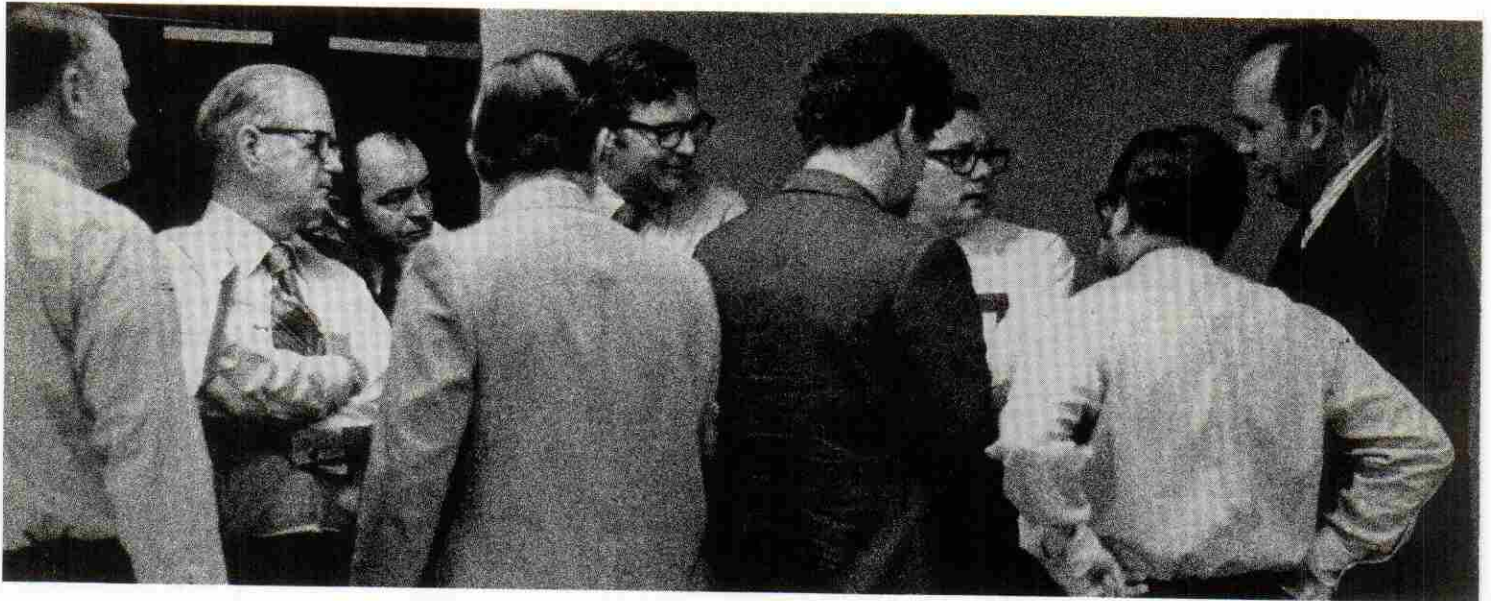


Group decision making: What strategies should you use?



Making decisions in groups can have several advantages over individual decision making. But once you've chosen to use a group, how do you obtain an effective, efficient decision? That depends in large part on the problem to be solved. Here's a four-step approach that will help clear the way.

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JAY SMITHSON is about to bite his fingernails. He has just finished reading a report concerning his company's latest project, and it is clear that a decision must be made. Should his division go ahead, despite the obvious risks? Or, after an investment of nearly a million dollars, should the project be scrapped? Even when all the facts are laid out, it's not a clear-cut yes or no. Instead of making the decision himself, Jay decides to call a

meeting of the people who are involved in the project, and the people who will be most affected by its success or failure.

This is a fairly typical scenario. But group decision making requires greater understanding. What are the different strategies that Jay can choose as the group progresses toward a solution? What about preliminary activities, such as constructing an agenda and selecting the group members, as well as the process that develops within the meeting itself?

From Jay's perspective, making decisions in groups can have several advantages over individual decision

making. Bringing several people together increases the sum total of knowledge, information, and perspectives that can be brought to bear on the problem. Another advantage is the increased acceptance that should follow a group decision, especially compared to individually made decisions. In addition, there tends to be greater understanding of the final decision when people have seen the reasoning that contributed to it: They realize *why* a particular course of ac-

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tion is better than others.

Now that Jay has decided on group decision making, he must design and prepare for the first meeting. He should consider four distinct steps that can contribute to an effective, efficient decision: (1) he must identify the "type" of problem to be solved; (2) he must carefully select the group members; (3) he must compose and distribute the meeting's agenda to each group member; and (4) he must choose the single most effective decision process to employ.

Identifying the problem

If, as in our example, Jay needs to decide whether to continue a project, the problem is easily identified. Other problems are not always so easy to specify. For instance, one may observe a number of symptoms that are indicative of a problem without actually knowing what is at the root of things. If sales are declining even though the market is improving, if absenteeism is increasing, or if important personnel are leaving for other jobs, a problem exists somewhere in the organization. And there can be a multitude of causes for each of these particular problems. Group decision making can be used to try and identify the underlying causes of a problem—even before it is used again to solve it.

The chairman should, at a minimum, be able to formulate an agenda that identifies the topic for discussion. This should be done in as much detail as possible, without implicitly suggesting a final solution or even what set of alternatives might be considered as solutions. If the meeting is going to draw as much as possible from the individuals assembled, it is critical that the chairman divorce

his or her ideas from the statement of the agenda. The issues should stand by themselves, with no evaluative comments of any kind.

In addition to identifying the problem, it is important, especially in trying to get the most out of the decision process, to identify the type of problem. After interviewing 72 managers, Richard Guzzo of New York University identified four fairly distinct problem types. The first, emotive decision problems, are highly value-laden issues (possibly having a win-lose character) that lead to emotional responses by group members. An example is budget allocations when funds are tight. The second and most prevalent type, technical/factual decision problems, are more cut-and-dried and may, for instance, include deciding how to accommodate the federal government's most recent changes in income tax regulations. They often have importance for only part of the organization, and solutions typically are more certain than in other types of problems. Jay

Smithson's example of determining whether to continue a project is primarily (but not completely) a technical/factual decision problem.

The third type, policy/planning decision problems, are characterized by a long-term perspective that coincides with little agreement about the goals to be accomplished or even the importance of accomplishing them. Feedback will not be quick, and uncertainty prevails. The often constructed five- or ten-year plans for organizations (or countries) are examples of solutions to policy/planning decision problems. The fourth type, crisis decision problems, are characterized by high importance and critical time constraints. They are the organizational fires that need to be controlled or extinguished immediately. An example is what to do with a perishable commodity when normal storage units are unavailable.

Each of these decision types is distinct; each requires a different kind of group or a different kind of meeting, as we will discuss later.



Selecting group members

Tradition or company policy often dictates, at least to some extent, who will be included. "Any decision that has anything to do with marketing has to include Nancy; any decision involving production must include Joe." But in most cases, an individual has the discretion to invite participants who may not be so obviously necessary.

Years of leadership research have indicated that groups need two kinds of leaders: task-oriented and interpersonally-oriented. Task-oriented leaders tend to be concerned with organizing the work process, and with directing people in their tasks. Interpersonally-oriented leaders tend to be concerned with establishing a warm climate and with promoting trust and respect among fellow workers. Thus, the chairman should include people who can fill both these roles, allowing the group to make a decision without provoking interpersonal conflict.

Of the two types of leaders, the task-oriented individual may not be as necessary as the interpersonally-oriented. This is true only if the decision process structures the situation to such a degree that the group must keep on track; some of the procedures we will discuss almost ensure a fairly strong task orientation.

Internal conflict is more difficult to avoid. Especially in our competitive society, the announcement of a group decision-making session is often the call to arms for political aggressors. Thus, an interpersonal facilitator can be particularly helpful, especially if he or she recognizes the positive potential that can be harnessed from the presence of conflict over ideas versus the harm that can result from interpersonal conflict.

Another consideration in putting together the members of a group is the right mix to ensure creative discussion. Tapping people who have important information is vital. Experts from outside a department or even the organization can often bring a fresh perspective to the issues at hand and may have less of a personal commitment to a particular course of action. Thus, their biases may be different from those of insiders. They also cause changes in the stable membership structure of the group, which can increase the quality of the decision, particularly for emotive and policy/planning problems. Stable groups can fall into behavior patterns that do not change with the times or the situation. An outsider forces the group to examine and explain why it proceeds as it does. And outsiders may also be able to play the all-important role of devil's advocate—one who questions even the most sensible propositions. The role of devil's advocate, whether held by an insider or an outsider, is particularly important in avoiding "group-think," the problem of too much agreement and solidarity. A questioner or devil's advocate is appropriate for all of the decision problems except crises, where there may be no time for questions.

In selecting the members of the group, one consideration in addition to each of their identities is the size the group should be. Are three people enough? Are ten too many? Groups are frequently overstaffed; people are asked to participate more out of respect than from a concern that they can contribute to the decision. For groups that meet face-to-face, more than seven people can be cumbersome. Groups of fewer than five often sacrifice information and

different perspectives. Five to seven members is usually optimal.

The agenda

The third step in preparing for a group decision is the simplest—formulating and distributing an agenda. But even here, there are several factors to keep in mind.

Making sure everyone has a copy of the agenda prior to the meeting merely increases the chances that everyone will be prepared. In the agenda, the chairman should provide both background information concerning the purpose of the meeting and an outline of what stages the meeting will move through and what is to be accomplished. To make the most out of the session, everyone should have an adequate foundation of current information relevant to the problem at hand *without* any hints of possible solutions. Unfortunately, this is an impossible task. Just as biases surface in television news reporting, they are inevitable in constructing an agenda. Blatant slanting of the information can be avoided, however.

Distributing the agenda to all concerned completes this stage of the process. The timing of the distribution is important—for most managers, anything over a week old is ancient history. But the information should probably be on their desk at least a day ahead of the meeting to allow for adequate preparation.

Decision-making procedures

There are at least five distinct decision-making procedures: the ordinary group procedure, brainstorming, statistical aggregation, the Delphi technique, and the nominal

group technique (NGT). Each is directed toward discovering the best solution for the problem. Each has particular advantages; each also has some disadvantages. Depending on the goals that the decision and the decision procedure are designed to accomplish, one process might be chosen over another, sacrificing some outcomes to obtain others.

The ordinary group procedure entails calling a group together, presenting the problem, and asking for comment and discussion. The meeting is open-ended, and the discussion tends to be free-flowing. The chairman usually controls the speakers so that everyone does not talk at once, and also states the consensus if one is reached. On occasion, Robert's Rules of Order are employed.

The ordinary group procedure is very unstructured. As a result, few alternative solutions are suggested, and groups often choose the first satisfactory solution. Because of a lack of structure, discussions can seem endless. Fatigue sets in; people are anxious to get out of the meeting and move on to other things; the last solution suggested is often seized just so the meeting can be completed. The ordinary group procedure is particularly vulnerable to the problems resulting from social pressure and conflict. It does provide an atmosphere, however, for close interpersonal contact which, if things go well (and occasionally they do), can increase cohesiveness and esprit de corps among group members. If the people involved know and respect each other, and have interacted productively in the past, the ordinary group procedure usually works well. But there are many ways for things to go wrong.

In summarizing the information

in the agenda, the chairman may inadvertently communicate personal biases to the group. As the meeting progresses, he is presented with many opportunities to insert personal prejudice: who should get the floor during a heated discussion, when should the discussion be summarized, when is there a consensus, when should the meeting be adjourned so that more outside information can be obtained, and so on. The success of the ordinary group procedure, then, depends to a great extent on the actions of the chairman.

Brainstorming is a well-known technique for generating ideas. It does not deal with the evaluation or selection of one of the ideas; another process is required to complete the decision making. The success of a brainstorming session depends on the group members following a few simple rules. First, people are encouraged to generate as many ideas as possible. Not only are many ideas encouraged, but wild ideas are encouraged. The second, most important rule is: No evaluation of any kind during the brainstorming meeting. The pros and cons of an idea are not allowed—ideas are suggested without additional comment. Finally, people should "piggyback" or build on other people's ideas.

Brainstorming typically results in a very enjoyable meeting: People like to brainstorm. They also leave the meeting with the feeling that they have really accomplished something. Unfortunately, research indicates that brainstorming groups do not generate that many alternatives. Individuals can generate more ideas of higher quality working alone. Thus, from a task accomplishment perspective, brainstorming in groups is not efficient. What is lost with individual

brainstorming, however, is the camaraderie that is generated in brainstorming groups.

Statistical aggregation uses the ideas of a group of individuals, but does not ask these people to interact with one another in a group setting. It is limited to quantitative problems. Simply, several people make individual estimates of the best answer to a problem. The estimates are collected, and one of a variety of aggregation procedures is used to determine the final solution.

The mean or average of the responses is one procedure often used. For instance, if Jay Smithson's group decided to continue the project, he might want to project the amount of subsequent expenditures. In problems of this type, the mean estimate is often quite accurate—overestimates and underestimates tend to cancel one another out. But if one of the estimates is extreme, the mean will be swayed in that estimate's direction. The effects of an extreme estimate are even greater with fewer responses. With more estimates, or less extreme estimates, however, the mean is a more reasonable measure of central tendency.

The median can also be used. This is simply the estimate that falls exactly in the middle of a set of estimates that have been rank-ordered from smallest to largest (or vice versa). The median with an even number of estimates typically takes the average of the middle two. Compared to the mean, the median is more reflective of central tendencies when an extreme estimate is present. Very low and/or very high estimates do not affect the median.

If people make quick, thoughtful estimates, statistical aggregation incurs little cost and can be particularly

effective. No social pressure can influence the choice; but no group is ever formed, so the social rewards (and potential costs) associated with communal activity are also lost. The major limitation of statistical aggregation procedures is their restriction to quantitative problems. Other types of problems, like which plan to choose, whether an individual de-

solutions suggested and feeds them back to the panel in a second questionnaire which also asks for their reactions to this set of suggestions. New solutions can also be suggested. The chairman summarizes the preferences of the panel members and feeds back this information. Preferences are again solicited in the third questionnaire/feedback report.

issues, seven seems to be a minimum; only on rare occasions would more than 100 be necessary.

Another problem with the Delphi technique is time. With people responding at different rates, and the necessity of waiting for everyone's response before sending out feedback, the Delphi technique is very slow.

The Delphi and statistical aggregation techniques work particularly well when desired group members are people who hate committees, who work well alone, who are independent. People who feel strongly that group meetings are a waste of time can still contribute their skills to group problem solving. Also, when it is impossible to convene a particular set of individuals, the Delphi technique works very well.

The nominal group technique (NGT), the most recent procedure, was developed by Andre Delbecq and Andrew Van de Ven at the University of Wisconsin. By combining some of the characteristics of the other techniques, it takes advantage of each of their good points. It draws from brainstorming by having people generate potential solutions individually; it draws from the ordinary group procedure by allowing for some group discussion; it draws from statistical aggregation by using a formal, restrictive process for arriving at a solution; and it provides feedback concerning others' suggestions, like the Delphi technique. NGT mixes a fairly structured decision process with the interpersonal characteristics of face-to-face groups.

NGT passes through several stages. After the problem is clearly stated, group members sit together quietly and individually generate as many alternatives as they can. After about 15 minutes, ideas are pre-

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serves promotion, or Jay Smithson's original problem concerning whether to continue the project, cannot be solved using the statistical aggregation technique.

The Delphi technique. Norman Dalkey and his colleagues at the Rand Corporation developed the Delphi procedure, which extends statistical aggregation to include feedback and reestimates. The group does not need to meet face-to-face; indeed, individuals can and have been sampled from almost anywhere in the world. In the Delphi procedure, the chairman acts as the administrator of an estimate-feedback chain. The first of several questionnaires, constructed to state the problem as clearly as possible, is sent to the Delphi panel. Because the group never meets, there is no easy way to clear up any misunderstanding; thus, the problem statement must be particularly clear. Potential solutions are returned to the chairman, who summarizes the

Thus, after each questionnaire, the group's responses are fed back to the panel with additional queries. The procedure continues until a clear solution emerges. If the problem is quantitative in nature, aggregation techniques can be used to determine the final solution. If the problems are not quantitative, various voting schemes can be used if a clear consensus does not emerge.

Because both the Delphi technique and statistical aggregation do not require individuals to meet together to make a decision, they avoid the troubles of social pressure but lose the advantages of togetherness. No longer is seven the optimal number of group members; instead, if costs are not a factor, many people can be included. If many interactions are necessary, however, the Delphi technique can be particularly expensive. Thus, the economics of the situation tend to dictate the number of members of a Delphi panel. For most

sented in round-robin fashion. Each individual presents a single idea, taking turns, until all of the group's ideas have been presented. The chairman records them in full view at the front of the room. As in group brainstorming, individuals are encouraged to piggyback on others' ideas. This process psychologically separates the ideas from the individual who has suggested them. Although each of the ideas is not strictly anonymous, as in the Delphi technique, the round-robin recording process may reduce some social pressure.

A brief discussion focusing primarily on the clarification of each idea is next. This discussion may generate additional ideas, which are also recorded. After everyone is clear about the entire set of suggestions, a voting or rating process is used to reach the group decision. Each group member might vote for the five alternatives that he or she feels are best, rank-ordering them from one to five. Alternatively, each of the ideas can be rated on a 10-point scale, from good (1) to bad (10). Votes or ratings are done on private ballots. The chairman tabulates the votes and announces them to the group. In most cases, this first ballot identifies a small set of possible solutions. If the vote should reveal a clear-cut winner, the group is finished. If there is the usual difference of opinion concerning some of the ideas, a discussion of the vote can follow. Voting or rating is repeated, with intermittent discussion, until a solution can be identified. This procedure (like some of the others) provides back-up alternatives should the initially chosen solution fail to produce desired outcomes.

To assess NGT's effectiveness, it can be compared with the closely re-

lated Delphi technique. Like the Delphi technique, a large number of specific ideas is typically generated. The major advantages of NGT over Delphi are its reduced costs (in money and especially in time) and an increase in cohesiveness and commitment of group members due to their face-to-face interaction. As always, however, this interpersonal contact leaves a group open for conflict and social pressure. The relatively restricted discussion, however, reduces these effects. Also, NGT often generates a strong feeling of accomplishment in reaching a solution. In two hours, or sometimes less, sticky problems can often be resolved. This can be a really uplifting experience, especially for people who are accustomed to laborious, ineffectual committees.

The role of chairman is always particularly important. Even when no group is meeting, for the Delphi and statistical aggregation groups, the leader must pay strict attention to the procedures to maximize their advantages. Changes can be made in any of the procedures. But it is critical, especially when groups are going to continue to interact, and the reputation and credibility of the leader hangs in the balance, that certain guidelines be followed. The leader must be particularly concerned about his own behavior. To blatantly advocate a particular position while espousing the participative aspects of group decision making can quickly sabotage any potential an individual has for obtaining the respect of his colleagues. Instead, a style that keeps the group on track, moving toward a solution, without personally interfering, is particularly effective. And requiring a true consensus results in higher-quality decisions.

Research findings

Empirical research has attempted to determine which of the techniques yield more accurate solutions (when accuracy of a solution can be determined) and which lead to a greater number of specific ideas being suggested. The findings on accuracy are mixed: With some problems (for example, how many telephones were there in Africa in 1967?) the Delphi technique appears to be more accurate than the ordinary group procedure. With probability estimate problems (for example, what is the probability that an adult 68 inches tall is male?), NGT has done better. In a recent study David Boje and I found that for problems like these two, statistical aggregation was most accurate. At the same time, group members were most confident of their answers in the NGT groups. Aspects of the problem itself seem to affect accuracy while aspects of the decision process seem to influence satisfaction. Consistent findings show that both NGT and the Delphi technique lead to more, and more specific, ideas than the ordinary group procedure. In addition, NGT is enjoyed more than the Delphi or statistical aggregation techniques.

Recent research suggests that, for technical/factual, policy/planning, and crisis decision problems, structured decision procedures resulted in high-quality decisions. For emotive decisions, structured decisions were of poor quality. This suggests that the ordinary group procedure would be best used for emotive decision problems and that the other procedures should be used for all other problems.

Finally, the procedure used to actually select one of the ideas as the

Figure 1
Evaluating the Decision Processes

<i>Criteria</i>	<i>Ordinary</i>	<i>Brainstorming</i>	<i>Aggregation</i>	<i>NGT</i>	<i>Delphi</i>
Number of ideas	Low	Moderate	NA*	High	High
Quality of ideas	Low	Moderate	NA*	High	High
Social pressure	High	Low	None	Moderate	Low
Time/money costs	Moderate	Low	Low	Low	High
Task orientation	Low	High	High	High	High
Potential for inter-personal conflict	High	Low	Low	Moderate	Low
Feelings of accomplishment	High to low	High	Low	High	Moderate
Commitment to solution	High	NA*	Low	Moderate	Low
Builds group cohesiveness	High	High	Low	Moderate	Low

*NA = Not Applicable

group decision also can have an impact. Carl Castore and I recently found that structured majority rule (asking people to vote between pairs of alternatives) led to higher overall commitment to the group decision, even when the individual group members' own preferences were not similar to that decision. Thus, if an individual participates equally in the decision, and if the decision is reached using a "fair" procedure like majority rule, then he tends to support the decision when implementation becomes necessary. Stressing the participative aspects of a decision process, then, can bear long-run benefits.

Making your selection

In deciding which of the decision procedures to use, an individual might consider some of the criteria

we have used in discussing each of the processes. Figure 1 lists these criteria, along with each of the decision procedures and what might be expected of each. These expected outcomes are not absolute—it may be that, for a variety of reasons, an NGT or Delphi group will not yield a large number of high-quality ideas.

The ordinary group procedure does not appear to yield particularly positive outcomes. For feelings of accomplishment, its outcome is up in the air—if something is accomplished smoothly, feelings of accomplishment will be high. Unfortunately, it's more likely that this will not be the case, thus leading to relatively low feelings of accomplishment. If a solution is reached, commitment to that solution can be very high, as can the cohesiveness within the group. Thus when things get personal, cohesive-

ness may be all important and the ordinary group procedure is best (if its many problems can be avoided through the efforts of a skillful chairperson).

Brainstorming scores well on several counts—given its popularity, this is not too surprising. If the number and quality of the ideas are not that important, and if no solution is required, it is excellent.

Statistical aggregation is particularly useful for quick, low-cost solutions to quantitative problems. If other criteria become important, or if the problem is not quantitative, this procedure is clearly not the best.

NGT has no severe weaknesses. If one were to assign pluses and minuses to each of the procedures for each of the criteria (and thus ignore the relative importance of one criterion over another), NGT would easily win over the other procedures. In

general, it appears to be the most effective group decision making procedure. In specific situations, however, other procedures may be more appropriate.

The results for the Delphi technique are almost as positive. Little potential for conflict and a lack of social pressure are its advantages. It is

faced with a sticky problem that has previously resisted solutions, he may set many alternatives of high quality as his top priorities. These may be followed by the need for a quick decision, with all other criteria secondary. In this case, Figure 1 indicates that NGT and the Delphi technique will yield the most high-quality alter-

be changed and, depending on the situation, simple alterations may have strong effects. For instance, individual plus group brainstorming can be used to generate a large number of individual suggestions and to establish a feeling of togetherness. To combine the two, Jay would merely recommend that individuals brainstorm by themselves, before coming to the group meeting. Ideas could be shared with the group, especially if they were submitted to a coordinator who summarizes them for everyone prior to the meeting. Then group brainstorming, focusing primarily on piggybacking, could add to the list that was generated individually.

Other combinations are also possible. In Jay's last problem, a Delphi group would anonymously generate a large number of ideas. A group discussion with all members present could take advantage of the positive aspects of the ordinary group procedure, such as high commitment to the solution. Thus, the positive aspects of the ordinary group procedure and the Delphi technique could be combined to fulfill all of Jay's important priorities.

So there are a variety of strategies that an individual can select when a group decision is indicated. Portions of different techniques can be combined and/or modified to fine tune the problem-solving procedure. There are hazards along the way; but by identifying the problem (and the type of problem) one is facing, by carefully composing the group, by designing an agenda that comes close to being free of bias, by selecting the best procedure for the situation, and by carefully moderating the process, group decision making can generate fruitful returns. ●

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also useful when group members cannot be present in one place at one time. If the composition of the group is more important than other factors, the Delphi technique might be the best way to accommodate irreconcilable schedules.

Figure 1 can be easily used to select a group decision procedure. To return to Jay Smithson again: First he must list all of the goals that he would like this particular decision to satisfy. This list might include all of Figure 1's criteria. Second, he must determine his priorities. To maximize the possibility of group cohesiveness, for instance, potential interpersonal conflict must be risked. And Jay must determine whether this feeling of cohesiveness is more or less important than generating many alternatives.

After ranking his priorities, Jay can turn to Figure 1 and go through the process of eliminating some procedures in favor of others. If Jay is

natives and that of these two, NGT is much quicker.

A similar, straightforward example is one where Jay has almost no time or money, wants to avoid interpersonal conflict at all costs, and is faced with a quantitative decision. The choices eliminate the ordinary and Delphi techniques due to costs, NGT because of potential conflict, and brainstorming because it doesn't yield a decision. Thus, statistical aggregation is chosen. In some situations, however, the choice is considerably more difficult. If Jay sets commitment to the solution as his top priority, followed by little social pressure, no interpersonal conflict, and high-quality alternatives, his choices are difficult. High commitment to the solution suggests that he should choose the ordinary group procedure; all of the other criteria suggest using the Delphi technique. Where can he turn?

All of the decision processes can