



Making Better Decisions

Leveraging Your Organization's Data and Information

EXCERPTED FROM

Data Driven: Profiting from Your Most Important Business Asset

By

Thomas C. Redman

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CHAPTER FOUR

Making Better Decisions

My second prescription calls for organizations to put their data and information to work both inside the organization and out. Inside, they must leverage them to speed supply chains, connect departments, develop a total view of the customer and understand customer profitability, first improve and then optimize their business processes, better manage their increasingly multinational employee base, ferret out unnecessary expense, and speed innovation. Indeed, they must make every employee a knowledge worker, driving data and information into every nook and cranny of every operation, customer interaction, decision, and plan. The focus of this chapter is doing so in decision making, because once decision makers get a taste for data and information, they will salivate at the chance to leverage them on the opportunities just noted, and ten thousand others as well.

Perhaps no management topic garners more study than decision making. After all, good decisions lead to better products, more revenue, increased market share, satisfied employees, and improved competitive position. They lead to promotions, big raises, and more responsibility. Conversely, bad decisions mean products stagnate, revenue falls, market share is lost, people become unhappy, and competitiveness is reduced.

Putting Data and Information to Work

It goes without saying that bad decisions wreck or, at best, stymie careers. Thus, there is much at stake.

There are a virtually limitless number of angles from which to study decision making, and many provide excellent insights for both managers and organizations.¹ But most, in my view, do not fully appreciate the roles data and information play and especially the debilitating effects of “facts” that are simply wrong. Nor do they provide insights into developing trusted sources in advance or systematically improving decision-making processes.

Make no mistake, the surest way to make and execute better decisions is to fully leverage data and information:

- By having better data and information in advance
- By using them to make better, faster decisions
- By using them to align the entire organization and thus execute with greater power and confidence

Therefore, this chapter looks at decision making through the data and information lens. This chapter discusses how good decision makers manage the uncertainty that is inherent in decision making by informationalizing the entire process. Finally, it notes a dark side of the Information Age: however off-the-wall a decision may be, rest assured that there are plenty of data and information that support it.

Decisions Through the Data and Information Lens

Decisions are the quintessential information products. The only inputs are data and information, ranging from carefully researched hard facts to tacit information in its many gradations, from anecdotes that capture the essence of some aspect of the situation to long-held and ill-supported biases. The outputs, including the option selected, the choice of tactics and plans to implement it, the rationale for the decision, and the predicted results, inform people and groups what they are to do next and, it is hoped, build support for the decision.

Making Better Decisions

Through the data and information lens, decision making is largely about managing uncertainty and the associated penalties and rewards (see “Uncertainty, Rewards, Penalties, and Risk”). Consultants rave about “decision making based on the facts” because it reduces uncertainty, particularly compared with the ever-popular alternatives such as decision making based on intuition, decision making based on anecdote, and decision making based on the way we have always done things.

By definition, decisions involve uncertainty. If a decision algorithm could completely eliminate uncertainty, then the right thing to do would be clear and there would be no need to make a decision at all. Everyone who has ever made a decision has experienced this. It is almost always the case that some of the inputs point in one direction and some in another. And, no matter how carefully the issue is researched, something unexpected always seems to come up. The common name for the unexpected is *luck*, although the better prepared are consistently luckier than the ill-prepared.

Unfortunately, decision making is not so simple as to involve reducing uncertainty only. Consider the steps an organization might take to select a person for a well-defined executive position, say the head of operations.

Uncertainty, Rewards, Penalties, and Risk

Recall that *uncertainty* is an individual, subjective measure. In some cases, uncertainty can be quantified in terms of probability. In others, uncertainty resides in the pit of the stomach, measurable only by the difficulty in getting to sleep. As used here, *reward* is the possible gain and *penalty* the loss that results from a decision. *Risk* combines the two notions. Statisticians combine the two formally and define risk as the product of the penalty and the probability that it will occur.

It is easiest to see these terms in action with games of chance, but I find something dissatisfying about equating decisions that can affect people's lives with games of chance.

Putting Data and Information to Work

In the first step, a recruiter solicits and reviews résumés, checks credentials, and conducts screening interviews. These provide data and information about each candidate's education, career, and other background and reduce a great deal of uncertainty. For the sake of discussion, assume the recruiter recommends two candidates, who then meet with members of the executive team. Both candidates are well qualified, so the focus of the internal interviews is not on formal qualifications as much as on intangible factors, such as how each candidate will fit in, personal chemistry, and whether candidates will be happy in the new role.

As the process continues, one interviewer points out that one candidate is an innovator and the other is not. No one had given any thought to the ability to innovate as a desirable trait for the head of operations, perhaps because there had been so little during the term of the previous head. But now they see new possibilities for the role and redefine the job requirements. At this point the organization may well ask its recruiter to redo its search, focusing specifically on the new requirement.

This example illustrates several important roles that data and information play in decision making. First, data and information do help reduce uncertainty, in exactly the manner that chapter 1 suggests. In the example here, the hard data (candidates' educational background, etc.) helped narrow the field of candidates to two. More tacit information, such as impressions about how well a candidate would fit in, further reduced uncertainty.

The observation that one candidate was an innovator had, at least for a time, the opposite effect. It increased uncertainty by forcing decision makers to widen the scope of their model of the ideal candidate. The organization effectively started its search all over, in recognition of the need to explore this new dimension. "Increased uncertainty" sounds bad, and it is a poor label for what is actually happening. Rather, new information can lead a decision maker to weigh factors differently, to recognize new options, and to frame the decision in a more positive, vital fashion. Uncertainty may well have increased, but in doing so may well improve the eventual decision.

A lot has been written recently about the relative merits of hard facts versus tacit information. Hard facts are (one hopes) the result of carefully managed processes and systematic analysis. There is something satisfying

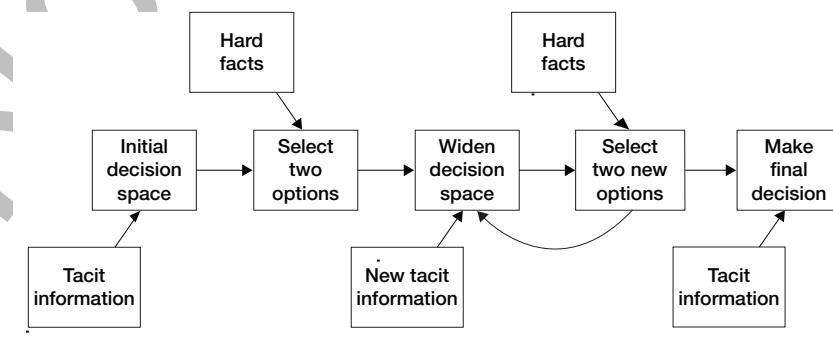
about them—particularly since they can be shared, dissected, and confirmed. But they can only go so far. Tacit information and a richly developed intuition about what is important cover areas that hard facts simply do not. They spark the imagination, enabling people to formulate new options and see the hard facts in new lights. The insight of the potential for an innovator in an operations position came from some interviewer's ill-defined intuition.

Although some may be tempted to value hard facts over tacit information or vice versa, when seen through the data and information lens both are essential to good decision making. An old saying goes, "When the facts disagree with intuition, they must be discarded," and all too many organizations treat the saying as a rule, not a caution flag. But of course this should not be the case. Used well, facts and tacit information can complement one another, as the example in figure 4-1 depicts. Even when some facts and tacit information point one way and some the other, good decision makers give both their proper consideration.

It is trite to observe that decisions are no better than the data and information on which they are based. Bad data lead decision makers astray. Chapter 2 cited the decision by the Bush administration to invade Iraq based, in part, on the suspected presence of weapons of mass destruction and the association of Al Qaeda with the regime of Saddam

FIGURE 4-1

A typical decision flow



Putting Data and Information to Work

Hussein, both of which were incorrect. Another example changed the business landscape, when senior leadership of AT&T in the late 1990s trusted the falsely reported WorldCom unit costs, even though seasoned internal veterans disagreed.²

But these examples are simplistic. There were no doubts that Saddam Hussein had committed unspeakable acts and that AT&T's unit costs needed to come down. Through the data and information lens, all decisions involve contradictory inputs. Therefore, part of the decision maker's task is to separate the high-quality inputs, which should be used in making the decision, from the poor-quality inputs, which should be discarded.

Because decision makers cannot know whether inputs are correct, they must make those judgments based on their level of trust in the source. Sometimes a decision maker's judgment is wrong. Besides the mistaken belief that incorrect inputs are correct, the lack of trust in correct inputs leads to unnecessary delay as decision makers seek other or confirmatory data. As the saying "He who hesitates is lost" attests, the consequences can be severe.

Of course, many decisions are made under the press of time. Sometimes the most important constraint facing a decision maker is the time available to absorb the input data. Other times the most important constraint is a due date, as when one candidate must select another opportunity. And in some situations, not deciding is effectively an implicit decision. For example, not deciding among the two candidates is equivalent to deciding not to hire either.

Finally, no decision—no really important one, anyway—is made in the absence of politics. Stakeholders, naturally enough, want a decision to go their way. And many are not above offering favors and punishments to get their way.

Thus, the art in decision making lies in balancing the goals of making sure one's decision space is wide enough, reducing uncertainty within that space, weighing the hard and soft information, sifting the "correct" inputs from the "incorrect," taking political realities into account, and doing so in a reasonable amount of time and with reasonable effort. Individual decisions that result from a healthy balance of these factors are called *informed decisions*. The remainder of this chapter

Making Better Decisions

examines ways in which both organizations and individual managers can make more of them.

Good Decision Makers Adapt Their Decision Criteria to the Circumstances

Figure 4-2 presents a simple example involving three potential decisions, labeled A, B, and C. For the sake of the example, the decision can “succeed,” prove “neutral,” or “fail.” The top-left portion of the figure summarizes the probabilities and anticipated rewards and penalties for each. Decision B is the classic “high-risk, high-reward” scenario, decision A is

FIGURE 4-2

The influence of decision criteria on decision making

This example illustrates how the choice of decision criterion affects the best decision.

		Decision			Decision criterion	“Best” decision
		A	B	C		
Situation analysis	Statistic					
	Likelihood of success	0.5	0.5	0.7		
	Reward (\$mil)	2	6	5		
	Likelihood of neutral result	0.2	0.1	0.15		
	Reward (\$mil)	0	0	0		
	Likelihood of failure	0.3	0.4	0.05		
	Penalty (\$mil)	–1	–3	–3		
Decision statistics	Expected return (\$mil)	0.7	1.8	3.35	Maximize	C
	Reward, if right (\$mil)	2	6	5	Maximize	B
	Upside potential (\$mil)	1	3	3.5	Maximize	C
	Penalty, if wrong (\$mil)	–1	–3	–3	Minimize	A
	Risk (\$mil)	–0.3	–1.2	–0.15	Minimize	C

Putting Data and Information to Work

its opposite number, and decision C lies somewhere in the middle. Presented with such inputs, what is the “best” decision?

The answer is, “It depends.” The lower portion of the figure presents five criteria for making the decision and the correct decision under each criterion. Note that:

- C is the best decision if the goal is to maximize the expected return.
- B is best if garnering the largest possible reward is the goal.
- C is also best if the goal is to maximize the upside potential (as used here, *upside potential* combines the probability of success with the reward).
- A is best if minimizing the worst-case scenario, or penalty for being wrong, is the goal.
- C is also best if minimizing the risk, where *risk* combines the probability of failure with the penalty, is the goal.

As even this simple example makes clear, this is a horribly complex and important subject. It is made even more complex by the passions surrounding big decisions, as managers accuse one another of “being an old fuddy-duddy” or “a lone cowboy” because one thinks it best to minimize risk and another wants to go for broke. Importantly, these managers may not be able to articulate the root cause of their disagreement.

Good decision makers thrive in such situations. They recognize that different circumstances call for different decision criteria, and they instinctively know when to go for the big score and when to play it safe. They see the disagreements for what they are, and they are able to advance their point of view without stepping on too many toes.

Good Decision Makers Develop Sources of Trusted, High-Quality Data and Information

I have already noted that decisions are no better than the data and information on which they are based. There are two related, but sepa-

Making Better Decisions

rate, requirements: that the input data be correct and that decision makers trust them. Figures 4-3a and 4-3b illustrate what occurs when each of these requirements, respectively, is not met. In figure 4-3a, one of the “facts” associated with decision C of figure 4-2 is wrong. In figure 4-3b, the decision maker simply does not trust the inputs provided for decision C and therefore discards that alternative. In both cases, a sub-optimal decision results.

Although figures 4-3a and 4-3b are simplistic, they reflect the situation most decision makers face every day. Indeed, according to a recent study, “an overwhelming majority of business leaders don’t have the information they need to accurately assess business performance and support

FIGURE 4-3a

The influence of correct data or information on decision making

Suppose the decision maker is using this table, rather than figure 4-2, to make his or her decision and that one “fact” (the shaded cell) for decision C is wrong. The decision maker will make a suboptimal decision.

		Decision				
Statistic		A	B	C	Decision criterion	“Best” decision
Situation analysis	Likelihood of success	0.5	0.5	0.7		
	Reward (\$mil)	2	6	2.5		
	Likelihood of neutral result	0.2	0.1	0.15		
	Reward (\$mil)	0	0	0		
	Likelihood of failure	0.3	0.4	0.05		
	Penalty (\$mil)	−1	−3	−3		
Decision statistics	Expected return (\$mil)	0.7	1.8	1.6	Maximize	B
	Reward, if right (\$mil)	2	6	2.5	Maximize	B
	Upside potential (\$mil)	1	3	1.75	Maximize	B
	Penalty, if wrong (\$mil)	−1	−3	−3	Minimize	A
	Risk (\$mil)	−0.3	−1.2	−0.15	Minimize	C

FIGURE 4-3b

The influence of trust in data on decision making

In this situation, the decision maker does not trust the inputs provided in support of decision C. He or she will naturally discount C as an option, robbing himself or herself of the best decision under three decision criteria.

		Decision			Decision criterion	"Best" decision
		A	B	C		
Situation analysis	Likelihood of success	0.5	0.5	0.7		
	Reward (\$mil)	2	6	5		
	Likelihood of neutral result	0.2	0.1	0.15		
	Reward (\$mil)	0	0	0		
	Likelihood of failure	0.3	0.4	0.05		
	Penalty (\$mil)	-1	-3	-3		
Decision statistics	Expected return (\$mil)	0.7	1.8	3.35	Maximize	B
	Reward, if right (\$mil)	2	6	5	Maximize	B
	Upside potential (\$mil)	1	3	3.5	Maximize	B
	Penalty, if wrong (\$mil)	-1	-3	-3	Minimize	A
	Risk (\$mil)	-0.3	-1.2	-0.15	Minimize	A

management decisions.”³ Further, Peter Drucker admonished, “Few executives know how to ask: What information do I need to do my job? When do I get it? And from whom should I be getting it?”⁴ Finally, in the headlong rush to an important decision, there may not be time to think through exactly what data and information would be most relevant, never mind to spot errors and have them corrected. No wonder managers and organizations have such a tough time making sound decisions.

Good decision makers recognize that there is no alternative to high-quality inputs that they trust. And they recognize that the only way to meet these requirements is to proactively manage their data and information sources.

Making Better Decisions

For routine decisions this is comparatively easy. The required inputs can be carefully defined in advance and laid out in purchasing, expense, and other forms; and simple measures can ensure that they are correct. One of my favorite quality management stories involves a purchasing group that found itself constantly correcting errors in the data. This took time and was bad for morale. When the group stopped making corrections and simply returned the erroneous forms, engineers complained bitterly. But errors soon ceased.⁵

The inputs needed for less-routine decisions are increasingly complex, diverse, and less structured.

Good decision makers cultivate a trusted core of sources that they know will provide clearly defined, accurate, up-to-date, and timely information. Decision makers need not understand the hidden nuances ahead of time, but they must cultivate a network of trusted advisers who will explain these nuances as the need arises.

I am often bewildered by the degree to which some decision makers trust information obtained from a competitor above the contradictory numbers provided by their own staffs. For example, it seems strange to me that AT&T senior leadership accepted WorldCom figures contrary to the advice of seasoned internal veterans.⁶ It sometimes seems that internal sources have two strikes against them. Perhaps these decision makers assume that insiders are biased or that theirs is the only organization that has trouble producing quality data, even though it is more often the case that known biases and shortcomings in the data provide a better base for decisions than unknown biases and shortcomings.

Good decision makers recognize that they simply must be able to trust internal data, summary statistics, and reports. They may accept comments such as, “My guys have scrubbed these data as best we can” in the near term, but over the long term they insist that those responsible follow the good-practice habits of chapter 3 and provide credible reasons why the data they need for decisions are correct.

Good decision makers cultivate a wide variety of trusted sources—the wider, the better. Consultants, colleagues from previous jobs, government statistics, academic studies, and others are all candidate sources. And of course, an executive’s network should extend far beyond his or her trusted core. Said differently, executives need sources they do *not*

Putting Data and Information to Work

fully trust—those who see the world in offbeat ways or who have strong opinions and are not afraid to share them.

The better part of a decision maker's source management efforts should be continual and well in advance of any particular decision. But how should he or she proceed when the moment of truth arrives? At that point the executive should do his or her best to answer the following questions for any information central to the decision:

- Where did these data and information originate?
- What do we know about the source? Is it part of the trusted core, a usually reliable source, a mortal competitor, or somewhere in between?
- Does the source have any stake in the decision? If yes, what is the nature of that stake?
- Within its realm, has the source provided all possible data and information? Or is it holding "the really good stuff" back? (Chapter 7 has more to say about this subject.)
- Are there any independent sources? Do they confirm the information?
- Why was the information collected? Is that reason close enough to the use to which we want to put it?
- Is the information merely anecdotal or was it collected purposefully?

Although few sources or bits of information will yield positive answers to all the questions, the more positive answers, the higher the likelihood that the source should be trusted.

Good Decision Makers Show Discipline

Good decision makers recognize that emotions make it more difficult to make good decisions. The recommendation for data mining software that a newly minted middle manager is about to make may be the most important decision of his career to date. He is naturally fearful that his

Making Better Decisions

next promotion will crash if the software does. This fear may cause him to ignore certain inputs, impel him to adopt a more conservative decision criterion, or color his judgment. He treats his recommendation as a one-of-a-kind exercise and agonizes over it. A more experienced manager is better able to detach her emotions from the decision.

Organizations that consistently make good decisions help their people do so. They know they must make all sorts of decisions every day, from purchasing software to hiring a new executive or making a strategic acquisition. The vast majority are routine and repetitive. Therefore they apply the rigors of process management when and where it makes sense to do so. Doing so helps both the middle manager mentioned earlier to make his most important decision an informed one and the organization as a whole to make consistently better decisions.

Discipline is most critical when the flames of passion and the fury of politics peak, as is usually the case with important decisions. Those who keep their cool have an enormous advantage. This is not to say that good decision makers are not passionate. They are. They care deeply about their organizations, the people that work there, their customers, and their products, and they are passionate about their own careers. But they simply understand that a bad decision won't serve any of these interests, and they recognize that it is more difficult to weigh inputs, keep an open mind, and build support when they're jubilant, frustrated, scared, or angry. Therefore, they keep their emotions in check.

Good Decision Makers Treat Those Affected by Decisions as Customers

One of the great benefits of looking at decision making through the data and information lens is that it brings “customers,” those affected by a decision, to the fore. The more common term is *stakeholder*, but *customer* is a more humanizing term (see “Decisions and Their Customers”).

Good practice calls for making a careful list of customers and their needs. The number of customers is usually large, including the following:

- Outside customers who will be affected
- Shareholders and owners

Putting Data and Information to Work

- Competitors (although one is not trying to meet their needs)
- Other outsiders who will be affected, either directly or indirectly
- Employees and other insiders
- Those who must implement a decision (the organization's ability to execute a decision is probably the single most important consideration in decision making)
- Members of the outside society who may be affected
- The decision maker (from this perspective, one should recognize that the decision maker is a customer of his or her own decision)

This dictum applies to both decision processes and one-of-a-kind strategic decisions. The middle manager mentioned earlier who needs specialized software so his group can make sophisticated calculations is a customer of the purchasing process. He may complain that his needs are not being met—that the process is too slow and bureaucratic. This may very well be true, but he is only one of several customers and may be rather low on the priority list. Other customers may include the IT department, which must support the new software; the purchasing department, which may have negotiated special rates the analyst does

Decisions and Their Customers

I find it interesting and unfortunate that the term *customer* is so rarely applied to decision making. *Stakeholders* is certainly accurate—those affected by a decision certainly have a stake in the decision—but the term is too clinical for my taste. Most people hold an elevated view of customers (and equivalent terms such as *clients* and *patients*). From this perspective, “high-quality decisions meet the most important needs of the most important customers,” and there are many customers, with highly diverse needs, for decisions with long consequences. I think it is humanizing to acknowledge even the least important as a customer!

Making Better Decisions

not know about; and the finance group, which is responsible for budgetary control. Of course, the purchasing process must also be designed to balance the competing needs. Features such as a fast-track purchase should be built in, giving the middle manager recourse if his software needs cannot be met otherwise.

Truly important decisions merit their own customer analyses. Good decision makers recognize that their understanding of customer needs evolves as the decision process unfolds and keep these data current every step of the way.

One last point on customer needs: treating those affected by decisions as customers is most important for the really tough decisions. Tough decisions are tough precisely because they cannot possibly satisfy all customers. Good decision makers recognize that people have a basic need to be heard and do their best to make sure that those who may not get their way have ample opportunity to be heard. Similarly, they recognize that a “surprise decision” carries a double sting for people who do not get their way. Therefore they keep important customers advised every step of the way. Under these circumstances, some people (certainly not all) pay back the decision maker by supporting a decision they do not like.

Good Decision Makers Rate the Quality of a Decision Based on Results

Ultimately, decision making and decisions must be judged on the results they produce for customers. During AT&T's fall from the list of corporate greats in the late 1990s, the new CEO, Mike Armstrong, introduced a strategy to reenter local markets and provide end-to-end service (much like predivestiture AT&T). To do so, AT&T began buying cable companies and working to integrate cable TV and phone service. But AT&T continued to go downhill. Many of my former colleagues refused to find any fault with Mr. Armstrong's strategy. “It was a fine strategy,” they claimed. “We just couldn't execute it.” (Another important factor was that AT&T simply could not match WorldCom's reported operational expenses, which later proved to be false, as noted earlier.)

Through the data and information lens, my colleagues were simply wrong. Employees and shareholders were customers for the strategic direction. A strategy that the former could not execute and that created no new value for the latter cannot, through this lens, be considered anything but a failure.

If decisions are judged on their outcomes, it follows that people must take the time to systematically evaluate those outcomes and measure them. Many managers and organizations have difficulty doing this—they simply move on to the next crisis. But without the introspection that comes with measurement, it is simply impossible to do better in the future. Politics aside, there is no reason that purchasing, hiring, performance review, budgeting, and a myriad of other important but routine decisions (and decision processes) should not be subjected to the scrutiny of systematic evaluation and measurement. Even simple measurements (e.g., what fraction of new hires are still on the payroll one, two, or three years later; what the average time is to complete a simple purchase; what fraction of budgets are met within 1, 2, or 3 percent; customer satisfaction with these processes) and analyses might well be eye-openers and lead to cost-effective improvements.

Organizations that make consistently good decisions systematically measure outcomes. Two examples suffice. Few decisions are affected by more variables than those in professional sports (with the added pressure of the criticism of national media and armchair managers and coaches). Yet the successes of the Oakland Athletics, St. Louis Cardinals, New England Patriots, and others that systematically measure the results of personnel and game-day decisions testify to the power of doing so.⁷

The other example involves reading radiology films, a demanding and knowledge-intense job. Systematic measurement of decisions about the presence of breast cancers and subsequent analysis have led to a one-third decrease in the number of false negatives (i.e., films where tumors were missed and proved later to exist).⁸

Of course, the most important, long-consequence decision processes are not repetitive. For strategic decisions, major new products, and selection of new enterprise software, measurements that simply count the successes are neither feasible nor desired—but postmortem reviews are (see “Even-Handed Judgment”). A *postmortem review* is nothing

Even-Handed Judgment

Earlier, I concluded that Mike Armstrong and AT&T's decision to reenter local markets was a failure. That conclusion, of course, may seem unfair. After all, good processes can, from time to time, produce bad outcomes. The strategy selected could also have been the best of many bad alternatives. Finally, AT&T may simply have been unlucky.

It is important to bear in mind that a mediocre decision, the result of a contrived and ill-managed process, can also produce good results. Rewarding such a decision is just as unfair as castigating Mr. Armstrong without the facts. These two examples underscore the need for deep postmortem analysis on both failed and successful decisions. For if one simply eschews the AT&T lessons in favor of dumb luck, future decisions are doomed to mediocrity.

more than a systematic analysis of a decision, the inputs that helped shape it, the options considered, the factors that weighed heavily in the decision, the decision itself, its implementation, and the results. Done properly (a task more easily said than done), a postmortem is an opportunity to learn "what we should have known," "what worked," "what didn't work," and "what we should try to do differently next time."

The United States military consistently subjects itself to postmortem analysis. Even the most minor battle is scrutinized, and many are continually reevaluated to understand how tactics are affected by new technology. Battle groups of all sizes undergo simulated battles, with results examined in detail in search of improved tactics.⁹

Business schools conduct a form of postmortem analysis through the case study method, so future generations of managers do indeed learn from the past. But providing business school training is not the spirit of the postmortem. The purpose of the postmortem analysis is to help the organization that made the decision evaluate it and decide, in light of its own capabilities and goals, how to do better next time. All organizations should routinely conduct postmortems for themselves.

Good Decision Makers Recognize That Making a Decision Is Only the Beginning

The famous economist John Maynard Keynes was once asked how he responds when new data do not support his earlier judgment. He replied, “I change my opinion. What do you do, sir?”

This quotation crystallizes the way good decision makers behave. They know that a newly made decision is but the first step in its execution. They regularly and systematically evaluate how well a decision is proving itself in practice by acquiring new data and information. They are not afraid to modify their decisions, even admitting they are wrong and reversing course, if the facts demand it (see “Many Decision Makers Are Closet Bayesians”).

Many Decision Makers Are Closet Bayesians

Bayesian statistics is an important branch of statistics that differs from classic statistics in the way it makes inferences based on data. More and more people and organizations apply Bayesian statistics in a variety of areas, although it is a subject of some controversy within the field. One of its advantages is that it provides an explicit means to quantify uncertainty, both a priori, that is, in advance of the data, and a posteriori, in light of the data.

Although, once again, I know of no formal study, it appears to me that many good decision makers follow at least three Bayesian principles. First, they bring as much of their prior experience as possible to bear in formulating their initial decision spaces and determining the sorts of information they will consider in making the decision. Second, for big, important decisions, they adopt decision criteria that minimize the maximum risk (it appears to me that they rate “living to play another day” above “hitting a home run” in such circumstances). Third, they constantly evaluate new data to determine how well a decision is working out, and they do not hesitate to modify the decision as needed.

Good Decision Makers Avoid Easy Traps Exacerbated by the Information Age

When it comes to decision making, information technologies, especially the Internet, have an amplifying effect. They help make good decisions and decision makers more effective and efficient. They can also exacerbate several decision-making “traps,” including the following:

- Analysis paralysis
- Rigging the system
- Second-guessing
- Groupthink

Analysis Paralysis

Analysis paralysis occurs when managers and organizations cannot make a decision until all uncertainty has been eliminated. They desperately seek more information that will nail down one final detail, identify a new option, or both, despite the diminishing benefits of the information over an extended period of time. Anecdotally, it appears to me that the trap is more severe when decision makers fear they will be punished for suboptimal decisions.

Research concludes that many excellent decision makers avoid this trap by selecting solutions that are “good enough,” rather than continuing to seek the optimal solution.¹⁰ Judged through the data and information lens, this is certainly an effective process, particularly when time is limited.

Rigging the System

I call the second trap *rigging the system*. We have all experienced decisions made this way. The person in charge:

Step 1: Decides what he wants to do

Step 2: Assembles facts that support the decision

Putting Data and Information to Work

Step 3: Tests the decision and its rationale on a few trusted advisers

Step 4: Assembles more facts to address any holes in the previous rationale

Step 5: Announces the decision

Step 6a (if the decision proves successful): Takes credit

Step 6b (if the decision proves unsuccessful): Assigns blame for failure to properly execute the decision

Unfortunately, the flowchart for this decision process (figure 4-4), and that of figure 4-1, which describes an honest attempt to reach an unbiased decision, look very similar. No matter how outrageous a proposed decision might be, those rigging the system have always been able to find and select “facts” to support it. The Internet has made the job of decision riggers considerably easier—a dark side to the Information Age, indeed.

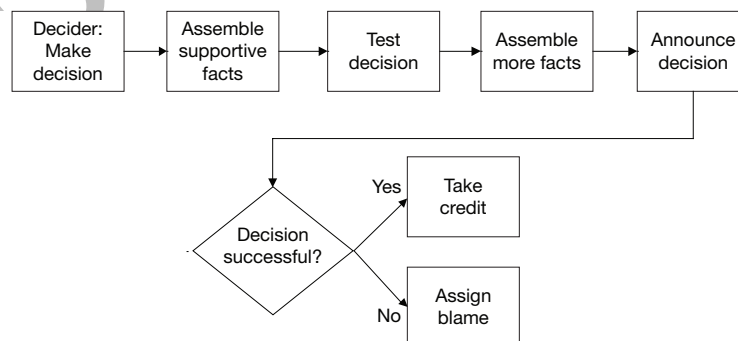
Again anecdotally, rigging the system appears to be more common when people do not question authority.

Second-Guessing

The third trap is second-guessing. One important dictum is to make decisions at the lowest level possible.¹¹ After all, these employees are

FIGURE 4-4

The flowchart of a typical rigged decision



Making Better Decisions

closer to the ground, which gives them access to tacit information that senior managers, more removed from the situation, simply can't have. And one of the yet-to-be fulfilled hopes of information technology is that better access to corporate goals, priorities, and policies will help lower-level managers understand context and help them make better decisions. This is a big deal. Front-line employees who can act on their own to solve a problem for a customer earn high praise for their companies, whereas those who must "check with a supervisor" make their companies seem less caring.

In fact, just the opposite seems to have occurred. These same information technologies also give more senior managers more data and information and make it easier for them to second-guess lower-level decisions. Even when senior managers are not inclined to do so, many lower-level managers have grown more tentative as a result.

To minimize this problem, managers and organizations must expand their concept of "decision rights" to "decision obligations." They must insist that those with the most complete knowledge of the situation at hand make the decision, and end it at that.

Groupthink

The fourth trap is groupthink. Groups, especially those composed of like-minded individuals, can make incredibly stupid decisions. This happens when the group dynamics keep the decision space small and negate individual tacit information. President Bush has been criticized, rightly in my opinion, because his trusted core of advisers is small and like-minded.

Good decision makers avoid the groupthink trap in two ways. First, as individuals, they keep an open mind. Sometimes it seems to me that the question "What if I've missed the best way to frame this decision?" is always in the back of their minds and sometimes in the front of it. They play "what if" games with their colleagues and staffs and are constantly on the lookout for new sources of data and information.

Second, organizations avoid groupthink by establishing a diversity of background, perspective, experience, and thought. *The Wisdom of Crowds*, an interesting and popular book by James Surowiecki, clarifies why this is so important. Surowiecki describes how the average opinion

of a crowd of people is frequently better than the opinion of any individual, including experts, and how, in some circumstances, “the many are smarter than the few.”¹² Through the data and information lens, the explanation is rather simple. No one individual (or any like-minded group) can hope to match the tacit information possessed by a crowd, even if little of that tacit information is shared. Individual opinions, based on limited information, vary wildly. But collectively, an enormous amount of tacit information is processed, making the average opinion quite good. So too with diverse organizations.

THE BIG PICTURE

- ➔ Cultivate a wide array of trusted sources of data and information.
- ➔ Treat those affected by decisions as customers.
- ➔ Select the best criterion for making a decision based on the circumstances at hand. Maximizing expected return is the usual, or often appropriate, criterion. But sometimes it is more appropriate to try for the big score, and sometimes it is better to play it safe.
- ➔ Measure outcomes and then apply tools of continuous improvement both to decision processes and individual decisions.
- ➔ Keep an open mind and involve as diverse a group as possible throughout the decision-making process.
- ➔ Avoid the traps of analysis paralysis, groupthink, and second-guessing.
- ➔ Avoid those who rig the facts based on their preconceived biases.

Notes

Chapter 4

1. I strongly recommend the January 2006 special issue of *Harvard Business Review* devoted to decision making.
2. Dick Martin, *Tough Calls: AT&T and the Hard Lessons Learned from the Telecom War* (New York: Amacom, 2005).
3. CFO Research Services with Deloitte Consulting, *IQ Matters: Senior Finance and IT Executives Seek to Boost Information Quality* (Boston: CFO Publishing, 2005).
4. Peter M. Drucker, "Be Data Literate—Know What to Know," *Wall Street Journal*, December 1, 1992, 98–107.
5. W. Edwards Deming, *Quality, Productivity, and Competitive Position* (Cambridge: MIT Center for Advanced Engineering Study, 1982), 248.
6. Martin, *Tough Calls*.
7. Thomas H. Davenport, "Competing on Analytics," *Harvard Business Review*, January 2006.
8. Michael Moss, "Mammogram Team Learns from Its Errors," *New York Times*, June 28, 2002, <http://query.nytimes.com/gst/fullpage.html?sec=health&res=9903EED7133EF93BA15755C0A9649C8B63>.
9. Battles are studied extensively not just by the military but by reporters and historians, often hundreds of years afterward. See David Zucchino, *Thunder Run: The Armored Strike to Capture Baghdad* (New York: Atlantic Monthly Press, 2004) and John Keegan, *The Face of Battle* (New York: Penguin, 1983) as examples.
10. Gary Klein, *Intuition at Work* (New York: Doubleday, 2003), and Max H. Bazerman and Dolly Chugh, "Decisions Without Blinders," *Harvard Business Review*, January 2006, 88–97.
11. See Paul Rogers and Marcia Blenko, "Who Has the D? How Clear Decision Roles Enhance Organizational Performance," *Harvard Business Review*, January 2006, 53–61, for an excellent discussion of decision rights and roles for others who contribute to decisions.
12. James Surowiecki, *The Wisdom of Crowds* (New York: Doubleday, 2004).