A NEW LOOK AT MANAGERIAL DECISION MAKING

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All managers are decision makers. Furthermore, their effectiveness as managers is largely reflected in their track record in making the right decisions. These right decisions in turn largely depend on whether or not the manager has utilized the right person or persons in the right ways in helping him solve the problem.

Our concern in this article is with decision making as a social process. We view the manager’s task as determining how the problem is to be solved, not the solution to be adopted. Within that overall framework, we have attempted to answer two broad sets of questions: What decision-making processes should managers use to deal effectively with the problems they encounter in their jobs? What decision-making processes do they use in dealing with these problems and what considerations affect their decisions about how much to share their decision-making power with subordinates?

The reader will recognize the former as a normative or prescriptive question. A rational and analytic answer to it would constitute a normative model of decision making as a social process. The second question is descriptive, since it concerns how managers do, rather than should, behave.

Towards a Normal Model

About four years ago, Philip Yetton, then a graduate student at Carnegie-Mellon University, and I began a major research program in an attempt to answer these normative and descriptive questions.

We began with the normative question: What would be a rational way of deciding on the form and amount of participation in decision making that should be used in different situations? We were tired of debates over the relative merits of Theory X and Theory Y and of the truism that leadership depends upon the situation. We felt that it was time for the behavioral sciences to move beyond such generalities and to attempt to come to grips with
TABLE 1

TYPES OF MANAGEMENT DECISION STYLES

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI</td>
<td>You solve the problem or make the decision yourself, using information available to you at that time.</td>
</tr>
<tr>
<td>All</td>
<td>You obtain the necessary information from your subordinate(s), then decide on the solution to the problem yourself. You may or may not tell your subordinates what the problem is in getting the information from them. The role played by your subordinates in making the decision is clearly one of providing the necessary information to you, rather than generating or evaluating alternative solutions.</td>
</tr>
<tr>
<td>CI</td>
<td>You share the problem with relevant subordinates individually, getting their ideas and suggestions without bringing them together as a group. Then you make the decision that may or may not reflect your subordinates' influence.</td>
</tr>
<tr>
<td>CII</td>
<td>You share the problem with your subordinates as a group, collectively obtaining their ideas and suggestions. Then you make the decision that may or may not reflect your subordinates' influence.</td>
</tr>
<tr>
<td>GII</td>
<td>You share a problem with your subordinates as a group. Together you generate and evaluate alternatives and attempt to reach agreement (consensus) on a solution. Your role is much like that of chairman. You do not try to influence the group to adopt your solution and you are willing to accept and implement any solution that has the support of the entire group.</td>
</tr>
</tbody>
</table>

(GI is omitted because it applies only to more comprehensive models outside the scope of this article.)

6. New Look at Managerial Decision Making

Table 1 shows a set of alternative decision processes that we have employed in our research. Each process is represented by a symbol (e.g., AI, CI, GII) that will be used as a convenient method of referring to each process. The first letter in this symbol signifies the basic properties of the process (A stands for autocratic; C for consultative; and G for group). The Roman numerals that follow the first letter constitute variants on that process. Thus, AI represents the first variant on an autocratic process, and All the second variant.

Conceptual and Empirical basis of the Model

A model designed to regulate, in some rational way, choices among the decisions processes shown in Table 1 should be based on sound empirical evidence concerning the likely consequences of the styles. The more complete the empirical base of knowledge, the greater the certainty with which we can develop the model and the greater will be its usefulness. To aid in understanding the conceptual basis of the model, it is important to distinguish among three classes of outcomes that bear on the ultimate effectiveness of decisions. These are:

1. The quality or rationality of the decision.
2. The acceptance or commitment on the part of subordinates to execute the decision effectively.
3. The amount of time required to make the decision.

The effects of participation on each of these outcomes or consequences were summed up by the author in The Handbook of Social Psychology as follows:

The results suggest that allocating problem solving and decision-making tasks to entire groups requires a greater investment of man hours but produces higher acceptance of decisions and a higher probability that the decision will be executed efficiently. Differences between these two methods in quality of decisions and in elapsed time are inconclusive and probably highly variable. . . . It would be naive to think that group decision making is always more "effective" than autocratic decision making, or vice versa; the relative effectiveness of these two extreme methods depends both on the weights attached to quality, acceptance and time variables and on differences in amounts of these outcomes resulting from these methods, neither of which is invariant from one situation to another. The critics and proponents of participative
management would do well to direct their efforts toward identifying the properties of situations in which different decision-making approaches are effective rather than wholesale condemnation or deflation of one approach.

We have gone on from there to identify the properties of the situation or problem that will be the basic elements in the model. These problem attributes are of two types: 1) Those that specify the importance for a particular problem of quality and acceptance, and 2) those that, on the basis of available evidence, have a high probability of moderating the effects of participation on each of these outcomes. Table 2 shows the problem attributes used in the present form of the model. For each attribute a question is provided that might be used by a leader in diagnosing a particular problem prior to choosing his leadership style.

In phrasing the questions, we have held technical language to a minimum. Furthermore, we have phrased the questions in Yes-No form, translating the continuous variables defined above into dichotomous variables. For example, instead of attempting to determine how important the decision quality is to the effectiveness of the decision (attribute A), the leader is asked in the first question to judge whether there is any quality component to the problem. Similarly, the difficult task of specifying exactly how much information the leader possesses that is relevant to the decision (attribute B) is reduced to a simple judgment by the leader concerning whether or not he has sufficient information to make a high quality decision.

We have found that managers can diagnose a situation quickly and accurately by answering this set of seven questions concerning it. But how can such responses generate a prescription concerning the most effective leadership style or decision process? What kind of normative model of participation in decision making can be built from this set of problem attributes?

Figure 1 shows one such model expressed in the form of a decision tree. It is the seventh version of such a model that we have developed over the last three years. The problem attributes, expressed in question form, are arranged along the top of the figure. To use the model for a particular decision-making situation, one starts at the left-hand side and works toward the right asking oneself the question immediately above any box that is

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**TABLE 2**

**PROBLEM ATTRIBUTES USED IN THE MODEL**

<table>
<thead>
<tr>
<th>Problem Attributes</th>
<th>Diagnostic Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. The importance of the quality of the decision.</td>
<td>Is there a quality requirement such that one solution is likely to be more rational than another?</td>
</tr>
<tr>
<td>B. The extent to which the leader possesses sufficient information / expertise to make a high-quality decision by himself.</td>
<td>Do I have sufficient information to make a high-quality decision?</td>
</tr>
<tr>
<td>C. The extent to which the problem is structured.</td>
<td>Is the problem structured?</td>
</tr>
<tr>
<td>D. The extent to which acceptance or commitment on the part of subordinates is critical to the effective implementation of the decision.</td>
<td>Is acceptance of decision by subordinates critical to effective implementation?</td>
</tr>
<tr>
<td>E. The prior probability that the leader's autocratic decision will receive acceptance by subordinates.</td>
<td>If you were to make the decision by yourself, is it reasonably certain that it would be accepted by your subordinates?</td>
</tr>
<tr>
<td>F. The extent to which subordinates are motivated to attain the organizational goals as represented in the objectives explicit in the statement of the problem.</td>
<td>Do subordinates share the organizational goals to be obtained in solving this problem?</td>
</tr>
<tr>
<td>G. The extent to which subordinates are likely to be in conflict over preferred solutions.</td>
<td>Is conflict among subordinates likely in preferred solutions?</td>
</tr>
</tbody>
</table>
encountered. When a terminal node is reached, a number will be found designating the problem type and one of the decision-making processes appearing in Table 1. AI is prescribed for four problem types (1, 2, 4, and 5); AII is prescribed for two problem types (9 and 10); CI is prescribed for only one problem type (8); CII is prescribed for four problem types (7, 11, 13, and 14); and GII is prescribed for three problem types (3, 6, and 12). The relative frequency with which each of the five decision processes would be prescribed for any manager would, of course, depend on the distribution of problem types encountered in his decision making.

Rationale Underlying the Model. The decision processes specified for each problem type are not arbitrary. The model’s behavior is governed by a set of principles intended to be consistent with existing evidence concerning the consequences of participation in decision making on organizational effectiveness.

There are two mechanisms underlying the behavior of the model. The first is a set of seven rules* that serve to protect the quality and the acceptance of the decision by eliminating alternatives that risk one or the other of these decision outcomes. Once the rules have been applied, a feasible set of decision processes is generated. The second mechanism is a principle for choosing among alternatives in the feasible set where more than one exists.

Let us examine the rules first, because they do much of the work of the model. As previously indicated, the rules are intended to protect both the quality and acceptance of the decision. In the form of the model shown, there are three rules that protect decision quality and four that protect acceptance.

1. The Information Rule. If the quality of the decision is important and if the leader does not possess enough information or expertise to solve the problem by himself, AI is eliminated from the feasible set. (Its use risks a low-quality decision.)

2. The Goal Congruence rule. If the quality of the decision is important and if the subordinates do not share the organizational goals to be obtained in solving the problem, GII is eliminated from the feasible set. (Alternatives that eliminate the leader’s final control over the decision reached may jeopardize the quality of the decision.)

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*The rules and figure 1 are reprinted from Leadership and Decision-Making, by Victor H. Vroom and Philip W. Yetton, by permission of the University of Pittsburgh Press. © 1973 by University of Pittsburgh Press.
3. The Unstructured Problem Rule. In decisions in which the quality of the decision is important, if the leader lacks the necessary information or expertise to solve the problem by himself, and if the problem is unstructured, i.e., he does not know exactly what information is needed and where it is located, the method used must provide not only for him to collect the information but to do so is an efficient and effective manner. Methods that involve interaction among all subordinates with full knowledge of the problem are likely to be both more efficient and more likely to generate a high-quality solution to the problem. Under these conditions, AI, AII, and CI are eliminated from the feasible set. (AI does not provide for him to collect the necessary information, and AII and CI represent more cumbersome, less effective, and less efficient means of bringing the necessary information to bear on the solution of the problem than methods that do permit those with the necessary information to interact.)

4. The Acceptance Rule. If the acceptance of the decision by subordinates is critical to effective implementation, and if it is not certain that an autocratic decision made by the leader would receive that acceptance, AI and AII are eliminated from the feasible set. (Neither provides an opportunity for subordinates to participate in the decision and both risk the necessary acceptance.)

5. The Conflict Rule. If the acceptance of the decision is critical, and an autocratic decision is not certain to be accepted, and subordinates are likely to be in conflict or disagreement over the appropriate solution, AI, AII, and CI are eliminated from the feasible set. (The method used in solving the problem should enable those in disagreement to resolve their differences with full knowledge of the problem. Accordingly, under these conditions, AI, AII, and CI, which involve no interaction or only "one-on-one" relationships and therefore provide no opportunity for those in conflict to resolve their differences, are eliminated from the feasible set. Their use runs the risk of leaving some of the subordinates with less than the necessary commitment to the final decision.)

6. The Fairness Rule. If the quality of decision is unimportant and if acceptance is critical and not certain to result from an autocratic decision, AI, AII, CI, and CII are eliminated from the feasible set. (The method used should maximize the probability of acceptance as this is the only relevant consideration in determining the effectiveness of the decision. Under these circumstances, AI, AII, CI, and CII, which create less acceptance or commitment than GI, are eliminated from the feasible set. To use them is to run the risk of getting less than the needed acceptance of the decision.)

7. The Acceptance Priority Rule. If acceptance is critical, not assured by an autocratic decision, and if subordinates can be trusted, AI, AII, CI, and CII are eliminated from the feasible set. (Methods that provide equal partnership in the decision-making process can provide greater acceptance without risking decision quality. Use of any method other than GI results in an unnecessary risk that the decision will not be fully accepted or receive the necessary commitment on the part of subordinates.)

Once all seven rules have been applied to a given problem we emerge with a feasible set of decision processes. The feasible set for each of the fourteen problem types is shown in Table 3. It can be seen that there are some problem types for which only one method remains in the feasible set, others for which two methods remain feasible, and still others for which five methods remain feasible.

When more than one method remains in the feasible set, there are a number of ways in which one might choose among them. The mechanism we have selected, the principle
underlying the choices of the model in Figure 1, utilizes the number of man-hours used in solving the problem as the basis for choice. Given a set of methods with equal likelihood of meeting both quality and acceptance requirements for the decision, it chooses that method that requires the least investment of man-hours. On the basis of the empirical evidence summarized earlier, this is deemed to be the method furthest to the left within the feasible set. For example, since AI, AII, CI, CII, and GII are all feasible as in Problem Types 1 and 2, AI would be the method chosen.

To illustrate application of the model in actual administrative situations, we will analyze four cases with the help of the model. While we attempt to describe these cases as completely as is necessary to permit the reader to make the judgments required by the model, there may remain some room for subjectivity. The reader may wish after reading the case to analyze it himself using the model and then to compare his analysis with that of the author.

CASE I. You are a manufacturing manager in a large electronics plant. The company's management has recently installed new machines and put in a new simplified work system, but to the surprise of everyone, yourself included, the expected increase in productivity was not realized. In fact, production has begun to drop, quality has fallen off, and the number of employee separations has risen.

You do not believe that there is anything wrong with the machines. You have had reports from other companies that are using them and they confirm this opinion. You have also had representatives from the firm that built the machines go over them and they report that they are operating at peak efficiency.

You suspect that some parts of the new work system may be responsible for the change, but this view is not widely shared among your immediate subordinates who are four first-line supervisors, each in charge of a section, and your supply manager. The drop in production has been variously attributed to poor training of the operators, lack of an adequate system of financial incentives, and poor morale. Clearly, this is an issue about which there is considerable depth of feeling within individuals and potential disagreement among your subordinates.

This morning you received a phone call from your division manager. He had just received your production figures for the last six months and was calling to express his concern. He indicated that the problem was yours to solve in any way that you think best, but that he would like to know within a week what steps you plan to take.

You share your division manager's concern with the falling productivity and know that your men are also concerned. The problem is to decide what steps to take to rectify the situation.

Analysis
Questions——
A (Quality?) = Yes
B (Manager's Information?) = No
C (Structured?) = No
D (Acceptance?) = Yes
E (Prior Probability of Acceptance?) = No
F (Goal Congruence?) = Yes
G (Conflict) = Yes
Problem Type—12
Feasible Set—GII
Minimum Man-Hours Solution (from Figure 1)—GII
Rule Violations——
AI violates rules 1, 3, 4, 5, 7
AII violates rules 3, 4, 5, 7
CI violates rules 3, 5, 7
CII violates rule 7

CASE II. You are general foreman in charge of a large gang laying an oil pipeline and have to estimate your expected rate of progress in order to schedule material deliveries to the next field site.

You know the nature of the terrain you will be traveling and have the historical data needed to compute the mean and variance in the rate of speed over that type of terrain. Given these two variables, it is a simple matter to calculate the earliest and latest times at which materials and support facilities will be needed at the next site. It is important that your estimate be reasonably accurate. Underestimates result in idle foremen and workers, and an overestimate results in tying up materials for a period of time before they are to be used.

Progress has been good and your five foremen and other members of the gang stand to receive substantial bonuses if the project is completed ahead of schedule.

Analysis
Questions——
A (Quality?) = Yes
B (Manager's Information?) = Yes
D (Acceptance?) = No
Problem Type—4
Feasible Set—AI, AII, CI, CII, GII
Minimum Man-Hours Solution (from Figure 1)—AI
Rule Violations—None
CASE III. You are supervising the work of 12 engineers. Their formal training and work experience are very similar, permitting you to use them interchangeably on projects. Yesterday, your manager informed you that a request had been received from an overseas affiliate for four engineers to go abroad on extended loan for a period of six to eight months. For a number of reasons, he argued and you agreed that this request should be met from your group.

All your engineers are capable of handling this assignment and, from the standpoint of present and future projects, there is no particular reason why anyone should remain over any other. The problem is somewhat complicated by the fact that the overseas assignment is in what is generally regarded as an undesirable location.

**Analysis**

**Questions**

A (Quality?) = No
D (Acceptance?) = Yes
E (Prior Probability of Acceptance?) = No
G (Conflict?) = Yes

**Problem Type**—12

**Feasible Set**—GII

**Minimum Man-Hours Solution** (from Figure 1)—GII

**Rule Violations**

AI and AII violate rules 4, 5 and 6
CI violates rules 5 and 6
CII violates rule 6

CASE IV. You are on the division manager’s staff and work on a wide variety of problems of both an administrative and technical nature. You have been given the assignment of developing a standard method to be used in each of the five plants in the division for manually reading equipment registers, recording the readings, and transmitting the scorings to a centralized information system.

Until now there has been a high error rate in the reading and/or transmittal of the data. Some locations have considerably higher error rates than others, and the methods used to record and transmit the data vary among plants. It is probable, therefore, that part of the error variance is a function of specific local conditions rather than anything else, and this will complicate the establishment of any system common to all plants. You have the information error rates but no information on the local practices that generate these errors or on the local conditions that necessitate the different practices.

Everyone would benefit from an improvement in the quality of the data; it is used in a number of important decisions. Your contacts with the plants are through the quality-control supervisors who are responsible for collecting the data. They are a conscientious group committed to doing their jobs well, but are highly sensitive to interference on the part of higher management in their own operations. Any solution that does not receive the active support of the various plant supervisors is unlikely to reduce the error rate significantly.

**Analysis**

**Questions**

A (Quality?) = Yes
B (Manager’s Information?) = No
C (Structured?) = No
D (Acceptance?) = Yes
E (Prior Probability of Acceptance?) = No
F (Goal Congruence?) = Yes

**Problem Type**—12

**Feasible Set**—GII

**Minimum Man-Hours Solution** (from Figure 1)—GII

**Rule Violations**

AI violates rules 1, 3, 4, and 7
AII violates rules 3, 4, and 7
CI violates rules 3 and 7
CII violates rule 7

**Short Versus Long-Term Models**

The model described above seeks to protect the quality of the decision and to expend the least number of man-hours in the process. Because it focuses on conditions surrounding the making and implementation of a particular decision rather than any long-term considerations, we can term it a short-term model.

It seems likely, however, that the leadership methods that may be optimal for short-term results may be different from those that would be optimal over a longer period of time. Consider a leader, for example, who has been uniformly pursuing an autocratic style (AI or AII) and, perhaps as a consequence, has subordinates who might be termed “yes men” (attribute E) but who also cannot be trusted to pursue organizational goals (attribute F), largely because the leader has never bothered to explain them.

It appears likely, however, that the manager who used more participative methods would, in time, change the status of these problem attributes so as to develop ultimately a more...
effective problem-solving system. A promising approach to the development of a long-term model is one that places less weight on man-hours as the basis for choice of method within the feasible set. Given a long-term orientation, one would be interested in the possibility of a trade-off between man-hours in problem solving and team development, both of which increase with participation. Viewed in these terms, the time-minimizing model places maximum relative weight on man-hours and no weight on development, and hence chooses the style farthest to the left within the feasible set. A model that places less weight on man-hours and more weight on development would, if these assumptions are correct, choose a style further to the right within the feasible set.

We recognize, of course, that the minimum man-hours solution suggested by the model is not always the best solution to every problem. A manager faced, for example with the problem of handling anyone of the four cases previously examined might well choose more time-consuming alternatives on the grounds that the greater time invested would be justified in developing his subordinates. Similar considerations exist in other decision-making situations. For this reason we have come to emphasize the feasible set of decision methods in our work with managers. Faced with considerations not included in the model, the manager should consider any alternative within the feasible set, and not opt automatically for the minimum man-hours solution.

As I am writing this, I have in front of me a “black box” that constitutes an electronic version of the normative model discussed on the preceding pages. (The author is indebted to Peter Fuss of Bell Telephone Laboratories for his interest in the model and his skill in developing the “black box.”) The box, which is small enough to fit into the palm of one hand, has a set of seven switches, each appropriately labeled with the questions (A through G) used in Figure 1. A manager faced with a concrete problem or decision can “diagnose” that problem by setting each switch in either its “yes” or “no” position. Once the problem has been described, the manager depresses a button that illuminates at least one or as many as five lights, each of which denotes one of the decision processes (AI, AII, etc.). The lights that are illuminated constitute the feasible set of decision processes for the problem as shown in Table III. The lights not illuminated correspond to alternatives that violate one or more of the seven rules previously stated.

In this prototype version of the box, the lights are illuminated in decreasing order of brightness from left to right within the feasible set. The brightest light corresponds to the alternative shown in Figure 1. Thus, if both CII and GII were feasible alternatives, CII would be brighter than GII, since it requires fewer man-hours. However, a manager who was not under any undue time pressure and who wished to invest time in the development of his subordinates might select an alternative corresponding to one of the dimmer lights.

**Toward a Descriptive Model of Leader Behavior**

So far we have been concerned with the normative questions defined at the outset. But how do managers really behave? What considerations affect their decisions about how much to share their decision-making power with their subordinates? In what respects is their behavior different from or similar to that of the model? These questions are but a few of those that we attempted to answer in a large-scale research program aimed at gaining a greater understanding of the factors that influence managers in their choice of decision processes to fit the demands of the situation. This research program was financially supported by the McKinsey Foundation, General Electric Foundation, Smith Richardson Foundation, and the Office of Naval Research.

Two different research methods have been utilized in studying these factors. The first investigation utilized a method that we have come to term “recalled problems.” Over 500 managers from 11 different countries representing a variety of firms were asked to provide a written description of a problem that they had recently had to solve. These varied in length from one paragraph to several pages and covered virtually every facet of managerial decision making. For each case, the manager was asked to indicate which of the decision processes shown in Table I they used to solve the problem. Finally, each manager was asked to answer the questions shown in Table II corresponding to the problem attributes used in the normative model.

The wealth of data, both qualitative and quantitative, served two purposes. Since each manager had diagnosed a situation that he had encountered in terms that are used in the
normative model and had indicated the methods that he had used in dealing with it, it is possible to determine what differences, if any, there were between the model’s behavior and his own behavior. Second, the written cases provided the basis for the construction of a standard set of cases used in later research to determine the factors that influence managers to share or retain their decision-making power. Each case depicted a manager faced with a problem to solve or decision to make. The cases spanned a wide range of managerial problems including production scheduling, quality control, portfolio management, personnel allocation, and research and development. In each case, a person could readily assume the role of the manager described and could indicate which of the decision processes he would use if he actually were faced with that situation.

In most of our research, a set of thirty cases has been used and the subjects have been several thousand managers who were participants in management development programs in the United States and abroad. Cases were selected systematically. We desired cases that could not only be coded unambiguously in the terms used in the normative model but that would also permit the assessment of the effects of each of the problem attributes used in the model on the person’s behavior. The solution was to select cases in accordance with an experimental design so that they varied in terms of the seven attributes used in the model and variation in each attribute was independent of each other attribute. Several such standardized sets of cases have been developed, and over a thousand managers have now been studied using this approach.

To summarize everything we learned in the course of this research is well beyond the scope of this paper, but it is possible to discuss some of the highlights. Since the results obtained from the two research methods—recalled and standardized problems—are consistent, we can present the major results independent of the method used.

Perhaps the most striking finding is the weakening of the widespread view that participativeness is a general trait that individual managers exhibit in different amounts. To be sure, there were differences among managers in their general tendencies to utilize participative methods as opposed to autocratic ones. On the standardized problems, these differences accounted for about 10 percent of the total variance in the decision process observed. These differences in behavior between managers, however, were small in comparison with differences within managers. On the standardized problems, no manager indicated that he would use the same decision process on all problems or decisions, and most used all five methods under some circumstances.

Some of this variance in behavior within managers can be attributed to widely shared tendencies to respond to some situations by sharing power and others by retaining it. It makes more sense to talk about participative and autocratic situations than it does to talk about participative and autocratic managers. In fact, on the standardized problems, the variance in behavior across problems or cases is about three times as large as the variance across managers!

What are the characteristics of an autocratic as opposed to a participative situation? An answer to this question would constitute a partial descriptive model of this aspect of the decision-making process and has been our goal in much of the research that we have conducted. From our observations of behavior on both recalled problems and on standardized problems, it is clear that the decision-making process has been our goal in much of the research that we have conducted. From our observations of behavior on both recalled problems and on standardized problems, it is clear that the decision-making process employed by a typical manager is influenced by a large number of factors, many of which also show up in the normative model. Following are several conclusions substantiated by the results on both recalled and standardized problems: Managers use decision processes providing less opportunity for participation (1) when they possess all the necessary information than when they lack some of the needed information, (2) when the problem that they face is well-structured rather than unstructured, (3) when their subordinates’ acceptance of the decision is not critical for the effective implementation of the decision or when the prior probability of acceptance of an autocratic decision is high, and (4) when the personal goals of their subordinates are not congruent with the goals of the organization as manifested in the problem.

So far we have been talking about relatively common or widely shared ways of dealing with organizational problems. Our results strongly suggest that there are ways of “tailoring” one’s approach to the situation that
distinguish managers from one another. Theoretically, these can be thought of as differences among managers in decision rules that they employ about when to encourage participation. Statistically, they are represented as interactions between situational variables and personal characteristics.

Consider, for example, two managers who have identical distributions of the use of the five decision processes shown in Table I on a set of thirty cases. In a sense, they are equally participative (or autocratic). However, the situations in which they permit or encourage participation in decision making on the part of their subordinates may be very different. One may restrict the participation of his subordinates to decisions without a quality requirement, whereas the other may restrict their participation to problems with a quality requirement. The former would be more inclined to use participative decision processes (like GII) on such decisions as what color the walls should be painted or when the company picnic should be held. The latter would be more likely to encourage participation in decision making on decisions that have a clear and demonstrable impact on the organization's success in achieving its external goals.

Use of the standardized problem set permits the assessment of such differences in decision rules that govern choices among decision-making processes. Since the cases are selected in accordance with an experimental design, they can indicate differences in the behavior of managers attributable not only to the existence of a quality requirement in the problem but also in the effects of acceptance requirements, conflict, information requirements, and the like.

The research using both recalled and standardized problems has also enabled us to examine similarities and differences between the behavior of the normative model and the behavior of a typical manager. Such an analysis reveals, at the very least, what behavioral changes could be expected if managers began using the normative model as the basis for choosing their decision-making processes.

A typical manager says he would (or did) use exactly the same decision process as that shown in Figure 1 in 40 percent of the situations. In two thirds of the situations, his behavior is consistent with the feasible set of methods proposed in the model. In other words, in about one third of the situations his behavior violates at least one of the seven rules underlying the model.

The four rules designed to protect the acceptance or commitment of the decision have substantially higher probabilities of being violated than do the three rules designed to protect the quality or rationality of the decision. One of the acceptance rules, the Fairness Rule (Rule 6) is violated about three quarters of the time that it could have been violated. On the other hand, one of the quality rules, the Information Rule (Rule 1), is violated in only about 3 percent of occasions in which it is applicable. If we assume for the moment that these two sets of rules have equal validity, these findings strongly suggest that the decisions made by typical managers are more likely to prove ineffective due to deficiencies of acceptance by subordinates than due to deficiencies in decision quality.

Another striking difference between the behavior of the model and of the typical manager lies in the fact that the former shows far greater variance with the situation. If a typical manager voluntarily used the model as the basis for choosing his methods of making decisions, he would become both more autocratic and more participative. He would employ autocratic methods more frequently in situations in which his subordinates were unaffected by the decision and participative methods more frequently when his subordinates' cooperation and support were critical and/or their information and expertise were required.

It should be noted that the typical manager to whom we have been referring is merely a statistical average of the several thousand who have been studied over the last three or four years. There is a great deal of variance around that average. As evidenced by their behavior on standardized problems some managers are already behaving in a way that is highly consistent with the model, while others' behavior is clearly at variance with it.

**A New Technology for Leadership Development**

The investigations that have been summarized here were conducted for research purposes to shed some light on the causes and consequences of participation in decision making. In the course of the research, we came to realize, partly because of the value attached to it by the managers themselves, that the data collection procedures, with ap-
appropriate additions and modifications, might also serve as a valuable guide to leadership development. From this realization evolved an important by-product of the research activities—a new approach to leadership development based on the concepts in the normative model and the empirical methods of the descriptive research.

This approach is based on the assumption stated previously that one of the critical skills required of all leaders is the ability to adapt their behavior to the demands of the situation and that one component of this skill involves the ability to select the appropriate decision-making process for each problem or decision he confronts.

Managers can derive value from the model by comparing their past or intended behavior in concrete decisions with that prescribed by the model and by seeing what rules, if any, they violate. Used in this way, the model can provide a mechanism for a manager to analyze both the circumstances that he faces and what decisions are feasible under these circumstances.

While use of the model without training is possible, we believe that the manager can derive the maximum value from a systematic examination of his leadership style, and its similarities to and dissimilarities from the model, as part of a formal leadership development program.

During the past two years we have developed such a program. It is not intended to "train" participants in the use of the model, but rather to encourage them to examine their own leadership style and to ask themselves whether the methods they are using are most effective for their own organization. A critical part of the program involves the use of a set of standardized cases, each depicting a leader faced with an administrative problem to solve. Each participant then specifies the decision-making process that he would use if faced with each situation. His responses are processed by computer, which generates a highly detailed analysis of his leadership style. The responses for all participants in the course are typically processed simultaneously, permitting the economical representation of differences between the person and other participants in the same program.

In its present form, a single computer printout for a person consists of three 15" X 11" pages, each filled with graphs and tables highlighting different features of his behavior. Understanding the results requires a detailed knowledge of the concepts underlying the model, something already developed in one of the previous phases of the training program. The printout is accompanied by a manual that aids in explaining results and provides suggested steps to be followed in extracting full meaning from the printout.

Following are a few of the questions that the printout answers:

1. How autocratic or participative am I in my dealings with subordinates in comparison with other participants in the program?
2. What decision processes do I use more or less frequently than the average?
3. How close does my behavior come to that of the model? How frequently does my behavior agree with the feasible set? What evidence is there that my leadership style reflects the pressure of time as opposed to a concern with the development of my subordinates? How do I compare in these respects with other participants in the class?
4. What rules do I violate most frequently and least frequently? How does this compare with other participants? On what cases did I violate these rules? Does my leadership style reflect more concern with getting decisions that are high in quality or with getting decisions that are accepted?
5. What circumstances cause me to behave in an autocratic fashion; what circumstances cause me to behave participatively? In what respects is the way in which I attempt to vary my behavior with the demands of the situation similar to that of the model?

When a typical manager receives his printout, he immediately goes to work trying to understand what it tells him about himself. After most of the major results have been understood, he goes back to the set of cases to reread those on which he has violated rules. Typically, managers show an interest in discussing and comparing their results with others in the program. Gatherings of four to six people comparing their results and their interpretation of them, often for several hours at a stretch, were such a common feature that they have recently been institutionalized as part of the procedure.
We should emphasize that the method of providing feedback to managers on their leadership style is just one part of the total training experience, but it is an important part. The program is sufficiently new so that, to date, no long-term evaluative studies have been undertaken. The short-term results, however, appear quite promising.

**Conclusion**

The efforts reported in this article rest on the conviction that social scientists can be of greater value in solving problems of organizational behavior if their prescriptive statements deal with the complexities involved in the phenomena with which they study. The normative model described in this paper is one step in that direction. Some might argue that it is premature for social scientists to be prescriptive. Our knowledge is too limited and the issues too complex to warrant prescriptions for action, even those that are based on a diagnosis of situational demands. However, organizational problems persist, and managers cannot wait for the behavioral sciences to perfect their disciplines before attempting to cope with them. Is it likely that models that encourage them to deal analytically with the forces impinging upon them would produce less rational choices than those that they now make? We think the reverse is more probable—reflecting on the models will result in decisions that are more rational and more effective. The criterion for social utility is not perfection but improvement over present practice.