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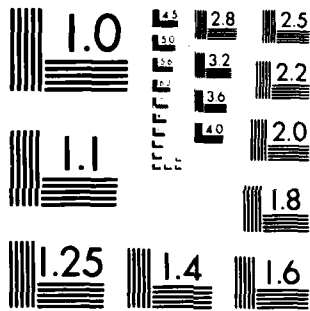
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STRATEGIC PLANNING AS A PERCEPTUAL PROCESS

Ralph Strauch

March 1981

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I. INTRODUCTION

Like any complex human endeavor, the sort of broad scope or long range organizational planning often referred to as strategic planning can be viewed from different perspectives and characterized in different ways. Different perspectives will bring different aspects of the process into focus, while neglecting other aspects. No single characterization can possibly capture the full richness of what goes on in real life planning, so there can be no single "best" way of defining what "planning is." The purpose of this note is to examine planning from a somewhat different perspective than it is usually viewed, as an organizational perceptual process rather than as a problem-solving activity, to see what lessons can be learned from that perspective which might be of use to planners and managers concerned with broad scope strategic planning.

Most characterizations of planning are in terms of problem solving. That is, they see planning as something applied to particular problems to yield solutions to those problems--a plan, a course of action, a strategy for dealing with the future, etc. Such characterizations tend to treat planning as a conceptually one-shot affair--something which occurs anew each time a new problem arises, and which is finished when that problem is "solved." They take the problem as a "given" and look at what needs to be done to solve it, viewing the question of where the problem comes from as outside the scope of planning. Emphasis is on the symbolic (verbal and/or mathematical) characterization of the problem, and on the transformations made of that characterization in the course

of "solving" it--the methodologies applied, the calculations made in the course of applying them, etc.

These characterizations are certainly "correct," in the sense that planning does involve the elements they reflect. But they are also incomplete, in the sense that planning involves more than that. Neglecting that "more" in places where it matters can result in a distorted view of the planning process and how it should be conducted and managed. Planning does involve finding one-shot solutions to particular problems, but it does that as part of a continuing process whose ongoing aspects have significant impact even on the one-shot activities. Problems sometime come as "given," but are often ill-defined and squishy initially--being brought into focus and given sharper definition as part of the process of solving them. The way this is done has a major impact on the problem/solution combination which eventually emerges. While the symbolic (verbal and mathematical) characterizations of problem and solution are the most visible artifacts of the process, non-symbolic aspects play major roles as well. These include the past experience of the planners and the decisionmakers whom they serve, and the intuitive gestalt that experience has given them for the planning problems they must address as well as for the organizational environment within which they must address those problems. They also include the "conventional wisdom" surrounding the process, and the unwritten rules about how it should be conducted and why.

One way of conceptualizing all this is to think of an organizational strategic planning process as an ongoing stream of

activity flowing along like a stream of water. The aspects of that process which are most noticeable are the ones which float on the surface--the symbolic characterizations of problems and solutions, the visible transformations which take place as problems are "solved," etc. But much of the process lies beneath the surface, in the things which go on between and across isolatable "problems" and in the changes in the knowledge and understanding in the minds of the participants which the process produces. Usual characterizations of the planning process place their main emphasis on the visible, surface aspects of the process, and assume that the subsurface aspects somehow take care of themselves. My intent here is to explore some of those subsurface aspects, and to try to illuminate some of the implications which follow.

This exploration will take place around the theme of planning as a perceptual process. There are two kinds of perception to be considered, at the individual and organizational level. Strategic planning is an organizational perceptual process through which an organization brings its environment into focus and understands the threats and opportunities which that environment presents. But organizational perceptions are ultimately made up of the perceptions of individuals in the organization. The way the organization understands its problems derives from the understanding of the individuals in that organization. On the individual level, then, it matters how the planners bring into focus and understand the problems they address, and how that understanding is transmitted to decisionmakers and others in the organization who need to use it.

Many of the pieces of what I have to say will be familiar to most readers with any experience in or with organizational planning processes. What I hope to do, though, is to array those pieces in a new way, to pull them together into a new pattern which suggests implications which were not obvious before about the nature of planning and the way that strategic planning might be managed and conducted.

II. PERCEPTION AND ITS RELATIONSHIP TO PLANNING

Planning is intimately intertwined with organizational perceptions. The planning process both draws from and contributes to the perceptions of the planning unit and its parent organization about the problems being addressed and the larger context within which those problems live. Understanding planning likewise involves perception--this time the perceptions of the planning process which the researcher both brings to and derives from his work. A good place to start, therefore, is with some preliminary ideas about the nature of perceptual processes in general, of how people and organizations put together and maintain the views of the world they bring to bear in planning and decisionmaking.

It is worth noting, perhaps, that I am using the term "perception" with a broader meaning than it is sometimes given, to encompass the various and sundry process through which individuals, groups, and organizations come to know and to understand the environment in which they function. In addition to the sensory processes such as vision and hearing, then, I would categorize such processes as planning, science, systems analysis, and other forms of intellectual understanding as perceptual processes, contributing to their user's "picture" of the world just as vision does. (This position seems to be more common with Eastern views of the mind than with Western. Buddhist writings on the nature of mind often classify the intellect as the sixth sense.)

The most important point to be made here is that perception is not a simple receptive process. The perceiver does not passively receive and become aware of objective images of things which exist "out there,"

in the manner described by the "eye as a camera" model of vision in which optical images falling on the retina are transmitted intact to some movie screen in the brain. Rather, perception is an active and interactive process in which the perceiver filters, selects from, and even adds to the flow of information impinging on him to actively construct his perception of what it is he sees. The resulting image, then, can be influenced as strongly by the perceiver's expectations, biases, and past experiences, as by the actual external data on which it is ostensibly based. This is true even of such apparently simple and straightforward (though in reality extremely complex) perceptual processes as vision, and it is equally true of the more obviously multifaceted and complex organizational perceptual processes involved in planning. (Further discussion of these phenomena can be found in Strauch, 1974, 1980, and forthcoming.)

Several principles which seem to apply to most perceptual processes are relevant here:

1. The perceiver never perceives or deals with the object directly, but only with a model or image of it. This model or image is always simplified and somewhat distorted, and is often of a different order of complexity than is the object itself.
2. Many different (but equally valid and equally useful) models of the same object are possible, even though the models themselves may look superficially incompatible. The same object may look very different to different observers, or from different perspectives.

3. Intelligent human perceivers have and use multiple models of most of the objects they deal with, and switch back and forth often and easily between them.

These principles are illustrated by the tale of the blind men and the elephant. Each blind man sees not the elephant, but his own simplified and distorted image of the elephant. Each of these images is different, and comes from a different perspective. Each is in fact valid, though none is complete. The only thing missing is the multiple levels of perception, and the overall model which ties the individual partial images together. None of the blind men have that, but it is supplied by the reader. That is what gives the story its humor as well as its insight.

For the sake of concreteness, let's see how these principles apply with respect to vision. The first says that the image you see when you look at an object is not the object, or even a direct optical image of the object. Rather it is an image that you put together out of a combination of the optical image falling on your retina and your expectations, beliefs, and past experiences with similar objects in similar circumstances. At first glance this apparently contradicts common sense, which seems to tell us that what we see is what is really out there. With a little reflection it seems more reasonable, and it is well documented in the psychological literature. One of the nicest demonstrations of it, I think, was an experiment in which subjects identified playing cards flashed before them for short intervals. Some of the cards were red spades, a category which doesn't exist in ordinary experience. Most subjects simply failed to see those cards, seeing

instead ordinary spades or ordinary hearts, depending on whether they
cued primarily on the shape or the color (Brunner and Postman, 1949).

Any visual image of a three-dimensional object is necessarily
simplified and of a different order of complexity than the object
itself, and many different two-dimensional images of a single three-
dimensional object are possible. (Front, back, and oblique views; color
or black and white; normal or highly enhanced contrast; photographs,
sketches, schematic drawings; etc.) These may be simplified and
distorted in different ways--a black and white photograph ignores color,
while a sketch always leaves out many details. The object may look very
different from different perspectives, and to different observers
bringing different sets of background and experience with them. Two
cows might be almost indistinguishable to most people, but look quite
different to a cattle expert for whom their differences had meaning.
Different images may be superficially very different (back and front
views, for example), so that without an appreciation of the common
object they both represent, they might appear to be totally
incompatible.

This brings us to the third principle above--that perception is not
a process involving a single perceptual image at a single level.
Rather, it is a process involving multiple models and images at
different levels simultaneously, with continuing interaction and
communication between those levels. With respect to vision this is
obvious when you think about it, though most people seldom think about
it.

Vision operates primarily in a world of movement--movement of the perceiver as well as of the objects perceived. Your visual image of a moving object is changing constantly, and if that image were the only perception you had of the object it would appear to have little permanence or stability. But you have other images, internal models of the object you are seeing and of how it behaves, which interact with your constantly changing visual image to give order and context to what that visual image is doing. Even when you look at a still object, it is these other internal perceptions of the object which give it depth and allow you to infer things about aspects of it not evident in the visual image. It is your internal models of what the world out there is really like which allow you to see a corner as a right angle or a car tire as round when you view them from an oblique angle, since perspective distorts both these characteristics in your optical images of them.

These principles are also fairly self evident when applied to the perceptions of, say, a new model automobile held by various suborganizations of General Motors. Each element will see not the total car but a simplified image of the car determined by its own particular needs and responsibilities. The electrical designers will see the car as a wiring diagram, the stylists will see it primarily in terms of its external appearance, the purchasing department will see it as a bill of materials, etc. In spite of their superficial incompatibilities, each of these views is correct, so long as it is not confused with the total car. That confusion is not likely to occur because each of the individual human perceivers involved, as well as the organizational elements which they collectively make up, holds models of the car at

various levels and switches back and forth from one to the other as the situation dictates.

The "objects" dealt with by strategic planners are far less tangible than automobiles or the things our vision shows us. In the case of defense planners, for example, they include "the Soviet threat in Europe" or "the need for power projection forces at the turn of the century," things we usually refer to as "problems" rather than "objects." The same principles apply nonetheless. Planners deal with models or images of the problems they address, simplified caricatures of the actual problems. The problems themselves are always richer than the models used. They usually can be seen from different perspectives, and will look differently depending on which perspective is chosen.

The models used in planning are of different kinds, ranging from the formal quantitative models which live in large computers to the very informal and intuitive models which live only in the planners' heads. The formal models the planners employ, the quantitative models they manipulate with computers, are at the same time both simpler and more complex than the nonformal models they carry around in their heads. On the one hand, levels of quantitative complexity can be represented and manipulated in computer models which would boggle the mind of a human planner trying to manage the same detail without computer assistance. On the other hand, however, the human mind can deal with and synthesize a far broader and more diverse range of considerations than could ever be explicated and reduced to quantitative form. This uniquely human capability for integration and synthesis is crucial to effective planning in all but the most mundane cases. It is the interplay between

these various models and ways of knowing, then, which can make or break the planning process.

It is here, in fact, that the third principle described above comes into play. An intelligent human planner has the ability, potentially at least, to use multiple models from different perspectives of the same complex problem. By so doing, he can bring more understanding to bear than any particular model encompasses, and thus transcend the limits imposed by any single model (Strauch, 1980).

In particular, he can transcend the very real limits of the kinds of formal symbolic knowledge provided by the quantitative models and the formal methods which can be applied to and derived from those models.[1] This is not to say there is no value to symbolic knowledge, for it certainly has value. But some think of it as the only worthwhile knowledge there is, and believe that a thing cannot be thought of as "known" until it has been reduced to symbolic form. That is not really the case. Symbolic knowledge is the most obvious form of knowledge in our culture. Perhaps it is the only kind we really see directly, given our heavy emphasis on words and verbal descriptions. But it is not the only kind that's there. People know things in other forms as well, holistic forms which can be partially described but never fully encapsulated in words or other symbols. These include the use of visual and other kinds of imagery, and forms of knowing so far removed from

[1] Symbolic knowledge is knowledge encased in symbolic models, or otherwise given symbolic form. Words are symbols, so that verbal models and word descriptions of all kinds are symbolic models, and all verbal knowledge is symbolic knowledge. Mathematical models are symbolic models, as are computer simulations, and the knowledge contained in mathematical results or computer printouts is symbolic knowledge.

direct conscious awareness we have no words for the elements involved. These other forms of knowing play important roles in all human activities. Planning, strategic and otherwise, is no exception.

Nonverbal and nonsymbolic forms of knowing are most obvious with nonintellectual experiential knowledge. The way you know how to get home from work, for example, is different from any verbal description you might give someone of how you do it. The same is true with the way you recognize faces, or even with the way you decide whose opinions to trust and whose opinions to question. Nonverbal knowledge also plays an important role in intellectual understanding as well, in areas where we tend to regard all knowledge as symbolic. Even in an area like abstract mathematics, which is perhaps the most wholly symbolic form of knowledge there is, intuition and imaginal awareness play major roles in understanding of the meaning of those symbols, and in the creation of new ideas (Hadamard, 1954).

We use many forms of knowing in dealing with most problems. Our ability to understand and solve complex problems results from the interplay between various models and levels of understanding, rather than from any one alone. Even when we can state a problem verbally and show symbolically that the solution we arrive at is optimal, our nonverbal understanding at several different levels has contributed significantly to the problem-solving process.

We don't understand these nonformal forms of knowledge very well, though we do have terms like judgment, experience, and intuition to at least partially describe them. We know that they do play a role in the planning process, but have a schizophrenic attitude toward them. On the

one hand we deprecate them and see them as detriments to good planning to be weeded out and eliminated. This is the view reflected in such statements as "well, you wouldn't want to see the decision based on just judgment, would you?" On the other hand, we sometimes endow them with an almost magical ability to take care of whatever deficiencies our more formal and symbolic methods may have, as when shortcomings in a particular analysis or analytical model are excused with "the decisionmaker's judgment will take care of that."

Our lack of understanding of the role of nonsymbolic knowledge and of the interplay between different kinds of knowledge is one of the biggest deficiencies in our current understanding of planning processes. Those things are there, and they matter a lot, and on one level we know and appreciate that. But on another level, the level where most of our symbolic models of planning and our conventions for describing and prescribing planning reside, we pretty much ignore them and see planning as a mechanistic manipulation of symbolic information.

This deficiency doesn't hurt the actual processes of planning as much as it might, because planners do utilize judgment and intuitive understanding in planning, even in applying the models and methods which seem to deny their utility. But it gets in the way of good planning nonetheless, because planners do that in spite of much of the prescriptive guidance they receive from planning analysts and methodologists, rather than as a result of that guidance. Planning processes could be significantly improved if greater explicit attention were given to the role of judgment and intuition in planning, and to enhancing the symbiotic interplay between them and more formal methods

and tools. Part of the intent of this Paper is to begin to explore those possibilities.

III. A PERCEPTUAL PERSPECTIVE ON STRATEGIC PLANNING

I now want to develop a descriptive characterization of a strategic planning process, based on the kinds considerations just discussed. Following that, I will explore some of the implications that characterization has for the conduct and management of the planning process, contrasting them with implications usually derived from the more common problem-solving oriented characterizations of planning where that is appropriate.

Organizational planning falls into two major categories--sharply focused planning aimed at producing a well defined plan of action for implementation under specific circumstances (e.g., a schedule of operations or a tactical war plan), and more broadly focused planning aimed at enhancing understanding of the future environment and improving general capabilities. Strategic planning falls into the more broadly focused category, as opposed to planning sharply focused toward some well defined immediate goal. (It is worth noting, perhaps, that this distinction is less sharply defined than it appears at first glance. What looks like very sharply focused contingency planning may sometimes serve more to broaden the perspective and exercise the general capabilities of the planning staff involved than to produce contingency plans likely to be implemented should the planned for contingency actually arise.)

There are several entities associated with a planning process which it is useful to distinguish. First is the organization itself. While it can be argued that organizations don't really perceive, take actions,

or do other similar sorts of things, it is often useful to conceptualize them as though they did. The planners are the people who actually do the planning, and who communicate the results of that planning to others in the organization who will use those results. The principal users are decisionmakers responsible for making significant decisions in the name of the organization--e.g., the chief executive officer. Others throughout the organization may also need the results of the planning process in order to perform their functions properly, including planners in other parts of the organization.

The organization exists in some environment, which presents it with both threats and opportunities. The planners attempt to understand that environment and the problems posed for the organization by those threats and opportunities, and to seek solutions to those problems. They communicate the results of their efforts to decisionmakers and others in the organization who need to understand the problems or take actions affecting or affected by them. Planning is thus an organizational cognitive activity which helps the organization understand and cope with its environment.

Planning is often thought of in terms of the symbolic artifacts associated with the process. The problems addressed are identified with verbal or mathematical formulations of them, and solutions are identified with their verbal or mathematical descriptions. The planning process itself is seen as one in which the planners write down the problem, apply some methodology or technique to solve it, then write down the solution. Our earlier discussion of planning as a perceptual process, however, suggests that the process is far more complex than this, and takes place on many different levels.

The planners' function may be less to find solutions, in any formal sense, than to understand the problems and their implications and to transmit that understanding to decisionmakers and others whose actions can be improved by it. They may bring a wide variety of tools and techniques to bear in this task, including experience, judgment, and holistic understanding as well as quantitative models and analytic methods.

The planners may get the problem in a fairly well defined form, or it may arrive in a vague and squishy form requiring a great deal of definition and refinement on their part (e.g., what will be the major risks facing the organization in the year 2000). At all times, they will be working not on the problem but on an image of it, or perhaps more accurately on a variety of interrelated images on different levels. These may include one or more analytic models of the problem, the planners' individual and collective understandings of the problem and the aspects of it that "really matter," and their individual and collective understandings of the substantive and organizational context that define this problem and make it an important or unimportant one for their efforts.

Once the planners understand the problem (or perhaps more accurately, at various times during the process of trying to understand it), they must communicate their understanding to appropriate decisionmakers and others who need to share it. Here too, the knowledge involved and the processes by which it is communicated are both formal and informal, symbolic and nonsymbolic. The most obvious products of

the planning process are the formal symbolic ones--the reports and formal briefing texts, the charts and the figures. But these are only the superficial artifacts, and while important, they are only part of the story. There are less formal products as well, such as the questions and answers which accompany a briefing, and the give and take of informal discussion. All of these are the vehicles for communication of knowledge and understanding from the minds of the planners to the minds of the recipients who will act on it. It is this transfer of understanding which should be considered as the primary product of planning, not the vehicles used to effect it.

IV. IMPLICATIONS OF THE PERCEPTUAL PERSPECTIVE

The planning process can be conceptualized at many different levels, but for present purposes it will suffice to distinguish between the "surface" of the process and what goes on beneath the surface. The surface view sees the obvious process, a series of one time shots at various planning problems each producing its own end product of plans, briefings, and planning documents. Though related, each of these efforts appears conceptually distinct from the others, and superficially there may be very little carryover between them. Each can be judged independently on how well the particular problem addressed that time was "solved," and it appears to make little obvious difference whether the planning staff remained the same from problem to problem or not.

If we go below the surface, however, the picture changes. Planning appears as an ongoing process in which a persisting human institution (the planning staff) addresses a series of related problems over time (often, in fact, the same problem over and over again as circumstances and context change). In the process that institution (which may be viewed both as a collection of individual human planners and as a collective entity in its own right) both draws on and adds to its collective knowledge base about the problems and issues which concern it. Individual planning efforts are not independent, but are interdependent elements of this larger process. They should not be judged independently and in isolation, but rather in terms of how they contribute to the ongoing fund of collective knowledge and how well any conclusions or recommendations reached really reflect the totality of

that knowledge. The most important product of the planning process is knowledge in the minds of the decisionmakers and others who need that knowledge, and the issue of communications between the planning staff and those whom they support is a crucial one.

These ideas are reflected in the truism that "the process is more important than the product." In practical terms, they mean that if too much attention is focused on individual planning problems as separate and distinct entities, the opportunities for synergy between those activities, as well as for enhancing the overall process independent of any particular activity, may be missed.

The Underlying Base of Knowledge

From the perceptual perspective, one of the most important functions of a strategic planning staff is to create, maintain, and act as the repository for an underlying base of corporate knowledge about the organization, its environment, and the problems it faces in that environment. It is this knowledge base which provides the foundation on which the individual problem-solving activities of the planning staff are built, at the same time as those activities contribute to and enhance that base. The long term effectiveness of the planning process will be enhanced if efforts expended in separate activities can be organized in such a way that the knowledge they produce contributes to that base, rather than evaporating or otherwise being lost when the particular activity is done. Resources should also be allocated to support ongoing low level "capital building" activities of various kinds, even though such activities may appear to make little direct contribution to any particular planning product.

The structure of the underlying knowledge base is difficult to characterize precisely. Parts of it are highly concrete and tangible-- e.g., the paper and computer files maintained by the planning staff or accessible to them. Other parts are less concrete but are still fairly tangible, such as the academic training and operational specialties of the various planners. Yet other parts are highly intangible, and difficult to get a handle on in any precise way. These include the ways the planners have internalized and apply their training and experience, the understanding of the organization and its problems they carry around in their heads, and their appreciation for and sensitivity to the institutional environment within which they function. Elusive and intangible as these aspects of the knowledge base might be, they can nonetheless be crucial to the ultimate success of the planning effort.

In some ways, the intangibility of these aspects of the knowledge base makes them very difficult to understand and manage. They cannot be characterized in specifications or managed by procedures or directives. On the other hand, they are things which sensitive and intelligent planners and managers understand intuitively even without verbalizing that understanding formally. Thus they can be managed, developed, and exploited so long as the planners and managers involved recognize and appreciate that and do not allow too strong a focus on the the surface aspects to obscure their deeper understanding.

A way of conceptualizing the knowledge base which I find useful is to think of it as a soft and fuzzy mass beneath the surface of the planning process. The planning activity which goes on above the surface

feeds down into that base and contributes to it, at the same time as material is drawn up from the base into the more tangible and concrete products such as studies, briefings, and guidance memoranda. Ideally, these products should reflect and communicate as much as possible of the relevant aspects of the underlying base, and when that is sacrificed to the requirements of particular formalisms, the product, and ultimately the process itself, suffer.

Problem Solving

The emphasis given here to the underlying knowledge base and to the "softer" aspects of the planning process should not obscure the fact that planning does involve problem solving. There will be times when a solution is needed to a particular problem, and when a clear and precise formal characterization of the problem, the solution, and the links between the two is required. The perceptual perspective does suggest a way of looking at how such a characterization is produced, however, which is different than that provided by the more conventional surface perspective.

From the surface perspective, the formal characterization or model employed is the problem, and the solution or conclusion reached is a logical extension of the assumptions which define that model. The easiest and most efficient way of building the entire structure connecting the two, therefore, appears to be by starting with those assumptions and proceeding step by step to reach the conclusion. The planner actually solving the problem appears as little more than an agent or catalyst for this process, carrying out each step in the order necessary to construct the required structure.

The perceptual perspective, on the other hand, sees the process quite differently. The logical symbolic structure which will ultimately emerge represents a characterization of a deeper understanding in the mind of the planner producing it. The process by which it emerges may at times have the direct and orderly nature suggested by the surface perspective, but at other times it may be disorderly and even chaotic. Instead of starting at the beginning and proceeding directly to the end, the planner may begin with a few pieces from the beginning, a few from the end, and a few scattered about throughout the middle. He proceeds to fill in the blanks in this structure as his understanding grows, adjusting parts of the existing structure if that is required. At the end he will neaten up the whole thing and remove most of the evidence of its chaotic development, so that it looks as if it could have been produced in a straightforward and direct manner. But if he tries to do that from the beginning--to actually solve the problem that way--he restricts his uses of his most important asset, his mind, and his product is likely to suffer as a result.

The situation is analogous to that in mathematical research. Proofs of mathematical theorems are some of the most ordered and logical entities produced by the human mind. Beginning from a set of explicit, well defined premises, a good proof proceeds through a series of logical steps, each of which follows from what came before, to the desired conclusion. The resulting logical structure is like a well constructed pile of blocks, each one resting solidly on the foundation provided by those below it.

Yet few theorems, at least few very interesting ones, are produced this directly. Instead, the mathematician works with the structure he is investigating as a whole, trying first to get a gestalt for the linkages he seeks between premises and conclusions. Once he has that, he fills in a piece here and a piece there, more like doing a jigsaw puzzle than building a pile of blocks. And if things don't seem to be coming together properly as he goes, he may readjust the premises or the conclusions (frequently more than once) to make things fit. Once done, of course, he neatens things up and removes the evidence of the false starts, dead ends, and readjustments he made during the creative process, so that only the clean ordered logical structure remains. Some people get the idea from this that the process itself is clean and logical, but nothing could be further from the truth.[1]

One of the tasks sometimes associated with strategic planning is that of defining a set of corporate goals for the organization, strategies to achieve those goals, and criteria by which to evaluate programs intended to support those strategies. The function of the strategic planning group, in support of this task, is to construct the necessary interlocking framework of goals, strategies, and criteria. The logical structure which such a framework should possess is clear-- the strategies should follow from the goals and the criteria should follow from the strategies. From a surface perspective it seems to make

[1] Even while building the logical structure of proof, the mathematician is likely to be as concerned with its simplicity, elegance, and ability to communicate his insights into the minds of others as with its logical correctness and rigor. For all of the superficial stress on logic and formalism, mathematics is at its core a social process concerned with human knowledge, insight, and communication.

sense to attempt to organize the planning process in that manner, going first after the goals, then the strategies, and only then, when both of these are well in hand, after the criteria.

Going beneath the surface, however, suggests that instead of attempting to develop the framework in a structured top-down manner, the planners should proceed in a looser and more superficially haphazard way. They are not starting from scratch with a totally blank slate, but come to the problem with a great deal of knowledge about the various elements and the possibilities and constraints on each. From this knowledge, they already have part of the framework, even before anything is articulated. From this they can develop strawmen for some of the elements, and then work filling in gaps, adjusting, and modifying until the resultant framework as a whole is satisfactory. (This process may involve consideration of big shifts and radical alternatives, of course, as well as small changes at the margin.)

This is what usually happens in real life anyway, rather than the more superficially direct and logical process. The point to be made here is that it should be that way, given the real nature of the problem and of the human intellects which must cope with it. The logic of the framework appears to flow in only one direction--from goals to criteria--but the total framework of goals, objectives, strategies, and criteria is in fact an interconnected, interdependent whole. It is not simply a matter of selecting strategies to meet independently determined goals. The articulation of the goals themselves must depend on some concept of the kinds of strategies which will support those goals, and of the programmatic criteria those strategies imply. Everything is

connected to everything else, and the neat clean ordering from goals through strategies to criteria is an artifact tacked on at the end. It is not a central part of the process from the beginning. Intelligent human planners can understand this, and can deal with and balance a wide range of considerations and interconnections as they debate and construct the necessary framework. To force their process into unnecessarily restrictive channels because it seems more efficient and more in line with an incomplete picture of what planning ought to be is to limit them unnecessarily and diminish the quality of the product they produce.

The symbolic planning structure--the framework of goals, strategies, and plans--is but the surface representation of a deeper nonsymbolic understanding of the problem being addressed. This surface representation is the most visible product of the planning process, and it is easy to slip into the trap of focusing only on it. Without a solid base of deeper understanding beneath it, however, that surface representation may be little more than a verbal Potemkin Village, an enticing false front which looks nice but which is likely to collapse as soon as any significant pressure is applied. This is the reason for some of the failures which occur when planning is performed by technically competent methodological specialists with little substantive experience with or understanding of the problem area being worked.

Providing Advice Rather than Clear Cut Solutions

In some types of planning, it is the function of the planning process to provide a clear choice between the alternatives considered,

and to make the selection of one of those alternatives. This is the case in tactical operations planning, for example, or in scheduling. In other types of planning, though, the purpose is more to provide generalized understanding and advice about some problem area to a decisionmaker for whom that advice is only one of many inputs on which he will base his decision. Strategic planning falls more often in this latter category. The planning process may still take the form of evaluating and selecting between alternatives, but with a very different underlying rationale. Alternatives may be chosen for examination more because they are exemplary of the kinds of issues which need to be considered than because they represent the particular set from which a well defined choice will be made.

In such situations the decisionmaking process may be better served if planners focus on providing broad illumination of those aspects of the alternatives which they are best able to address, and forgo the pretense of carrying the analysis to the point of choice. Decisionmakers and other users of the analysis may learn more from a well done partial analysis than from a more superficially "complete" analysis which got that way by carrying things further than the data or methodology used would really justify. Partially analyzed decision trees, for example, can be very good tools for for developing and communicating understanding of complex multistage problems for which full blown expected utility analyses would be unwarranted.

The ultimate product of the planning process is the understanding it produces in the minds of decisionmakers who need to act on the basis of that understanding. An intermediate product is the understanding

produced in the minds of the planners who study the problem. The way that the planners' understanding is communicated to the decisionmakers they serve, then, is crucial to the ultimate success of the process. The formal symbolic vehicles of communication, the reports and formal briefing texts, need to be seen as means rather than ends. Explicit attention needs to be given to the total communication process and in particular to communication at the nonsymbolic, intuitive level. We need to look especially at the possibility that the emphasis now given to the formal symbolic representation of knowledge may sometimes degrade rather than enhance communication at these more fundamental levels.

The Need for 'Softer' Methodologies

The nature of the analytical techniques now used in planning creates a strong push toward carrying most analyses further in the direction of apparent choice than the above discussion suggests is warranted. Most extant methodologies and tools available to planners are designed to provide clear cut "solutions" to the problems defined by the models on which they are based. They do this, moreover, in such a way that the solution appears to be dictated by the structure of the problem and the logic of the method, and not to depend on subjective choice by the planner. The deficiencies of these methodologies as ways of dealing with the kinds of complex and squishy problems which arise in defense planning are becoming more widely recognized (Comptroller General, 1980), though no real consensus is yet emerging on what should be done about them.

A major source of those deficiencies lies in the failure of the methods to recognize and allow for either the complex multifaceted character of the problems to which they are applied or the inherent capabilities of the sensitive human mind to understand such problems and to deal with them in nonformal ways. The problems faced by real planners in complex planning situations are seldom those defined by methodological models. The appropriate product of the planning process, in many cases, is not a full-blown "solution" so much as some insight and carefully communicated illumination. And things are never so well defined as to yield clear cut solutions independent of the judgment of the analyst producing those solutions.

Real planners adjust, of course, and apply the methodologies with varying degrees of adaptation or lack thereof. (And with varying degrees of hypocrisy and self deception, as well.) But the fact that extant methodologies can often be applied only by seriously bending the supporting logic on which they rest implies a real need for the development of "softer" methodologies which more explicitly take the squishyness of the planning process and the fundamental importance of human judgment to that process into consideration.[2] One way of doing this might be to look at the ways in which elements of existing

[2] Some might argue that such methods do exist, and point to subjective probability and utility theory and related approaches to the measurement and quantification of subjective judgment. I do not believe that such methods take the issue of understanding and exploiting subjective judgment seriously. Rather, they treat judgment as something which can be objectified, measured, and manipulated in the same ways as physical attributes such as mass or area. "Answer my questions," they say, "and I will tell you what you think (or should think)." In so doing, they deny the importance, if not the existence, of the kind of careful and considered judgment which should be nurtured and encouraged in the planning process.

methodologies are used to structure problems and communicate ideas, and to develop extensions of those procedures and rationales for them based on the model presented here of planning as an organizational perceptual process rather than on the conventional view of planning as a problem-solving activity. Many of the ideas inherent in decision analysis, for example, such as the use of decision trees to display structure and identify critical choices, might be more useful apart from the context of full blown expected utility computations. (See Strauch, 1971, for an example of how the qualitative ideas behind quantitative techniques can be isolated and applied in a nonquantitative context.)

The Planners Are the Real Resource

The conventional view of planning as a problem solving activity defines the process in terms of the problem, the methods to be employed in solving, the data to be used in the process, etc. The planners are hardly noticed at all, and seem to be there primarily to apply the methodology to crank out the solution. The principal resources on which the process depends would seem to be the methods and techniques used and the computers which provide the processing muscle necessary to use them. The planners, in this view, appear to play a distinctly secondary role.

The view articulated here, on the other hand, sees the role of the planners as central to the process. They play a major part in defining the problems and bringing them into meaningful focus as well as in coming to understand them and communicating that understanding to those who need it. Much of the knowledge base which is so central to good strategic planning resides in minds of the planners, in the

understanding and experience they bring to and derive from the planning process. That part of the knowledge base which is external--files, reports, computerized data bases, etc.--is itself only made useful by the knowledge the planners have of it. The planners themselves, both individually and collectively, are the most important resource in the planning process, and need to be thought of as such. The ultimate success of any planning activity, in fact, is likely to depend on how well that resource is developed and utilized.

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