DEVELOPING OPERATIONS AND GROWTH CAPACITY

Decisions: It's a Tradeoff

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Introduction

In any organization progress can be stymied by unresolved issues. It's counterproductive to keep rehashing the same question from week to week, perhaps making a decision today only to have it reconsidered and undone tomorrow. An organization needs both a reliable method for making good decisions and the willpower to stand by them once made.

This paper offers a reliable method for making good decisions. (Sorry, but I can't help with the willpower thing.) The method is based on the recognition that a decision almost always represents a tradeoff among competing objectives.

Some approaches to decision-making advocate an algorithmic strategy . . . calculate a score for the various options, and the best score wins. By relying on arithmetic such approaches may provide a sense of rigor and precision, but I hope to convince you that there's a better way—one that provides the decision-maker with a clear understanding of the pros and cons of alternative solutions and a sound basis for the decision.

So what is a tradeoff? We encounter them all the time in everyday life:

Cost vs. Benefit	Buy the better product or the lower-priced one?
Risk vs. Reward	Invest in a bond or in a hot stock?
Personal Preference	Buy a sports car or an SUV?

If there's no tradeoff the decision is easy. If the better product is also cheaper, buy it.

If there is a tradeoff, however, somebody has to make a decision. The purpose of a decision paper is to provide the decision-maker with a set of the best options, an accurate evaluation of each option, and an assessment of the tradeoffs among them.

The rest of this paper offers guidance on how to identify the best options and the most relevant evaluation criteria, and how to present the results of the analysis in terms of tradeoffs.

Analyzing an Issue

There are six components to an issue analysis:

1. Definition of the issue
2. Options
3. Evaluation criteria
4. Evaluation of the options
5. Tradeoffs
6. Assumptions

If you've never done an analysis this way, it's best to treat these components as discrete steps to be performed in sequence. If you're experienced with the approach you may be able to treat the analysis holistically, especially if the issue is straightforward.

What about mega-issues? For example, "How shall we manage the transition from an oil-based transportation system to one based on electricity?" Or, "How shall we help our client achieve breakthrough performance?" Analyzing such a mega-issue will involve layers of subordinate issues, ranging from the broadest strategic focus down to the details of the solution. Don't try to wrap it all into one analysis. Recognize appropriate levels of abstraction, and limit each analysis to one level.

1. DEFINITION OF THE ISSUE

Describe the problem to be addressed, including the context of the situation and any constraints that the solution must satisfy. To reduce the chance of misunderstanding, write it down.

2. OPTIONS

Preparing a set of the best possible solutions to the problem is the most creative and important part of the analysis. Even the best analysis will be flawed if it doesn't include the 'right' answer among the options. A way to ensure that the best options are included is needed.

Although brainstorming would seem to be a good approach, it's unreliable. Suppose there's a better solution that nobody thinks of?

A more systematic way to generate options is what I call *exploring the design space*. It's best explained with an example. Suppose you are buying a new car. You have a choice of power systems and body types:

- Power system—plug-in electric, hybrid, gas, diesel
- Body type—sedan, SUV, pickup, roadster

The design space for this example comprises two dimensions, and options are generated by selecting one choice from each dimension. For example,

- Hybrid sedan
- Diesel pickup

This approach offers two benefits—clarity and completeness. **Clarity** because it enables you to explain how you developed the options. **Completeness** because it enables you to demonstrate that you've considered all the possibilities.

This approach can generate a lot of options, some of which are clearly infeasible or undesirable. It will simplify the analysis if you eliminate them from the list of options to consider, documenting them briefly in case of questions.

3. EVALUATION CRITERIA

An evaluation criterion is one of the factors that will influence the decision. If a factor won't influence the decision, don't include it as a criterion. In the car example, for instance, top speed isn't important unless one is going to race the car.

To identify the criteria to include, consider each option in turn and define what is good and what is bad about it. If this proves to be difficult, consider the options in pairs—why A is better than B, and why B is better than A. Eliminate duplicates to create a consolidated list of candidate evaluation criteria.

How many criteria should you include in the analysis? There are two answers to this question:

1. As many as you need to frame the tradeoff—typically only 2-4
2. Plus enough to provide confidence that you haven't omitted an important factor

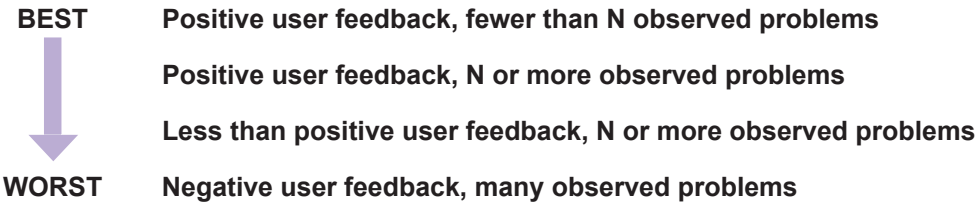
Once you have a set of criteria that seem relevant to the decision, ensure that they are independent and at an appropriate level of abstraction.

Independent criteria describe completely different properties of the options. In an analysis of motor vehicles, for example, "number of seats" and "passenger capacity" are not independent. You would combine them into a single criterion.

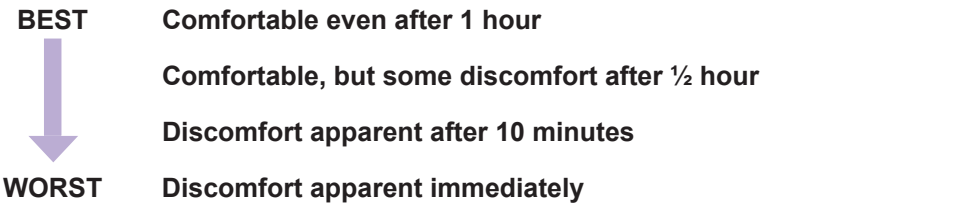
The appropriate level of abstraction is a bit like the Goldilocks story. It's easy to generate a lot of evaluation criteria in a complex analysis, so you have to abstract them to a level that is in the sweet spot between too detailed and too coarse. When comparing motor vehicles, for example, "number of seats" and "luggage capacity" are at the right level of abstraction. Each addresses a key factor in the decision, and they're independent. The next higher level of abstraction, perhaps "capacity," is too coarse to be useful.

Once you decide on the criteria, the next step is to specify what *excellent, good, fair,* and *poor* mean for each. Avoid using such vague terms; they're subject to variable interpretations. Instead, treat each criterion as a continuum from best to worst, and select four points along the continuum that can be described unambiguously.

For example, ease of use would be a criterion for evaluating software packages, as measured during usability testing. The four points might be:



For an automobile evaluation, seating comfort might be a criterion. The four points could be:



If you have numbers, such as cost, bandwidth, or fuel economy, define the four points as ranges:

Must there be exactly four points along the continuum? No, you could as well use three or five. For ease in presenting the results, however, it's best to use the same number of points for all the criteria. And do avoid the temptation to use too fine a rating scale. A scale of 1–10, for example, implies that there is a meaningful difference between a 7 and an 8.

4. EVALUATION OF THE OPTIONS

Describe each option in terms of the evaluation criteria, assigning a rating of 0–3 according to the scale you just created. If the difference among the options is small for one of the criteria, you may need to redefine the points along the continuum to highlight the difference. However, don't exaggerate minor differences among acceptable options such that the least good appears to be awful. If they're all good enough, the analysis should show that.

Present the results in a chart that looks like this:

	OPTIONS			
CRITERIA	1	2	3	4
A	●	●●	●●●	●●●
B	●●	●●		●●●
C	●●	●●	●●●	
D	●●	●●	●●	●●

Here's how to interpret the chart:

a. Option 2 is better than or equal to Option 1 for each criterion; Option 1 can be dropped from consideration.

b. All the options are acceptable for Criterion D so it will not be a factor in the decision.

c. There is a tradeoff among Options 2, 3, and 4.

5. TRADEOFFS

Which option should be selected depends on the priorities of the decision-maker—on which criteria he or she values most. Your job is to frame the tradeoff in terms that the decision-maker will understand.

Here are a few things to remember not to do:

- Don't do arithmetic on the results; don't assign weights and don't add scores to find the 'winner.'
- Don't automatically recommend the option with the most high scores, since even one poor score may reflect a fatal flaw.

For the example above, a conservative strategy is to select Option 2 because it has no poor scores, in contrast to Options 3 and 4. This is called the *maximin* strategy, selecting the option whose minimum score is better than the other minimum scores.

Or, if the decision-maker doesn't value Criterion B highly, he or she may choose Option 3 despite the poor score for B. Your role as an analyst is to highlight the tradeoffs and thereby enable an informed decision.

6. ASSUMPTIONS

Thus far we have treated the analysis without considering assumptions. The tradeoffs can become even more complex when they depend on a future event that may or may not happen, or on the future value of a key parameter. There are two alternative ways to introduce an assumption into the analysis.

1. State the assumption, evaluate the options accordingly, and do a sensitivity analysis to assess the effect if the assumption is incorrect.
2. Use a goal-seeking approach. State the desired result, then *derive* the value of the assumption that produces this result.

Consider the case of a buy/lease analysis. With the first approach, you would assume a value N for the cost of money, compute the results, and then show what happens if the cost is lower or higher than N. Although straightforward, this approach invites skepticism on the part of the decision-maker . . . "Where did you get that number?"

With the second approach, you would derive the cost of money M that leads to a break-even result and tell the decision-maker, "If the cost of money will be under M, it's better to buy; if greater than M it's better to lease." The decision-maker can then assess the risk associated with assuming M.

Although the two approaches are equivalent mathematically the emotional reactions they evoke will favor the second.

Writing the Report

If you have to write a comprehensive report of the analysis—a full-blown decision paper—here's a good general-purpose outline:

- Management summary
- Definition of the issue
- Options
- Evaluation criteria
- Evaluation of the options
- Tradeoffs and assumptions—summary and recommendations

You will basically document the analysis as outlined in this paper.

If a full-blown paper is not required, use this outline anyway but limit the presentation to bullet points.

Conclusion

This paper provides a structured approach to analyzing issues. It replaces brainstorming and arm-waving with a repeatable method for identifying options and evaluating them in terms of tradeoffs. In a rational world it will also lead to better decisions.