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THE ART AND SCIENCE OF PLANNING AT THE BUSINESS UNIT LEVEL*

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This paper attempts to relate the conditions that require different planning approaches. A theoretical planning framework is presented that considers the confidence of causal linkages coupled with the extent of environmental change. Prior planning research is synthesized to speculate on the appropriate leadership and decision-making styles for single-businesses, nondiversified firms, or divisions of diversified firms. Examples of computational, consensual, contingency, and conceptual planning systems are also provided.

(STRATEGIC PLANNING; ORGANIZATIONAL STUDIES; LEADERSHIP AND DECISION-MAKING STYLES)

Introduction

All organizations must attempt to channel individual effort to obtain unified purpose(s). Therefore, the planning framework adopted by top managers is important: they facilitate the formulation of goals and strategies, influence the behavioral processes that emerge, and direct the method of communicating, coordinating, and controlling members' behaviors so that a consistency of action occurs. In this way, desired organization objectives are established. The environment, through domain consensus, will determine if the plans are realized (Duncan 1972).

Corporate planning systems result in a master blueprint of the actions required to ensure long-term growth and prosperity. Some authors contend that this process is an art, whereas others argue it is a science. In actuality, the planning process is both. The difficulty lies in ascertaining where on the continuum the organization lies. Since what works well in a stable environment may not succeed under turbulent conditions, a rational decision model is most applicable when the decision maker can perfectly forecast environmental change. Environmental anticipation, although not always possible, is one of the Thompson's (1967) strategies for dealing with uncertain environments.

According to many (Cyert and March 1963, Duncan 1972, Emery and Trist 1965, Simon 1977, Thompson 1967), difficulties arise under the following conditions:

1. when the complexity of the decision exceeds the comprehension of the individual;
2. when required resources exceed the capacity of the organization to acquire them;
3. when the organization faces more contingencies than it is able to keep under surveillance; and
4. when competitor actions nullify proactive strategies.

Thompson distinguishes different situations by specifying two major determinants of decision strategies. They are (1) beliefs about cause-effect relations, and (2) preferences regarding possible outcomes. By dichotomizing each as being either certain or uncertain, Thompson (1967, pp. 134-135) posits the four resultant decision types as being computational, judgmental, compromise, or inspirational.

The degree of environmental certainty depends in large part on environmental complexity and stability. According to Duncan (1972), stable environments have a

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TABLE 1

Planning Systems Based on Causal Linkages and Environmental Change

		Known ←———— Causal Linkages —————→ Unknown	
		(Synoptic Orientation) (Behavioral Orientation)	
Stable ↑ Environmental Change ↓ Dynamic	(Programmatic Orientation)	<i>Planning Style:</i> Computational <i>Decision Making:</i> Analytical <i>Leadership:</i> Authoritarian <i>Organization:</i> Mechanistic <i>Strategy:</i> Proactive <i>Success:</i> Unity of purpose; minimal interaction; efficient <i>Example:</i> Mature, dominant firms	<i>Planning Style:</i> Consensual <i>Decision Making:</i> Intuitive <i>Leadership:</i> Arbitrator <i>Organization:</i> Collegial <i>Strategy:</i> Judgemental <i>Success:</i> Best estimates; democratic; cohesive and cooperative <i>Example:</i> Innovator facing moderate challenge
	(Incremental Orientation)	<i>Planning Style:</i> Contingency <i>Decision Making:</i> Incremental <i>Leadership:</i> Statesman <i>Organization:</i> Matrix <i>Strategy:</i> Interactive <i>Success:</i> Environmental scanning; close internal communications; tight control <i>Example:</i> Environmental adopters	<i>Planning Style:</i> Conceptualized <i>Decision Making:</i> Inspiring <i>Leadership:</i> Charismatic <i>Organization:</i> Organic <i>Strategy:</i> Creative <i>Success:</i> Exploit opportunities; thrive on ambiguity and complexity; innovative “gestalt” thinking <i>Example:</i> Entrepreneurial firm

limited number of outcomes whereas dynamic environments present a vast range of consequences. In addition, constantly changing conditions make it “. . . difficult to have available the relevant information for the decision-making situation. When the environment is changing, the system must continually learn to readapt. The system cannot rely on past procedures and practices; rather, it is faced with a new situation in which its members will have to learn new methods” (Duncan 1972, p. 321).

This paper synthesizes Thompson’s causality dimension and Duncan’s environmental stability dimension. Considering environmental stability, decisions can be made in either a programmatic or incremental manner, with each containing different degrees of confidence regarding the consequences of action (see Table 1). Programmatic decisions occur when the environment is stable enough so that the continuity of the past can be safely maintained. Dynamic conditions require more of an incremental approach to situations in response to changing states of nature.

The likelihood of achieving a desired result also determines the planning system selected. Decisions can be made synoptically when learning and feedback information is swift and sure, such as when causal linkages are relatively certain. Cohen and Cyert refer to this environment as being disjointed since “. . . the causal links among the sectors of the environment are relatively short and events in one sector are likely to have only minor effects in other sectors” (1973, p. 352). On the other hand, experience or intuition is called for when causality is so unknown that all ramifications cannot be anticipated, considered, or predicted. This does not indicate that decisions in this case are irrational, only that they rely on “soft” processes such as hunches, guesses, intuition, or other behavioral orientations.

A Taxonomy of Planning Styles

Chakravarthy and Lorange (1984) distinguish four alternative strategic systems and organization structures based on a firm’s ability to predict and respond to its environment (Lorange 1984). Their model parallels four stages of growth and development experienced by multibusiness firms as they progress through centralized, decentralized,

portfolio, and matrix forms. In contrast, this paper is concerned with corporate planning for only single-businesses or nondiversified firms, or divisional planning for diversified firms. The purpose of this paper is to explain the conditions which call for either computational, consensual, contingency, or conceptual planning at the business unit level based on the extent to which the decision is structured and defined. These will be shown to be congruent with the causal textures of Emery and Trist's (1965) four organizational environments.

Although the four planning systems will be described in their pure form, it should be kept in mind that many hybrids exist in reality. For instance, the model in Table 1 presents the causal linkages and environmental change dimensions as distinct extremes, whereas they are really continua. Hence, some overlap or combinations may exist. In addition, different parts of an organization may find different systems to be more appropriate, so any one type may not be used throughout an entire organization. Furthermore, there are bound to be perceptual differences throughout an organization's hierarchy so that top managers could be utilizing one type of system in formulating strategies but lower levels may rely on another type for their execution. However, this discussion is limited to the business unit level. Finally, one system may be used as only a component part in a planning scheme which relies on a completely different system to assemble its pieces.

Computational Planning

Classical economic theory assumes that the interests of management coincide with those of the firm (i.e., the owners); decisions are made in some long-term rational manner in order to maximize profits; and perfect knowledge exists to do so. Based on these premises, formal and systematic models have been developed which are considered to be ideal. Some, like multivariate analysis, extrapolative techniques, and simulations, are useful for prediction and description. The purpose of these models ". . . is to quantify and relate all of the significant independent variables to the attainment of the firm's goals which in the aggregate amount to maximised shareholder net worth" (Greenwood and Thomas 1981, pp. 409-410).

Models that can accurately represent reality allow managers to understand systems relationships and to avoid unnecessary judgement while checking on their planning assumptions. Furthermore, the use of an analytical framework facilitates the formulation and evaluation of alternatives and the selection of the optimal solution as long as the objective function and parameters can be quantitatively described and the calculations can be conducted in a timely and cost-effective manner (Simon 1977). Not only does objectivity minimize personal biases, but mathematical modeling processes ". . . can provide a basis for better measuring and understanding of possible outcomes of strategy options" (Greenwood and Thomas 1981, p. 412). For these reasons, most models are used to project financial conditions of the firm (Gershefski 1970, p. B-309).

The Marketing Science Institute's project on the Profit Impact of Market Strategies (PIMS) is one of the most popular applications of mathematical models at the business unit level. This ongoing study, which attempts to find the effects of strategy and market conditions on profitability, shows a strong relationship between market share and return on investment. Such findings are touted to be useful for forecasting profits, allocating resources, measuring management performance, and appraising new business proposals (Buzzell et al. 1975, Schoeffler et al. 1974). Firms or divisions attempting to balance their product portfolios have available to them the corporate asset pricing model to minimize risk (Mullins 1982) or the growth-share matrix to allocate resources to their most productive uses (Henderson 1979; Miesing 1983), although some judgment is still required for both models.

Such normative models are viable in well-structured and stable situations where

consequences are fairly predictable. Little (1970, p. B-470) suggests a "decision calculus" in order to assist managers in making decisions by developing models that are simple, robust, easy to control, adaptive, comprehensive, and commutable. But these types of models are limited because they require good historical and current data and assume that they can be effectively and efficiently implemented. With minimal group interaction, a computational planning style may reduce the motivation of organization members to accept orders since they do not participate in the decision and may not feel committed to it. The biggest failure, however, is that most quantitative models are based on theoretical and normative assumptions that give "... inadequate incorporation of intrinsic, stylistic objectives [i.e., noneconomic factors] in the study formulation process" and an incomplete view of causality (Hall 1973, p. 37).

What is presented in classical decision theory as a computational planning style is appropriate for Emery and Trist's placid randomized environment (Emery and Trist 1965) and is similar to Miller and Friesen's (1978, p. 927) "dominant firm" in stable and munificent environments. Their examples are Xerox and IBM during the sixties since they were authoritarian with strategies that were extrapolations from the past. Mature, dominant firms can follow this approach as long as their environment is controllable or predictable. But Miller and Friesen (1978, pp. 930-931) warn of the danger of becoming either a "stagnant bureaucracy" whose strategies remain conservative as the environment changes, such as occurred in the airline industry under de-regulation; or of becoming a "headless giant" with no strong leader to provide direction.

Consensual Planning

Often there is disagreement or uncertainty concerning consequences of actions, even in a stable environment. According to Cyert and March (1963, p. 83):

First, organizational decisions depend on information, estimates and expectations that ordinarily differ appreciably from reality. These organizational perceptions are influenced by some characteristics of the organization and its procedures. The procedures provide concrete estimates—if not necessarily accurate ones. Second, organizations consider only a limited number of decision alternatives. The set of alternatives considered depends on some features or organizational structure and on the locus of search responsibility in the organization.

As a result, the so-called "process school" of management views organizations as coalitions of interests that negotiate, bargain, and deliberate until policy decisions are made. Since the manner in which consensus is arrived at will affect the final decision selected, the social relationships of the decision makers become more important as uncertainty increases. For this reason, Guth (1976, p. 378) views policy formulation "... as a process involving interactions between individual participants in the organization and the social system within which they operate."

Planning without the understanding of cause-effect relations encourages and requires the use of personal values, estimates, and perceptions. Even if outcomes are known, values are important in selecting an alternative (Andrews 1971). But as Greenwood and Thomas (1981, p. 408) point out, "... judgemental processes or heuristics fall short in many directions. There are built-in problems of bias, as well as problems of reliance on the intuitive ability of the entrepreneur coupled with the generally subjective character of such heuristics for strategy formulation."

The inherent subjectivity of individuals can be taken into account and balanced by a collegial style where group decision making allows members to cooperatively explore issues, share and exchange ideas, and freely brainstorm as the means of obtaining consensus. Therefore, success in this situation depends on the ability to manage the internal decision-making process until a satisficing or acceptable solution is reached.

Indeed, the contribution of mathematical models is minimized due to their inability to capture the social and political atmosphere typical of strategic planning in most companies.

Pfeffer, Salancik and Leblebici (1976, p. 228) argue that social influence will more completely determine the decision outcome in the absence of universal standards for evaluating those decisions. In viewing planning as a group process, top management must reconcile differences of judgement. Success in such unstructured (and sometimes emotionally-charged) situations depends on the characteristics and attitudes of the individuals involved in the decision and the group's atmosphere. It is therefore incumbent upon top management to understand the social processes that lead to good ideas so that the members are able to obtain commitment to implement the group's decisions. An atmosphere of openness, trust, and full participation in offering suggestions and giving feedback should be encouraged.

In situations having little experience as a guide, such as when a firm seeks unexploited niches not previously recognized, expected outcomes are based on intuition and good business judgment and not on aspiration. This is typical for Emery and Trist's (1965) placid, clustered environment. For instance, Miller and Friesen (1978, pp. 928-929) found Polaroid and Control Data to be representative of their "innovator" firms that operate under moderate challenge, i.e., in a relatively stable environment. However, Polaroid's initial responses to Kodak's entry into its instant photography market were somewhat erratic and its foray into the unprofitable instant movie film market, due in large part to the domination of Edwin Land, was a disaster.

Contingency Planning

Companies are increasingly forced to execute strategies in situations of growing uncertainty. Examples of recent environmental turbulence include the energy and raw materials shortages; unforeseen social, political, and technical developments; simultaneous inflationary and recessionary pressures; de-regulation; and global competition. In such cases, the outcomes of specific events are somewhat predictable but the events change far too rapidly. One method of dampening adverse effects of a turbulent environment is by negotiating with those elements which are most critical to the organization. For instance, organizations can respond to external environmental pressures by revising policy decisions through a series of compromises with affected constituent groups (Murray 1978; Thompson 1967).

Industry characteristics and competitor actions also constrain the firm's flexibility. Game theory examines the unpredictability and interaction of competitor moves where decisions are made under conflict with rivals. "The number of competitors, rivals, or buyers and sellers, together with their interests, values, goals, preferences, and resources, clearly shape the choices available to the players and thereby form part of the rules of the game" (McDonald 1975). Although the precise moves of others are not known, countermoves can be developed beforehand in anticipation of possible changes in events.

Instead of relying on a single or initial corporate plan, top management in this situation must insist on a whole battery of possible plans that can deal effectively with changing environments, reviewing and revising them more frequently. According to O'Connor (1978, p. 2), "... the greater the range of factors that might impinge on a company's future, the greater the number of uncertainties it must cope with. And, as a defense against this increased degree of uncertainty, a firm may decide to develop alternate scenarios of the future and/or contingency plans to cover bad guesses."

An alternative to developing scenarios beforehand is to modify objectives and plans incrementally as greater knowledge is acquired. Lindblom (1959, p. 81) contrasts the rational-comprehensive approach with his method of "successive limited compari-

sons," and he and Braybrooke (1963, pp. 85–86) observed that policymakers use a process of "disjointed incrementalism" that compares only marginal differences from the status quo. Ansoff (1965, p. 24) described such adaptive search as a "cascade approach" where final solutions are gradually arrived at as events evolve and results unfold. Similarly, Wrapp's (1967, p. 95) "muddling with a purpose," where policies evolve from day-to-day operating decisions, differs greatly from the formal, systematic, and comprehensive models. Quinn (1978, p. 8) found that the "power-behavioral" or the "formal systems planning" paradigms alone are unsuitable for explaining how successful planning occurs. Instead, decision makers confront unstructured situations through a process of "logical incrementalism" that combines computational and consensual elements. Ackoff's (1970, p. 18) "innovative planning," or adaptivizing, could either passively respond to a changing environment or actively influence its environment.

In a dynamic environment, described by Emery and Trist (1965) as disturbed-reactive, "muddling through" could give the appearance of having vague and inconsistent goals and means while the organization flounders from one commitment to the next with its members continuously compromising each decision in turn. To avoid this, ". . . all levels of management must be in close communication with one another to permit remedial action or changes in the strategic plan and its formulation" (Greenwood and Thomas 1981, p. 413). This can be achieved with a matrix structure which differentiates and integrates activities along the environment's dominant dimensions.

Miller and Friesen (1978, pp. 926–928) found that the "adaptive firm under moderate challenge," which fits the requirements for contingency planning, develops internal controls, scans the environment, and fosters open communications, and tends to be in such traditional industries as banking, retailing, and machine tools. On the other hand, their "adaptive firm in a very challenging environment" was identified as being in such highly technical industries as semiconductors, synthetic fibers, chemicals, and defense components. Their "giant under fire" was an oligopoly such as Heinz, DuPont, and General Motors which operates in a challenging and complex environment, but "[t]he complexity of the environment and the success of previous strategies have made this type of company reluctant to abandon its well tested orientations. Thus the firm adapts to its environment *incrementally*."

Conceptualized Planning

The most difficult condition exists when causal linkages are unknown and environmental change is dynamic. If logical answers are not apparent, it is easy for the planning process to consist more of nonthreatening and irrelevant conversation than an opportunity for formulating, questioning, and testing meaningful strategies and policies. Going through the motions of making decisions with a sense of futility as the organization is buffeted about by the environment can lead to an extremely lackadaisical attitude, confusion, and frustration. Success under inactive leadership comes about more by accident than by design.

Ruefli and Sarrazin's (1981, p. 1160) approach to "strategic control" in this situation is a combination of political negotiation with the external environment while using an incremental approach. They call this an "ambiguous circumstance" since planning occurs where environmental control is limited and falls somewhere in between the proactive, normative models and the reactive, incremental approach. But this situation presents a whole complex of new opportunities and relationships for the entrepreneur with vision and the daring personality to venture into a potentially hazardous environment. The organization that thrives on ambiguity and complexity, is willing to take bold action in changing its own environment and can contain its risks in doing so, and

is flexible enough to react quickly to surprises will gain new technologies, products, services, and markets. Such creativity defies logic, with the final decisions unanticipated and the ultimate results unknown. But all innovations begin as ideas that, with luck and proper nurture, grow to become focal points from which the future central purposes of an organization evolve.

A conceptualizer can thrive in this environment. To Andrews (1971, pp. 228–229), the general manager is the strategic architect and firm's conceptualizer:

To find strategic choices that are not routine and to determine a strategy uniquely adapted to external opportunity and internal strengths require the policy-making executive to be an innovator. The entrepreneurial or risk-taking element in strategy formulation often requires the strength to defy the apparent implications of industry decisions. In folklore psychology, the personalities of the critical analyst and the energetic and creative innovator-entrepreneur are supposed to be antithetical. The strategist, however, must span these opposites. Fortunately, their irreconcilability has been greatly exaggerated.

Consistent with Andrews (1971), Mintzberg (1978, p. 944) introduces “gestalt” strategies as being unique, tightly integrated, and requiring “innovative thinking, rooted in synthesis rather than analysis, based on the ‘intuitive’ or inexplicit processes that . . . are the products of single individuals, and only appear in organizations with strong leadership, in effect, those that use the entrepreneurial mode.”

For such turbulent fields (Emery and Trist 1965), Miller and Friesen (1978, p. 928) identify the entrepreneurial firm. Exemplified by conglomerates such as Gulf & Western or Textron but equally valid for single-businesses or nondiversified firms, these companies are “run by a powerful *charismatic* chief executive who is in control of strategy making [and] . . . manipulates its environment instead of reacting to it.” These companies are contrasted to the “impulsive firm” which operates without planning and whose intuition may lead to bold moves but could also end in failure if the result is an increase in environmental instability and complexity, such as the current shakeout in personal computers; and to firms that attempt “swimming upstream,” such as Wheeling Steel and Franklin National Bank, whose insufficient resources resulted in high risk and desperate moves and ended “. . . in harmful incongruities among the new and old elements of the strategy” (Miller and Friesen 1978, pp. 930–931).

Summary and Conclusions

The organization's success depends on more than the cumulative individual efforts put forth by its members. Performance can be improved by (1) understanding the particular situation faced by the organization, and (2) using the appropriate planning system. In some situations, the organization's members are willing and able to take orders, know what is expected of each other, and recognize that formal structure and greater direction lead to success. In such highly-defined situations, all of the alternatives can be identified, their consequences are known, and the criteria for evaluating decisions can be easily and reliably quantified. Decision making is a matter of examining these alternatives and selecting with relative certainty the optimal one. Managers can set goals and control subordinates in a tightly-operating environment by specifying tasks and expectations, and emphasizing and rewarding their ability to conform to standards.

An orientation that clearly defines roles and clarifies goals so that decisions are internally consistent can be expected to lead to high performance when causal linkages are fully understood and the environment is relatively stable. However, this style could be dysfunctional under rapidly changing conditions or when causality is unknown. In such ill-defined situations, it would be more appropriate to rely on members' input and commitment as the group makes estimates and incremental adjustments.

Properly conducted, performance in loosely-structured decision-making situations will be improved when behavioral processes are considered and correctly administered. This is because decision makers in this situation are unaware of the criteria, alternatives, or consequences determining organizational performance. In addition, the factors to be considered are complex and cannot be easily quantified, making optimal solutions difficult to obtain. Instead, participants may resort to hypotheses, intuition, "guesstimates," experience, and luck. Unstructured situations rely on input from those responsible for performance and are willing to share decisions and information in an open atmosphere. Managers involved in this type of planning system should remove interpersonal obstacles in the decision-making group so they can work to their fullest potential.

The job of top management is to determine direction, assess the external environment, and decide the extent to which decision making is to be shared. These managers are also responsible for enhancing and encouraging organizational performance. When the structure of the problem is changing, however, the entrepreneurial organization will adapt by finding unique, safe, secure, and protected niches, or attempt to manipulate its environment through a strategy that is bold and creative with risks carefully calculated. Rigorous analysis or specific direction from a strong leader, an open decision-making atmosphere for group members, or developing scenarios and contingencies alone may not result in high performance. The ideal combination would be to have the unity of organizational purpose that oftentimes only high structure can provide, the participative decision making required for ill-defined situations, the flexibility to respond to changing conditions, and the bold, creative decisions of the strong entrepreneur during changing and uncertain times. Effective planners realize that good decision-making abilities require analytical, intuitive, and interpersonal skills, and know when to use which planning system to their maximum advantage.

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