

ASSUMPTIONAL ANALYSIS: A METHODOLOGY FOR STRATEGIC PROBLEM SOLVING*

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This paper deals with the critical role that assumptions play in strategic planning and strategic problem forming. It attempts to formulate a methodology or systematic procedure for (1) uncovering (surfacing), (2) analyzing the effect, and (3) challenging key policy assumptions. The paper shows how the dialectical approach to strategic planning first suggested by Churchman [2], [3] and Mason [11] can put on a more systematic and operational basis such that it can serve as a useful methodology for addressing ill-structured, i.e., difficult-to-define, problems.

(PLANNING; PHILOSOPHY OF MODELING)

1. Introduction

The recent work of several students of organizations sheds light on the actual working environment in which managers and decision-makers operate and the characteristic kinds of problems they typically face [4], [10], [12], [13]. In a word, the environment is more often than not one of constantly changing conditions, uncertainty, and turbulence than that of certainty, stability and predictability. Little wonder that under these conditions problem forming and problem defining become as important, if not more so, than problem solving by means of conventional techniques. The manager who can formulate problems effectively is in a position to take advantage of such turbulence and thus to convert a problem into an opportunity.

Both the environment in which he operates and the kinds of problems he or she faces typically place the manager or decision-maker in a real dilemma or paradox: the manager constantly faces problems for which there is a real need for the best available evidence to define the nature of the problem, let alone how best to solve it. At the same time, the manager is beset with extensive pressures to act both immediately and decisively [12]. He or she cannot afford the luxury of waiting indefinitely for all the evidence to come in, let alone the best evidence, before taking action. Just the reverse is often the case. If he or the organization wishes to survive, then he must take action in order to find out if the actions taken were the correct ones. Thus, succinctly put the paradox is this: the manager is often required to act in order to uncover the evidence as to whether the action he *took* is the one he *should have* taken! Instead of data always guiding action, the taking of action often guides the collection of data in the sense that the proper data often cannot be uncovered except through the risking of action [2]! (This point will be illustrated in the later parts of this paper.) The questions, then, are: What *can* the manager do in this not uncommon case?, and, What *should* he do?

It was in order to handle this very set of conditions that Churchman [2], Mason [11], and Mitroff [14] proposed a special problem solving technique known as the Dialectic. Essentially the Dialectic is an adversarial problem *forming* methodology which is especially suited to treating intensely ill-structured, i.e., difficult-to-define, issues. It does this by attempting to set up at least two very different (antithetical) and maximally challenging views (definitions, policies) of a problem situation so that

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everything the one view takes for granted as a basic and reasonable assumption, the other challenges as intensely as it can. The intent is not to confuse a decision or policy-maker who is witness to this dialectic interplay or debate between opposing views, but rather to assist him in understanding the critical role that the postulation of very different assumptions about the nature of a problem plays in its basic definition, and hence, in its ultimate disposition. The intent is thus to allow the manager to take advantage of a turbulent environment and thereby to convert a problematic situation into an opportunity [1].

This paper represents an attempt to carry the Dialectic a significant step further in its development. It attempts to go beyond previous formulations by outlining a detailed operational procedure whereby one can systematically construct a Dialectic. That is, previous formulations did not answer such questions as: Where do the opposing views (issues) that constitute a Dialectic come from? Are there only two opposing views, as in the Mason [11] article, or can one formulate several different views on some strategic policy question? How can they be constructed? In earlier versions [19], the reader is merely *given* or presented with an already formed, prior existing set of Dialectic policies on an issue. Further, earlier formulations [19] did not address themselves to the exceedingly important issue as to how the opposing views which constitute a Dialectic can be synthesized at all. In sum, the intent of this paper is to add to the development of an operational methodology for forming a Dialectic and for synthesizing the resultant conflicting views.

The present paper also differs in that it suggests a procedure for action in the not atypical case where a synthesis is not possible. In short, this paper addresses more directly how to create a dialectic through the formation of appropriate advisory groups and how to resolve a dialectic subsequently.

2. The Methodology

Table 1 outlines three of the more basic steps or phases which constitute the methodology. As will become clear in the sequel, there are many more steps than three. For ease and convenience of presentation, we have focused in on the three most major parts of the methodology. We comment in turn on each step.

TABLE 1
Steps in the Methodology

Step	Activity	Means ^a for Accomplishing
1.	Formation of Different Groups	MAPS ^b Design Technology Personality Type Technology Ad Hoc Group Technology Vested Interests Technology
2.	Assumption Surfacing	Stakeholder Analysis Assumption Sorting
3.	Dialectical Debate between Group Policies and Synthesis	Assumption Negotiation Assumptional Decision Theory

^aThese will be discussed later in the text.

^bMultivariate Analysis and Participative Structure

Group Formation

Ackoff [1] and Churchman [2], [3] (among others [16], [17]) have argued that problems only exist in relation to purposeful individuals; i.e., only persons who are

thwarted in the attainment of desired goals have problems. The first step in the methodology thus consists of the bringing together of as many individuals as possible who have a potential bearing on the definition of the proposed solution, and who have as different definitions of the problem as possible. To do this, we have found it both necessary and desirable to bring together managers from different functional perspectives and organizational levels. The intent of this step is to attempt to insure that as many important perceptions of a problem will be included in its formulation, and conversely, that important aspects will not be overlooked or excluded outright. Indeed, it is precisely because they are so critically important to the organization as a whole that ill-structured strategic policy issues will tend to receive the attention of more than one individual [11], [12], [13]. In fact, the more a problem or issue is felt to be critical to an organization the more it will be felt to be necessary to secure the views of as many different individuals as possible in managing its definition and ultimate disposition. The initial step of the methodology thus concerns the important twin issues as to how to assemble an appropriate collection of diverse individuals in the first place and how to work with them in the second place for the purpose of problem formulation and problem solving.

In previous papers, Kilmann and Mitroff [14], [15], [5], [6], [8] have described various methods (behavioral technologies) for sorting a relatively large and heterogeneous collection of twenty or more individuals into relatively small and homogeneous groups of six to eight individuals per group. In order to help insure that important aspects of the problem will not be overlooked, one wants to assemble as large and as heterogeneous an initial collection as possible across the entire organization. This is also supported by the literature on small groups and problem solving [7].

These behavioral technologies essentially attempt to accomplish two things: (1) maximization of different problem perspectives *between* groups so that what one group takes as a "given" or "natural" definition (perception) of a problem, another group will be moved to challenge as a tenuous if not unwarranted assumption; whatever the definition of a problem or issue produced by a particular group we want to take explicit action to insure that it will be challenged *by at least one other group*; (2) maximization of interpersonal similarity and liking *within* any particular group in order to insure that each group can function effectively, i.e., in order to remove as much as is possible, the interpersonal conflicts *within* groups that often interfere with effective group behavior [8]. For example, some of the groups naturally adopt a short-term operational approach; others, a more long-term strategic approach to a problem. In this way, individuals are sorted into groups on the basis of their cognitive style and their preference for certain kinds of issues than on their level in the organization or functional expertise. (For a detailed discussion of the multi-variate procedures by which groups are created, see [8].)

It should be noted that *without the creation of opposing groups the above procedure can be dangerous and for this reason is not to be recommended in general*. If the extreme homogeneity of each group is a blessing in that it reinforces the natural strengths and similar tendencies of each individual in the group, then the extreme homogeneity is also a danger in that it magnifies the weaknesses (i.e., the one-sidedness of perceptions) of the individuals. On the other hand, this procedure is desirable in the present context because by creating extreme groups we have explicitly insured ourselves that a dialectical debate will be produced between positions that are as different from one another as possible. If anything, the danger of one-sidedness that often occurs naturally in organizations through the process of selective filtration of members and hence homogeneity of viewpoints is lessened in this process since we have taken explicit steps to maximize the challenging of views.

Since the various techniques for sorting groups have been extensively discussed

elsewhere [18], we shall not pursue them here. We merely wish to stress that since it is people who have and create problems, every step of methodology is of necessity grounded in behavioral science. Clear recognition must be given to the interpersonal dynamics that govern the behavior of people in groups. Unless this is done the proper behavioral conditions will not be fostered which permit the open and free discussion and sharing of ideas, feelings, and emotions with regard to the problem at hand.

Assumption Surfacing

At the basis of the assumption surfacing or specification process is a set of techniques for helping decision-makers to uncover and to analyze the critical key assumptions upon which their policies rest. This process is best illustrated through discussion of an example drawn from an actual case. The case concerned a drug company faced with a major pricing policy decision on one of its most important products. The decision was so significant that it affected the economic structure of the entire company. As a result, the decision required analysis of the entire internal financial structure of the company as well as various market considerations.

In the particular case, there were three already existing groups of managers within the drug company, each of whom had a significantly different policy with respect to the pricing of the drug. Thus, there was no need to create opposing groups. For easy identification, the groups were: (1) the high-price group; (2) the low-price group; and (3) the mid-price group. All three groups held different assumptions regarding who were the important stakeholders and had very different detailed assumptions about the nature of the problem.

"Stakeholder Analysis" [1] was used to identify the assumptions of each group. In contrast to *stockholder* analysis, *stakeholder* analysis asks a decision-maker or manager to consider all the parties who will be affected by or who affect an important decision. It asks the manager to list as many parties or interest groups as he or she can who have a stake in the policy under consideration. This list of parties is typically much broader than the single category of stockholders. The stockholders are only one out of many contending groups which have an impact on and a stake in a corporation. They are neither the only group nor always the single most important group that affects a policy.

Each group was asked to list the stakeholders which were most important to its particular policy, (see Figure 1). In this example, all three groups listed substantially the same parties. (In general, this will not be the case and a dialectical debate to be described later will occur at this step; i.e., there will be disagreement over the relevant parties.) For the most part the categories are generic, and hence, with little modification, apply to most business situations. For example, in the present case, the retailers are pharmacists, although it turned out it was important to differentiate between large-scale, chain retailers and small-scale, singly-owned pharmaceutical outlets.

Figure 1 is meant to illustrate that depending upon what is assumed about each of the stakeholder categories, the resultant policy is greatly affected. In fact, the whole point of getting managers to identify who are the important stakeholders in their situation is to help them confront the important question: "What is it that you *have been* assuming about the stakeholders or that you *have had* to assume about them so that *starting from* these assumptions you are able to *derive* your policy? Stakeholder analysis thus asks a manager to work backwards. Instead of regarding the basic problem as one of formulating or testing a resultant policy, it asks the manager to regard the real problem as being one of examining the assumptions underlying a policy. What assumptions have been traditionally held and why? What is the effect of

making other assumptions? Can a particular policy stand up to other assumptions; can it tolerate them? Is it compatible with them? Is the current set of assumptions internally consistent with other assumptions?

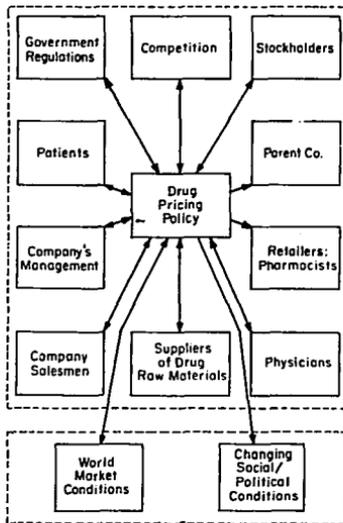


FIGURE 1. Functional Stakeholder Analysis for a Pharmaceutical Company.

As an example, we were able to identify that the physician was one of the most important stakeholder categories for each group. We were also able to identify that the groups were making very different assumptions about the attributes of the physician. The high-price group was assuming that the general category of physicians was primarily motivated by high quality and thus would prescribe a drug independently of its cost. The low-price group, on the other hand, was assuming that the physician was primarily price-sensitive. These two assumptions were in direct opposition.

There is no single decisive test to guarantee the completeness of a set of assumptions. It is possible however to test the relevancy of assumptions that have been specified. This is done through a negation of the assumptions. If the basic statement of an assumption is read in a negated form and it does not lead to a change in some aspect of the strategy, then the assumption is possibly irrelevant to the strategy. This one operational test is provided in the assumption specification process to insure that the list of assumptions does not grow without bound.

The next step in the process involves the prioritization or ranking of the assumptions with respect to two criteria: (1) the relative *importance* of the assumptions which underlie a policy, and (2) their relative *certainty*. A powerful technique which can be used for prioritizing assumptions has been invented by Saaty [18]. Essentially, the technique allows a decision-maker to derive a ratio scale weighting of the importance of an entire set of objectives, goals, means, assumptions, objects, etc., from a pair-wise ordinal comparison of each element of the set. Table 2 illustrates the mathematics of the procedure for the simplest possible case of two assumptions, A_1 and A_2 . The procedure assumes that it is not only easier for a decision-maker (dm) to compare each objective's relative importance with regard to each of the other objectives one at a time (w_i/w_j), but that a dm can actually make such comparisons. Under this

TABLE 2
 Prioritization for a Two Assumption Case

	A_1	A_2
A_1	$\frac{W_1}{W_1} = 1$	$\frac{W_1}{W_2}$
A_2	$\frac{W_2}{W_1}$	$\frac{W_2}{W_2} = 1$

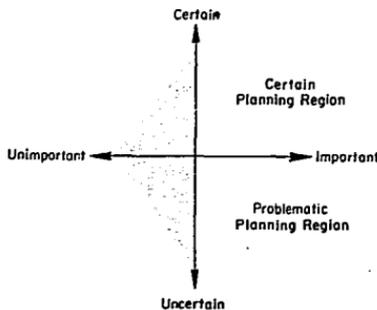
$$A = \begin{pmatrix} \frac{W_1}{W_1} & \frac{W_1}{W_2} \\ \frac{W_2}{W_1} & \frac{W_2}{W_2} \end{pmatrix}, \quad w = \begin{pmatrix} w_1 \\ w_2 \end{pmatrix}$$

$\therefore Aw = 2w$, an eigenvalue problem

procedure, a *dm* need only say that A_1 , for instance, when compared to A_2 is nine¹ times more important for the derivation or support of a resultant policy than A_2 . The assumption of the procedure is that a *dm* can more easily supply the relative ratios of the weights (w_i/w_j) of importance than the absolute weights (w_i) themselves. Starting with the ratios of relative importance w_i/w_j , it can easily be shown that the determination of the w_i reduces to an eigenvalue-eigenvector problem. Starting with the matrix A of relative weight in Table 2, one can derive the vector w of absolute weights.

It is important to point out that the mathematics of this procedure is relevant only because it allows a *dm* to investigate the effect of varying the weights of his (or her) assumptions. The procedure outlined in Table 2 is only a part of the total methodology, not the whole, and further only a means, not an end in itself.

The significance of the procedure lies with Figure 2. Going through the Belief Assessment procedure twice (Table 1) i.e., rating the assumptions first with regard to their relative importance and second with regard to their certainty allows one to determine which assumptions fall into which quadrant of Figure 2. That is, each assumption is rated twice with respect to both sets of criteria. For obvious reasons, we are not as interested in those assumptions falling in the extreme left-hand half of Figure 2. Even stronger, while the assumptions falling in the upper right-hand quadrant are important, those falling in the lower right-hand quadrant are the most critical. They are the assumptions one looks to the Belief Assessment process, and the



Note: Figure 2 results from plotting the weights for each assumption derived from the procedure outlined in Table 2.

FIGURE 2. Belief Assessment of the Importance vs. the Certainty of Critical Assumptions.

¹ If the two objectives are judged to be of equal importance, then one assigns a relative ratio of 1 to w_i/w_j . If A_i is absolutely more important than A_j , one assigns a ratio of 9.

methodology as a whole, to identify. Because the assumptions in the lower right-hand quadrant are important and yet because decision-makers are uncertain of their plausibility, truth, reasonableness, etc., they deserve the most intensive discussion with regard to what if anything could be done to make their occurrence or their validation more certain. The identification and verification of such assumptions are in our view at the heart of strategic planning.

We have found that individual policies not only differ with regard to the detailed assumptions they make regarding stakeholders but that typically they assume very different stakeholder categories altogether. What one group or policy sees as an important or potentially important party another sees as relatively unimportant. We have found that when one prioritizes in terms of Belief Assessment the assumptions of the different policies pertaining to the different stakeholder categories typically fall into diametrically opposite quadrants of Figure 2. What one group or policy takes as a relatively unimportant and certain assumption, another often takes as important and uncertain. The stage is thus typically set for a strong dialectical debate between the proponents of the different policies regarding their respective assumptions.

The purpose of the dialectical debate is not for each group to convince the other of the uncontested truth of its position, but rather to show why each group views the situation as it does and what its viewpoint entails. The purpose of the debate is to show both parties that there are different ways of viewing the situation and that what each takes as a natural set of "givens" (natural assumptions), the other takes as an unnatural set of "takens" (unwarranted assumptions). In the realm of messy, real-world problem solving, there are no "givens", there are only "takens." As a result, we want to make sure we have done everything in our power to locate, expose, and challenge these "takens." We know of no better way of doing this than through conducting a dialectical debate with regard to key assumptions.

Dialectical Debate

The dialectical debate proceeds in the manner described by Mason [11] although with some important additions. Belief Assessment analysis identifies for each policy its key underlying assumptions, i.e., those assumptions falling in the "important" quadrants of Figure 2. Typically we have found that it is possible to reduce these assumptions down to one or two really critical or key assumptions. These generally fall into the "important" and "uncertain" quadrant. This shortens immensely the debate between policies. Instead of having to debate ten to fifteen assumptions, one can focus in on the critical items and hence make the debate both more manageable and productive.

We have found it advisable to work with each group separately prior to the dialectic debate. We have found that this helps each group to develop the best case for its position. Otherwise groups spend too much time thinking about each other and tend to soften their position rather than building the strongest, and this means the most extreme case for their position. In our culture, we are unconsciously trained for compromise or even the avoidance of conflict. We therefore find it necessary to consciously train managers to appreciate the value of adversarial policy making. The danger is not that of reaching compromise, but in reaching it too soon and for the wrong reasons, e.g., because of the inability to tolerate conflict as a sometimes necessary and valuable tool for policy making. In itself conflict is not always desirable. Rather, the outright rejection and unconsidered avoidance of conflict is undesirable and may be counter-productive.

The debate proceeds by having the spokesperson of each group list the one or two key assumptions associated with its policy. Each spokesperson then argues why their assumptions are critical to their policy; why it is dependent upon them. Only after

each group has made is presentation and every group has understood why the assumptions of each individual group are critical to that group's policy does the methodology enter the last, the most difficult, and the most critical phase—the negotiation of assumptions. Before this, however, it is vital that each group understand the assumptions of the other groups and why they are critical for those groups. Each group is not asked to necessarily accept alternate assumptions, merely attempt to understand them. We have found as a rule, that the more a group can begin to “understand” the assumptions underlying an opposing group, the closer they will be to later “appreciating” the value of entertaining alternate assumptions and hence, achieving compromise.

The most difficult part of the methodology is admittedly that of achieving compromise between assumptions. Even more difficult is that of coming up with an entirely new, synthetic set of assumptions that bridge the old policies and go beyond them as well. For example, every now and then the active discussions of spokespersons lead to a statement of assumptions which everyone can endorse. In fact, every opposing view with regard to assumptions has been incorporated into a “final,” synthesized set. While difficult to achieve, it is nevertheless possible for a synergistic solution to emerge.

In an attempt to achieve synthesis, and at the very least compromise, an assumption negotiation procedure has been worked out. After each group has listed their key assumptions on a chalkboard for public inspection by all of the other groups, each group is asked individually to identify the assumptions from the other groups which most perturb their group's policy, i.e., those assumptions (key or otherwise) which are the hardest for each group to live with. After each group has done this, all of the groups are asked to engage, to the extent they can, in assumption modification. Each group is asked to soften its assumptions to the point where they just barely support its policies; i.e., where if they relaxed their assumptions any further, they could no longer derive or support their own policy. Alternatively, groups are asked to restate their assumptions in ways to incorporate all differences as in a synergistic solution. In this way, it is hoped by successively working back and forth between the assumptions of the different groups to obtain a zone of compromise, if one is possible, and from this zone to extract a set of compromise assumptions or a synthesized set of assumptions.

If such a compromise is not possible or desirable, and it frequently is not, then the participants will at least have achieved a better (i.e., a deeper) understanding of the underlying reasons that have divided them in the past and will continue to divide them in the future. They will have at least achieved the important understanding that if they decide to act on or accept any one of the original policies, then they are in a better position to consider what might happen if the assumptions of the policy they have chosen to implement no longer prove valid. They can at least defend their choice to their supporters by arguing that they have made their choice under the most critically challenging test conditions. This does not mean or guarantee that their choice was the “right” one, for in the realm of ill-structured problems there may be no single “best” or “right” solution, merely relatively “better” ones [17], awareness of one's assumptions. If ignorance of assumptions is not a desirable property for well-structured problems, it is even less of a desirable property for ill-structured problems where even more is at stake and dependent upon examining key assumptions.

Assumptional Decision Theory

What if assumption-negotiation can not be achieved? What if a compromise set of assumptions and a policy based on a common set of assumptions can not be achieved? Or, what if the groups as a whole feel that a compromise solution is not

feasible or desirable? What does one do in this not untypical situation? In case this occurs, we have found that it is useful to take decision-makers through a variant of the typical action-truth table of statistical decision theory. Table 3 illustrates the procedure.

TABLE 3
The Costs of Implementing Policies Compared to One Another

	Implementation/Action			
	P_1	P_2	P_3	
P_1 Assumptions	correct	error RC=? VC=? R=?	error RC=? VC=? R=?	lower price
P_2 Assumptions	error RC=? VC=? R=?	correct	error RC=? VC=? R=?	raise price
P_3 Assumptions	error RC=? VC=? R=?	error RC=? VC=? R=?	correct	mid-price

RC = the real cost of a policy assumption
VC = the visible cost of a policy assumption
R = the reversibility of a policy assumption
Assumed Validity of Assumption Set

Suppose that there are three policies (as there were for the situation represented in Figure 1) and that compromise proves impossible, i.e., it is not possible to modify the assumptions in the three policies as to make them acceptable to each of the other groups. Since some sort of action must eventually be agreed upon—at some point assumption examination has to terminate and action take place—if we can not achieve compromise or synthesis between the policies, then one of them must be chosen to implement. The question is how that choice should be made.

Table 3 says that the choice should be made by considering the effects of implementing any one policy with regard to each of the others. Suppose for example that P_1 turns out to be "true" (i.e., in this case this means that a set of assumptions which were important but uncertain at the time of choice ultimately turn out to be "correct" in the sense of being verified by resultant market data, say within three to six months of putting the policy into action.) Table 3 asks what the errors are which are made in turn by implementing policies P_1 , P_2 , and P_3 . If P_1 is true, and P_1 is implemented, then there is no error. If P_2 and P_3 are implemented, however, then there will be certain costs associated with these two cases. We have split these costs into two parts, a "real" cost (RC) and "visible" cost (VC). By "real" we mean a cost that is easily determined through normal market data. In addition, there is another factor to be considered, the "reversibility" (R) of an action or error.

In the case of the drug company referred to earlier (Figure 1), the three policies were: P_1 = lower the current price of the drug, P_2 = raise the current price of the drug, and P_3 = steer a middle course between P_1 and P_2 . By taking the representatives of all three policies through Table 3, we were able to get common agreement between them as to the RC's, VC's and R's associated with the off-diagonal cells. The RC's

were the estimated real losses in profits which would occur if one adopted P_1 when P_2 were "true."

The VC's, on the other hand, are a bit more subtle and hence, a bit trickier to determine. They are best explained as follows. Suppose that the policy P_2 is, in fact, the correct one. That is, suppose that because of competitive conditions, the quality of the product, advertising, etc. one can actually raise the price of one's product—an action that many executives would be afraid to do. Because of this fear, suppose that it was decided to adopt policy P_1 . There would then not only be an obvious real cost associated with this action (the obvious loss of profits), but we contend that there would be a less visible cost as well. If one lowers the price when one could have raised it, then it may be impossible for management to know this. By lowering the price, one has precluded the opportunity of finding out whether this was possible. One precludes the data so-to-speak. By the same token, the reversibility of this action may also be rather low. It may be very difficult to come in later and raise prices once one has lowered them. That is, the VC of P_1 is low or conversely the invisible cost of P_1 is high. Visibility thus refers to the ease and possibility of observing the cost of a policy if some other policy is in fact correct. By means of this reasoning process, it was decided (counter to initial intuition) that the "best" policy from the company's point of view was to recommend price increases!

If the process in Table 3 is so valuable, why, one might ask, did we not proceed directly to it? The answer is that everything in Table 3 presupposes the previous steps. All of the various "costs" in Table 3 are made with respect to the assessment of the *assumptions* which have come before. The presumed "truth" of the policies is with respect to the key assumptions underlying each policy. The actions are with respect to what it takes to implement the assumptions, to act on their truth—indeed, to make them come true. The costs are determined relative to the assumptions; i.e., what is the cost of considering one assumption as true or false when another is true or false? To the authors' knowledge, this is very different from conventional statistical decision-theory.

There is also another reason for not proceeding directly to Table 3. Table 3 not only embodies but reinforces a win-lose competitive mentality between the various strategies. While we do not want to preclude the possibility that one of the pure strategies is actually best, we wish to insure that every serious consideration will be given to the search for a synthetic policy before opting for any pure policy. Only after serious consideration has been given to synthesis do we wish to fall back upon one of the pure strategies. This derives from our basic belief that rarely in complex social and managerial problems will any one pure strategy pick up and integrate the multitude of considerations which are necessary for successful problem management.

3. Concluding Remarks

The purpose of this paper has been to add to the "development" of a methodology for ill-structured problems. We deliberately stress the word "development" for such a methodology is still in its infancy. We lay no claims here to having provided the last word with regard to it. Indeed, in the spirit of this paper, the methodology we have outlined may be regarded as embodying the assumptions of the authors. As such, our assumptions deserve to be taken to task by others with alternate assumptions.

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