5 Decision Making in Organizations

The task of administration is so to design this environment that the individual will approach as close as practicable to rationality (judged in terms of the organization's goals) in his decisions.
HERBERT A. SIMON

An organization is a collection of choices looking for problems, issues and feelings looking for decision situations in which they might be aired, solutions looking for issues to which they might be the answers, and decision makers looking for work.
JAMES G. MARCH

An administrator often feels more confident when 'flying by the seat of his pants' than when following the advice of theorists.
CHARLES E. LINDBLOM

It makes more sense to talk about participative and autocratic situations than it does to talk about participative and autocratic managers.
VICTOR H. VROOM

An organization can be considered as a set of games between groups of partners who have to play with each other.
MICHEL CROZIER

Hierarchy is divisive, it creates resentment, hostility and opposition ... Paradoxically, through participation, management increases its control by giving up some of its authority.
ARNOLD S. TANNENBAUM

Although writers have considered a range of aspects of organizational functioning, there has been a continuing school of thought which maintains that it is the analysis of decision making which is the key to understanding organizational management processes.

This approach was inaugurated by Herbert Simon and his colleagues at Carnegie-Mellon University. For Simon, management is decision making. His one-

time colleague James March develops this approach to consider the non-rationality of decision processes, while Charles Lindblom looks at decision making in relation to public policy and discovers a 'science of muddling through'.

Victor Vroom proposes a theory of appropriate decision-making styles; Michel Crozier examines the nature of the power which is at the basis of the decision-making game, and Arnold Tannenbaum analyses the distribution across organizational levels of the power to control decision making.

Herbert A. Simon

Herbert Simon (1916–2001) was a distinguished American political and social scientist whose perceptive contributions have influenced thinking and practice in many fields. He began his career in public administration and operations research, but as he took appointments in successive universities his interests encompassed all aspects of administration. He was Professor of Computer Science and Psychology at Carnegie Mellon University Pittsburgh, where he and his colleagues have been engaged in fundamental research into the processes of decision making, using computers to simulate human thinking. Herbert Simon's outstanding intellectual contribution was publicly recognized when, in 1978, he was awarded the Nobel Prize for Economics.

For Simon management is equivalent to decision making. His major interest has been an analysis of how decisions are made and of how they might be made more effectively.

He describes three stages in the overall process of making a decision:

1. finding occasions calling for a decision – the intelligence activity (using the word in its military sense);
2. inventing, developing and analysing possible courses of action – the design activity;
3. selecting a particular course of action from those available – the choice activity.

Generally speaking, intelligence activity precedes design, and design activity precedes choice; but the sequence of stages can be much more complex than this. Each stage can in itself be a complex decision-making process. The design stage can call for new intelligence activities. Problems at any stage can generate a series of sub-problems which in turn have their intelligence, design and choice stages. Nevertheless in the process of organizational decision making, these three general stages can always be discerned.

Carrying out decisions is also regarded as a decision-making process. Thus after a policy decision has been taken, the executive having to carry it out is faced with a wholly new set of problems involving decision making. Executing policy amounts to making more detailed policy. For Simon, then, all managerial action is essentially decision making.

On what basis do administrators make decisions? The traditional theory of economists assumed complete rationality. Their model was of 'economic man'

(which, of course, embraced woman) who deals with the real world in all its complexity. He selects the rationally determined best course of action from among all those available to him in order to maximize his returns. But clearly this model is divorced from reality. We know that there is a large non-rational element in people's thinking and behaviour. The need for an administrative theory is precisely because there are practical limits to human rationality. These limits to rationality are not static but depend upon the organizational environment in which the individual's decision takes place. It then becomes the task of administration so to design this environment that the individual will approach rationality in decisions as closely as practicable as judged in terms of the organization's goals.

In place of economic man Simon proposes a model of 'administrative man'. While economic man maximizes (that is, selects the best course from those available), administrative man 'satisfices' – looking for a course of action that is satisfactory or good enough. In this process decision makers are content with gross simplifications, taking into account only those comparatively few relevant factors which their minds can manage to encompass. 'Most human decision making, whether individual or organizational, is concerned with the discovery and selection of satisfactory alternatives; only in exceptional cases is it concerned with the discovery and selection of optimal alternatives.' Most decisions are concerned not with searching for the sharpest needle in the haystack but with searching for a needle sharp enough to sew with. Thus administrators who satisfice can make decisions without searching for all the possible alternatives and can use relatively simple rules of thumb. In business terms they do not look for 'maximum profit' but 'adequate profit', not 'optimum price' but 'fair price'. This makes their world much simpler.

What techniques of decision making are then available? In discussing this problem, Simon makes a distinction between two polar types of decisions: *programmed* and *non-programmed* decisions. These are not mutually exclusive but rather make up a continuum stretching from highly programmed decisions at one end to highly unprogrammed decisions at the other. Decisions are programmed to the extent that they are repetitive and routine or to the extent that a definite procedure has been worked out to deal with them. Thus they do not have to be considered afresh each time they occur. Examples would be the decisions involved in processing a customer's order, determining an employee's sickness benefit or carrying out any routine job.

Decisions are unprogrammed to the extent that they are new and unstructured or where there is no cut-and-dried method for handling the problem. This may either be because it has not occurred before, or because it is particularly difficult or important. Examples would be decisions to introduce a new product, make substantial staff redundancies or move to a new location. All these decisions would be non-programmed (although entailing many programmed sub-decisions) because the organization would have no detailed strategy to govern its responses to these situations; it would have to fall back on whatever general capacity it had for intelligent problem solving.

Human beings are capable of acting intelligently in many new or difficult situations, but they are likely to be less efficient. The cost to the organization of relying on non-programmed decisions in areas where special-purpose procedures and programmes can be developed is likely to be high; thus an organization should try to programme as many of its decisions as possible. The traditional techniques of programmed decision making are habit, including knowledge and skills, clerical routines and standard operating procedures, together with the organization's structure and culture, that is, its system of common expectations, well-defined information channels, established sub-goals and so on The traditional techniques for dealing with non-programmed decisions rely on the selection and training of executives who possess judgement, intuition and creativity. These categories of techniques have been developed over thousands of years (the building of the pyramids must have involved the use of many of them). But since the Second World War, Simon argues, a complete revolution in techniques of decision making has got under way, comparable to the invention of powered machinery in manufacture.

This revolution has been due to the application of such techniques as mathematical analysis, operational research, electronic data processing, information technology and computer simulation. These were first used for completely programmed operations (for example mathematical calculations, accounting procedures) formerly regarded as the province of clerks. But more and more elements of judgement (previously unprogrammed and the province of middle management) can now be incorporated into programmed procedures. Decisions on stock control and production control have been in the forefront of this development. With advances in computer technology, more and more complex decisions will become programmed. Even a completely unprogrammed decision, made once and for all, can be reached via computer techniques by building a model of the decision situation. Various courses of action can then be simulated and their effects assessed. 'The automated factory of the future', Simon maintains, 'will operate on the basis of programmed decisions produced in the automated office beside it.'

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James G. March

James March is Emeritus Professor of International Management at Stanford University, California, his breadth of mind being indicated by his additional links with the departments of Political Science and of Sociology. His interests have long focused upon decision making in organizations, beginning with his early work at Carnegie Mellon University. Its renowned contributors to the understanding of decision making also include Herbert Simon (see previously in this chapter) and Richard Cyert (1921–1998), both former colleagues of March.

March brings to his lively analyses of decision making a unique blend of the logical and the poetical. His work is logical in argument, poetical in imagery and expression. He feels that decision making can be understood in much the same non-rational way as a painting by Picasso or a poem by T. S. Eliot. It is far from a rationally controlled process moving steadily to a culminating choice. The confusion and complexity surrounding decision making are underestimated. Many things are happening at once. Views and aims are changing, and so are alliances between those concerned. What has to be done is not clear, nor is how to do it. In this topsy-turvy world where people do not comprehend what is going on, decisions may have little to do with the processes that supposedly make them, and organizations 'do not know what they are doing'.

It is a world in which there are cognitive, political and organizational limits to rationality. Cognitively, attention is the key scarce resource. Individuals cannot attend to everything at once, nor can they be everywhere at once. So they attend to some parts of some decision making, not to all of it. What they attend to depends upon the alternative claims upon them, since giving attention to one decision means overlooking others. As March puts it, 'every entrance is an exit somewhere else'. Therefore timing is crucial, timing when to join in and which matters to raise.

March shares with his former colleague Simon the conception of bounded rationality. Not only is attention scarce, but mental capacity is limited. The mind of the decision maker can only encompass so much. It can only cope with a limited amount of information and with a limited number of alternatives (see also Lindblom, next in this chapter).

That being so, even if decision making is intended to be rational, there are severe bounds to its rationality. Decisions will be taken knowing much less than in principle could be known.

Along with scarce attention and bounded rationality come erratic preferences. People change their minds as to what they want. Even if they know what they want, they may ignore their own preferences and follow other advice or other traditions.

Or they may state their preferences in an ambiguous way. Their preference may also conflict with the preferences of others.

Here the cognitive limits to rationality connect with the political limits. March and his other former colleague Cyert recognize that a firm, and indeed any other kind of organization, is a shi◎ing multiple-goal political coalition. 'The composition of the firm is not given; it is negotiated. The goals of the firm are not given; they are bargained.' The coalition, to use their word, includes managers, workers, stockholders, suppliers, customers, lawyers, tax collectors and other agents of the state, as well as all the sub-units or departments into which an organization is divided. Each has its own preferences about what the firm should be like and what its goals should be. Hence negotiation and bargaining rather than detached rationality are endemic.

This is where the political limits to rationality connect with the organizational limits. These are the limits set by *organized anarchies*. Though all organizations do not have the properties of organized anarchy all of the time, they do for part of the time and especially if they are publicly owned or are educational, such as universities, colleges and schools. Organized anarchies have 'three general properties'. First, since preferences are unclear, the organization discovers its goals from what it is doing rather than by defining them clearly in advance. Second, since it has 'unclear technology', 'its own processes are not understood by its members' and it works by trial and error more than by knowing what it is doing. Third, since there is 'fluid participation', who is involved in what is constantly changing? Take a college, for instance. Pronouncements on strategy are more reviews of what courses are already taught than statements of future goals; new teaching techniques such as video games are tried without knowing whether they will work and without their being understood by authorizing committees; what such committees do understand and approve depends on who turns up to meetings.

Given these cognitive, political and organizational characteristics, decision-making processes are bound to be affected. Not only in those organizations prone to organized anarchy, but even in business firms, such decision processes have four peculiarities:

1. quasi-resolution of conflict
2. uncertainty avoidance
3. problemistic search
4. organizational learning.

Quasi-resolution of conflict is the state of affairs most of the time. The conflicts inherent in the political nature of organizations and therefore in the making of decisions are not resolved. Rather there are devices for their quasi-resolution which enable them to be lived with. One such device is 'local rationality'. Since each sub-unit of a department deals only with a narrow range of problems – the sales department with 'how to sell', the personnel department with 'how to recruit' and so on – each can at least purport to be rational in dealing with its 'local' concerns. Of course, these local rationalities can be mutually inconsistent (as when accounting's

insistence on remaining within budget destroys marketing's advertising campaign), so they may not add up to overall rationality for the organization as a whole.

A second such device can ease this difficulty. It is 'acceptable level decision rules'. The acceptable level of consistency between one decision and another is low enough for divergences to be tolerable. What is needed is an outcome acceptable to different interests rather than one that is optimal overall. Third, 'sequential attention to goals' also helps. As the conflicts between goals are not resolved, attention is given first to one goal and then to another in sequence. For example, smooth production may first be emphasized; then priority may switch to satisfying customers by design variations which in turn disrupt production.

Uncertainty avoidance, too, pervades decision making. All organizations must live with uncertainty. Customer orders are uncertain, so are currency fluctuations, so is future taxation and so on. Therefore decision making responds to information here and now and neglects the uncertainties of longer-term forecasting. Pressing problems are dealt with and planning for the longer run not attempted. Market uncertainties are avoided by exclusive contracts with customers and by conforming with everyone else to recognized pricing and negotiating practices.

For the same reason *search is problemistic* and short-sighted. The occurrence of a problem spurs a search for ways to deal with it, and once a way is found then search stops. Far-sighted regular search, such as the steady accumulation of market information, is relatively unimportant. Such information is likely to be ignored in the urgency of any particular sales crisis. Moreover, search is 'simple-minded'. When a problem arises, search for a solution is concentrated near the old solution. Radical proposals are brushed aside and a safer answer is found not much different from what went before (see Lindblom, next). When an American university sought a new dean to head a major faculty, for instance, prominent outsiders were passed over and an established insider chosen because of fears that outsiders might make too many changes. Business organizations, too, regularly choose both managers and workers who will fit into existing set-ups with least disruption.

Finally, decision-making processes are learning processes. In them, *organizational learning* takes place. Decision makers do not begin by knowing all they need to know. They learn as they go. They learn what is thought practicable and what is not, what is permissible and what is not. By trial and error they find out what can be done and adapt their goals to it.

Perhaps it should not be surprising that all this leads March, together with Cohen and Olsen, to propose a *garbage-can model of organizational choice*, famed for its name as well as for its thesis. For when people fight for the right to participate in decision making and then do not exercise it, when they request information and then do not use it, when they struggle over a decision and then take little interest in whether it is ever carried out, something curious must be going on.

The opportunity or the need to arrive at a decision, to make a choice, can be seen as 'a garbage can into which various kinds of problems and solutions are dumped by participants as they are generated'. There may be several garbage cans around each with a different label.

In the model so vividly depicted, a decision is an outcome of the interplay between *problems*, *solutions*, *participants* and *choices*, all of which arrive relatively independently of one another. Problems can arise inside or outside the organization. Solutions exist on their own irrespective of problems (people's preferences wait for their moment to come, the computer waits for the question it can answer). Participants move in and out. Opportunities for choices occur any time that an organization is expected to produce a decision (for example when contracts must be signed or money must be spent).

Decisions come about by resolution, by oversight or by flight. If by resolution, then deliberate choice resolves the problem, though this is likely to take time. If by oversight, the choice is made quickly, incidentally to other choices being made. If by flight, the original problem has gone (flown) away leaving a choice which can now be readily made but solves nothing. Probably most decisions are made by oversight or flight, not by resolution.

Whether or not a decision emerges is due to the 'temporal proximity' of inputs into the garbage can. That is, a decision happens when suitable problems, solutions, participants and choices coincide. When they do, solutions are attached to problems and problems to choices by participants who happen to have the time and energy to make them. So the decision that is taken may be more or less 'uncoupled' from the apparent process of making it, being due to other coincidental reasons.

Seen like this, 'an organization is a collection of choices looking for problems, issues and feelings looking for decision situations in which they might be aired, solutions looking for issues to which they might be the answer, and decision makers looking for work'. Though this may be the situation anywhere, nowhere is it more prevalent than in an organized anarchy such as a university.

March admits that this picture may be overdrawn, but contends that it is real enough to mean that the rational 'technology of reason' should be supplemented with a 'technology of foolishness'. Sometimes people *should* act *before* they think so that they may discover new goals in the course of that action. They *should* make decisions with consequences for the future, in the knowledge that they do not know what will be wanted in the future. In terms of ostensible rationality, this is foolish. But decision making needs scope for foolishness. Playfulness allows this. Playfulness is a deliberate (but temporary) suspension of the normal rational rules so that we can experiment. We need to play with foolish alternatives and inconsistent possibilities. We need to treat goals as hypotheses to be changed, intuitions as real, hypocrisy as a transitional inconsistency, memory as an enemy of novelty, and experience not as fixed history but as a theory of what happened which we can change if that helps us to learn. From time to time we should be foolishly playful inside our garbage cans.

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Charles E. Lindblom

Charles Lindblom is Stirling Professor Emeritus of Political Science and Economics at Yale University, and is a former director of the Yale Institution for Social and Policy Studies. He has served in a wide variety of academic and political posts including those of Guggenheim Fellow and economic adviser to the US Aid Mission to India.

Lindblom asks how decisions should be made and how they are made. His description and explanation of how they are made are framed primarily in terms of public administration and political systems, but pertain to all forms of organizations. How do administrators and managers, indeed all who have to face substantial decisions, go about them: by root or by branch?

Lindblom supposes an instance of public policy. An administrator has to formulate policy with respect to inflation (this could as easily be a marketing director formulating a firm's pricing policy). To go to the root of the matter, one should attempt to list all possible variables however many there might be, such as full employment, reasonable business profits, protection of savings, stable exchange rates and so on. Then one should attempt to calculate how much a change in each of the variables is worth in terms of a change in each of the others. This done, the administrator can try to evaluate the alternative outcomes of the virtually infinite number of possible combinations. To do this would require gathering prodigious amounts of information. It would also require reconsideration of fundamentals of theory from total central planning on the one hand to a completely free market on the other. The information and the alternatives, if ever they could be fully amassed, would be beyond comprehension.

Instead the administrator could remain content with the comparatively simple goal of a period of stable prices. In this case most of the social values may be disregarded and attention focused only on what is directly and immediately relevant. One would compare only a limited range of alternatives, most already familiar from previous occasions, and avoid recourse to theory or fundamental questioning. One could then make a decision which would have some partial success for a time.

The first approach to a policy decision described above aspires to the *rational deductive ideal*. This requires that: all values be ascertained and stated precisely enough for them to be arranged in order of priority; that principles then be derived which would indicate what information is necessary for every possible policy alternative to be compared with every other; that full information on each be obtained; and that logical calculative deduction then lead to the best alternative.

This is an ideal of science – the complete deductive system – transferred to the field of values and application. Superficially, it corresponds to good-sense notions of care and comprehensiveness. Its contemporary techniques are operations research, systems analysis, PPB (Planning–Programming–Budgeting) and the like. If followed, it would produce a *synoptic approach* to decision making.

Yet it is difficult to find examples of this synoptic approach. Its advocates cannot point to where it has been applied. It is more an ideal than something actually accomplished, for it fails to adapt to what are in reality two troublesome characteristics of decisions – decision makers and decision making.

Decision makers need a way to proceed that takes account of these characteristics. They face situations in which the sheer multiplicity of values, and differences in formulating them, prevent their being exhaustively listed. Indeed, if any such attempt at listing were made, values and priorities would be changing whilst it was being done. The process would be endless. In any case, because of the different partisan interests in any decision, decision making has to proceed by 'mutual partisan adjustment', and so has to accommodate (but not necessarily reconcile) the many values of differing interests and cannot rank one above the other in explicit priority.

Decision makers also need a way to proceed that is adapted to their own limited problem-solving capacities (see Simon, earlier in this chapter). Mentally they could not cope with the deluge of information and alternatives implied in the synoptic approach. As Lindblom puts it, 'the mind flees from comprehensiveness'. In practice, their mental capacities are unlikely to be so stretched, for usually information is incomplete and inadequate, if only because the cost of finding out everything there is to know would be insupportable. Further, the presumption that what there is to know is finite and can be found out also presumes that facts and values occupy separate compartments, whereas in actuality they are inseparable. Different facts draw attention to different values, and values reinterpret facts. Likewise, the systems of variables with which decision makers have to contend cannot be closed off to allow the finite analysis demanded by the synoptic approach, for there are always further interactions in fluid and open systems. Problems arise and extend in many forms.

Therefore the strategy for making decisions that is commonly used by analysts and decision makers is not synoptic. Lindblom terms what they actually do as the *strategy of disjointed incrementalism*, a way of proceeding by *successive limited comparisons* that is far removed from the synoptic approach as required by the rational deductive ideal.

Although disjointed incrementalism cannot be the only set of adaptations used to deal with the practical difficulties of decision making, Lindblom suggests that it is the most prevalent. It makes changes in small increments by disjointed or uncoordinated processes (an increment is 'a small change in an important variable', but there is no sharp line between the incremental and the non-incremental, which is a matter of degree along a continuum). It makes an indefinite and apparently disorderly series of small moves away from the ills of the day rather than towards defined goals. It leaves many aspects of problems seemingly unattended.

In summary disjointed incrementalism is incremental, restricted, means oriented, reconstructive, serial, remedial and fragmented.

Instead of rationally rooting out all the possibilities, the analyst or decision maker simplifies the problem by contemplating only the margins by which – if altered – circumstances might differ. Marginal and therefore comprehensible change is examined and only a restricted number of alternatives is considered. Furthermore, the task is made manageable by considering only a restricted number of consequences for each alternative. The more remote or imponderable possibilities are ignored even if they are important, for to include them might prevent any decision from being made at all.

While the conventional view is that means are adjusted to ends, the comparatively means-oriented strategy of disjointed incrementalism accepts the reverse. Ends are adjusted to means. This works both ways in a reciprocal relationship. Thus if the cost of the means of attaining the objective increases, either other means can be found or the end objective can be changed so that it is brought within the means. Objectives can be fitted to policies as much as policies to objectives. This merges into the strategy's fourth feature – its active reconstructive response. Information is revised and reinterpreted, proposals are redesigned and values are modified, continually. As problems are examined, they are transformed.

The strategy's serial procedure is evident in its long chains of policy steps. There are never-ending series of attacks on more or less permanent (though perhaps slowly changing) problems. These problems are rarely solved, only alleviated. The decision maker does not look for some elusive solution, but instead for appropriate moves in a series that is expected to continue. The strategy therefore has a remedial orientation that identifies situations or ills from which to move *away*, rather than goals to move *towards*. Improvements here and there are preferred to grand aims.

Finally disjointed incrementalism is fragmented by the way analysis and evaluation go ahead at different times, or at the same time in many places. In the political sphere, a government policy may be under study at various times in several government departments and agencies, in universities and in private firms and institutions (just as the policy of a single firm, for example, may be looked at by several of its departments, by its major customer and by its bankers). Whereas the synoptic approach would try to coordinate these efforts rationally disjointed incrementalism accepts their lack of coherence in return for the advantage of diversity. One may find what another misses. An overly controlled approach could 'coordinate out of sight' a potentially useful variety of contributions.

In these several ways the strategy of disjointed incrementalism scales problems down to size. It limits information, restricts choices and shortens horizons so that something can be done. What is overlooked now can be dealt with later. The strategy recognizes diverse values, but discourages intransigence by those involved because its reconstructive nature avoids rules or principles, which if defined could provoke firm stands by different parties.

The result is what Lindblom has called the *science of muddling through* – a practical and sophisticated adaptation to the impossibility of attaining the synoptic ideal. As he says, administrators o◎en feel more confident when flying by the seat of their

pants than when trying to follow the advice of theorists. Disjointed incrementalism is a working strategy and not merely a failure of synoptic method. It has the virtues of its own defects, which carry it pragmatically through.

On the face of it, the strategy looks conservative. It attempts small changes which do not have far-reaching consequences. Yet radical changes may be needed. However, Lindblom points out that it is logically possible to make changes as quickly by small frequent steps as it might be by more drastic and therefore less frequent steps. Each incremental step may be relatively easy because it is not fraught with major consequences, and at least it is a step that can be taken, whereas the enormity of a fully synoptic consideration can deter decision makers from making even a beginning, so that it achieves no movement at all.

In later work, Lindblom has mounted a critique of the workings of the modern capitalist market system. While it is the best system for creating wealth and encouraging innovations, it is not very efficient at managing social processes, such as democracy or social justice, which cannot be evaluated in monetary terms. So democracy becomes 'polyarchy' (equivalent to 'oligarchy' in economic activity) where the choices of the population are restricted to the two, simplified options as offered by opposing political parties. Thus serious consideration of complex social and political issues is restricted to elite groups at the top of society.

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Victor H. Vroom

Victor Vroom has been involved for many years in research, teaching and consulting on the psychological analysis of behaviour in organizations. A Canadian by birth, he has been at McGill University, a number of US universities and is currently Searle Professor of Organization and Management and Professor of Psychology at Yale University. His interest in the effects of personality on participation in decision making began early, his doctoral dissertation on this topic winning him the Ford Foundation Doctoral Dissertation Competition in 1959. He has also won the McKinsey Foundation Research Design Competition and the J. M. Cattell award of the American Psychological Association.

Vroom's dissertation corroborated previous findings that participation in decision making has positive effects on attitudes and motivation. But in addition it showed that the size of these effects was a function of certain personality characteristics of the participants. Authoritarians and persons with weak independence needs are unaffected by the opportunity to participate, whereas egalitarians and those with strong independence needs develop more positive attitudes and greater motivation for effective performance through participation. The study did point out that there are a number of different processes related to participation which might be affected differently.

Much more recently, Vroom (in collaboration with P. W. Yetton and A. G. Jago) has explored in much greater depth the processes of management decision making and the variations in subordinate participation which can come about. Possible decision processes which a manager might use in dealing with an issue affecting a group of subordinates are as follows (though there are some variations if the issue concerns one subordinate only):

AI You solve the problem or make the decision yourself, using information available to you at that time.

AII 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 when 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.

CI You share the problem with relevant subordinates individually getting their ideas and suggestions without bringing them together as a group. Then you

make the decisions that may or may not reflect your subordinates' influence.

CII 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.

GII 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 chairperson. 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.

Processes AI and AII are designated *autocratic* processes, CI and CII *consultative* processes, and GII a *group* process. (GI applies to single subordinate issues.) Having identified these processes, Vroom and Yetton's research programme then proceeded to answer two basic questions:

1. What decision-making processes should managers use to deal effectively with the problems they encounter in their jobs? This is a normative or prescriptive question. To answer it would require setting up a logical model with a series of steps or procedures by which managers could rationally determine which was the most effective process to inaugurate.
2. What decision-making processes do managers use in dealing with their problems and what factors affect their choice of processes and degree of subordinate participation? This is a descriptive question. The answer is important in delineating how far away from a rational approach managers are in their decision making. We could then ask what activities of training or development could lead managers to a more effective decision-making style.

It is in their answer to the first question that Vroom and his collaborators have made a most distinctive contribution. They have developed a detailed normative model of decision-making processes based on rational principles consistent with existing evidence on the consequences of participation for organizational effectiveness. They begin by distinguishing three classes of consequences which influence decision effectiveness:

1. The quality or rationality of the decision. Clearly a process which jeopardized this would be ineffective.
2. The acceptance or commitment on the part of subordinates to execute the decision effectively. If this commitment were necessary, then processes which did not generate it would be ineffective even though they gave a high quality decision.
3. The amount of time required to make the decision. A decision process which took less time, if it were equally effective, would normally be preferable to one which took longer.

These consequences generate a set of rules for the model which may then be applied to the characteristics of whichever managerial problem is under consideration. The model will then indicate which of the decision processes is appropriate to the particular case. The model can be expressed in the form of a decision tree as shown on page 204. In this Decision Model, the problem characteristics are presented as questions. The manager starts at the left-hand side and moves to the right along the path determined by the answer to the question above each column. At the final point of the line the model shows which of the decision processes should be used to reach, in the least time, a quality decision which will be found acceptable.

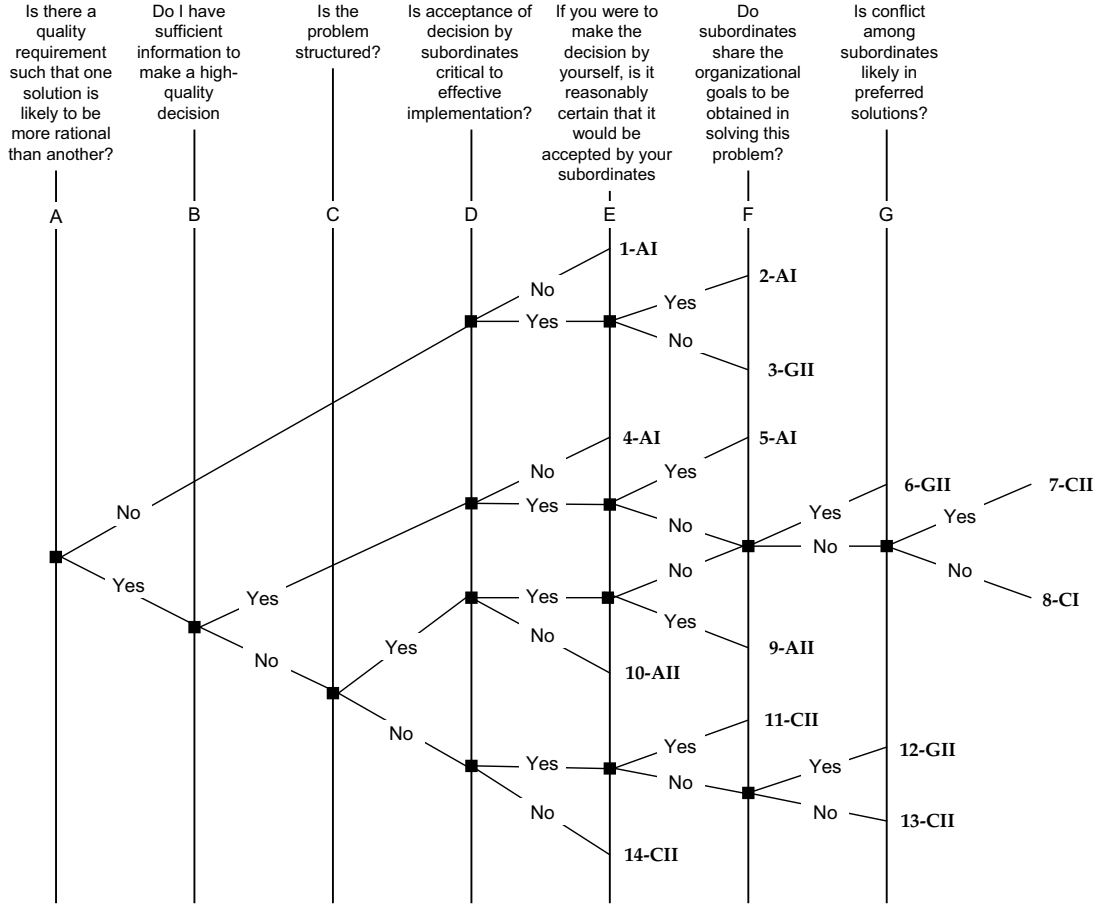
As will be seen from the Decision Model, all decision processes (autocratic, consultative, group) are applicable in some circumstances; how often each should be used will depend on the type of decisions that the manager has to take. The normative model requires that in order to be rational and effective, all managers have to be able to operate across the whole range. In later work Vroom and Jago have elaborated the model to give greater discrimination among options and thus allow more detailed and more effective targeting of the decision process to the manager's problem. They have also made the more elaborate model available for use via a computer program.

The research undertaken by Vroom and his collaborators to answer their second question – how do managers actually behave? – is based on two methods. In the first, many managers were asked to recall decision problems and how they tackled them in terms of the questions of the Decision Model. The second method involved many managers assessing a set of standardized problem descriptions and giving their preferred solutions.

The most striking finding of these descriptive studies was that, while there certainly were average differences between managers in their use of various decision processes, these were small in comparison with the range of processes used by each individual manager. No managers indicated that they would use the same process for all decisions; most used all five of the decision processes described above under some circumstances. 'It makes more sense to talk about participative and autocratic situations than it does to talk about participative and autocratic managers.'

The descriptive research also enabled a comparison to be made between what managers do (or say they would do) and what the model would designate as rational behaviour. On average, a typical manager was found to use the same decision process as that required by the Decision Model in 40 per cent of situations. In a quarter of cases they used a process which is called 'feasible' in that it satisfied the constraints of the model in protecting decision quality and acceptability, but would not be the least time consuming. In only about one-third of the situations did the typical manager initiate a process which would risk either quality or acceptability. In addition it was found that the constraints necessary to achieve acceptability were much more frequently ignored than those necessary to achieve quality.

Vroom has designed a leadership development programme based on his normative model to enable managers to analyse their own decision processes against those of the model and see where they depart from the rational constraints for effective decision making. The model proposes far greater variation for each



Decision Model

Source: Vroom and Yetton (1973).

problem situation than the typical manager exhibits. Using the model as a basis for making decisions would require such a manager to become both more autocratic and more participative according to the problem (cf. Fiedler in Chapter 6 for an opposing view on this issue).

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Michel Crozier

The distinctly French view of organizations contributed by Michel Crozier arises both from his French birth and experience and from the many periods he has spent in the US. These periods away from France give him a perspective on his own society. From 1961 to 1993 he was Director of the Centre for the Sociology of Organizations in Paris, under the auspices of the Centre National de la Recherche Scientifique (CNRS). He has a long record of research in France covering a wide range of organizations and administrative and social problems, but with an emphasis on studies of public administration and state-owned industries. However, his early training in sociology was in the US, and he has spent many subsequent periods at Stanford and Harvard.

Although Crozier's view has its origins in research in France, it pertains to bureaucracies everywhere. He does not see them as monolithic rational structures, but as systems in which, despite all efforts at control, individuals and groups of individuals have room for manoeuvre. There is constant interaction between the system and the actors in the system.

This view is distinctively founded on the concept of the *power game*. An organization is seen as a series of enmeshed power games, an 'ensemble' of games. This idea is no mere colourful image. Games are very real to those in organizations. Indeed, an organization is not so much the direct creation of deliberate design as the result of the ensemble of games. The game channels power relationships and enables cooperation, reconciling the freedom of those in the organization with the constraints it places upon them.

Games are played between groups of partners of many kinds, for example between superiors and subordinates such as managers and workers, or between departments and sections. The players evolve different strategies which govern what they do. Superiors may follow a strategy of 'divide and rule'; subordinates may follow a defensive strategy to protect whatever scope they may have to do things in their own way, free of interference from bosses or new regulations; occupational groups such as maintenance engineers may follow conservative (or aggressive) strategies towards technical modernization, and so on. Crozier calls this a *strategic model* of organization.

Players go so far but not too far in pursuing their strategies. While all are free to enjoy whatever advantage can be gained from a strategy rationally designed to serve their interests, the continuance of the organization is necessary for them to be able to play at all. These are not life-and-death struggles but games for position within a system; therefore limits are accepted. These are the rules of the game which

players must respect if it is to continue. They are not formally set-down rules, but principles which can be discovered by analysing the players' recurrent behaviour, in the same way as their strategies can be seen in what they do. There may not be complete consensus on the rules and some players may be endeavouring to change them, but they are sufficiently acknowledged and persistent for newcomers to learn them and to absorb the associated norms and values which define acceptable and unacceptable strategies.

The players in a game are far from equal – some are more powerful than others – and their roles also differ between one game and the next, so that players who are powerful in one may be weak in another. However, their strategies share a common fundamental objective – to gain whatever advantage is possible, within the constraining rules of the game, by restricting the choices of alternatives open to others while preserving or enhancing their own choices. The aim is to manoeuvre others into positions where their actions can be circumscribed, while retaining one's own freedom of action. All attempt to defend and extend their own discretion and to limit their dependence, while placing others in the reverse position.

The most revealing case among those described by Crozier is that of the maintenance workers in what he terms the 'Industrial Monopoly' – the French nationalized tobacco industry. At the time of Crozier's research, at the end of the 1950s and beginning of the 1960s, this was dispersed throughout the country in a large number of small and very similar factories. Each employed in the order of 350 to 400 people of which perhaps one-third were direct production workers. These workers were women whose job it was to operate the semi-automatic machines turning out cigarettes and so on.

The organization was very stable, and each small factory worked in a controlled environment. Finance, raw material procurement, distribution and sales were all centrally controlled from Paris, so each local plant could get on with its task of production, unimpeded by problems. Except one. Machine stoppages.

These stoppages occurred because of breakdowns and because of variations in the tobacco leaf which required the constant adjustment of machines. They were the only major impediment that could not be dealt with by impersonal bureaucratic rules or bureaucratic actions from Paris. Yet if machines stopped, work stopped and the factory stopped making what it was there to do. Who could do something about it? Only the dozen or so male maintenance workers under the factory's technical engineer who alone knew how to set and repair the machines. No bureaucrat in Paris, no local factory director, not even the production workers on the machines knew what they knew. These maintenance workers acquired the tricks of their trade from one another and kept them to themselves. They did not explain what they did to anyone else. In their eyes it was an unforgivable sin for a production worker herself to 'fool around' with the machine or tinker with it beyond operating it in the normal way. Thus the maintenance workers succeeded in making the production workers directly, and everyone else indirectly, dependent upon themselves. Everyone else was constrained by the maintenance workers being the only ones able to deal with stoppages, whilst they themselves preserved their freedom of choice over what to do.

They could do so because they were powerful; they were powerful because of their 'control over the last source of uncertainty remaining in a completely routinized organizational system'. Machine stoppages occurred unpredictably and the repair was in their hands. This gave them power, because those who face and cope with uncertainties have power over others who are dependent upon their choices. In the long run, power is closely related to those uncertainties on which the life of an organization depends, the strategies of the groups in power games being aimed at controlling the 'ultimate strategic sources of uncertainties'. *Uncertainty explains power.*

The maintenance workers therefore had power because, whilst everything else was under bureaucratic control, the uncertain machine stoppages were not. These had to be dealt with on the spot as they happened. They presented the maintenance workers with an opportunity which was conspicuous because it was the sole cause of uncertainty in each factory. In other organizations the sources of uncertainty may not be so obvious, but in all organizations they come and go, and as they do so the power of those who tackle them waxes and wanes. Maintenance workers are only one example: the same applies to the rise and fall of financial experts, of production control specialists and so on.

Why is it then that powerful experts are not able to cling to power indefinitely? If the uncertainty continues and with it their know-how, they could indeed keep their grip on power, but this is unlikely because their success becomes self-defeating. The rationalization inherent in organizations breeds constant attempts to bring areas of uncertainty within the range of formal controls; experts are themselves agents of the rationalization that diminishes their own power. The more they succeed in recording their own know-how in bureaucratic procedures and regulations, the more their own power to deal with the uncertainties themselves is curtailed. Their choices become restricted. Therefore the maintenance workers in the tobacco factories strove to keep their rules of thumb to themselves and to prevent them from becoming bureaucratized. Even though officially laid-down instructions for the setting and maintenance of machines were kept at head office in Paris, these were totally disregarded by the maintenance workers; neither could copies be found in the factories themselves. For *the routinization of uncertainty removes power*.

This principle shapes strategies up and down hierarchies as well as between occupational groupings. The battle between superiors and subordinates involves a basic strategy by which subordinates resist rules which encroach upon their discretion, whilst pressing for rules which will limit the discretion of their superiors.

It is possible for opposed strategies to interlock in a series of bureaucratic vicious circles which block change. Administrators try to extend bureaucratic regulation; those subjected to it resist. The directors of the tobacco factories typically pressed for the modernization of procedures, whilst the technical engineers resisted anything that might weaken the position of their maintenance workers. Crozier sees French society as a whole as an example of this, for its tendencies to bureaucratic centralization and impersonality provoke protective strategies by those affected, and these strategies in turn provoke greater bureaucratization. In every branch of

administration each level of hierarchy becomes a layer protected from those above and beneath. Those beneath restrict communication to those above and stall any threatening changes, while those above make ill-informed decisions which are not carried out as intended but from the consequences of which they are shielded.

This gives rise to a peculiar rhythm of change in bureaucratic organizations, certainly in France and perhaps elsewhere too. It is an alternation of long periods of stability with very short periods of crisis and change. Conflicts are stifled until they explode. Crises are therefore endemic to such bureaucracies but necessary to them as a means for change. At such times in French bureaucracies, personal authority supersedes the rules as someone is able to force some change out of the crisis. *Authoritarian reformer figures* wait amid the bureaucratic routine for that moment of crisis when the system will need them.

Yet Crozier is optimistic; with reforms in training and recruitment for French public administration and in its caste system, he believes the elites could be opened up. He argues that the large organizations of the modern world are not necessarily inimical to change, for change has never been faster, being fastest in those societies with the largest organizations. But there is always a risk that bureaucratic structures will lead to forms of power games which block the changes that are needed.

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Arnold S. Tannenbaum

Arnold Tannenbaum did not begin as the social psychologist he later became. His first degree was in electrical engineering from Purdue University. He went on to take his PhD at Syracuse University and to join the staff of one of the leading and longest-established American social science institutes, the Institute for Social Research not far from Detroit, where he has worked ever since as researcher, teacher and consultant. He is Research Scientist Emeritus at the Institute's Survey Research Center and Emeritus Professor in the Department of Psychology at the University of Michigan.

In the small text published in 1966, Tannenbaum set out clearly the view of organizational functioning that has shaped his work for many years. 'Hierarchy is divisive, it creates resentment, hostility and opposition. Participation reduces disaffection and increases the identification of members with the organization.' What is more: 'Paradoxically through participation, management increases its control by giving up some of its authority.'

Early in his research career, Tannenbaum found that in trade unions the more effective and active local branches had both more influential officers and more influential members – at first sight an impossibility. An impossibility, that is, if control of an organization was thought of as a given quantity, something divisible so that if one person had more then another had less; but not impossible if control of an organization was elastic so that everyone could have more. It is this possibility that shapes Tannenbaum's view of what organizations can be.

His work has focused on control, for organizations are a means whereby the behaviour of large numbers of individuals is controlled. That is, people have to work together more or less as they are intended to if the aims of the organizations are to be achieved, whether that organization is a trade union, a firm, a welfare agency, a cooperative or an Israeli kibbutz, a financial institution, a brokerage firm or a branch of the American League of Women Voters – all examples of organizations which Tannenbaum and his colleagues or others following their lead have studied. Control is any process by which a person or group of persons determines (that is, 'intentionally affects') the behaviour of another person or group; in other words, causes someone else to do what they want them to do. In an organization this may be by orders or by persuasion, by threats or by promises, through written communications or through discussion, even indirectly by fixing the speed of a machine that someone else must keep up with or by programming a computer to produce information they must deal with – or by any other means having such an effect.

The way of representing control used in studies by Tannenbaum and his colleagues over many years is to ask members of organizations how much influence they and others have. They are asked a question worded typically as follows: 'How much say or influence does each of the following groups have over what goes on (in the organization)?' The groups referred to are hierarchical echelons such as managers, supervisors and workers; the groupings can be varied as appropriate. This simple question is capable of yielding a great amount of information since even with only three groups – managers, supervisors and workers – those in each can rate the influence of both the other two groups and of themselves, so that a large number of cross-checking ratings are obtained. If four, five or six groupings are used, the information is greater again. The wording of the question can also be varied to refer more specifically to the influence over what others do or to policy, for example.

Members of organizations respond to the question by ticking one of five categories for each group, in the form shown below.

	Little or no influence	*Some influence*	*Quite a bit of influence*	*A great deal of influence*	*A very great deal of influence*
Managers	–	–	–	–	–
Supervisors	–	–	–	–	–
Workers	–	–	–	–	–

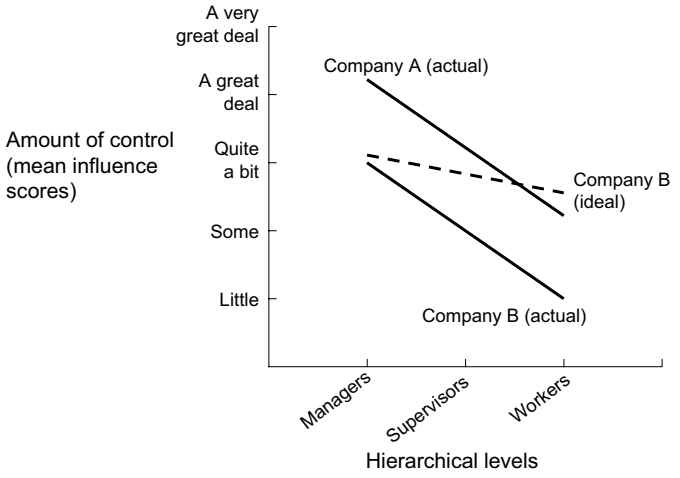
The degrees of influence are scored from one to five so that a tick under 'Little' scores one, a tick under 'Some' scores two, and so on with 'A very great deal' scoring five.

Responding to such a question in this way gives a representation of how actual influence is perceived by those involved. A second and equally large amount of information is obtained by asking the same question again but with the word 'does' replaced by 'should'. This gives preferred or ideal influence.

The impact of Tannenbaum's work and its interpretation are heightened by the way in which the results can be plotted on what are called control graphs. Various different averagings of scores can be plotted, but usually the influence ratings given to each group by all the others and by itself are added and its mean score calculated. In the example above, this would give a mean score out of five for managers, another for supervisors, and another for workers which could then be plotted on a control graph in which the three hierarchical groups were placed evenly along the lateral axis in hierarchical order. A simplified but not unrepresentative hypothetical result might look like the graph shown on page 212.

The lines are drawn through the three graph points for the mean scores for each group (managers, workers, supervisors) on the vertical control (influence score) axis.

The immediate visual impact of a control graph is from the slope of the lines, its most obvious if not necessarily most significant feature. In the graph, the two solid lines represent the actual (as against ideal) distributions of control in two hypothetical companies. Tannenbaum interprets such le◎-to-right slopes as showing a hierarchical distribution in which there is a sharp reduction in control from one level to the next down the hierarchy. In their actual hierarchies of control Companies A and B show the classical view of the industrial firm. Tannenbaum finds that in practically all manufacturing organizations in Western industrialized nations, all employees – whether bosses or subordinates – report the steeply graded hierarchy that he sees as divisive and fraught with resentment and hostility.



This may be unavoidable in large-scale manufacturing: even ideal slopes (plots of the responses to the 'should' question) do not fundamentally challenge the basic hierarchy of control. No one in manufacturing organizations suggests anything other than that upper levels should have more control than lower levels – the slope does not flatten out nor tip the other way – but the *degree* of differentiation is challenged. The ideal slope is o◎en less steep. Lower-level employees frequently feel that they should have more say in what goes on, as in the hypothetical ideal slope for Company B which reveals a desire for more democratic practices than those indicated by the actual slope.

Further, not only might the steeply graded hierarchies in large-scale industrial organizations be levelled out to some degree, but it is also possible to manage them in ways that mitigate the hierarchy's negative effects. American supervisors, for example, treat their subordinates more as equals, with relative informality, as compared to the typical authoritarian approach in Italian plants.

Tannenbaum recognizes that Italian workers may be more concerned with changing the system than with the possibility of working better. Certainly a

nation's socio-economic system is embodied in forms of organization which affect hierarchy. The slope of control graphs from former Yugoslavia (which had workers' councils) and from Israeli kibbutzim (which have collective ownership and elected managers) are not as steep as those from capitalistic Western enterprises. This is not to say that the Yugoslavs and Israelis could or should be copied everywhere else, for Yugoslav managers could be authoritarian and the kibbutz system is probably only possible in small-scale units.

The type of membership that is appropriate to the purpose of the organization also affects control. In organizations that depend on a voluntary membership (such as American trade unions and the American League of Women Voters), the rank and file exert much greater influence than do the paid employees in industry; similar results in Brazilian development banks staffed by highly educated professionals suggest that professionalization has the same effect because these members are relied on to do their work with less direct control, and more attention is paid to their views.

However, though the slope of the line in a control graph is its most instantly obvious feature, it does not in Tannenbaum's view depict the most important characteristic of an organization which, he says, is the *total control* exercised within it, as depicted on the graph by the *area* beneath the line. In the graph both companies have identical hierarchical slopes but since the line for Company A is higher than that for Company B, the area beneath the line for Company A (that is, between the line and the lateral axis at the base of the graph) is greater. In other words, the influence scores for all groups are greater, so that everyone has more control. Here is the visual representation of the apparent paradox that lower-level employees such as workers can have greater control and yet not detract from the control exercised by managers. Indeed, managers too may then have greater control. This is possible because the total amount of influence – the size of the 'influence pie' – can be expanded and so be greater in one organization than in another because control is not a zero-sum process.

The reason for this is that leaders are also the led. Superiors depend upon their subordinates to get things done. Authoritarian bosses who take a zero-sum view assume a fixed amount of total control and cling to what they perceive as their rightful major share of it. They may look as if they are dominating everyone, but their actual influence on what others do may be very restricted. Subordinates in this situation will also take a zero-sum view and will defend their share from encroachment. Conflict and minimal cooperation are likely to result. If superiors assume an expandable amount of total control, they can communicate readily with subordinates, welcome opinions and take up suggestions; in other words, invite influence over themselves. At the same time, the involvement of subordinates in what is being done means that the superiors' influence expands also, for they are more likely to do what needs to be done.

Research results show that a greater amount of control exists in Japanese mining and manufacturing companies compared with equivalent American organizations. 'Progressive' dioceses in the Roman Catholic church (that is, those where the bishop is rated as positive to democratizing decision making) have more total control than

conservative ones, as do plants incorporating self-managing socio-technical groups (see Trist, Chapter 6) compared with conventional factories.

In terms of morale and productivity, greater organizational effectiveness is likely to be linked more to increasing the total amount of control than to democratizing its hierarchical distribution, because all concerned are more fully controlled and in control through interlocking influence. This is true as much of privately owned American firms as it is of collectively owned Israeli kibbutzim.

Tannenbaum's research challenges the commonplace view that control is and should be unilateral, from the leaders to the led. Leaders have greater control when the led also have greater control. Though diminishing the slope of hierarchies can be important, too much attention is paid to this 'power equalization' and too little to the possibilities of expanding the total. The evidence suggests that people are more interested in exercising greater control themselves than in exactly how much others may have.

The strength of Tannenbaum's challenging perspective is that it is based on a uniquely sustained series of research projects in many countries, using standard methods, which have confirmed his results again and again.

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