

# Better Decisions Through Structured Analysis: Overcoming the Subjective Tendencies of the Human Mind

by Morgan D. Jones

As a Central Intelligence Agency analyst of Soviet space programs in the late Sixties and early Seventies, I was constantly challenged to estimate the capabilities and intentions—past, present, and future—of these programs. I believe a fair review of my work in those years would show that most of my analytic judgments were on the money. But on those (dare I say “rare”) occasions when I erred, as we humans are prone, I would review my analysis to see where I had gone wrong. Invariably I discovered that, for whatever reason, I had given insufficient consideration or weight to the alternative course of action which the Soviets had chosen.

I may have estimated, for solid and justifiable reasons, that a certain Soviet program would move in a particular direction . . . and it didn't. Or I may have estimated a program would *not* move in a particular direction . . . and it did. As we all know, one learns little from being right, and volumes from being wrong. And what I learned from my “rare,” always galling, analytic failures was that, despite my keenest efforts, I had not been objective in my analysis.

Do a quick exercise with me. Think of someone with whom you work closely every day.

Now visualize that person's face and recall the last time you spoke with him or her.

Now imagine that you read a newspaper article alleging this person has embezzled a great deal of money from your organization.

What is your instant reaction?

You immediately formed an opinion, didn't you? “*That person is incapable of stealing?*” Or, “*Yeah,*

*that person could be an embezzler.*” Or something else.

Have you ever wondered why we humans impulsively take sides on issues? Why can't we approach problems objectively, without instantly harboring an opinion about them? The answer, provided by cognitive science, is that the human mind is programmed to be opinionated, to be biased, to think subjectively. In other words, we are incapable of being objective . . . try as we might.

Consider the following sequence of numbers: 40-50-60-\_\_\_\_. What is most likely the next number? *70*, of course. Buy why *70*? There is an infinite number of alternatives, some quite intriguing, as in 41-51-61, 50-60-70, and so on. Yet, even though we may consider these alternatives, *70* will remain our preferred choice, because our minds instinctively, unconsciously perceive “40-50-60” as a pattern and are captured by it. And there's absolutely nothing we can do to un-capture it. Why? Because that's the way the human mind works.

This simple exercise demonstrates that the mental machinery with which we think is inherently flawed: *The Human Mind is Incapable of Being Objective. If the mind were really objective, it would not be captivated by the 40-50-60 sequence, and it certainly would not favor 70 as the next number over the limitless, more creative and more interesting alternatives.* (Immanuel Kant, the great 18th Century philosopher, theorized that the mind is not designed to give us uninterpreted knowledge of the world, but must always approach it from a special point of view . . . with a certain bias.)

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We are always prone to favor one side or another of an issue or problem because we interpret that issue or problem through the lens of biases and mindsets we acquire through our life's experiences. The mind, unbidden and without our conscious awareness, creates these biases and stores them away in memory where they serve as unconscious controllers of the myopic, custom-made mental lens through which we view and interpret the world around us.

Our propensity to take sides—to think subjectively—is evident in the fact that we humans commonly “begin” our analysis of a problem by formulating our “conclusions.” We thus start at what should be the “end” of the analytic process. Therefore, our analysis of a problem usually focuses on the solution we intuitively favor. Accordingly, we pay inadequate attention to alternative solutions; we look for and put store in evidence that supports our favored solution while eschewing evidence that does not, and at times we even maintain our support of the favored solution in the face of incontrovertible, contradictory evidence. The human mind really is a piece of work!

So what can we do about it? Or are we condemned to be ever victimized by our troublesome mental proclivities?

There are two things we can do. First, we can quit thinking that we're objective analysts. We are not. Humans are simply not objective. Second, we can organize—*structure*—our analysis in a way that ensures each element, each factor, of a problem is analyzed *separately, systematically, and sufficiently*.

There are many different ways to structure analysis. My most recent book, *The Thinker's Toolkit: Fourteen Skills for Making Smarter Decisions in Business and in Life*, describes some proven ones: problem restatement, pros-cons-and-fixes, sorting, chronologies, causal-flow diagramming, matrices, decision and probability trees, weighted ranking, hypothesis testing and utility analysis. All such techniques, by separating the elements of a problem in a logical, organized way, enable us to compare and weigh one element against another and to identify which factors and relationships are critical. Most

importantly, these techniques compensate for the mind's lack of objectivity by compelling us to systematically consider alternative options and scenarios. Failure to consider alternatives is a principal cause of faulty analysis.

Structuring is to analysis what a blueprint is to building a house. Building a house, building anything, without a plan is, to say the least, ill advised. And what structuring is to a blueprint, the techniques of structuring are to a carpenter's tools—not components of a unified system for analyzing problems but an assortment of techniques that can be used singly or in combination.

Finally, structuring is not a substitute for thinking. It is rather a means to facilitate and empower thinking. Used properly and creatively, techniques for structuring will significantly enhance our ability to analyze, understand, and solve problems, lead to more effective analysis and sounder decisions, and make us feel better about those decisions.

### **Devil's Advocacy**

One of the easiest structuring techniques—and a highly effective one—for countering our subjective tendencies is *Devil's Advocacy*, which seeks to prove a contrary or opposite view to the one that is favored. The power of devil's advocacy resides in our unconscious compulsion to favor an outcome or solution early in the analytic process. By artificially favoring—focusing on—a contrary or opposite view, devil's advocacy activates our instinctive, subjective modes of thinking: paying insufficient attention to alternatives, looking for and putting store in evidence that supports the facile view and holding fast to the view in the face of contradictory evidence.

Devil's advocacy is thus indifferent to the favored view, and that is the technique's principal strength—freeing the analyst to seek and obtain *new* evidence which was not sought in analyzing the favored view or, if obtained, was not believed. This thirst for, and receptivity to, evidence that contradicts the favored view is devil's advocacy's secret weapon, the extra dimension that makes it a formidable analytic technique.

It's easy to apply devil's advocacy because we don't have to learn any new analytic approach or device. We just follow our natural inclinations and let devil's advocacy do the rest. But there is always strong resistance, both within the analyst and within a peopled organization, to taking, or even recommending, the devil's advocacy approach.

Imagine that you have just come up with a great idea for making your company rich, for which your career and pocketbook will benefit handsomely. How psychologically motivated are you to find and give credence to evidence that your idea won't work or that some other idea will make the company greater profits? Not much. Or imagine that a senior manager in the company has conceived of a promising new venture and is pushing it. How receptive will that manager be to a proposal to gather and analyze evidence showing that the venture as originally conceived is flawed or that another venture offers greater promise? The very idea of undertaking a devil's advocate approach is naturally interpreted as threatening to those who have endorsed the primary (the favored) view.

Consider the hypothetical case of a large manufacturing company which, despite aggressive advertising, is faced with rapidly declining sales of its principal product. The company's management has determined there are essentially two options: continue production of the product with modifications to improve its appeal, or terminate production. If I were the company CEO, I would establish two competing working groups, one to seek evidence in support of continuing production, the other to seek evidence in support of termination. I would charge each group with presenting their findings to the board of directors, which would then make the decision. To assign these two inherently conflicting analytic tasks to a single working group would be tantamount to letting a single lawyer both prosecute and defend someone in court.

We can, of course, employ the devil's advocate approach even when we are doing the analysis ourselves, alone. We simply work one view of the problem and set our conclusions aside for a day or two to

let our focus, mindset, and bias relax and fade a bit. We then go to work on the other side, trying to prove just the opposite with different evidence.

Whether conducted by competing groups or a single individual, devil's advocacy will, with virtual certainty, open the mind of the analyst to new dimensions and perceptions of the problem, poking holes in fallacious, self-serving arguments and stripping away poorly reasoned and thinly supported evidence. That's the wonder and delight of the devil's advocate approach.

### Separating Utility and Probability

Another troublesome feature of our minds is our tendency, when analyzing and discussing options for solving a problem, to address what we seek to gain from a particular course of action (that is, the *utility* we see in it) at the *same time* that we address the *probability* that this course of action will produce the desired outcome. Separating the analysis and discussion of utility and probability is essential to objective analysis, because these are fundamentally different subjects, each with a different focus and, especially, a different language. Issues are raised and positions voiced in analyzing utility that are absent in analyzing probability, and vice versa.

*Utility Question:* If we implement "Option A" and "Outcome X" occurs, what is the utility (the benefit, the advantage)?

*Probability Question:* If we implement "Option A," what is the probability "Outcome X" will occur?

Listen, when colleagues discuss alternative courses of action. They will casually, unconsciously, switch back and forth between utility and probability, often in a single sentence, blissfully unaware they are doing so and unaware of the consequences.

*The district manager has convened a meeting of her sales staff. "Sales of our Super FAX 5000 are slipping," she declares. "What can we do about it?"*

Jack: "Offer complimentary rolls of FAX paper."

Manager: "Not a bad idea. That might interest some customers [Utility], but it probably wouldn't last [Probability]."

Jill: "How about offering extended maintenance warranties?"

Manager: "I like that. The 5000 is very reliable, so it wouldn't cost us much [Utility]."

Jill: "It might [Probability] even save us money [Utility]."

When we mix elements of utility and probability together, we confuse the issues and muddy the analytic waters because the assumptions, biases and preconceived notions that drive our assessment of utility are entirely different from those that drive our assessment of probability. Our assessment of utility determines which option is most *attractive*. Our assessment of probability determines which outcome is most *likely*. In other words, utility determines what we want, probability what we get.

To avoid the adverse consequences of intermingling these two basic components of analysis, I recommend addressing utility first, by asking the Utility Question of each option: If we implement the option, what benefit, profit, or advantage does its outcome provide? Then rank the options by the comparative utility of their outcomes. Spend some time at it. Ignore the probabilities for the moment. You'll be amazed at how focusing your mind on just utilities empowers your thinking. When you are comfortable with your rankings, then and only then address the probability of these outcomes by asking the Probability Question. For example:

Utility Rankings of Desired Outcome	Probability of Desired Outcome
Option C	10%
Option A	50%
Option E	70%
Option B	40%
Option D	90%

You will find that separating analysis of options into two steps is easy because it simplifies the process and, as I said, empowers the mind by enabling it to focus on one element at a time: first utility, then probability.

But then what? How do we combine the utility rankings with the probabilities? We do it with an ingenious device called *Expected Value*. We compute expected value by multiplying the utility of an outcome by its probability of occurring. This is easily done if utility can be expressed in terms of dollars. But if it can't, we quantify utility on a scale of 0 to 100, where zero is the least utility and 100 the most. We then multiply the utilities by their probabilities to determine their expected values.

Utility Value of Desired Outcome	Probability of Desired Outcome	U x P = EV
Option C 90	10%	90 x .1 = 9
Option A 70	50%	70 x .5 = 35
Option E 30	70%	30 x .7 = 21
Option B 20	40%	20 x .4 = 8
Option D 10	90%	10 x .9 = 9

In our example, Option A is strongly preferred. It is noteworthy that neither the option with the *most beneficial* outcome (Option C: 90) nor the one with the *most likely* outcome (Option D: 90%) emerged as the favorite. Option C had too little probability, and Option D had too little utility. By integrating utility and probability into a single quotient, *Expected Value* affords us a powerful and reliable means of evaluating, comparing and ranking options.

The only way to learn devil's advocacy, utility analysis or any other structuring technique is through practice. So try it. You'll be surprised how structuring opens up the complexities of a problem and produces valuable insights into its solution. Such is the power of structuring your analysis.