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# STRATEGIC PROBLEM FORMULATION: BIASES AND ASSUMPTIONS EMBEDDED IN ALTERNATIVE DECISION-MAKING MODELS

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## ABSTRACT

This article reviews the major theoretical approaches to strategic decision-making and identifies how each treats the process of problem formulation. Five models of strategic decision-making are analysed to determine the assumptions and biases made about strategic problem formulation. Successful strategic problem formulation is described and proposed as a beginning point for future research. Some constructs for further theory development are addressed.

## INTRODUCTION

Strategic management is concerned with how strategic decisions are made both descriptively and prescriptively. Researchers in strategic decision processes stress the need to examine how strategic decisions arise, are perceived, and are formulated by management (Cowan, 1986; Mintzberg *et al.*, 1976). A critical task of upper-level management involves the identification and structuring of the most important problems threatening the organization's ability to survive and adapt in the future (Lyles and Mitroff, 1980; Pounds, 1969). These are not the everyday, routine problems but the problems and issues that are unique, important and frequently ambiguous (McCaskey, 1982). They impact the firm's ability to survive and prosper.

Mason and Mitroff (1981) specify the characteristics of these vexing strategic problems, which they call 'wicked problems'. They are distinguished by interconnectedness to other problems, complexity with recursive feedback, uncertainty in a dynamic environment, ambiguity dependent on viewpoint, conflicting trade-offs associated with alternative solutions, and societal constraints upon proposed theoretical solutions. The process of resolving the nature of these major strategic problems is strategic problem formulation (SPF).

Thus in today's rapidly changing environment, the ability to sense the emergence of, and to assign meaning to, unanticipated environmental events which may be signals of these 'wicked problems' describes a critical strategic

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capability (Ansoff, 1984). This is not merely 'opportunistic' surveillance but an organizational process that encompasses the firm's approach to developing awareness of its most important strategic problems and their characteristics.

Strategic problem formulation is an activity familiar to organizations (Lyles, 1981; Mintzberg, Raisinghani and Theoret, 1976; Pounds, 1969). All organizations face problems that have a major impact on the firm's ability to survive and to adapt to environmental change. Indeed it could be argued that those organizations which have successfully adapted and survived through time must either have devised very effective systems for strategic problem identification and formulation or have been very lucky.

Therefore, identifying a good strategic problem formulation process is an important organizational issue noted by a range of management researchers (Lyles, 1987a; Lubin, 1977; Ramaprasad and Mitroff, 1984; Rumelt, 1979; Volkema, 1983). In an attempt to predict and forecast environmental changes, organizations have established forecasting models and issues management departments (Dutton and Jackson, 1987). However, it is not always clear that these necessarily improve the organization's ability to anticipate, make sense of and formulate critical and strategic problems (Lenz and Engledow, 1986).

This article will examine how strategic problem formulation is treated within five commonly accepted models of organizational decision-making. First, areas of consensus regarding strategic problem formulation will be reviewed. Second, the biases and assumptions about SPF that exist within the five theoretical models will be identified. Third, some propositions for future research regarding the nature of successful strategic problem formulation will be outlined.

## ISSUES IN STRATEGIC PROBLEM FORMULATION

In research about strategic problem formulation the areas of disagreement probably outnumber the areas of agreement. It seems useful first to outline the major theoretical areas in order to lay a foundation for the later discussion of alternative approaches toward problem formulation. The purpose here is to identify major issues rather than offer an exhaustive literature review.

Strategic problems have frequently been referred to as 'unstructured', messy or wicked problems (Ackoff, 1974; Mitroff and Mason, 1980). They have a significant influence on the organization as a whole and are more complex and ill-defined than other problems. There is no proven algorithm for formulating these problems, no clear relationship between problem definition and best solution, no single way to explain discrepancies in understanding and no replicability (Mason and Mitroff, 1981; Thomas, 1984).

Some strategic problems are well structured (*i.e.* there is relatively widespread consensus as to the single best definition of the problem). These are frequently problems that have been imposed on the organization, as in the case of governmental regulations or union negotiations (Lyles and Mitroff, 1980). However, most strategic problems are unstructured, and no single 'best' way for formulating the nature of the problem exists. In these problems, the formulation process becomes a critical aspect of the strategic decision-making process.

In an uncertain environment, a firm cannot anticipate all environmental

events. These unanticipated events are usually sensed through informal means (Ansoff, 1984; Cowan, 1986; Lyles and Mitroff, 1980; Mintzberg, 1973; Quinn, 1980). The managers who become aware of these events assign meaning and definition to them. In the study by Lyles and Mitroff (1980), about 80 per cent of the managers said they became aware of a problem's existence from informal indicators.

Resolving the nature of strategic problems becomes an important task of upper level management. Making sense of complex situations requires specific cognitive and experiential skills. Managers have to assign meanings to unanticipated events by making inferences about the inter-relatedness of these events to other important events and to the organization's environment and context (Lyles, 1987a; Lyles and Mitroff, 1985).

Hambrick and Mason (1983) note that strategic decisions are affected by the cognitive frames and maps of the organization's senior executives. Thus, upper level managers define the nature of strategic problems and solutions through their own frameworks (Ramaprasad and Mitroff, 1984). The way that problems are defined limits the set of solutions that are considered relevant. Hence the way firms sense the existence of strategic problems and resolve the nature of them has an impact on their choice of strategic alternatives.

Several ideas have emerged recently concerning the strategic problem formulation process and the factors that affect it. First, firms do not *explicitly* define unanticipated problems (Ansoff, 1984; Lyles and Mitroff, 1980; Volkema, 1983). In applied settings, solution generation is often adopted as a means of problem sensing among senior executives and appears to be more widespread than consideration of different problem perspectives (Hertz and Thomas, 1983a; Mitroff and Betz, 1972; Starbuck, 1983).

Second, the complexity of strategic problems leads to differing assumptions regarding the nature of these problems. This leads to stakeholders supporting varying views (Freeman, 1984; Mitroff and Emshoff, 1979). Consequently, the research emphasis on individual differences regarding problem formulation has generated only some insight into the socio-political and the social psychological factors affecting the formulation of strategic problems (Cowan, 1986; Volkema, 1986). As firms spend less time explicitly defining these messy problems, the socio-political dynamics become more important (Pfeffer, Salancik and Leblebici, 1976).

Third, individuals will interpret the same situation or environmental cues differently (Cowan, 1986; Volkema, 1983). Thus, given that there will be multiple cues about strategic problems, there will also be multiple interpretations of these cues (Ramaprasad and Mitroff, 1984). An individual's interpretation will be a function of his/her background and prior experiences (Herden and Lyles, 1981; MacCrimmon and Taylor, 1976; Morgan and Ramirez, 1984; Taylor, 1975). Further, individuals have many factors influencing their perceptions of the cues including expert opinions, stress, timing, frequency of cues, additional cues, *etc.* These factors may lead to cognitive biases (Hogarth and Makridakis, 1981; Schwenk, 1984, 1986; Schwenk and Thomas, 1983b) in the problem formulation process.

Fourth, strategic problem formulation is a complex process that starts with cues being sensed by individuals. The process emerges into an organizational process in which biases are commonly introduced (Lyles, 1981). Although some

normative approaches have been suggested (Mitroff and Mason, 1980; Schwenk and Thomas, 1983a), it is still not clear what variables are involved, how these interact and what debiasing procedures exist.

## STRATEGIC DECISION-MAKING MODELS

Studies of the strategic problem formulation (SPF) process (Cowan, 1986; Lyles and Mitroff, 1985; Volkema, 1983) lead to the identification of many confounding factors in the process. These include the level of analysis, selection of variables, measurement of variables, and types of methodologies. It is argued here that the SPF process should be examined and clarified in terms of the dominant conceptual frameworks (strategic decision-making models) and their underlying assumptions.

Table I summarizes those models which represent the primary categories for multiple perspectives of strategic decision-making as identified by Allison (1971); Cohen, March and Olsen (1972); Janis and Mann (1977), and Pfeffer and Salancik (1978). The models have been identified as the Rational model, the Avoidance model, the Adaptive model, the Political model and the Decisive model. Each will be discussed and the differing viewpoints about strategic problem formulation, environmental uncertainty, the extent of inherent biases, and the nature of the formulation process will be outlined.

### *Rational Decision-Making Model*

The Rational model corresponds to the classical economic view of decision-making. It is the benchmark against which other approaches are evaluated. It is grounded in rationality, optimality, and consistency (Allison, 1971) and assumes that decisions emerge from a process of conscious choice.

In treating problem formulation, this model assumes that full information is available and that the one right formulation of the problem will be determined after an examination of the symptoms. Social–psychological factors such as power, conflict, fear, credibility or turnover will not influence the process. The manager provides the resources and personnel necessary to gather information about the symptoms and to analyse them.

This model assumes that there is a correct formulation of the nature of the problem and that there are no biases inherent in the process. A problem can be determined by analysing the deviation of organizational performance from the specified goals or objectives. Pounds (1969) expresses this approach. Problem formulation is not valued as a particularly important element of rational choice: the correct formulation of the nature of the problem is a given. Yet researchers such as Raiffa (1968) note the 'error of the third kind' in rational approaches, namely, solving the wrong problem.

Perhaps the most recent and well-quoted example of the relationship between the Rational view and strategic problem formulation is Porter's (1980) work on competitive strategy. Porter concentrates on the interaction between characteristics of industry structure and the firm's environment. The essence of the argument is that strategy is a match between the firm and industry characteristics and that firm strategy is constrained by industry structure and its evolution through time. Defining the problem is not an issue.

Table I. Approaches to strategic problem formulation: alternative approaches

| | *Rational* | *Avoidance* | *Adaptive* | *Political* | *Decisive* |
|---|---|---|---|---|---|
| Criteria | Rationality | Maintenance | Incrementalism satisficing | Bargaining | Action generation |
| Process | Sequential | Discontinuous | Discontinuous cyclical | Cyclical | Random |
| Biases | Wishful thinking<br>Rationalization | Selective perception<br>Rationalization<br>Wishful thinking<br>Anchoring | Escalating commitment<br>Illusion of control<br>Selective perception | Social pressures<br>Escalating commitment<br>Illusion of control | Emotional stress<br>Social pressures<br>Prior hypothesis bias<br>Illusion of control |
| Assumptions | Full information<br>One right formulation<br>No biases inherent | Important to maintain *status quo*<br>If problem is ignored, it will go away<br>Symptoms change | Maintenance of *status quo* is important<br>Environment is too uncertain to predict<br>Change should be introduced very slowly | Everyone has one view of problem<br>People will act in own self interest<br>There is no one correct view of problem<br>Minimize conflict | Environment is very dynamic<br>Everyone is biased<br>Actions are the most important management task |
| Evidence | Facts | *Status quo* | Intuition | Power | Actions |
| Performance outcome | True definition | Maintenance of *status quo* | Incremental change | Agreement | New situation |
| Representative references | Allison (1971)<br>Raiffa (1968) | CyertandMarch(1963)<br>Janis and Mann (1977) | Quinn (1980) Lindblom (1959) Mintzberg *et al.* (1976) | Cyert and March (1963)<br>Hayes and Simon (1977)<br>Lyles (1981) | Cohen, March and Olsen (1972)<br>Starbuck and Hedberg (1977)<br>Starbuck (1983) |

It is clear that many of the assumptions of this model are problematic, and few theorists have accepted this view as descriptive of how organizations formulate the nature of strategic decisions (Mason and Mitroff, 1981). Some theorists are softening their positions about rational analytic models as being useful only for low-level managerial problems of a housekeeping variety. Mason and Mitroff (1981, p. 367) welcome the advent of user-oriented computer modelling systems (Keen and Wagner, 1979; Wagner, 1979) which allow the user to build almost directly, in natural language, a range of firm-level, business-level and competitive response models.

While such models do not yet incorporate differing stakeholder viewpoints, the trend towards analytical models as aids in a process of policy dialogue is being reflected by other authors. Hertz and Thomas (1983b) and Thomas (1984) stress this strategic dialogue theme and argue that analysis and formulation are parts of a policy dialogue process which is iterative, adaptive and flexible. This dialogue involves the consideration by management of problem and policy formulation through a continual re-examination of potential alternative strategies and problem assumptions using several passes of an analytic modelling framework. Based on a laboratory study, Schwenk and Thomas (1983b) conclude that alternative analyses based on different assumptions may help decision-makers improve the quality of decisions.

*Avoidance Model*

The existence of the Avoidance model relies on the belief that organizations will avoid uncertainty (Cyert and March, 1963) and will avoid making decisions (Barnard, 1938). Butler *et al.* (1979) suggest that Avoidance occurs in organizations where there is no pressure for new activities or no competition for resources. Recognition of a problem will occur only when the organization must acknowledge it because of the threat or disruption to the *status quo*.

The Avoidance model is based on the assumption that the *status quo* must be maintained and that, if symptoms to a problem are ignored, the problem will eventually go away. If symptoms change frequently over time, why spend time or energy on defining the nature of the problem?

The decision-making norms of an organization may also be to avoid the identification of new problems (Janis and Mann, 1977). New problems may indicate that management is not doing its job or that someone powerful is responsible for a major problem (Lyles and Mitroff, 1980). If it is perceived that the recognition of a problem will result in a loss of power or prestige, avoidance will be likely. In fact the larger the perceived threat, the more likely will be avoidance behaviour (Hermann, 1972).

Biases that appear to be inherent in this model are selective perception and attention, as well as rationalization (Schwenk, 1986). Organizations will focus their attention on factors which are unchanging, positive reporting mechanisms, and hopeful assertions about the future as mechanisms to avoid the recognition of the problem.

In reality avoiding the recognition of a problem and avoiding spending resources on resolving its nature *may* be useful at times, particularly in situations of high ambiguity and uncertainty. Over time, the symptoms of the problem may become clearer and/or its relationship to other problems may emerge. The

danger of avoidance is that the firm may procrastinate about resolving the nature of a problem that will impact its strategic capabilities and survival.

*Adaptive Model*

An extension of the previous model is the Adaptive model. It values the *status quo* but for different reasons from the Avoidance model. The Adaptive model is based on the assumption that since the environment is highly uncertain and rapidly changing, organizations can move too quickly in strategic decision-making. Thus it does not suggest that maintaining the *status quo* is the most important criterion but that change must be introduced slowly and incrementally. Quinn summarizes this:

> To improve both the information content and the process aspect of decisions surrounding precipitating events, logic dictates and practice affirms that they are normally best handled carefully and consciously incrementally, to make decisions as late as possible consistent with the information available and needed (1980, p. 22).

A shared social perception of, or consensus about, the state of the organization defines the *status quo*. This corresponds to Weick's (1969) retention system or Billings *et al.*'s (1980) existing state. It is accepted that identifying new problems is a necessary evil and that some change may be necessary. This should not, however, create dramatic change in the *status quo*.

Another underlying assumption of this model is that organizations can make decisions too quickly about the nature of the problem. It is better to go slowly, take incremental steps, and be flexible to new information (Braybrooke and Lindblom, 1970; Lindblom, 1959; Vickers, 1965). Necessary components of this model are (1) the presence of sufficient time for problem recognition, (2) a moderate amount of discontinuity in starts and stops when problems are formulated, and (3) cycles and recycles in problem structuring involving problem reformulation. There will typically be no simple sequence of steps (Butler *et al.*, 1979; Mintzberg *et al.*, 1976) in the problem formulation process.

Lyles (1981) shows that the SPF process is cyclical in nature and may cover a lengthy period of time. Most organizations go through at least one cycle in defining the nature of a strategic problem. Many organizations initially define the wrong problem or avoid it. The most common problem formulation pattern includes a re-examination of the way the problem was originally defined allowing reassessment, dialogue, integration of managerial efforts, and coalescing of support.

Biases introduced in this approach would be escalating commitment (Staw, 1981) to the first view and utilizing new data to support this view; the illusion of better control by moving slowly, and selective perception and filtering of information. Identification of problems that would create major change would often be avoided.

*Political Model*

The essence of the Political model is the subjective construction of reality (Berger and Luckmann, 1967). Hickson *et al.* (1986) describe the process of negotiation

among competing coalitions as 'politicality'. Coalitions within organizations will use their own histories and experiences to construct a view of the problem (Axelrod, 1976; Taylor, 1975). As a result each will represent the nature of the problem in the light of their own domain or interests (Cyert and March, 1963; Hayes and Simon, 1977). Hence, coalitions will be politically motivated to support one view of a problem over other views since the way the nature of the problem is resolved will have an impact on the way future resources will be allocated (Abell, 1977; Allison, 1971; Bower, 1970; Pfeffer, 1981). Groups will attempt to get the support of the powerful people for confirmation of their view of the world (Bower, 1970; Burgelman, 1983; Lyles, 1981; Lyles and Mitroff, 1985).

The assumptions underlying this model are contrary to those of the Rational model. Here it is assumed that people are biased and personally motivated. Even if everyone looks at the same symptoms of a problem, they will commonly adopt different viewpoints about its nature and characteristics. Full information will never be available and there is no way to determine the one best view. Further, this approach is based on the assumption that it is best to minimize conflict and debate by coalescing support, agreement, and power behind one view (Pfeffer, 1981).

In research studies of SPF, results indicate that executives do not view political activities as positive (Lyles, 1987a). In fact the process of debate among disagreeing coalitions may have long term negative effects because it is uncomfortable and may leave unresolved feelings of conflict (Schwenk and Cosier, 1980). Sometimes political manoeuvring results in a standoff, and the nature of the problem may never be resolved. Information regarding the nature of the problem may be distorted or withheld from others within the firm (Lyles and Mitroff, 1980).

Certain biases occur in this model. Social pressures caused by peer pressure and the power of others will be evident. Escalating commitment to a particular view may also be present. The illusion of control (Langer, 1975) will also be influential since certain groups will be perceived as experts and expected to know more about the situation than others. Credibility of managers or groups is influential in determining which view of the problem is accepted. Experts who claim to understand the situation better than anyone else tend to focus the definition of the problem too early.

*Decisive Model*

The Decisive model of organizational decision-making extends the Political model one step further by suggesting that there are inherent inconsistencies in the way people experience information and perceive the environment. Consequently decisive action is needed. It is agreed that the ability to make sense out of symptoms is based on past actions, successes and understandings of cause and effect (Bougon *et al.*, 1977). Weick (1969) argues that it is only through managers' perceptions of the environment that the environment can be sensed and understood by the organization. Hambrick and Snow (1977) reinforce this view by suggesting how imperfect environmental scanning, selective perception and biased viewpoints distort information into managerial perceptions which guide strategic decision-making. They also point out how experience and past strategy–performance relationships can influence strategy formulation through the interplay of managerial perception with the current strategic problem.

Thus individual interpretations of problems are not accurate because other variables such as recency, frequency and availability of information (Tversky and Kahneman, 1974) and associated cognitive biases become important (Einhorn and Hogarth, 1981). Furthermore, everyone has ready-made solutions that they fit to situations and in fact use these solutions to structure or formulate the problem (Bartunek, 1984; Cohen, March and Olsen, 1972; Starbuck and Hedberg, 1977).

Consequently, deciding on the problem's nature is not particularly important; it is too nebulous and too time-consuming. It is also an illusion that management can control the many interacting contingencies that affect the firm's future. Biases introduced in this approach are emotional stress, social pressures, prior hypothesis bias, and illusion of control.

Therefore, in the Decisive model, management should not worry about resolving the nature of the problem but should decide on an *action* to be taken, do it, and then assess what has happened (Salancik and Meindl, 1984). These are the action generators that Starbuck describes (1983). Many organizational cultures are geared toward action-taking on defined problems, not reflective thought on the nature of problems. Managers are rewarded for solving problems, not for identifying them.

## CONJECTURES AND GENERALIZATIONS

The existing literature and theoretical models show that the formulation of strategic problems influences the firm's strategic choices, that firms operate in environments of varying levels of uncertainty, and that firms faced with higher levels of environmental uncertainty will tend to confront a broader range of unanticipated events. What we do *not* know is to what extent these strategic decision-making models accurately describe the strategic problem formulation process and under what conditions.

The five decision-making models utilize differing assumptions about, and introduce specific biases into, the problem formulation process. There is a clear need to deal with the characteristics of these models in looking at future research and in determining their 'effectiveness' in the task of problem formulation.

In essence, problem formulation in all five models is embedded in the firm's norms for organizational decision-making and environmental scanning systems. Any model might be evoked at any time. However, for firms in environments of low uncertainty, the signals indicating a problem would tend to be clear and unconfusing. They would be interpreted similarly by many people and there would be consensus about the nature of the problem. Realistically this condition exists most commonly in situations where the strategic problem is defined through government legislation or other stakeholder groups (Lyles and Mitroff, 1980). Under these conditions we might expect the Rational or the Avoidance models to be used.

When the indicators of a strategic problem provide weak, conflicting and/or discontinuous signals, much subjectivity exists in the interpretation of the signals. There will be varying views about the problem's nature, and debate may be heated. Further, as environmental uncertainty increases, there will be

unanticipated events and additional disagreements about the problem's nature and existence. Under these conditions, any of the five models might be utilized by a firm depending on its culture, decision-making norms, political systems, and environmental scanning capabilities.

For example Lyles and Mitroff (1980) identified that firms would utilize methods that correspond to all five of these models. They suggest that in their view, more successful problem formulators *should* utilize a process that evokes a debate among multiple representations of the nature of the problem. Therefore they suggest that the adaptive or political models tend to raise awareness of the underlying problem assumptions thus allowing a process involving explicit examination and challenging of assumptions by decision-makers to be developed. The other models focus more quickly on one interpretation of the nature of the problem or tend to avoid it entirely.

Yet, it could be argued that at times the rational or avoidance models *may be* appropriate, even under conditions of high uncertainty. Further the Rational model might be effective if the firm needs to define a strong position in order to move forward. The Rational model, because it is based on the assumptions of full information and no inherent biases gives the impression of this image of control. The Avoidance model may also be effective because it delays the process of dealing with the problem and avoids needless expenditure of resources on a time-consuming debate. As time passes, the nature of the problem may become clearer or it may diminish in importance.

The point of all this is that there exists a major research gap in determining how firms which perform successfully in conditions of high uncertainty sense and formulate strategic problems. Certain research questions suggest themselves. Do successful problem formulators understand and use each of the five decision-making models? When and how do they choose one model over the other? Do they learn 'problem formulation' skills as well as decision-making skills? When do these firms attach little meaning to environmental stimuli and thus, take actions? Do diverse stimuli become part of the conceptual map of the organization and eventually create linkages of cause–effect relationships? Do firms interpret new problems in terms of old problems that have already been solved through the firm's success programmes?

The research literature on organizational learning and adaptation suggests that successful problem formulation is closely related to organizational learning capabilities (Fiol and Lyles, 1985; Lyles, 1987b). Successful organizations facing high situational complexity and uncertainty learn to adapt over time to unanticipated environmental events. Consequently, as organizations learn, they are likely to develop strong skills in identifying strategic issues and formulating strategic problems.

Firms create new learning by building on their experiences and creating new associations. Cyert and March (1963) identify standard operating procedures or success programmes, goals, and decision rules as illustrative of learning based on routine. Success programmes are standard methods for handling repetitive decisions that become standard operating procedures. Learning may also result in new frames of reference, new values, or unlearning of past success programmes (Lyles, 1987b; Starbuck, 1983). Higher level learning includes the ability to discriminate among different situations and to choose appropriate actions for each

situation. Firms that have a learning history build on their learning experiences and maintain flexibility in their approaches (Lyles, 1987b).

Table II. Characteristics of successful and unsuccessful strategic problem formulators

| | Contextual | Defining | Responding |
|---|---|---|---|
| Successful | Generate multiple scenarios of worst case<br>Many past experiences with unanticipated events | Multiviews of problem's nature<br>Strong discussion or debate<br>Tolerance for ambiguity | Past success programmes<br>Newly designed programmes<br>Unlearning<br>Action-taking<br>Discrimination skills<br>Flexibility |
| Unsuccessful | Formalized environmental scanning and low scenario generation<br>Few past experiences with unanticipated events<br>Centralized | Single view of problem's nature<br>Consensus or mandated<br>Strong need to reduce ambiguity | Past success programmes well developed<br>Rigid<br>Poor discrimination skills |

Theoretically the characteristics of good strategic problem formulators and poor problem formulators can be suggested based on their ability to learn how to formulate strategic problems. Table II summarizes some of these characteristics and suggests further research ideas. For example, good problem formulators can be expected to have had many past experiences with unanticipated events which help to build new conceptual maps (Hedberg, 1974), a decentralized communication system, and a planning culture that generates multiple scenarios regarding unexpected events. Furthermore, good problem formulators would tend to utilize a repertoire of inquiry methods including those that generate multiviews of the problem's nature and a strong debate regarding differences in views (Churchman, 1971; Lyles and Mitroff, 1980; Mitroff and Betz, 1972).

Thus, successful problem formulators may have assembled a repertoire of responses that range from adopting past success response programmes, designing new programmes, unlearning past programmes through to generating appropriate actions. Organizations that learn and adapt over time show this behaviour repertoire (Fiol and Lyles, 1985; Starbuck, 1983). Successful firms might be expected to utilize all of the available decision models as thinking frameworks within their repertoire and to discriminate when to use each one based on the situation. Testing this theoretical argument is fruitful ground for future research on strategic problem formulation.

## CONCLUSIONS

The decision-making models discussed in this article represent a range of realistic, but conflicting, ideas about strategic problem formulation. Each includes different assumptions and effectiveness criteria and incorporates different biases. Discovering which approach captures the essence of strategic problem formulation best is a difficult exercise. It is perhaps better to identify the fit between managerial, empirical and subjective viewpoints in making a choice about the problem's nature.

Strategic choice is regarded as a process involving a match between managerial perception about the problem and the evidence about the problem which emerges from more concrete analytical and formal modelling processes such as environmental analysis, industry analysis and so forth. Strategic problem formulation must also weigh evidence drawn from analytic frameworks alongside the viewpoints emerging from behavioural, social, political and organizational processes in arriving at an appropriate problem formulation. It is suggested here that strategic problem formulation (which conditions strategic choice) must involve the balancing of these alternative problem viewpoints and perspectives.

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