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The Lost Art of Planning

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The purpose of this article is to present and illustrate planning as a generic and highly skilled activity. Central to this approach is a clear understanding of the objective of planning as reflected in the definition of the problem to be dealt with. It is the ability to make this essential judgement of ends and means that constitutes the 'lost art' of planning.
Four distinct types of problems are identified: simple problems, compound problems, complex problems and meta-problems. This typology is used to show how the nature of what is to be planned determines how far planning can be expected to help and how best to go about doing it. A detailed example is provided to illustrate how a problem can be made more or less 'manageable' and the advantages and disadvantages that this entails. Finally, four different strategies are outlined for dealing with each of the four types of problems.

It has always seemed to me that the key to good planning lies in recognizing two things. First, planning is a generic activity, just like research or design, that can be done well or badly according to criteria that are quite independent of the area in which it is applied; be it an organization, a city or even a national economy. Second, planning is an activity where judgement, intuition, creativity (in short, art) still has a major role to play, even in this most technocratic of ages.

Thus, in this article, I want to show, in simple terms, how good planning is a function not of external conditions but of subjective judgements: good planning depends on having a clear idea of what you want to accomplish. Knowing that and being able to communicate it to others is what makes a good planner.

In summary, I am going to argue that there are four fundamental kinds of planning problems and that it is this (the kind of problem) that determines both how far you can actually plan for it and what is the rational way of doing so.

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Four Kinds of Problems

The first step is to recognize that the need for planning is subjective. We plan in order to achieve something we regard as desirable or to avoid something we regard as undesirable. Thus, planning occurs in response to what people perceive as 'problems'. When we plan and what we plan for are matters of choice. So the first task of planning is always to review how the problem has been defined and what alternative definitions there might be.

What this boils down to (as we shall see) is a matter of 'closure'. How far can we afford to 'simplify' a problem by leaving out or ignoring certain factors in order to make it more 'manageable'? The advantage of making a problem more 'manageable' is that its solution becomes more obvious. The disadvantage is that we end up working on what is only a pale copy of the problem we were originally trying to deal with. This is a dilemma planners often face. Is it better to try to deal with the 'real' problem, knowing we are unlikely to be able to solve it? Or are we wiser to tackle only what we are confident of solving, knowing that the 'real' problem still remains?

In order to characterize the range of discretion involved in this debate, consider the following classification of fundamental planning problems:[1]

(1) simple problems,

(2) compound problems,

(3) complex problems and

(4) meta-problems.

There are similar distinctions using different terminology in many parts of the planning literature.[2–4]

Simple problems are problems we regard as fully closed. That is, *simple problems* are problems which are fully understood in both their scope and their detail.

For simple problems, we assume both that we can identify all of the relevant factors and that we can

analyse them thoroughly enough to be able to predict how each will respond to any planned intervention we may decide to undertake. This is what makes it possible for the planner to follow the 'rational' procedure so beloved of planning textbooks:

☆ analyse all possible courses of action,

☆ evaluate the consequences of each one and

☆ decide on the best.

As long as your problems are simple problems, this strategy works fine. As soon as other kinds of problems arise, however, the strategy is no longer so successful, nor indeed even 'rational'.

Compound problems are not so neat and tidy. *Compound problems* are problems whose individual parts are understood in detail but where the relationships among them and the potential impact of additional factors cannot be anticipated.

For compound problems, we assume we can identify some of the relevant factors and investigate them thoroughly enough to be able to predict how they will respond to intervention. But we no longer assume we can identify *all* of the relevant factors, at least not immediately. Instead, we recognize that we may have to contend with 'new developments' or 'extraneous factors' in the course of our planning, i.e. parts of the problem whose relevance emerges only as we proceed with planning. Moreover, because of this uncertainty, we no longer assume we can fully predict all the interrelationships that may occur among the elements of a compound problem. Thus, a compound problem can be thought of as a collection of simple problems, loosely connected and possibly open-ended.

Compound problems frequently appear as 'multiple objective' problems: that is, problems which require a number of different objectives to be achieved simultaneously. The nature of each objective and how to achieve it may be perfectly clear in itself. But the challenge for the planner is to trade off achievement of one objective against achievement of another. This is the familiar problem of having to compare 'apples' with 'oranges'.

Complex problems present difficulties of another kind. *Complex problems* are problems whose full scope is understood but whose detailed nature is not.

For complex problems, we assume that we can identify all of the relevant factors but *not* that they can all be thoroughly investigated, at least not thoroughly enough for us to be able to predict how each will respond to intervention. Thus, complex problems are the obverse of compound problems. This means that, while the emergence of wholly unanticipated elements ('new developments' or 'extraneous factors' is ruled out, there remains something essentially incalculable about complex problems.

This complexity often stems from the fact that problems involve values. Sometimes values conflict. This may be because they are held by people with different interests. Or it may be because, even for the same person or group, future values are different from present ones. In the first case, planning has to incorporate some sort of 'political' process to be able to arbitrate among the competing interests; and this is just as true of organizations and neighbourhoods as it is of formal governmental jurisdictions. In the second case, planning has to be based on values that may be affected by the results of the planning to be derived from them. Complex problems, therefore, frequently appear as 'multiple interest' problems: that is, problems involving the values of different interests and/or different time-horizons.

Meta-problems are the most perplexing of all. *Meta-problems* are problems where neither their full scope nor their detailed nature is understood.

For meta-problems we assume only that it is useful to think about certain factors together rather than separately. Meta-problems have the characteristics of both compound and complex problems. Like the first, new factors may emerge to be taken into account as planning proceeds. Like the second, even the factors we know about are not all fully understood. The only assumption in a meta-problem is that connections exist among the various factors and that it is useful to focus on them collectively. In systems terms, meta-problems are defined by a focus rather than a boundary.

Planning a Trip: A Case in Point

Distinctions like the ones just made are always more convincing when they are illustrated by a concrete example. So let me take a single event and show how it could be defined as a problem in each of the four ways described above. The example is admittedly a simplistic one, but its purpose is only to illustrate the distinctions. We will turn to the question of how useful they are in due course. For now, all I want to do is to show that it is both plausible and commonplace for the 'same' problem to be defined in several different ways.

Let me take an example from transportation. Suppose that the problem is to plan a trip by car from one city to another.[5] How might this look from the perspective of each different kind of problem?

As a simple problem, getting from one point to another is typically a problem of determining the shortest-distance or least-cost route. To do this, we need to identify all the relevant factors (such as vehicle operating costs, distances and conditions

along all the alternative routes, and any other constraints). Then we work out the appropriate distances or costs for each possible route and we choose the optimum: i.e. the shortest-distance or least-cost route. For more involved problems of this type, there are sophisticated mathematical models and computer programs available to assist planners to find the optimum route between two (or more) points. But the basic strategy for the problem remains the same: analyse all the options, evaluate them and decide on the best one.

The 'same' problem typically becomes a compound problem through the addition of a more complicated set of objectives. For example, suppose that we want not only to minimize distances or costs but also to 'have a pleasant trip' on the way. This may mean following a scenic route, not driving too fast, making sure there are convenient places to stop for refreshments, etc.

To deal with a problem like this, we can (up to a point) use the same strategy as before. After all, the revised problem is just a 'compounded' version of the simple problem. So we can use the same procedure for finding the optimum way of achieving each individual objective: analyse all the relevant factors, evaluate each alternative route and decide which one best meets each objective. The difficult part comes when you have to reconcile all these different 'sub-optima' (one for each objective) into the choice of one overall 'optimum'. This is where we get into the problem of 'apples' and 'oranges': how do you trade off scenery against services along the route, for example?

Of course, we could 'convert' the problem back to a simple problem by drawing up some sort of 'calculus' that would allow us to trade comfort for distance or translate the 'value' of scenery and speed into monetary terms. This would have the advantage of allowing us to follow the earlier strategy (identify, evaluate and choose) to find the optimum route. The disadvantage is that, in drawing up the 'calculus', we would effectively be suppressing the very feature of the problem to which we had earlier given recognition: i.e. that there is more than one objective to be achieved and that the relationships among the objectives may not be fixed. In other words, converting a compound problem into a simple problem begs the question of how to deal with a compound problem.

The 'same' problem typically becomes a complex problem through the addition of more interests. For example, suppose once again that your sole objective is to find the shortest-distance or least-cost route; but this time you have passengers with you whose views must also be considered. Even if you and your passengers agree on the objective of the trip, you may not agree on how to achieve it. For example, you may agree on the objective of minimizing costs but disagree on how to do it (e.g. on the cost of time spent *en route* or the allowance for depreciation of the automobile). So what makes a problem complex is not the need to reconcile different objectives ('apples' vs 'oranges'), for there is agreement on that. The complexity stems rather from subjective differences about tactics.

To deal with complex problems, there is little point in looking for optima or sub-optima, since they are inherently subjective in nature (a reflection of the values of their advocate). Thus, the strategy for dealing with simple problems (analyse all the options, evaluate them, and decide on the best) is inappropriate for complex problems. Instead, we need a procedure that puts less emphasis on analysing and evaluating the problem and more emphasis on securing consensus among the interests involved.

Once again, we could 'convert' the complex problem back to a simple one by creating a standard 'formula' for calculating travel costs or depreciation (rather like defining a 'standard apple' or a 'standard orange'). For example, we could stipulate that time spent *en route* should be valued at a specific rate or that distances on different classes of roads should be weighted differently. But once again this is to deny the very feature of the problem that we recognized in defining it as complex: i.e. that different people have different values. If we 'standardize' the values, then we eradicate these differences. In other words, converting a complex problem into a simple one begs the question of how to cope with complex problems.

Finally, what makes a problem into a meta-problem is typically a combination of both multiple objectives and multiple interests. For example, suppose that you and your passengers share little more than a willingness to travel together. That leaves unresolved both the objectives of the trip and the means for achieving them. In particular, what makes meta-problems so difficult to deal with is the fact that values (what actually makes the trip 'pleasant' for each of the travellers) may be influenced by the experience of the trip itself (what happens as the trip unfolds). For example, at the beginning of the trip, you may have placed a low value on scenery along the route; you made the trip and really enjoyed the scenery; consequently, you achieved your objective of having a 'pleasant trip'. One of the most perplexing features of meta-problems is that their nature can be affected by the planning process itself.

To deal with meta-problems, therefore, you need a strategy that is adaptive; one that can keep pace with changing perceptions of the problem, including changes which may result from implementation of the strategy itself. Meta-problems have no solutions as such; all you can do is keep trying to ameliorate the worst of their features. So strategies that proceed in linear fashion towards some final choice of action cannot possibly succeed when the problem is as ill-