some Additional Comments on the Kind of Strategic Options Open to the Organization.

The strategic planning process has to uncover, decipher, and transmit the signals being captured from the environment. The organization focuses its attention in a selected set of key external dimensions as proxies for the description of the environment, including those dimensions which are likely to have the largest influence in the organization.

The unstructured characteristic of the strategic planning process makes the kind of information required to be heavily dependent on specific circumstances. When the environment has a large evolutionary component which may well be predicted within certain margins of error, more formal sources of information and methods may produce a great benefit. Under these conditions, strategic planning becomes a long range planning process, where events are projected for many years in the future and decisions made considering the impacts of those events.

If, on the contrary, the environment behaves in a very unsystematic

way, overconstraining the organization's activities and making difficult the forecasting of even the near future, the organization will be "muddling through" its daily activities (a situation which is likely to happen under the social structure mentioned above). This method should be understood not as a panacea to manage organizations in this difficult environmental circumstances, but as a description of what organizations are doing to survive in this case. What many authors are actually suggesting is that survivability in itself is a fantastic achievement given the circumstances (Lindblom [33]).

But considering a more intermediate situation in which the organization has a certain margin for action and a rather limited forecasting capability, the strategic planning process becomes the resultant of small successive decisions reinforcing each other. It is a process of continuous trade-offs between short term objectives, which are more modest but more tangible, versus long term objectives, which are both more ambitious and less likely to be achieved. Strategic planning becomes a road map for the achievement of long term goals. The organization is tracing a path and building specialized resources trying to maintain many options open until a major commitment is done. But, probably, the convergence to this major decision is the resultant of many smaller decisions along time, all of them reinforcing a certain direction of change by progressively creating the appropriate intermediate conditions in the organization (Hofer [27]).

Figure 4 provides a summarized view of the ideas discussed around the environmental structure.