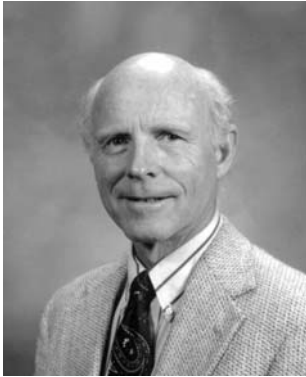


BASIC PRINCIPLES OF SOUND DECISIONMAKING

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BIOGRAPHY

Jim Suhr is the President of the Institute for Decision Innovations. In what he calls his first life, he learned that in order for decisions to be sound decisions they must be based on the relevant facts. Therefore, he was successful as a farmer (during the late 1940's), a school teacher, a supply sergeant in the U.S. Army, and a contractor.

In 1959, in his second life, he graduated from Utah State University with a degree in civil engineering. After graduation, he worked for the California Department of Water Resources and then the U.S. Forest Service. According to his job title, he was a civil engineer. But most of what he has been doing during the past forty years has not been traditional engineering. Instead of designing and building things, such as highways and other public works, he designed and built a decisionmaking system called Choosing By Advantages, or CBA.

(The CBA System is also called sound decisionmaking, reality-based decisionmaking, congruent decisionmaking, effective decisionmaking, and so forth. It is also called integrity-based decisionmaking and successful decisionmaking.)

By 1969, he had made substantial progress in the development of the CBA System. So to help him continue the project, the Forest Service sent him to graduate school at the University of Michigan, where he studied economics, ecology, and organizational behavior. The main reason for attending graduate school was to find answers to four vital questions:

How can we consistently make sound decisions?

How can we clearly show that our decisions are sound?

How can we simplify sound decisionmaking?

How can we make our decisions congruent and effective?

After he had finished as much of the project as he could at the University, the Forest Service put him in charge of a cooperative agreement between the Intermountain Region of the Forest Service, the Beaver Creek Project of the Rocky Mountain Research Station, and Utah State University. Its purpose was to continue searching for answers to the four vital questions and to develop an effective system of decisionmaking. At the same time, the Forest Service assigned him to a variety of related projects. Under the umbrella of the cooperative agreement and in connection with the other projects that he was assigned to do, he received help from a number of universities, government agencies, and private organizations.

In 1981, he found the answer to all four questions, and it is surprisingly simple: Decisions must be based on the importance of advantages. And that was the birth of the CBA System.

ABSTRACT

Choosing By Advantages (CBA) is a decisionmaking system. One of its applications is in Value Analysis (VA). The CBA System includes definitions, principles, models, and methods for practically all types of decisions. The principles are central. The definitions and models explain the principles, and the methods apply the principles. Following are four of the sound–decisionmaking principles upon which the CBA System is based:

1. Sound methods base decisions on the importance of prospective differences among the alternatives—not factors, criteria, goals, roles, categories, objectives, attributes, pros and cons, and so forth. (This principle was recognized and validated at least three centuries ago.)
2. Sound methods base decisions on the importance of advantages—not advantages and disadvantages. (An advantage is a difference between the attributes of two alternatives.)
3. Sound methods base decisions on the relevant facts. (In the CBA vocabulary, methods that do not base decisions on the relevant facts are called unsound methods.)
4. Engineers, architects, leaders in organizations, and so forth are professional decisionmakers. They need to learn and skillfully use sound methods of decisionmaking.

INTRODUCTION

In 1991, I co-founded, with two others, the Institute for Decision Innovations. And here is our mission statement: *Advancing the art of decisionmaking through research, education, and consultation*. Our initial focus was on research and development—which is what I did in the Forest Service. But now our focus is on education. We teach what we have learned from the research. In classes and workshops, we teach the Choosing By Advantages Decisionmaking System. We teach in the National Park Service, the Forest Service, and other Federal and State agencies. We also teach in universities and private organizations.

In our view, the skills we teach are vital. They are as basic and as essential as reading and writing, because everyone is a decisionmaker. And like reading and writing, they are not natural skills. But as far as we have been able to determine, no other individuals or organizations are teaching these skills. Apparently, we and those we have taught are the only people in the world who are teaching these skills. And to make matters worse, we have found that we often need to teach people *to not use* the methods that others are teaching them *to use*. There are two parts to what we teach. Both are in opposition to what most people do naturally, and both are in opposition to what other people are teaching them to do:

First, we teach people how to *use correct data*.

Second, we teach them how to *use data correctly*.

At the same time, we teach them to not use incorrect data. And this is the most difficult part of what we do. One reason it is difficult is that what we teach is so simple that it is hard to believe. Another reason is that what we teach is in opposition to what others are teaching. For example:

- The reason the process we teach is called Choosing By Advantages is that we teach people to base their decisions on the importance of advantages. At the same time, we teach them to *never* base their decisions on the importance of advantages *and* disadvantages. And we thoroughly explain the reasons.
- We also teach them to *never* assign numerical weights, ratings, or scores to such things as factors, criteria, goals, roles, objectives, and so forth. Whenever numerical weights, ratings,

or scores need to be assigned, they must be assigned to advantages. And again, we thoroughly explain the reasons.

- Here is what we view as a very important principle: For exactly the same reasons that decisionmakers need to avoid assigning numerical weights to such things as factors, goals, roles, and so forth, they need to avoid making sweeping judgments about categories. For example, we teach that they must *never* make judgments about one so-called race versus another, one nationality versus another, and so forth.

Throughout the educational system, educators are teaching people to use methods that *require* making judgments about the importance of one factor versus another, one race versus another, one nationality versus another, and so forth. They are teaching unsound, *conflict-causing* methods in all levels of the educational system. But they don't know they are teaching unsound methods. We encourage educators to avoid teaching unsound methods. Unsound methods do not use correct data. And, they do not use data correctly. As a result, they too often produce unsound decisions. And unsound decisions are producing human conflicts and miseries throughout the world.

Although we teach people to not use unsound methods, we don't take their unsound methods away from them. Instead, we show them how to transform their unsound methods into sound methods. So instead of taking something away from them, we give something to them. We give them a vital set of decisionmaking skills. But we are not able to teach these skills to very many people through classes and workshops. So I have written a book that will help us teach them to more people. It was published by Quorum Books in 1999. Its title is *The Choosing By Advantages Decisionmaking System*. It is for engineers, architects, leaders in organizations, and other *professional* decisionmakers. It presents basic and moderately advanced concepts and methods for making sound decisions.

So far, most of our work has been in organizations. For example, the National Park Service was directed by Congress to improve the way they set priorities in their line item construction program. By teaching them how to make sound decisions, we helped them to do what Congress had directed them to do. But they have gone well beyond congressional direction. They are now using the CBA process for a wide variety of decisions, including—for example—the selection of Management Plans for National Parks and Monuments, as well as for VA studies.

DECISIONS MUST BE BASED ON DIFFERENCES

This is a foundation principle in the CBA System. It has been taught to civil engineers since the seventeenth century—since the early days of civil engineering. Also, this principle and related principles have been well established as foundation principles in the field of economics. Nevertheless, when engineers, economists, and others are first exposed to CBA they are likely to assume that it is wrong. Then, as they learn more, they begin to think that it might be right. Then, that it probably is right. And finally, that it certainly is right.

CBA is replacing both inadequate primitive methods and unsound modern methods. So, why are people likely to assume that CBA is wrong? Because we all, naturally, use the same primitive methods that our Stone Age ancestors used. Basing decisions on power and authority is one example (“I see. I want. I take.”). The Instinctive Method is another example. This method has two simple steps that happen almost simultaneously. When we use this method,

First, we make assumptions to fill in data gaps.

Second, based on our assumptions—which often are false—we jump to a conclusion.

Where do our assumptions come from? Of course, they come from a variety of sources—including past experience (which might or might not be relevant), present imagination (which might or might not be true), authorities, traditions, superstitions, and so forth.

Typically, when people hear about CBA they instantly assume that it is too complex. Or, that they don't need it. Or, that they don't need to learn it. So our biggest challenge, in teaching CBA, is to convince people that they need it. And even when they realize that they *need it*, they often don't understand why they need to *learn it* before they can successfully *use it*. What people find, when they study CBA, is that the CBA methods have many advantages, compared with the methods that are being replaced by CBA.

- The CBA methods are simpler.
- For some types of decisions, they are much simpler.
- They are faster.
- And they produce stronger interpersonal relationships.
- But what is most important is that they usually produce better decisions, and better decisions produce better outcomes.

Learning the CBA Process is much simpler than learning mathematics. But as in mathematics, each new concept builds on those that came before. Therefore, we usually teach the CBA concepts and methods in a particular order. For example, we teach the basic CBA definitions, principles, and methods before we teach those that are more advanced.

We often introduce the basic CBA concepts by presenting a detailed history of CBA. But rather than giving you the details of its history, I'll just outline a few of the milestones. As shown above, a major milestone was reached during the seventeenth century, in the early days of civil engineering.

At that time, engineers were taught to make decisions by evaluating the *differences* among the alternatives. This concept—that decisions must be based on *differences*—was reinforced in 1887 by a famous railroad economist named Arthur Wellington (1887:15), and in 1938 by an engineering economist named Eugene Grant (1938: iii). Grant stated this concept in his Engineering Economy textbook, which was the standard in the field for several decades.

The concept was simplified by Bruce Bishop in an award winning study about transportation decisionmaking, which he completed in 1969. He said that decisions *must* be based on the differences among the alternatives (1969: 113). He also said that someone must decide the relative importance of each difference. Here is the way Grant and Ireson stated this same concept in 1970, in the fifth edition of Grant's textbook. The keywords in their statement are *only* and *differences*. They said:

It is only prospective *differences* among alternatives that are relevant in their comparison (1970: 227).

They also said:

Over the years, many published formulas for the solution of problems . . . have given dangerously misleading guidance to decision makers because the authors of the formulas have not recognized this concept (ibid.).

I published—in my first book—solid proof that both of the statements by Grant and Ireson are true. And, they both are very significant.

First, it is absolutely true that to consistently make sound decisions, we must base them on the *differences* among the alternatives. This is the key to making policy decisions and other decisions that are sound and effective.

- Furthermore, as Bishop stated in 1969, someone must decide the relative importance of each difference. We teach people how to do this, together, as a decisionmaking team—even when they have conflicting values and preferences.
- This principle rules out all methods that fail to base decisions on the importance of differences. It even rules out the so-called rational methods—because they base decisions on the importance of such things as factors, criteria, goals, roles, objectives, attributes, and so forth. Or, on categories—such as nationalities, religions, or so-called human races. The “rational” methods do not base decisions on the importance of *differences*. Therefore, they cause critical mistakes—which cause conflicts. And this, by definition, means that they are unsound methods. Should we be using unsound, conflict-causing methods? I don’t think so.

Second, it is also true that many published formulas for the solution of problems have given dangerously misleading guidance to decisionmakers because the authors of the formulas did not understand this concept.

To find out how many people understand that decisions must be based on differences, we performed a simple experiment. And we repeated it many times. Later, I’ll describe the experiment to you, in detail. For now, I’ll just give you the results—which, to me, were astonishing.

During the 1980’s, we did this experiment with hundreds of people in large and small groups, and in every group the results were the same: *Fewer than one percent* of those who participated in the experiment understood that decisions must be based on the importance of the differences among the alternatives. In fact, in most groups no one—not even one person—understood this principle. This is important, because an excellent model of why people do the things they do shows that human behavior is a cause-effect chain. And the model shows that the first link in this chain is the set of methods that people use for making decisions. When we introduce CBA in workshops, we draw this model on a flip chart or a chalkboard.

In this model, the chain has four links: methods, decisions, actions, and outcomes. We use arrows to show the three connections between the four links. First, we write the word *methods* on the left side of the flip chart, followed by an arrow. This is followed by the word *decisions* and another arrow. Then, the word *actions* and an arrow. And finally, the word *outcomes* with no arrow.

As shown by the connections in the cause-effect model: First, our methods produce our decisions. Second, our decisions guide our actions. And third, our actions produce our outcomes. This shows that our decision methods are producing our outcomes. As one would expect, sound methods produce sound decisions far more often than unsound methods do. Next, sound decisions usually produce better actions. And finally, better actions usually produce better outcomes. What does this mean? It means that very often the root cause of bad outcomes turns out to be the use of unsound methods of decisionmaking.

Of course, we don’t know how often unsound methods produce human conflicts and miseries. But we do know that conflicts and miseries are all around us. And many are caused by unsound methods. They range from minor inconveniences to marriage failures, business failures, misuse of natural resources, and so forth. At the same time, they range from minor interpersonal conflicts to hate crimes—and even to genocides and wars. People often say, “Methods for making decisions

don't really matter. Just use whatever works for you." But as shown by the cause-effect model: **"Whenever the decision matters, the method matters."**

Why are unsound methods being used? Because people are being *taught* to use them. Unsound methods are being taught in homes, schools, colleges, and universities, throughout the world. They are even being taught in continuing-education conferences and seminars for members and leaders in government agencies—and, in business organizations. But I don't think we should criticize people for using and teaching the methods they have been taught to use. So our job—one of the jobs of everyone in the VA profession and in related professions—is to arm them with better methods.

CBA requires the precise use of what we call the sound-decisionmaking vocabulary, or the CBA vocabulary. (Anyone who is not using the CBA vocabulary is not using CBA.) Here are four words that expert CBA decisionmakers use with special care and precision: *factor*, *criterion*, *attribute*, and *advantage*. Following are the CBA definitions of these words:

- As defined in dictionaries, a *factor* is an element, part, or component. In CBA, it is an element, part, or component of a decision. It is also a container for criteria, attributes, advantages, and other types of data.
- As defined in dictionaries, and in CBA, a *criterion* is a decision rule or a guideline. It is also any standard on which a judgment is based. (In CBA, in contrast with the way some define the word *criterion*, it is not the same as a factor.)
- As defined in dictionaries, an *attribute* is a characteristic or quality of a person or thing. The CBA definition is based on the dictionary definition. In CBA, an *attribute* is a characteristic, quality, or consequence of *one* alternative (not more than one). And, an alternative is a person, thing, or plan.
- As defined in dictionaries, and in CBA, an *advantage* is an improvement, gain, or betterment. Specifically, it is a favorable difference between the attributes of *two* alternatives (not fewer than two and not more than two).

As you can see, the CBA definitions are based on dictionary definitions. They are also based on what we found to be definitions that we call on-the-street definitions. For example, as you will see in the following section, most people are already using the CBA definition of the word *advantage*.

DECISIONS MUST BE BASED ON ADVANTAGES

This principle is called the fundamental rule of sound decisionmaking. Before I present and explain this principle, I would like to review why everyone needs to learn it, memorize it, and learn how to skillfully apply it in making all types of decisions. Here are three reasons:

- First, although many people say that decision methods do not matter, they do matter. Unsound methods—far more often than sound methods—produce unsound decisions. And unsound decisions—far more often than sound decisions—produce human conflicts and miseries. As this shows, the use of unsound methods is a root cause of many human conflicts and miseries.
- Second, many schools, colleges, universities, and other organizations—and many individuals—are teaching unsound methods. In the future, by learning, using, and teaching the methods that apply the fundamental rule, they would be changing their methods from unsound to sound.
- Third, sound methods base decisions on the *importance* of the *differences* among the alternatives. The fundamental rule prescribes the correct way to base decisions on the importance of differences.

The fundamental rule is surprisingly simple, but it is counter-intuitive. Therefore, we have to carefully explain it, step by step. And a good way to start is with an example. Our favorite example is the choice between two canoes, Canoe C and Canoe K. When presenting this example, we start by listing two of the attributes of the two canoes. The factor that contains these attributes is weight. Here are the two attributes in weight: Canoe C weighs **65 pounds**, and Canoe K weighs **75 pounds**.

Next, we say that we prefer the lighter weight. (This is one of the criteria that will guide this decision. It is a want-criterion, not a must-criterion.) Although we prefer the lighter weight, we don't necessarily prefer the lighter canoe. This is because the attributes in other factors will need to be taken into account. Next, we ask a question where the answer is obvious: "Which canoe has the advantage in weight, Canoe C or Canoe K?" Of course, everyone gives the same answer: **Canoe C**.

- Next, we ask another question that has an obvious answer: "How large is the advantage of C, compared with K?" And they say that Canoe C has an advantage of **10 pounds**.
- This demonstrates an on-the-street definition of the word *advantage*. An advantage is a difference. It is a *difference* between the *attributes* of two *alternatives*.
- Next, we ask, "Which canoe has the *disadvantage* in weight?" And they always choose Canoe K. Then, we ask, "How large is the *disadvantage* of K, compared with C?" And they say that Canoe K has a *disadvantage* of **10 pounds**.
- This demonstrates an on-the-street definition of the word *disadvantage*. A disadvantage is also a difference. It is a *difference* between the *attributes* of two *alternatives*.

This takes us to the next question: "What are the differences between an advantage and a disadvantage?" And here is the answer: There are no actual differences. There are differences only in the ways we view them and name them:

Here is the one view: Canoe C is **10 pounds lighter** than Canoe K.
Under this view, the 10-pound difference is called an advantage.

Here is the other view: Canoe K is **10 pounds heavier** than Canoe C.
Under this view, the 10-pound difference is called a disadvantage.

What I realized, in 1981 (after many years of searching for sound methods), is that any difference between two alternatives can be viewed as positive or negative—as an advantage of the one alternative, or as a disadvantage of the other alternative. When we have listed and taken into account all the advantages of each alternative, we have listed and taken into account all the disadvantages. Surprisingly, *advantages are disadvantages*. So if we count all the differences as advantages and count them again as disadvantages, we are double-counting the differences. And double-counting is a critical mistake. What does this mean? It means that Choosing By Advantages *and* Disadvantages is not a sound method for making decisions.

Now we know the correct way to base decisions on the differences among the alternatives. And fortunately, it greatly simplifies sound decisionmaking. I call it the fundamental rule of sound decisionmaking. In our workshops, we ask the participants to write this rule on a card. Then, we ask them to carry the card with them until they have memorized the rule. And then, we encourage them to learn how to apply it for all their decisions. I hope you will do the same. Here is the rule: *Decisions must be based on the importance of advantages.*

Different types of decisions call for different CBA methods. But for all decisions, the fundamental rule of sound decisionmaking is the same. To show that this rule simplifies sound decisionmaking—before I go to the next principle, which many say is not easy to understand—I will now outline one of the CBA methods. It is near the middle level of complexity in the CBA system. Some CBA methods are for decisions that are more complex than those that call for this method. But others are for decisions that are simpler. This method requires two steps:

First: *List* the advantages of each alternative.

Second: *Choose* the alternative with the most important set of advantages.

DECISIONS MUST BE BASED ON THE RELEVANT FACTS

Now, I would like to introduce the most important of all the principles of sound decisionmaking. It is not only the most important; it is also the least understood. More than any other principle, it sets the CBA methods apart from all other methods. The discovery of this principle was a very significant milestone in the history of CBA. I call it the principle of anchoring. Here is the principle of anchoring: *Decisions must be anchored to the relevant facts.*

During the past few centuries, a small number of people who truly were experts in the field of decisionmaking paved the way for this principle. They explained that to consistently make sound decisions we must base our decisions on *the importance of the differences* among the alternatives—not factors, criteria, categories, objectives, goals, roles, attributes, pros and cons (attributes that have been misnamed, as I will show later), and so forth. What I discovered is that to do this correctly, we must base our decisions on *the importance of advantages*—not advantages and disadvantages.

The principle of anchoring and the fundamental rule of sound decisionmaking go together, hand in hand. Together, they form one rule with two parts. This is shown by the following pair of questions:

Q: How can we consistently make sound decisions?

A: *We must anchor our decisions to the relevant facts.*

Q: How can we anchor our decisions to the relevant facts?

A: *We must base our decisions on the importance of advantages.*

A good way to explain this principle is with an example. And one of our favorite examples is the choice between two bridge designs. During the 1980's, as I mentioned earlier, we used a simple experiment to find out how many people understand that decisions must be based on differences. And very few did. This same experiment showed that very few people adequately understand the principle of anchoring. We called this experiment *the bridge-design experiment*.

- First, we told the participants in the experiment that we need to choose between two bridge designs for crossing a deep canyon. Then, we asked a compound question. It is a good question that contains a bad question. The bad question is a trap. It's an unanswerable question. Therefore, the only correct *response* to the bad question is to not try to *answer* it.
- With that in mind, here is what we asked: "What is the best *response* to the following question: *Which of the following three factors—economics, safety, or aesthetics—is the most important in choosing between two designs for a bridge?*"
- We did not ask, "What is the best *answer* to the following question?" Instead, we asked, "What is the best *response* to the following question?" And here is the best response: "I must decline to answer your question. It is an unanchored question."

As expected, most people caught themselves in the trap. They chose one of the factors as the most important factor. And that is a critical mistake. To make matters worse, they chose safety. But in the real world, selecting safety would be the very worst response to the question. Here is why:

When engineers design a bridge, they are guided by very strict requirements in safety. Therefore, if they do their job correctly, the difference in safety between two designs will be either very small or extremely small. In either case, it will not be very important. But that is not the reason no one should have selected safety as the most important factor.

- Once in a while, someone chose the right response, but for the wrong reason. They said, “I can’t answer that question.” So we asked, “Why not?” And they said, “Because you didn’t give us enough information.”
- Before the end of our CBA workshops, nearly all the participants are able to give the right response for the right reason. They say, “I can’t answer that question.” So we ask, “Why not?” And they say, “Because it is not an answerable question. It is an unanchored question.” They can see that even with perfect data, it would not be an answerable question. They realize that it is impossible to correctly choose a most important factor.
- A few of the workshop participants have shown a deeper understanding of the principle of anchoring. We ask them, “Why should we never ask or answer unanchored questions?” And they say, “Because unanchored questions and unanchored judgments are causing human conflicts and miseries throughout the world.”

A few years ago, at the end of one of our workshops, a participant came to me with tears in his eyes, and he said, “Why are you not in Bosnia? They need this.” What he recognized is that CBA can be an instrument for peace, because it requires anchored questions and anchored judgments. In other words, CBA requires anchoring decisions to the relevant facts.

CBA requires major changes from the old, *conflict-causing* patterns of thought and speech. And these changes are not easy for some people to make. It also requires changes in deeply held beliefs. For example, many versions of the so-called rational method of decisionmaking are being taught throughout the educational system. But they all require making assumptions and jumping to conclusions. Therefore, each version is simply a fancy variation of the Instinctive Method. And because it is instinctive, many people sincerely believe that it makes sense.

- First, they sincerely believe that it makes sense to establish a scale of importance for a decision by choosing a “most important factor.”
- Second, they sincerely believe it makes sense to weigh all the other factors on the established scale.

Close inspection reveals, with absolute certainty, that weighing factors does not make sense. To consistently make sound decisions, *we must weigh advantages, not factors*. This is true in the same way that *three plus four equals seven* is true. It is not just a matter of preference. But weighing factors is what people do instinctively. And unfortunately, it is what educators are teaching them to do. Because weighing factors is instinctive, and because people are being taught to weigh factors, practically everyone chose a “most important factor” in the bridge-design experiment.

Here is another example of the so-called Rational Method: Many people sincerely believe that it makes sense to *label* themselves and other people (as Protestants, Catholics, Jews, Arabs, Americans, and so forth) and then to mistreat—or even to kill—a particular group of people, based

on their label. In fact, that is a definition of *genocide*: It is the systematic killing of a group of people, simply because they share the same label.

The conflict in Northern Ireland between “Protestants” and “Catholics” illustrates the basic concept that underlies the “Rational Method.” A psychologist named Fred Luskin described an experience he had when he was teaching the skill of forgiveness to people from Northern Ireland, as follows:

One man told of the loss of his father. He was a young boy when his father was shot, and he grew up with only his mother and his brother. He knows the only reason his father was killed was because he was a Protestant. As a result, this man developed an intense hatred for Catholics (2002: 99).

Wait a minute! That is not what happened. Here is what happened: The only reason the man’s father was shot and killed was because he was *labeled as* a Protestant. And the son developed an intense hatred for people who were *labeled as* Catholics. The root cause of the father being killed was the same as the root cause of the son’s intense hatred. The root cause of the conflict in Northern Ireland, as in many other conflicts, is the use of the basic concept that underlies the so-called Rational Method of decisionmaking.

The “Rational Method” truly is an unsound method. Like other unsound methods, it violates the principle of anchoring. And in general, the use of unsound methods of decisionmaking is the root cause of many human conflicts and miseries. Here again is the principle of anchoring: ***Decisions must be anchored to the relevant facts.***

- In the bridge-design experiment, the words *economics*, *safety*, and *aesthetics* are labels of generalities. In the canoe decision, words like *weight* and *stability* are labels of generalities. They do not have specific meanings. Therefore, they are not relevant facts.
- In Northern Ireland, the words *Protestant* and *Catholic* are labels of generalities. Like the words *economics*, *safety*, *aesthetics*, *weight*, and *stability*, they do not have specific meanings. Therefore, they are not relevant facts.

Think about this: One ounce of weight and one billion tons of weight are not the same. Nevertheless, they both are labeled as weight. So, here is an example of an unanchored question: Which is more important, weight or weight? Here is another example: Which is more important, weight or stability? Remember: ***We must never ask nor answer unanchored questions.***

Now, think about this: No two people who are labeled as Protestants are the same, and no two who are labeled as Catholics are the same. But on average, those who are labeled as Protestants and those who are labeled as Catholics are very much the same. With this fact in mind, let’s restate the fundamental rule of sound decisionmaking: ***We must base our decisions on the importance of advantages, not on the importance of labels.***

DECISIONMAKERS MUST LEARN HOW TO USE SOUND METHODS

The CBA skills are as basic and as essential as reading and writing. And like reading and writing skills, they are not acquired naturally. Also, people make some of the most important decisions of their entire lives before and while they are teenagers. And they continue making important decisions throughout their lives. Therefore, the CBA skills need to be taught, step by step, in all levels of the educational system.

This takes us to the pivotal sound–decisionmaking principle. And in this case, the word *pivotal* means critically important. The keyword in this principle is *learn*: ***To consistently make sound decisions, decisionmakers must learn and skillfully use sound methods of decisionmaking.***

The CBA methods are simpler than most of the methods they will replace. And in some cases, they are much simpler. Nevertheless, many people have said that they are not easy to learn. And the reason they are not easy to learn is that they are unfamiliar. They are not what people expect.

For example, most people expect to be told that they should list the advantages *and* disadvantages of each alternative. But to consistently make sound decisions, they must base their decisions on the importance of advantages—not advantages and disadvantages. Also, most have been willing to follow the directions of those who tell them to assign numerical weights to factors (which are often mislabeled as criteria). But to consistently make sound decisions, they must never assign numerical weights to factors. Likewise, most have never really thought of what it means to list the pros and cons of each alternative. But pros and cons are actually attributes that have been mislabeled.

For example, think about a canoe-weight of 70 pounds. This is a reason-pro, compared with 75 pounds. At the same time, it is a reason-con, compared with 65 pounds. In fact, any attribute can be labeled as either a pro or a con, depending upon what it is being compared with. If we label an attribute as a reason-pro, we create a bias in one direction. And if we label it as a reason-con, we create a bias in the other direction. In CBA, for complex decisions we do display the attributes of the alternatives, but we do not label them as pros and cons. Instead, we label them as attributes.

A major problem in the implementation of the CBA concepts and methods is that some people have “used” them (and some have “taught” them) in name only. Some have tried to guide other people through the CBA Process without first teaching the process to them. In fact, we made that same mistake, ourselves. We tried, several times, to facilitate the CBA process within groups where either none or only a few had learned how to apply the CBA concepts and methods. The results were disappointing. Their decisions were not significantly better than if they had used the old, unsound methods. We found that to learn CBA, “on-the-job-training” doesn’t work. So instead of “on-the-job-training,” we recommend the following five-step skill-learning process:

1. **Learn** just one set of CBA definitions, principles, models, and methods at a time.
2. **Unlearn** (learn to not use) the corresponding unsound concepts and methods that the CBA concepts and methods are replacing.
3. **Relearn** the CBA concepts and methods.
4. **Practice** and consistently use the CBA concepts and methods that you have learned. (If possible, practice under the guidance of either a CBA facilitator or a CBA instructor.)
5. **Teach** the CBA concepts and methods to other people. This will not only be beneficial to them; it will also be beneficial to you. Then, return to step one and **learn more**.

Different types of decisions call for different CBA methods. And a method that is sound for one type of decision is unsound for a different type. Here are just two examples: The sound methods for non-money decisions are not the same as the sound methods for money decisions, and the sound methods for choosing from mutually-exclusive alternatives are not the same as the sound methods for setting priorities among non-exclusive proposals.

So remember that CBA methods have been developed for practically all types of decisions, from the simplest to the most complex. There are CBA methods for responding instantly to one-option situations. Also, there are CBA methods for choosing from only two alternatives, several alternatives, a large number of alternatives, and an infinite number of possibilities. There are CBA methods for each phase of the decisionmaking process: the stage-setting phase, the innovation phase, the decisionmaking phase, the reconsideration phase, and the implementation phase. (Where applicable, the VA Process is used in the reconsideration phase of the CBA Process.)

CONCLUSION

I believe that architects, engineers, leaders in organizations, and many others should become artists in the art of decisionmaking. I believe they should become professional decisionmakers. Making decisions is what they do for a living. Therefore, they need a high level of knowledge and skill in the art of decisionmaking. Counselors, consultants, value analysts, and anyone else who helps others make decisions needs an even higher level of knowledge and skill.

In any profession, it takes more than a few hours of education to become an expert. For example, it takes more than a few hours to become a professional musician. It takes more than a few hours to become a professional architect. And, it takes more than a few hours to become a professional engineer. Likewise, it takes more than a few hours to become a professional decisionmaker.

To begin their journey of learning, using, teaching, and facilitating the sound–decisionmaking process, decisionmakers and people who help other people make decisions need to learn the basics. For example, they need to learn the differences between *factors*, *criteria*, *attributes*, and *advantages*. As another example, they need to understand that so-called pros and cons are attributes that have been mislabeled. Also, they need to understand that there are no actual differences between advantages and disadvantages. (There are differences only in the ways we view them and name them.) And most of all, they need to learn how to skillfully apply the following and other basic principles of sound decisionmaking:

The foundation principle of sound decisionmaking:

Decisions must be based on the importance of the differences among the alternatives.

The fundamental rule of sound decisionmaking:

Decisions must be based on the importance of advantages.

The principle of anchoring:

Decisions must be anchored to the relevant facts.

The pivotal (critically important) sound–decisionmaking principle:

Decisionmakers must learn and skillfully use sound methods of decisionmaking.

REFERENCES

- Bishop, A. Bruce. 1969. *Socio-economic and community factors in planning urban freeways*. Project on Engineering-Economic Planning. Report EEP-33. Palo Alto, CA: Stanford University.
- Grant, Eugene L. [1930] 1938. *Principles of engineering economy*. Rev. ed. New York: The Ronald Press Company.
- Grant, Eugene L. and W. Grant Ireson. 1970. *Principles of engineering economy*. 5th ed. New York: The Ronald Press Company.
- Luskin, Fred. 2002. *Forgive for good: a proven prescription for health and happiness*. New York: HarperCollins Publishers Inc.
- Suhr, Jim. 1999. *The choosing by advantages decisionmaking system*. Westport, CT: The Greenwood Publishing Group/Quorum Books.
- Wellington, Arthur Mellen. 1887. *The economic theory of the location of railways*. 2d ed. New York: John Wiley and Sons.