The *Value* of Economic Analysis in *Preparing* for Mediation

How economic analysis can help redirect attention from party positions to a more objective analysis based on component variables.

BY DONALD R. PHILBIN, JR.

Don Philbin is an AV-rated attorney, mediator, arbitrator, and consultant based in San Antonio, Texas. He has experience as a commercial litigator, general counsel, and president of hundred million dollar-plus communications and technology-related companies. Mr. Philbin may be contacted at don.philbin@adrtoolbox.com. This article is adapted from "The One Minute Manager Prepares for Mediation: A Multidisciplinary Approach to Negotiation Preparation," which appears in volume 13 of the Harvard Negotiation Law Review.

"Why?" the child asks, negotiating a reprieve from eating green beans in favor of an early desert. "Because green beans are good for you," may have a hollow ring. "Because I said so" may work only to the extent of the power imbalance. Children want to know how their parents reach the conclusions that they serve up as positions. They probe for underlying rationales and interests. Litigants have the same need to understand how their opponents reach conclusions.

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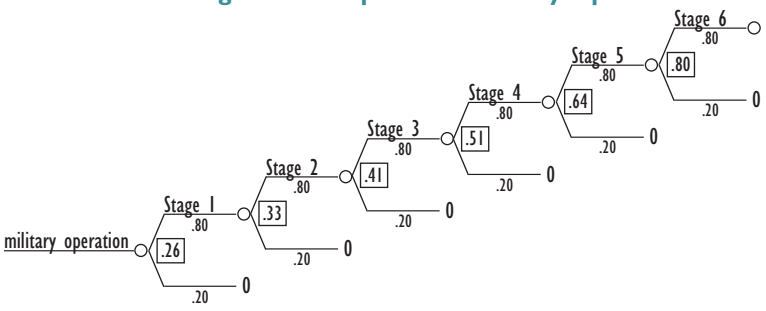
If 98% of filed cases will have negotiated outcomes, preparing to negotiate or mediate should focus more on underlying rationales than on positions, and for this the parties need a common vernacular through which to discuss the rationales that inform their positions.

This article discusses economic decision analysis as a tool to assist practitioners and their clients in preparing to negotiate or mediate. Of course, an economic analysis is only as good as the legal and factual analysis upon which it is built. It should show the legal remedies allowed by law and the facts supporting them. A sound economic analysis will get a party beyond the simple conclusion that it has a "good case" because there is some chance of a high or low award. A litigant wants to understand how the adversary got to its "good case" conclusion and what "good case" means. Take this military example. An 80% chance of success in each of six crucial stages of a military operation does not make for good odds. Even though a president may be tempted to give the go-ahead if the generals report that the overall chances for the operation are good, the combined results are a surprisingly low 26%. Mathematically, the problem is represented as 0.80 to the sixth power or 0.80 x 0.80 x 0.80 x 0.80 x 0.80 x 0.80 = 0.26. Graphically, it looks like this.

Figure 1. Prospects for Military Option



With the facts narrowed and the potential outcomes identified by legal analysis, it is possible to use economic analysis to graphically depict and value various scenarios in a litigated case. While we may not know with certainty what will happen in a specific trial, we do have an idea of the types of results that would flow from trying the same case 100 or 1,000 times. For example, we may get seven heads in 10 coin tosses—a high success rate. But that rate will be quite different (i.e., a "normal distribution") if you tossed the coin 100 times. Just ask anyone who has been to Las Vegas.

Stacking an economic analysis atop our legal analysis will also help us unravel the psychological biases that skew our results. Anchoring, overconfidence, imperfect information, attribution errors, reactive devaluation, and other recognized biases account for noticeable differences in the answers different parties give to the same question. While we may not be able to completely "de-bias" the analysis, we can recognize that the same person will value the same object (house, car, etc.) differently depending on whether she is buying or selling. Plaintiffs and defendants are no different. The legal system essentially forces defendants to write call options that are either in or out of the money depending on the final outcome. The challenge is to rationally derive that strike price in advance. So we account for biases as we build tiered analyses.

Value of Economic Analysis

Intuition and experience can help lawyers and clients gauge the prospect of "winning" a lawsuit. Economic analysis takes this "gut" assessment to another level. It urges a systematic analysis of the different outcomes, from the lowest (zero) to the highest. Once these potential outcomes are determined, they can be depicted in decision trees that MBA students have used for years.

Potential outcomes are not much help until they are assigned a probability of actually occurring. For example, having a chance at winning a $12 million lottery pay off is nice, but it is more helpful to assess the probability of winning, which may be worse than getting hit by lightning. People are likely to have different views on the likelihood of particular outcomes. Those different assessments can be graphed out and rolled back mathematically to determine the impact they have on overall valuation. Some may dramatically affect the net expected value (NEV) while others will not.

After the potential outcomes are identified and the probabilities are assigned, we do some basic arithmetic to determine NEV for each outcome (the product of multiplying the outcome by its probability). Notice that in the process, we have animated what we mean by "probable," "reasonably possible," and "remote" in a way that makes sense to financial types and decision makers—whether or not they agree with the underlying assumptions. It is a clearer way of talking about a "good case" or a "bad case" because it focuses on a range of potential future outcomes, rather than just the historic events that underlie the suit.

The exercise also increases the confidence of the negotiator who can now articulate how the "good case" conclusion was reached. That confidence tends to produce more favorable outcomes.

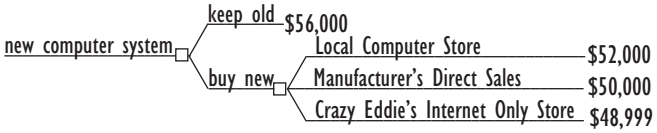
Using Decision Trees

Decision trees present alternatives in a graphic manner. They can help people make decisions

under uncertain conditions by helping value the intangible in dollars. The more information that goes into the decision tree and the determination of probability, the greater the precision: but discovering that information comes with a price.

Here is a decision tree representing the issue of whether a small business owner should replace its aging computer system with a new one.

Figure 2. Business Computer Buyer's Decision



In deciding whether to replace the current system, the buyer first must research different replacement cost options. It must also determine the price at which it will decide not to buy a new system and keep the current one—its "walk away" alternative. In this example, that figure is $56,000, but it's kept close to the vest during negotiations.

The decision tree shows that the buyer identified three viable purchase options, all less than its walk-away number: buying from (1) a local dealer for $52,000, (2) a manufacturer's direct sales division for $50,000, or (3) an Internet-only seller for $48,999. Those options and the costs associated with them are shown as branches on the right side of the tree.

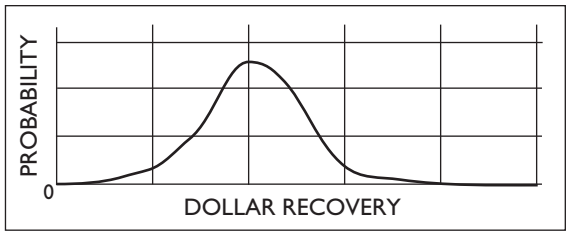
Armed with this information and its walk-away number, the buyer could decide to try to negotiate a lower price from the local dealer, from whom it might get some reciprocal business. It could choose to take the risk of buying from the Internet dealer, especially if the computer system comes with the same manufacturer's warranty. The buyer may feel more comfortable with the mid-priced system from the manufacturer's direct sales unit.

The same basic analysis applies to options in a litigated case. Parties to a dispute can decide to negotiate their own solution to a problem (with or without a mediator) or turn it over to someone else to impose a decision (as in arbitration or litigation). For each type of claim (e.g., breach of contract or warranty, misrepresentation, violation of consumer protection statutes, etc.), there are associated legal remedies (economic loss, treble or punitive damages, etc.), which provide the range of potential outcomes to the dispute. These outcomes can be depicted in a decision tree, just like the outcomes in the purchase decision. But before getting to those remedies, to simplify, let's say the plaintiff has two options: to settle or litigate. This decision is completely within the parties' control and is represented in the decision trees as a square (called a "decision node"). However, the potential legal remedies that might result if the parties do not settle are represented by a circle (called a "chance node"), since a jury, judge, or arbitrator would then determine the outcome for them.

In the following decision tree, let's assume that the computer system turns out to be defective and that it cannot be fixed under a written warranty. The small business owner in this example can mount a claim under the state consumer protection statute, which provides for treble damages, as well as a claim for breach of contract and for repair costs. For brevity, we will not get mired down in credits for a returned product, remedy elections, time value of money, etc.—though such assumptions could be progressively worked into the analysis in the context of a live mediation session.

Let's start by assuming four possible outcomes depicting high, medium, low and zero awards. The "bell curve" we hoped to forget from school provides an illustrative structure. It shows that if you had 100 trials of the same dispute, there will be high and low results, but the majority will probably lie somewhere in between.

Figure 3. Outcome Distribution

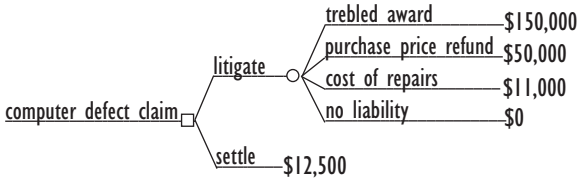


There is usually some chance of no recovery (left). Better results, for example recovery of repair costs, or the purchase price, or even treble damages, are shown as the curve moves to the right along the horizontal axis. At some point, the probabilities start coming back down. The likelihood of treble damages is less than recovery of the purchase price, which may be less than the probability of repair costs. The outcomes with the highest probabilities form the top of the curve. Those that are possible, but less likely, form the sides that approach zero probability at the horizontal axis.

Of course, more data points will result in more definition, but our goal is to build a relatively simple model that provides a vehicle for evaluating and discussing plausible options while nar-

rowing the open issues. Using this model can have a highly beneficial effect because it moves the parties away from heated discussions of past events, allowing them to make rational decisions based on the probability of various plausible future outcomes and the NEVs of each option.

Figure 4. Basic Claim



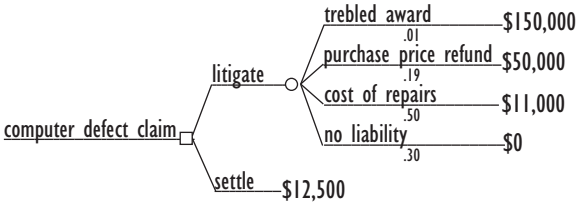
In this example, the plaintiff will decide whether to take a chance on various legally available but uncertain outcomes at trial, or to negotiate a settlement. The defendant faces a similar decision. The value of the settlement offer is assumed to be $12,500 in this round.

The next step is to assign a value to each potential litigation outcome and the probability that each might occur. The parties' lawyers will have a good sense for these values as they shift into the role of investment banker during negotiations. But two investment bankers valuing the same intangible may reach different conclusions based on different biases. For example, sellers and plaintiffs routinely seek more than buyers and defendants are willing to pay—and if they switch roles, those views too will reverse. Studies have been done of overconfidence. One showed that over 80% of entrepreneurs considered their chance of success as 70% or better, while 33% described it as "certain." That compares with an actual success rate of 33% for new firms (with success considered surviving for five years). Similarly couples about to be married tend to be overconfident that the marriage will last. They estimated their chances of later divorcing at zero, even though most know that the divorce rate is between 40-50%. Likewise, negotiators in baseball arbitration (in which the arbitrator selects the most reasonable offer) overestimated the chance that their offer would be chosen by 15%. Surveys find this "Lake Wobegon above-average" effect across all kinds of demographics—college professors, high school students, and truck and taxi drivers.

Let's assume that plaintiff's counsel has determined that the client is more likely to recover repair costs or the sales price than treble damages because a trebled recovery requires proof of malice, which might be difficult to establish in this case. Thus, the chance of recovering treble damages is assumed to be remote, possibly 1%. For illustration, the .01 estimate is placed just below the branch leading to the trebled outcome.

Let's also assume that plaintiff's counsel has determined that recovery of the purchase price has a greater probability of success, 19%, while recovery of repair costs is the most probable, estimated at 50%. Plaintiff's counsel also assumes that there is a 30% chance that it will lose at trial. These probabilities are placed below the relevant tree branch.

Figure 5. Plaintiff's Initial Probabilities



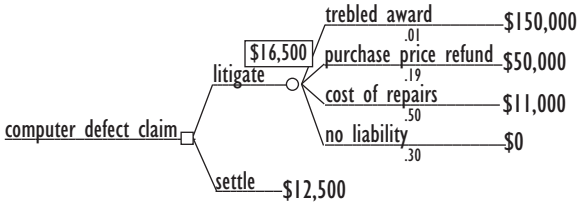
The probabilities must add up to 100% and they do (.01 + .19 + .50 + .30).

Next we need to determine the NEV of each branch of the litigation decision. We do this by multiplying the value of each potential outcome by its probability. Thus, we multiply .01 by $150,000, which equals $1,500, and do the same for the other outcomes. Then we add the products of each of these multiplications.

1% times $150,000 =	$1,500
19% times $50,000 =	$9,500
50% times $11,000 =	$5,500
30% times $0 =	$0
	$16,500

$16,500 is the NEV for the litigate branch.

Figure 6. NEV of Plaintiff's Initial Probabilities

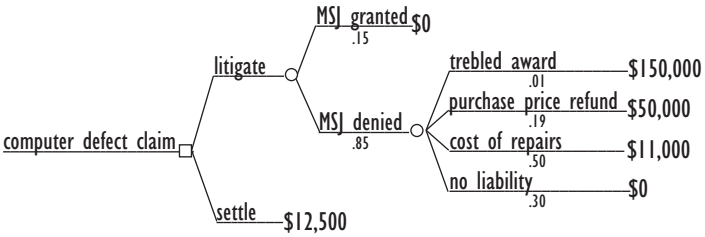


Because $16,500 exceeds the hypothetical $12,500 settlement offer, the plaintiff decides to litigate. But that assessment may change as different contingencies are considered.

Now assume that the defendant files a motion for summary judgment (MSJ), which its counsel assesses to have a 15% chance of being granted in the hypothetical jurisdiction. This means that there is an 85% chance that the motion will be denied. These assumptions are additional factors to consider when assessing the anticipated out-

comes. The MSJ and its potential outcomes are added to the decision tree at the end of the litigate branch. Note that the potential trial outcomes now branch from a circle chance node on denial of the MSJ.

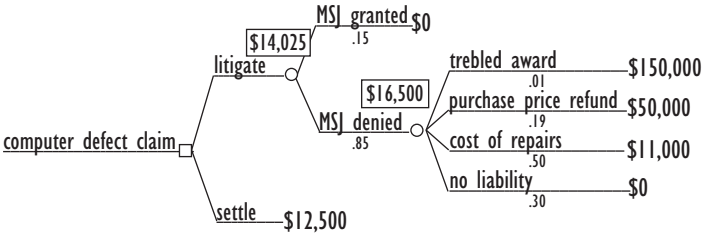
Figure 7. Summary Judgment Branch Added



Adding this additional decision fork with its two possible outcomes and probabilities affects the NEV of the litigate branch. If summary judgment is granted to the defendant, the case goes away and the NEV of the litigation option is discounted to zero.

On the other hand, if summary judgment is denied, which has an 85% chance of occurring, the NEV of the litigate branch is only reduced by the 15% chance of the MSJ. So there remains an 85% chance that the plaintiff will get to take a swing at the trebled award and the other litigation options that fork from the denial of the MSJ. Thus, the NEV of all trial options ($16,500) is discounted by the good chance (85%) of overcoming a MSJ. This contingency, however, reduces the value of the litigate options to $14,025 (the product of $16,500 times .85). This is depicted in Figure 8.

Figure 8. Calculations of NEV based on Figure 7



Now, if we examine the discounted value of each litigate option, we find that the $150,000 trebled award (which is plaintiff's best-case scenario) is slightly less likely to occur because of the additional contingency. Instead of having a 1% chance of occurrence, it has a .085% chance of occurrence (0.01 times 0.85 = 0.0085). Recall that the NEV of the $150,000 award is $1,500 ($150,000 times the 1% (.01) probability of winning that award) pre-MSJ. To take into account the odds of summary judgment being denied (85%), we need to multiply $1,500 by .85. This gives us $1,275. We do the same for the other litigate options to arrive at the weighted average (NEV). The plaintiff's worst-case scenario (zero recovery) is unchanged because any number multiplied by zero is zero. But the probability of getting zero is slightly less, reduced from 30% to 25.5% (.85 times 0.30) due to the summary judgment contingency. The plaintiff's chance of obtaining contract damages (.19 times .85) is discounted to 16% instead of 19%, which when multiplied by $50,000 results in an MSJ discounted award of $8,000 (down from $9,500). The plaintiff's chance of obtaining repair costs is discounted to 42.5% (.50 times .85). When .425 is multiplied by $11,000, the discounted result is $4,620.

Before discounting the potential litigation recoveries by the odds of a denied MSJ, the plaintiff had a 70% chance of recovering something more than zero (50% + 19% + 1%—from figure 6). If we discount that aggregated percentage, it is reduced to 60% (.85 times .70) in figure 8 for the MSJ. Thus, the plaintiff could be said to have a "good chance" of winning something. But like the lottery, winning doesn't always mean a big win. Here plaintiff does not have a "good case" for a big win ($150,000), the amount we would all want to recover if playing the plaintiff's role.

Transaction Costs

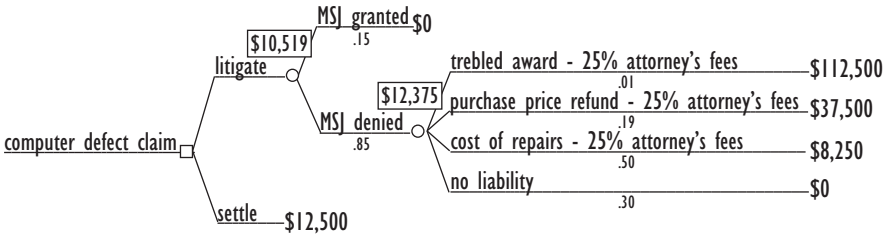
Another important factor is missing from our analysis of possible outcomes. That is the impact of transaction costs on each scenario. Since the time it takes to bring and defend claims, discover facts, file and defend motions and argue the case is expensive, we would do well to bake those costs into the analysis.

Let's assume that the plaintiff has negotiated a 25% contingency fee, which pays if the plaintiff wins the case. To take this into account, we need to reduce each potential litigate outcome by 25% (ignoring potential fee recoveries for now). Thus, winning $150,000 would cost $37,500, leaving a $112,500 net recovery; winning $50,000 would cost $12,500, leaving a $37,500 net recovery; winning $11,000 would cost $2,750, leaving a $8,250 net recovery. These outcome adjustments affect the NEV of the litigation option, as well as the discounted NEV, taking into account the MSJ. So instead of an NEV of $16,500, we get a NEV of $12,375, which is the sum of

1% times $112,500 =	$1,125
19% times $37,500 =	$7,125
50% times $8,250 =	$4,125
30% times $0 =	$0
	$12,375

Then, instead of a discounted NEV of $14,025, we get a discounted NEV of $10,519, which is less than the anticipated settlement amount, calculated as follows: $12,375 times .85 = $10,518.75. This is depicted in figure 9 below.

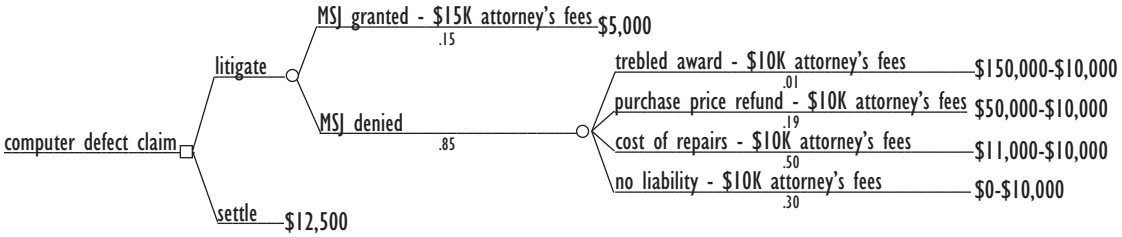
Figure 9. Plaintiff's Transaction Costs



The Defendant's Transaction Costs

Now we look through the other end of the telescope at the decision the defendant faces. Our defendant may not be able to negotiate a contingency fee, but let's assume that it can get a reduced fee due to other similar suits. So for purposes of this example we are going to assume that the defendant will incur conservative legal costs of $5,000 through summary judgment and another $5,000 if the case goes to trial.

Figure 10. Defendant's Transaction Costs



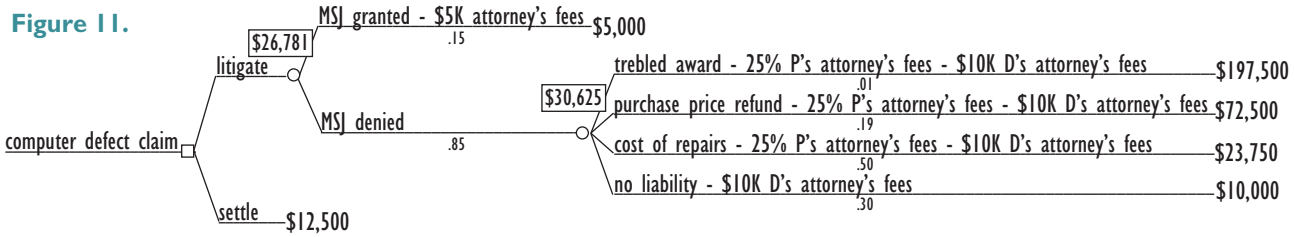
The defendant's best-case scenario is winning the MSJ, in which case it will have only spent $5,000 in legal fees. Its worst-case scenario is losing the MSJ and the plaintiff winning treble damages. Its costs would then be $160,000 (i.e., $150,000 + $10,000, its own legal fees).

This does not fully account for the downside risk if the state deceptive practices statute allows a prevailing plaintiff to recover its attorney fees from the defendant. If the plaintiff's legal costs are shifted to the defendant, the litigate scenarios look like this.

Figure 11. Defendant's Scenario with Plaintiff's Transaction Costs (bottom of page)

The worst case for the defendant is a treble damages award plus an award of the plaintiff's legal costs. To this must be added the defendant's own legal fees ($150,000 + $37,500 + $10,000 = $197,500). But the assumed probability that this scenario will occur at trial is 1% and the plaintiff must overcome the defendant's MSJ to get to trial. Following the path of the claim from left to right, the plaintiff has an 85% chance of overcoming the defendant's MSJ and a 1% chance of ringing the bell at trial thereafter. That's an .0085 chance of obtaining $197,500 or $1,678.75. But there are four different trial outcomes to the right of the MSJ branch. Therefore, we must factor each outcome by the same percentages and then sum them to reach NEV for the litigate alternative (including the MSJ and trial outcomes). $11,708.75 (.85 times .19 times $72,500), plus $10,093.75 (.85 times .50 times $23,750), plus $2,550 (.85 times .30 of $10,000, plus the $1,678.75 above equals $26,031.25 ($1,678.75 + $11,708.75 + $10,093.75 + $2,550.00). To the $26,031.25 we must add the 15% chance that the defendant wins its MSJ but still has to pay $5,000 in fees (.15 times $5,000 = $750). All in, the NEV equals $26,781 for the litigate branch with a summary judgment contingency. At that juncture, a defendant would presumably prefer to settle for $12,500 over the NEV of the litigate option ($26,781).

Figure 11.



The plaintiff may not like the $10,519 NEV in figure 9 and the defendant may be equally unmoved by its $26,781 NEV in figure 11. But now they can argue about the component assumptions making up those numbers rather than arguing that my "good case" results in valuations at either end of the bell curve. The economic analysis exercise helps break down the broad conclusions we all tend to make. Not only does that begin to project valuations, it helps unravel the psychological biases we all bring to the process. It also gives us a way to disagree with the assumptions the other side is making without devolving to general assessments—"she's wrong, we'll get $197,500." Without an objective assessment, we would all continue to jump from a "good case" assumption to the number we like the best ($150,000 or more for the plaintiff and $0 liability for the defendant).

Mediators Help Overcome Bias

Because we do not naturally question our own conclusions and we surely do not want our lawyer advocates to do it either, bringing in a neutral third-party mediator with knowledge of economic analysis can be very helpful. In private caucus, the mediator can help the parties unearth and discuss the assumptions embedded in their conclusory positions. Moreover, a neutral mediator's suggestions will be received quite differently than suggestions by their adversary—even if substantively the same. This is due to reactive devaluation bias.

A Cold War experiment quantified the magnitude of this type of bias. Soviet leader Mikhail Gorbachev made a proposal to reduce nuclear warheads by one-half, followed by further reductions over time. In the experiment the subjects were asked to react favorably or unfavorably to the proposal based on three assumptions: the proposal was made (1) by President Ronald Reagan, (2) by a group of unknown strategists, or (3) by Gorbachev himself. The surprise was not that the group reacted differently to the same proposal depending on its source, but the wide range of difference. When attributed to Reagan, 90% reacted favorably. That dropped marginally when attributed to the third-party (80%), and then by half (44%) when attributed to the Soviet leader.

Not surprisingly, proposed peace agreements between Israel and the Palestinians were also viewed differently depending on whether the proposal was said to have emanated from the Israeli government or the Palestinian Authority.

When economic analysis is used in mediation, the parties may agree on a range of potential outcomes and then discuss the probabilities—along with a cathartic discussion of past events—with the mediator in private caucus. For example, the mediator could reflect back to the plaintiff, "Let's assume Mr. X is Darth Vader and did try to ruin your business with faulty computers. How does that change your future options and potential outcomes?"

Whether an economic analysis is done before or during mediation, it lays a foundation for a constructive conversation, a means of keeping the discussion focused on probable or reasonably probable outcomes, as well as a common language to discuss those outcomes. It also helps the parties refine and discuss their expectations.

Instead of arguing that one side has a "good case" or a "bad case," the parties can visualize a possible range of outcomes. The parties may see that if they decide to litigate, the cumulative effect of their assumptions is NEV, rather than their preferred result. The exercise shows that a party can expect result A in an assumed percentage of total outcomes, and that the probability of result A, whether low or high is only one of several potential outcomes. Thus, the analysis recognizes the possibility that someone else may be right (even if those chances are low), and this has powerful psychological implications on decision making.

The variables in this analysis can easily be changed and other variables can be added, for example, present value (internal rate of return, adjusted for pre- and post-judgment interest), fee shifting, and business impact.

Taking attorney's fees and other transaction costs into account can illustrate how far apart the parties have to be in order to eliminate settlement, either through continued negotiation or mediation. Changing the assumptions and adding new variables helps the parties measure the impact of their biases. They can see whether reaching a settlement may make more or less sense under certain outcomes than it does under others. The process helps everyone more clearly understand what a "good case" or a "good chance" means in a common vernacular. That improves the process by defusing a fight and focusing on the assumptions that drive party aspirations and interest.

Conclusion

Decision makers are likely to make more rational decisions when they have the benefit of an economic analysis. They are less likely to make decisions based on emotions and hard line positions.

Economic analysis provides a basis for productive future-oriented negotiations, which can be facilitated by a mediator. Combined with other business evaluation tools, it can help parties make the best possible decisions as to how to resolve disputes with imperfect information. ■