CHAPTER 1: DECISION MAKING
SOME DEFINITIONS

1. Decision making is the study of identifying and choosing alternatives based on the values and preferences of the decision maker.

   Making a decision implies that there are alternative choices to be considered, and in such a case we want not only to identify as many of these alternatives as possible but to choose the one that (1) has the highest probability of success or effectiveness and (2) best fits with our goals, desires, lifestyle, values, and so on.

2. Decision making is the process of sufficiently reducing uncertainty and doubt about alternatives to allow a reasonable choice to be made from among them. This definition stresses the information-gathering function of decision making. It should be noted here that uncertainty is reduced rather than eliminated. Very few decisions are made with absolute certainty because complete knowledge about all the alternatives is seldom possible. Thus, every decision involves a certain amount of risk. If there is no uncertainty, you do not have a decision; you have
an algorithm—a set of steps or a recipe that is followed to bring about a fixed result.

TYPES OF DECISIONS

There are several basic kinds of decisions.

1. Decisions ‘whether’: This is the yes/no, either/or decision that must be made before we proceed with the selection of an alternative. Should I buy a new TV? Should I travel this summer? Decisions whether are made by weighing reasons pro and con. The PMI technique discussed in the next chapter is ideal for this kind of decision.

   It is important to be aware of having made a decision whether, since too often we assume that decision making begins with the identification of alternatives, assuming that the decision to choose one has already been made.

2. Decisions ‘which’: These decisions involve a choice of one or more alternatives from among a set of possibilities, the choice being based on how well each alternative measures up to a set of predefined criteria.
3. Contingent decisions. These are decisions that have been made but put on hold until some condition is met.

For example, I have decided to buy that car if I can get it for the right price; I have decided to write that article if I can work the necessary time for it into my schedule. Or even, we’ll take the route through the valley if we can control the ridge and if we detect no enemy activity to the north.

Most people carry around a set of already made, contingent decisions, just waiting for the right conditions or opportunity to arise. Time, energy, price, availability, opportunity, encouragement—all these factors can figure into the necessary conditions that need to be met before we can act on our decision. Some contingent decisions are unstated or even exist below the awareness of the decision maker. These are the types that occur when we seize opportunity. We don’t walk around thinking, "If I see a new laser printer for Rs.38, I'll buy it," but if we happen upon a deal like that and we have been contemplating getting a new printer, the decision is made quickly. Decisions, made in sports and warfare, are like these. The best contingent and
opportunistic decisions are made by the prepared mind-one that has thought about criteria and alternatives in the past.

**DECISION MAKING IS A RECURSIVE PROCESS**

A critical factor that decision theorists sometimes neglect to emphasize is that in spite of the way the process is presented on paper, decision making is a nonlinear, recursive process. That is, most decisions are made by moving back and forth between the choice of criteria (the characteristics we want our choice to meet) and the identification of alternatives (the possibilities we can choose from among). The alternatives available influence the criteria we apply to them, and similarly the criteria we establish influence the alternatives we will consider. Let's look at an example to clarify this.

Suppose someone wants to decide, Should I get married? Notice that this is a decision whether. A linear approach to decision making would be to decide this question by weighing the reasons pro and con (what are the benefits and drawbacks of getting married) and then to move to the next part of the process, the identification of criteria (supportive, easy going, competent,
affectation, etc.). Next, we would identify alternatives likely to have these criteria (Kathy, Jennifer, Michelle, Julie, etc.). Finally, we would evaluate each alternative according to the criteria and choose the one that best meets the criteria. We would thus have a scheme like this:

decision whether ... select criteria ... identify alternatives ... match criteria to alternatives ... make choice

However, the fact is that our decision whether to get married may really be a contingent decision. "I'll get married if I can find the right person." It will thus be influenced by the identification of alternatives, which we usually think of as a later step in the process. Similarly, suppose we have arrived at the "identify alternatives" stage of the process when we discover that Jennifer (one of the girls identified as an alternative) has a wonderful personality characteristic that we had not even thought of before, but that we now really want to have in a wife. We immediately add that characteristic to our criteria. Thus, the decision making process continues to move back and forth, around and around as it progresses in what will eventually be a
linear direction but which in its actual workings is highly recursive.

Key point, then, is that the characteristics of the alternatives we discover will often revise the criteria we have previously identified.

THE COMPONENTS OF DECISION MAKING

THE DECISION ENVIRONMENT

Every decision is made within a decision environment, which is defined as the collection of information, alternatives, values, and preferences available at the time of the decision. An ideal decision environment would include all possible information, all of it accurate, and every possible alternative. However, both information and alternatives are constrained because the time and effort to gain information or identify alternatives are limited.

THE TIME CONSTRAINT

The time constraint simply means that a decision must be made by a certain time. The effort constraint reflects the limits of manpower, money, and priorities. (You wouldn't want to spend three hours and half a tank of
gas trying to find the very best parking place at the mall.) Since decisions must be made within this constrained environment, we can say that the major challenge of decision making is uncertainty, and a major goal of decision analysis is to reduce uncertainty. We can almost never have all information needed to make a decision with certainty, so most decisions involve an undeniable amount of risk.

The fact that decisions must be made within a limiting decision environment suggests two things. First, it explains why hindsight is so much more accurate and better at making decisions that foresight. As time passes, the decision environment continues to grow and expand. New information and new alternatives appear—even after the decision must be made. Armed with new information after the fact, the hindsighters can many times look back and make a much better decision than the original maker, because the decision environment has continued to expand.

The second thing suggested by the decision-within-an-environment idea follows from the above point. Since the decision environment continues to expand as time passes, it is often advisable to put off making a decision
until close to the deadline. Information and alternatives continue to grow as time passes, so to have access to the most information and to the best alternatives, do not make the decision too soon. Now, since we are dealing with real life, it is obvious that some alternatives might no longer be available if too much time passes; that is a tension we have to work with, a tension that helps to shape the cutoff date for the decision.

Delaying a decision as long as reasonably possible, then, provides three benefits:

1. The decision environment will be larger, providing more information. There is also time for more thoughtful and extended analysis.
2. New alternatives might be recognized or created. Version 2.0 might be released.
3. The decision maker's preferences might change. With further thought, wisdom, and maturity, you may decide not to buy car X and instead to buy car Y.

And delaying a decision involves several risks:

1. As the decision environment continues to grow, the decision maker might become overwhelmed with too
much information and either makes a poorer decision or else face decision paralysis.

2. Some alternatives might become unavailable because of events occurring during the delay. In a few cases, where the decision was between two alternatives (attack the pass or circle around behind the large rock), both alternatives might become unavailable, leaving the decision maker with nothing. And we have all had the experience of seeing some amazing bargain only to hesitate and find that when we go back to buy the item, it is sold out.

3. In a competitive environment, a faster rival might make the decision and gain advantage. Another manufacturer might bring a similar product to market before you (because that company didn't delay the decision) or the opposing army might have seized the pass while the other army was "letting the decision environment grow."

THE EFFECTS OF QUANTITY ON DECISION MAKING

Many decision makers have a tendency to seek more information than required to make a good decision. When too much information is sought and obtained, one or more of several problems can arise.
• A delay in the decision occurs because of the time required to obtain and process the extra information. This delay could impair the effectiveness of the decision or solution.

• Information overload will occur. In this state, so much information is available that decision-making ability actually declines because the information in its entirety can no longer be managed or assessed appropriately. A major problem caused by information overload is forgetfulness. When too much information is taken into memory, especially in a short period of time, some of the information (often that received early on) will be pushed out.

• The example is sometimes given of the man who spent the day at an information-heavy seminar. At the end of the day, he was not only unable to remember the first half of the seminar but he had also forgotten where he parked his car that morning.

• Selective use of the information will occur. That is, the decision maker will choose from among all the information available only those facts which support a preconceived solution or position.

• Mental fatigue occurs, which results in slower work or poor quality work.
• Decision fatigue occurs where the decision maker tires of making decisions. Often the result is fast, careless decisions or even decision paralysis—no decisions are made at all.

The quantity of information that can be processed by the human mind is limited. Unless information is consciously selected, processing will be biased toward the first part of the information received. After that, the mind tires and begins to ignore subsequent information or forget earlier information. (Have you ever gone shopping for something where you looked at many alternatives—cars, knives, phones, TVs—only to decide that you liked the first one best?)