SMART CHOICES

CHAPTER 7

Uncertainty

In the preceding chapters, we've laid out a comprehensive approach to making smart choices when, for practical purposes, you can know the consequences of each alternative *before* deciding. We now turn to situations in which—no matter how much time and thought you expend—you won't know what the consequences will be until *after* deciding. They're uncertain. When you choose, you may know what *might* happen, but you won't know what *will* happen.

Because life is full of uncertainties, many of the decisions you make will involve calculated risks: investing in a mutual fund, accepting a blind date, deciding to have a child, asking for a raise or promotion, starting a business, launching a new product. You can't snap your fingers and make the uncertainties go away. But you can raise the odds of making a good decision in uncertain situations. How? The first step is to acknowledge the existence of the uncertainties. Then you need to think them through systematically, understanding the various outcomes that might unfold, their likelihoods, and their impacts.

Distinguish Smart Choices from Good Consequences

Whenever uncertainty exists, there can be no guarantee that a smart choice will lead to good consequences. Although many people judge the quality of their own and others' decisions by the quality of the consequences—by how things turn out—this is an erroneous view, as these two examples illustrate:

A smart choice, a bad consequence. Eager to build a long-delayed addition to his home in North Carolina, Lee Huang carefully weighs the risks and benefits of starting work in December. Construction in the region, with its usually mild winters and light snowfall, typically goes on year round, and the current long-range weather forecasts predict normal conditions. Because the chances of serious weather-related problems are small, Lee decides to proceed. The winter, however, turns out to be the worst in 40 years. The project takes an extra month and costs $6,000 more than planned. Was this a stupid choice? No! The choice was fine; only the consequence was bad. Lee might say, "If I had only known the weather would be so bad, I'd have waited until spring!" But how could he have known?

A poor choice, a good consequence. Roberta Giles, an inexperienced investor, acts on a tip from an acquaintance and, without doing any research, invests in a venture to build a large apartment building. For the first few years after construction, the building reaches only 75 percent occupancy and runs deep in the red. But, just as bankruptcy seems inevitable, a large business unexpectedly moves into a nearby office park. Soon, the apartment

building is full, with a waiting list for vacancies. Rents skyrocket. Three years later, Roberta sells out for four times her initial investment. Was the investment a smart choice? No! The decision making was terrible, even though the consequence was good. Would other decisions made the same way turn out as well? Extremely doubtful.

Decisions under uncertainty should be judged by the quality of the decision making, not by the quality of the consequences. Robert F. O'Keeffe, the retired head of claims for INA (now CIGNA), one of the largest U.S. property and casualty insurance companies, understands this distinction well (perhaps in part because he's an avid poker player). In a recent conversation, Bob stated his philosophy:

> If I try to settle a major liability claim out of court and the other side's final offer exceeds what my analysis shows to be a fair value, I take the case to trial. Often I either win outright, or the jury awards the plaintiff less than my calculated value or less than the plaintiff's final offer. But sometimes the jury award exceeds what I could have settled for. The difference can be tens of thousands of dollars or even hundreds of thousands. In these cases, was it a mistake to refuse the offer? No. I just remind myself that another jury who heard the same evidence might have made a more favorable award.

O'Keeffe's overall record attests to the quality of his decisions, yet over the course of his career he has encountered many surprises and upsets. The best that O'Keeffe or any of us can do in making an important decision is to ensure we use a sound process

that enables us to identify and think clearly about uncertainty. We can't make uncertainty disappear, but we can address it explicitly in our decision-making process.

Use Risk Profiles to Simplify Decisions Involving Uncertainty

Uncertainty adds a new layer of complexity to decision making. A single decision may involve many different uncertainties, of varying levels of importance, and they may all interact, in tangled ways, to determine the ultimate consequences. To make sense of uncertainty, you need to find a way to simplify it—to isolate its elements and evaluate them one by one. You can do this by using *risk profiles.*

A risk profile captures the essential information about the way uncertainty affects an alternative. It answers four key questions:

- What are the key *uncertainties?*
- What are the possible *outcomes* of these uncertainties?
- What are the *chances* of occurrence of each possible outcome?
- What are the *consequences* of each outcome?

By providing a consistent basis for comparing the uncertainties affecting each of your alternatives, risk profiles allow you to focus in on the key factors that should influence your choice, ignoring peripheral factors. Consider this simple example. Joe Lazzarino has kept his small consulting firm in business over the last five years by bidding on many small public and private engineering projects. His company consistently makes a modest profit, but

Joe's starting to get bored—he's eager for new and bigger challenges. One day, he receives word that a government agency has issued a request for proposals for a large, multiyear contract. Joe sees that winning the contract would provide enormous benefits, but the huge costs associated with preparing a proposal could deplete his firm's resources. And, of course, the agency's response to his proposal is uncertain. He might be granted a full contract, a partial contract, or no contract at all.

Joe creates a risk profile for the alternative of preparing and submitting a proposal. He succinctly describes the possible outcomes, their chances of occurring, and the associated consequences. He writes them up in a simple table, as shown below. Studying the risk profile, Joe sees a clear choice. Winning a partial contract (outcome *B*) or a full contract (outcome *C*) are much more likely outcomes than losing the bid altogether (outcome *A*), and both *B* and *C* would lead to consequences that are much more desirable than the current situation. Joe decides to go for it.

Joe's experience with bidding, together with the limited number of alternatives and possible outcomes, made it fairly easy for him to draw up the risk profile. Many decision problems involving uncertainty will present greater challenges. In all cases, though, the development of clear, thorough risk profiles is the all-important first step.

How to Construct a Risk Profile

Now let's look at how you'd go about constructing a more complex risk profile. Janet Ellingwood, the owner of a mail order firm

Joe's Risk Profile for Preparing and Submitting a Proposal

Uncertainty: Government response to bid

Outcome	Chance	Consequences
A. No contract	Least likely	Bad. Will need to reduce staff, borrow heavily, and scramble for some small contracts.
B. Partial contract	Most likely	Pretty good. More firm stability. Will make a decent profit.
C. Full contract	Somewhat likely	Wonderful. Not only very profitable, but also professionally interesting. Will greatly enhance our reputation.

in Denver, is planning a summer party for her 55 employees. They've worked very hard over the past year, and she wants to use this party to recognize and celebrate their efforts. Her objectives for the party are fun, family involvement, and reasonable expense. She informally polls her employees and finds that they favor two alternatives: a picnic at a mountain retreat with a swimming pool and a ball field, or a dinner dance at a downtown hotel.

When Janet looks at her three objectives, the picnic seems the better choice: Everyone would enjoy the games and facilities, it would involve employees' kids, and the cost would be low. But the success of the picnic, much more than that of the hotel dance, would depend on the weather. While Janet knows that a sunny day would be more likely than a rainy one at that time of year, she

also knows that Denver could experience one of its occasional summer downpours. If it did rain, the picnic would likely be a flop. Food could be served under a tent—for an added cost—but most other activities would be curtailed, and many people would stay home or leave early. On the other hand, few people would pass up the dance because of rain, and although the hotel's outdoor patio—a memorable place on a nice evening—would be unusable, the ballroom would still be elegant and spacious enough for a pleasant evening.

In thinking quickly through the two alternatives, Janet has already roughly answered the four risk profile questions. She's identified the uncertainty (weather), the possible outcomes (rain or shine), their chances (rain less likely), and the consequences (picnic a flop in the rain). In some cases, such brief, informal descriptions may be adequate to make a final decision, but Janet doesn't feel that the information is sufficient to allow her to make a smart choice. She proceeds systematically to clarify the uncertainties, outcomes, chances, and consequences impinging on her decision.

Identify the key uncertainties. Virtually any decision involves uncertainties, but most uncertainties don't influence consequences enough to matter. Selecting the uncertainties important enough to include in a risk profile requires just two steps:

- List all the uncertainties that might significantly influence the consequences of any alternatives.
- Consider these uncertainties one at a time and determine whether and to what degree their various possible outcomes might influence the decision. When there are

many possible uncertainties, winnow them down to the few that are likely to matter most.

Janet's decision presents a number of uncertainties in addition to the weather, including attendance and cost. In considering the possible outcomes for attendance, Janet concludes that nearly all employees would plan to attend either event and that knowing the exact number wouldn't influence her choice. To evaluate costs, Janet asks the events managers of the two sites for estimates. She learns that the picnic would cost approximately $6,000 and the dinner dance roughly $12,500. These estimates would vary slightly depending on the exact number of guests and their food, beverage, and entertainment choices, but the variation would not significantly influence Janet's thinking. So, even though attendance and cost are subject to some uncertainty, the possible outcomes would not impact the ultimate consequences enough to make a difference in Janet's choice.

That leaves weather as the key uncertainty. No matter how appealing the picnic, if it rains many people will not attend or will leave early. The picnic would be a washout.

Define outcomes. The possible outcomes of each uncertainty must now be specified. This requires answering two questions:

- How many possible outcomes need to be defined to express the extent of each uncertainty?
- How can each outcome best be defined?

The number of outcomes you'll need to specify will depend on the kind of uncertainty you're addressing. Some uncertainties inherently have a small number of clearly defined potential outcomes: Which of the two contestants will win the chess match? Will the pending legislation pass or be voted down? Others entail a large number of potential outcomes: How many people will attend next Saturday's football game? How much money will I make or lose from buying this stock?

When there are many possible outcomes, you should simplify your expression of them by organizing them into ranges, or categories. The categories can be either quantitative ($10,000 to $20,000, $20,000 to $30,000, and so on) or descriptive (high, medium, low; successful, unsuccessful, neutral). In some cases, it may be helpful to assign a representative value to a numerical range—for example, using $25,000 as a stand-in for the range $20,000 to $30,000—to make calculations and comparisons easier.

Because complexity increases as the number of categories increases, you should always seek to narrow the set of outcomes down to the fewest possible—enough to fully describe the uncertainty, but no more. Start by defining a small number of outcomes, and then add more only as needed. If you're projecting the possible outcomes of a new product launch, for instance, you might start with just two categories: "High sales" and "Low sales." If they are insufficient to capture the range of outcomes, you would then create a new category, "Medium sales," containing part of what was previously in both the high and the low categories.

However many outcomes are designated, they must meet three further criteria. First, the categories must differ clearly from one another, with no overlaps (that is, they must be *mutually exclusive*). "Widely scattered showers" shouldn't be included in both "Rain" and "Shine." Second, the outcomes must include all possibilities, with every possible contingency falling within one or another cat-

egory (that is, they must be *collectively exhaustive*). "Widely scattered showers" must be included in either "Rain" or "Shine." Third, the outcomes must be unambiguously defined, so that when the uncertainty is resolved, the event can be clearly recognized as falling within one or another of the defined categories. If widely scattered showers occurred, was the weather rain or shine?

Assign chances. Clearly defining the possible outcomes or categories of outcomes will help you in judging the chance, or likelihood, that each outcome will occur. Still, though, assigning chances can be one of the toughest and most nerve-wracking tasks in decision making, especially when you don't know very much about the subject or when you're under time pressure. But you can help ensure that your assessments are both reasonable and useful by following these suggestions:

- **Use your judgment.** Often, you can make a reasonable assessment of the chances of a given outcome based on your own knowledge and experience. Oddsmakers do it all the time in sports betting. Friends do it when they arrange blind dates. We all do it almost unconsciously in daily life: What are the chances I'll encounter delays on my homeward commute this Friday?

- **Consult existing information.** There will often be information available that will help you assign chances to outcomes. You should carefully consider all the potential sources of information—libraries, the Internet, documents in your organization, research data, professional publications—that might shed light on the potential outcomes. Janet, for example, might get climatological data from the weather bureau to help her assess whether it will rain on a summer afternoon or evening.

- **Collect new data.** Sometimes the particular data you need may not be available off the shelf—you may need to collect them yourself. A food company might estimate the percentage of families who will buy a new brand of coffee by conducting a market trial or a telephone survey.

- **Ask experts.** For most uncertainties, there will probably be someone out there who knows more about it than you do. Seek out an expert—your doctor, lawyer, or accountant, an economist—and elicit his or her judgment. In Janet's case, a local meteorologist would be an appropriate expert.

- **Break uncertainties into their components.** Sometimes dividing an uncertainty into its components, thinking about the components, and then combining the results will help in establishing probabilities. An entrepreneur recognizes that the success of a new car wash in an area currently undergoing development will depend on the relative number of cars brought to the area by the different proposals for the adjoining site: a shopping mall or an office park. He can assign chances to various ranges of washes per day assuming the mall is built, and do likewise assuming the office park is constructed. He can then blend the results in proportion to the chances he assigns to the construction of a mall and of offices, to get an overall assessment of washes per day.

When expressing chances, qualitative terms may come first to mind. In casual conversation, people often describe chances using phrases such as "unlikely," "toss-up," "barely possible," "fairly likely," "pretty good chance," "almost sure," and so on. They do this not only because it's easy, but also because they think they're

really communicating their judgments about likelihood. But one person's "fairly likely" may or may not be the same as the next person's. Such subjective phrases may be sufficient for personal decisions that will not need to be justified to others, but they're not precise enough for most decisions. In most cases, therefore, you will want to express chances quantitatively, as actual probabilities, using either a decimal (0.2) or a percentage (20 percent). Using numbers reduces the likelihood of miscommunication and sharpens decisions.

If you are having trouble expressing your judgment quantitatively, or getting someone else to do so, zero in from the extremes. If you ask the hostess at a busy, no-reservations restaurant the chances of getting seated at 5:30 P.M. on Thursday, she might respond, "I haven't a clue; either you will or you won't." (Ah, frustration!) Countering with the question, "Is the chance better than 25 percent?" will very often elicit something more useful: "Oh, much more than that." "More than 50 percent?" "Yes." "As much as 90 percent?" "Too high." The range has been narrowed to between 50 percent and 90 percent; a few more questions might provide an even more precise range.

Pinpoint precision usually isn't required in assigning chances. Frequently, knowing that a chance falls within a certain range is sufficient for guiding a decision. (See "Which Flight?" below.) If the estimated chance of some outcome falls between 30 percent and 50 percent, for example, compare the alternatives using 40 percent. Then reconsider them using 30 percent or 50 percent. More often than not, the change won't matter; the decision will remain the same.

However they are expressed, the probabilities for the outcomes of an uncertainty should always add up to 100 percent (or, if you express them as decimals, to 1.0). If the two categories for weather are "Rain" and "Shine" and if the probability of rain is 35 percent, then the probability of shine necessarily is 65 percent. Also remember that your assessment of the chances of an outcome occurring may change as circumstances change or as new information becomes available. As you proceed through your decision process, regularly reexamine the chances you've assigned to ensure their reasonableness based on your current information.

Resolving a Decision with an Estimate of Uncertainty: Which Flight?

Mark Hata has a dilemma. Months ago, he arranged to take his 62-year-old mother on a week-long trip to London in October. Mark lives in Phoenix, his mother in Pittsburgh. They plan to meet at Dulles Airport in Washington, D.C., on a Saturday evening in time for a leisurely dinner, before taking the 10:00 P.M. flight to London.

But Mark has just learned that his daughter's soccer team has earned a spot in the league championship game, which is scheduled for 9:00 A.M. that same Saturday, and he would really love to attend. What to do?

Mark sees three alternatives:

1. Attend the game and reschedule his departure to London for Sunday, cutting a day off the trip. (Reticketing would cost $400, but plenty of seats are available.)
2. Stick with the original plan and miss the soccer game.
3. Attend the game and take a later flight to Dulles. If this flight is on time or no more than 30 minutes late, Mark will just have time to meet his

mother and make the flight to London. That nixes dinner but otherwise leaves their plan intact.

After some soul-searching, Mark decides he'd rather miss the game than shorten his mom's London vacation. But should he attend the game and gamble on getting to Washington on time? After more thought, he decides he'd take the chance if the risk of missing the London flight is less than 15 percent.

With his decision boiled down to assessing the probability that he will arrive at Dulles no more than 30 minutes late, Mark checks with his travel agent and learns that Dulles has an 80 percent on-time arrival record, with "on-time" defined as arriving within 15 minutes of the scheduled time. After asking a few more questions of the agent, Mark figures his odds of arriving within 30 minutes are much better than 80 percent, for three reasons. First, many late flights arrive within 30 minutes of the scheduled time. Second, Saturday flights encounter fewer air traffic delays than do weekday flights. And, third, Phoenix has few weather-related departure delays. He concludes that he has at least a 90 percent chance of making the London flight. His choice is now easy, though still worrisome. He attends his daughter's game—a 2-2 tie, cochampions—and arrives in Washington 15 minutes early. Not only did Mark make a smart choice, he enjoyed a good consequence.

Clarify the consequences. Different outcomes will have different consequences, and these, too, must be defined. In general, you should follow the same process for defining consequences as we laid out in Chapter 5, expressing them as precisely as necessary to make an informed choice. Depending on the complexity of the decision, you should lay out the consequences in one of three ways:

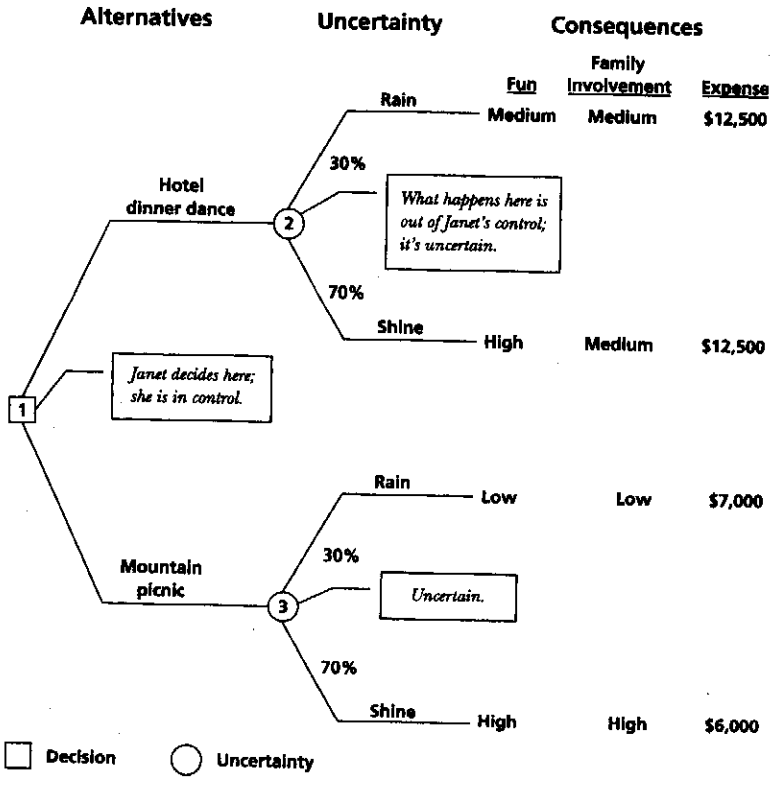
- **A written description.** Although the least precise, a broad written description may occasionally be good enough. But remember that, whereas phrases such as "marginal," "OK," or "a waste of effort with little to show" may suit personal decisions, they require too much interpretation to be readily communicable to others.
- **A qualitative description by objective.** Consequences expressed qualitatively by objective include more information than simple written descriptions, as they break a consequence into its constituent parts. For an outdoor picnic, the consequences of sunny weather for each of Janet's objectives would be described as (1) high on fun, (2) high on family involvement, and (3) low on cost.
- **A quantitative description by objective.** Though they may require the most time to develop, consequences expressed quantitatively by objective—such as cost estimates in dollars—are the clearest, the most easily comparable, and the easiest to use. The cost of a used car listed as "$5,000 plus or minus 10 percent" is more useful and meaningful than one listed as "low."

In all cases, though, keep in mind that descriptions of consequences need only be precise enough to provide the information needed to reach a smart choice. If your choice is clear with a written description, there's no need to spend the time to develop precise, quantitative estimates.

Picture Risk Profiles with Decision Trees

Often, the development of risk profiles can itself clarify uncertainty to the point where the smart choice becomes obvious. But

Decision Tree for Janet's Employee Party



not always. Some decisions, particularly highly complex ones, will require further analysis. That's when a *decision tree* can be extremely useful. A decision tree provides a graphical representation—a picture—of the essence of a decision, displaying all the interrelationships among choices and uncertainties. In one

sense, a decision tree is like a blueprint—it lays out, methodically and objectively, the architecture of a decision. And just as a builder would not set out to construct a house without a blueprint, a decision maker will often require a decision tree to resolve a tough choice under uncertain conditions.

The essence of Janet Ellingwood's employee party problem, for example, can be plotted in a decision tree, as we see on page 120. The tree begins at the point of the decision (the square labeled 1), with the initial branches representing the competing alternatives. In Janet's case, there are two alternatives, hotel dinner dance and mountain picnic, so there are two branches. Each alternative branch leads to a fork (the circles labeled 2 and 3), indicating an uncertainty. Each possible outcome of the uncertainty—in this case, rain or shine—is represented by a branch leading out from the fork. These outcome branches are labeled with their respective chance of occurring. (Janet uses 30 percent for the chance of rain, a judgment she elicited from a local meteorologist.) Each of the outcome branches in turn leads to different consequences, which are summarized, by objective, at the tips of the tree.

This simple decision tree, with its four possible paths, shows how pictures can clarify the relationships among alternatives, uncertainties, and consequences. It brings risk profiles to life. Seeing her decision presented this way immediately sharpens Janet's thinking. She concludes that a successful picnic would meet her objectives so much better than would the dinner dance that it is worth taking a 30 percent chance on rain. She opts for the picnic.

Decision trees are especially useful for explaining decision processes to others. (Hence the careful numbering of the branching points and the labeling of the branches.) Getting into the

habit of sketching decision trees, even for relatively simple decisions involving uncertainty, can enhance your decision-making skills in two ways. First, decision trees encourage thorough, logical thinking about a problem—a useful habit to cultivate. Second, mastering the mechanical skill of tree construction on simple problems will make it easier to use the technique for more complex ones, such as the one illustrated in the following application.

APPLICATION

To Settle or Not to Settle?

Karen Plavonic hasn't had a good night's sleep in weeks. Her stomach is always in knots. Day and night she anguishes over whether to accept a $300,000 offer to settle her personal injury lawsuit. On the one hand, she knows there's a good chance of getting much more—maybe as much as a million dollars—if she refuses and goes to trial. But, on the other hand, she could lose in court and end up with nothing. Then she'd wish she had accepted the offer (and she knows her mother would never let her forget her mistake!).

Karen, 27 years old and single, feels she may have contributed in a small way to the automobile accident that has left her slightly disabled, disfigured, and plagued with mounting medical expenses. Though she doesn't want to look foolish for "throwing away" the settlement, her lawyer, Sam Barnes, is pressuring her in the opposite direction. He is urging her not to weaken, not to let the other guy off the hook. Karen, however, can't overcome residual feelings of guilt about the accident, despite her relative innocence and the greater harm she has suffered—facial scars, impaired mobility in her neck and left shoulder, and loss of

income. She feels keenly the possibility that she might break down in court, jeopardizing her case. Every friend, relative, coworker, and acquaintance she's ever had is giving her conflicting advice about what to do. She just can't decide.

Karen's Decision Problem

Karen's close friend Jane Stewart has suffered with her through the aftermath of the accident, and she is now serving as Karen's sounding board for her soul-wrenching inner debate about the lawsuit. Jane, a management consultant with professional experience in facilitating decision making, has undertaken to help Karen think through her situation systematically, to end her emotionally devastating indecision. Jane wants to help Karen decide whether she should go to court or settle out of court and to feel comfortable that she is making an appropriate decision. As she tells Karen, who hopes her luck will finally turn, "Most of the time luck favors the better decision maker."

Together, Karen and Jane isolate three essential considerations on which Karen's decision will hinge:

1. The chance of winning the trial and, if won, the chances of different possible jury awards.
2. The time and psychological stresses associated with going to trial and of not going to trial, together with the degree of Karen's regret if she loses or elation if she wins.
3. Karen's willingness to take risk.

In addition to going to court or settling for $300,000, Karen and Jane recognize a third alternative: waiting for a better settlement offer. Based on his knowledge of the opposing lawyer, Sam doesn't think another offer will be forthcoming. But Karen and Jane decide that, if Karen chooses to settle, she should keep her options open until the last minute.

To complete her risk profile of the go-to-court alternative, Karen will

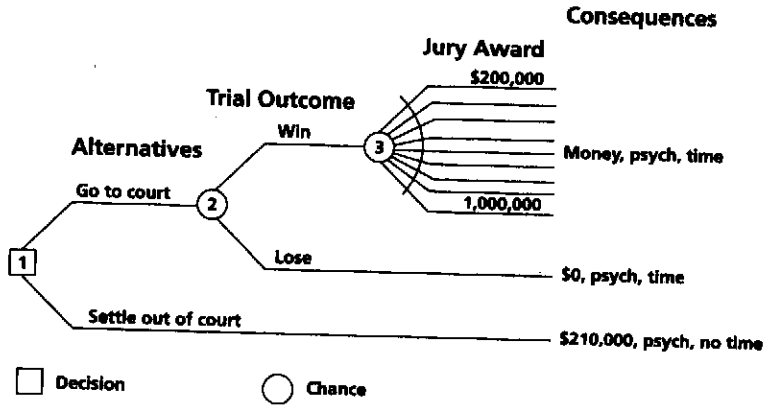
need to hear Sam's judgment about the chance of a positive trial outcome and of different award amounts. Karen schedules a meeting with him and Jane, for which Jane prepares some materials.

Karen's Decision Tree

At their meeting, Jane passes around a diagram (below) that describes Karen's decision problem as a decision tree. Reading from the left, the box labeled 1 represents Karen's basic decision: go to court or settle out of court. Deciding to settle, the lower branch, entails no uncertainty. But the decision to go to court, the upper branch, leads to two uncertainties: Will Karen win or lose (fork 2), and if she wins, how much will she get (fork 3)?

The range of figures off fork 3, from $200,000 to $1,000,000, represents the possible jury awards, which Jane derived from Karen's earlier discussions with Sam. The figure $210,000 at the end of the settlement branch represents what Karen would have left after paying Sam his 30

Karen's Decision Tree



percent fee. In addition to money, the tree notes two other possible consequences: "psych" indicates that the outcome might exact nonmonetary costs, including sleeplessness, anxiety, and regret, and "time" indicates that the outcome would entail a further investment of time.

Karen's Chances

Karen and Jane now call on Sam's expertise to quantify the likelihood that Karen will win the trial. Sam has told Karen that she has a "pretty good" chance of winning, based on the outcomes of similar cases, the record of the judge, and his assessment of his own litigation skills.

Jane probes the meaning of "pretty good," trying to arrive at a hard number, which would sharpen the analysis. She asks Sam, "How would you translate 'pretty good' into a probability?"

"I just don't think that way," Sam answers. "I don't see how you can put a number on everything, especially things as subjective as winning a trial."

Jane turns to Karen. "How do you interpret that, Karen? Give me some number."

"Oh, I'd say that Sam thinks our chance of winning is around 20 or 30 percent."

Sam protests. "That's not what I said! When I say a pretty good chance, I mean something more than that!"

"How much more? More than 50-50?"

"Certainly. More than 50 percent."

"How much more?"

"Oh, I don't know that you can put a precise number on it. It certainly isn't as high as 90 percent. In jury trials you can never be that sure. It's maybe somewhere between 60 and 80 percent."

"Would you say that 70 percent is reasonable, or high, or low?"

"It's a good estimate, as close as we can get."

"OK, let's talk about the uncertainties of the jury award at fork 3."

Jane probes Sam's knowledge about the possible jury award. After an

Chances for the Jury Award if Karen Wins

Interval of Jury Award	Outcome	Chance	Representative Amount
From $200,000 to $410,000	Low	25%	$300,000
From $410,000 to $550,000	Medium	25	470,000
From $550,000 to $700,000	High	25	610,000
From $700,000 to $1,000,000	Very High	25	800,000

hour or so of give and take, she prepares a table (above) summarizing his judgments. It divides the previously determined $800,000 range ($200,000 to $1 million) into four equally likely outcome intervals, labeled "Low," "Medium," "High," and "Very high." A representative amount for each interval, also listed in the table, makes it easier to interpret the implications of the jury award uncertainty. The figure $300,000, for example, stands for the range $200,000 to $410,000.

Karen's Consequences

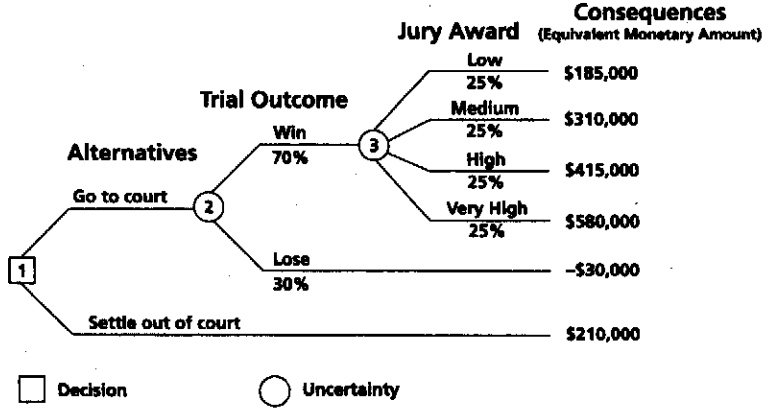
The task now is to factor in the nonmonetary costs to Karen of pursuing a jury trial: her time, her anxieties about losing, her lingering guilt about her role in the accident, her apprehension of the criticism of others (especially her mother) if she does lose after turning down a sure thing, and her own potential regrets on the same score.

Karen and Jane use the even swap method (as described in Chapter 6) to assign monetary values to the intangible costs. As shown in the "Adjustments" column for summarizing Karen's consequences (page 127), they use negative dollar amounts to represent what Karen would sacrifice, or "pay," to rid herself of all time and psychological impacts, and positive dollar amounts to represent the equivalent value she would gain, or "earn," from her elation at winning a very high award. The

Net Equivalent Dollar Consequences for Karen

Outcome	Gross Amount	Deduction of Attorney's Fees (30%)	Adjustments for Time and Psychological Impacts	Equivalent Monetary Amount
WIN				
Low	$300,000	−$ 90,000	−$25,000	$185,000
Medium	470,000	− 141,000	− 19,000	310,000
High	610,000	− 183,000	− 12,000	415,000
Very high	800,000	− 240,000	20,000	580,000
LOSE	0	0	− 30,000	− 30,000
SETTLE	300,000	− 90,000	0	210,000

Karen's Decision Tree with Consequences and Probabilities Added



Karen's Risk Profile for Going to Court

Uncertainty: Trial outcome and jury award

Outcome	Chance	Consequences (Equivalent Monetary Amount)
LOSE	30.0%	−$ 30,000
WIN		
Low award	17.5	$ 185,000
Medium award	17.5	310,000
High award	17.5	415,000
Very high award	17.5	580,000
	100%	

adjustment figures vary with the amount of the award, reflecting different balances of anxiety to satisfaction or regret to elation.

Once they have established equivalent monetary values of the intangible costs, Karen and Jane can add those values to (or subtract them from) the award amount to calculate the overall value of each outcome. The numbers in the column labeled "Equivalent Monetary Amount" thus represent the net values to Karen from the representative awards, after deducting her lawyer's fees (30%) and factoring in the adjustment amounts. Jane adds the net values as well as the chances to Karen's decision tree (see page 127). She also summarizes them in a risk profile (see above), where the 17.5 percents represent the 70 percent chance of winning the trial times the 25 percent of each award.

Karen sighs. "You sure have clarified what's at stake in my decision, Jane. But I still don't know what I should do. Should I take the $300,000? Or should I take my chance in court?"

"Well," Jane responds, "that depends on how you feel about taking risks. That's the final piece of the puzzle."

(*To be continued in Chapter 8.*)

Lessons from the Application

Thanks in large part to Jane's guidance and Sam's input, Karen now has excellent risk profiles for her two alternatives: to settle or to go to court. Her case illustrates four essential points to keep in mind when describing and comparing risk profiles.

- Strive to use numbers to clarify the chances of different outcomes. People sometimes take refuge in vague qualitative descriptions of chances in order to avoid commitment, responsibility, or second-guessing. They may have to be pressed hard to quantify their judgments, but as Karen's case demonstrates, the greater precision and usefulness of numbers makes it worth the effort needed to get them.
- Clarify the consequences by being specific. By dividing the broad span between $200,000 and $1,000,000 into four narrower, equally likely ranges, with a representative dollar amount for each, Karen gained a much better appreciation for what winning might mean to her.
- Use the even swap method to convert intangible concerns into a meaningful equivalent value. This process improved Karen's understanding of the possible consequences of her choices, because it helped her to think hard about how much she valued the "intangibles." She could then combine this with any dollar award she might receive, subtract attorney's fees, and arrive at a single indicator of the net equivalent dollar amount for that consequence.
- Take time to think about the important uncertainties influencing a decision. Constructing risk profiles does not require much time or effort or any specialized knowledge. It does require an honest effort to identify the key uncertainties and their possible outcomes and to clarify the chances and consequences of each.