

**The Art of Making Decisions: Expanding common Sense & Experience**  
**Author: Dr. Errol Wirasinghe (ISBN: 0972238700)**

**Part 1: Basic Concepts**

**1. The Information Revolution**

The Information Technology Revolution (IT) and Enterprise Resource Planning (ERP) are moving "Corporate America" into the new millennium. Companies are spending millions of dollars on IT & ERP implementations! The basic objective is to provide management with information in an organized format in the hope that they would be able to make better decisions. But one piece of this plan is still missing!

What use is all this information - if management has neither the training nor the tools to make decisions! Is management making use of the vast amount information at their disposal? Or are they simply looking at this information and reverting back to their old ways of "subjective" decision-making? Apparently, the old clichés of "let's stick to what we know" or "business as usual" seem to prevail.

The availability of this new information demands a new approach to decision-making.

Take any book on the subject of "Decision-Making" and you will hear the same qualitative discussion of the need for - clear thinking, logical reasoning, maturity, experience, wisdom, rational judgment, etc. None has attempted to quantify this "feeling" so that we could arrive at an unambiguous hierarchical ranking of options.

The discussion that follows analyzes the subject of decision-making and provides a revolutionary way of looking at decision-making. The author also discusses a proprietary program ("XpertUS") developed exclusively for problems facing today's corporations.

**2. Problems, Decisions & Actions**

Every conceivable situation in life (however trivial) requires us to take some action. In many cases we do this intuitively. But if one were to dissect this process into its basic steps - we note that we were faced with a Problem, then we made a Decision, and finally we took some Action. In reality, a "problem" is a situation that requires some action. Hence we could arguably say that in theory, life is a collection of problems?. It is also fitting to note that we make a decision only when we are faced with a problem and we have options; otherwise we take action. This in turn means that a decision is arriving at the best option or course of action.

It is imperative that we differentiate between a decision and an action. Simply put - a decision is in the cognitive realm, and an action is in the real world. I like to speak of - Making Decisions and Taking Actions. Here we are concerned with decision-making; whether you take any action or not - is a separate matter.

I know - you are already thinking - I've been making decisions all my life, I never have to go through a decision-making process. What you do not realize is that you are doing exactly what I am saying - making decisions and taking action intuitively. Furthermore, "the mind" is trained to make intuitive decision without us even realizing that we were faced with a problem and that we did in fact take action.

Of course we are not implying that every decision has to be subjected to an exhaustive analysis. The depth of analysis required depends on the likely consequences associated with a particular decision.

**3. Decision-Making!**

We repeat - good decision-making requires that we rank candidates/options.

Be it personal or business, we are often called upon to make decisions. Whether we are selecting a Company/Consultant to handle a Project, Prioritizing Projects for budgetary purposes, Employing Personnel, Downsizing, Purchasing a House, Leasing Office Space, etc. we have to make critical decisions. Whatever our decision, they are a reflection of:

- Our Desires/Requirements (what we expect out of the decision),
- Circumstances and Resources (what is available to us to execute this decision), and
- Past Experience (direct or indirect).

Though not apparent at first, these are dependent on five primary factors;

- Cultural Influence
- Material & Physical Resources
- Military & Political Strength (including Management)
- Finance & Economics
- Ideas and Technology.

Yet we are being forced to make "objective" decisions (select the "best" alternative) considering all these complex interacting factors. An erroneous decision can be disastrous.

#### **4. The Influence of Culture**

By far, the most influential factor in decision-making is "Culture". Few understand or recognize the influence of culture on the final decision, and still fewer people pay adequate attention to it. Hence we will attempt elaborate on this factor.

Cultural decisions are made at 3 levels:

##### Explicit

These are observable behaviors: the Japanese "bow"; Arabs "kiss"; Latins "hug"; Indians "Clasp their hands by their chest"; Westerners ""shake hands" - all as a form of greeting.

##### Implicit

These are Basic Assumptions. A European would not cross a "RED" light, even if there were no cars within sight.

##### Norms & Values

A European ("individualistic" culture) is less likely to steal or tell a lie. Yet many reliable studies have shown that people in "communitarian" cultures will steal, lie and cheat to protect and defend their friends. Often this is not done for personal gain, but for the "good" of another.

Recently, a major oil company offered to set up a school in a very poor South African township. The Leaders rejected the offer, since it was tied to this particular company. The leaders were willing to let a whole generation suffer because they did not share the values of the donor.

The western notion of "pay-for-performance" has not been effective in "communitarian" cultures. Members of the team will not accept recognition at the expense of their colleagues.

While we are discussing "culture" it is also appropriate to discuss cultural differences in relation to time.

"Sequential" cultures think of "Time" in the form of a set of sequential events; 3.00 p.m., 4.00 p.m., .. Monday, Tuesday, .. 1999, 2000.. etc. - based on a linear concept. "Circular" cultures think of "Time" as circular process, considering the conventional clock. 3.00, 6.00, 9.00, 12.00 and 3.00 again. These people will think nothing of being late for an appointment; this is because they think of time in a circular concept, where it does not "run-out". Circular cultures are willing to subjugate their schedule to human necessity.

Actions in certain cultures can mean different things. In some cultures eating at a McDonald's is a show of status.

Depending on where you are, and the situation, A "wink of the eye" could mean - Possible date; Dust in the eye; Approval of an action; Making Fun, etc.

Also note how "status" is accorded in different cultures. In the Western cultures "Achievement" is recognized, while in other cultures Ascription (your birth, heritage, social standing, etc.). In these latter cultures they might ask you where you studied, before what you studied.

## **5. How Do We Make Decision**

Here are some techniques that have been used since time immemorial:

- Dictatorial (Ruling Authorities);
- Egotistical (Mr. Know-all);
- Pray to Higher Powers;
- Seek advice from Fortunetellers;
- Delegate to Subordinates;
- Pass-the-Buck - always wants the ""boss"" to make the decision;
- Some rely on "Gut-feelings";
- Others conduct a Detailed Analysis;
- Postpone - in the hope that the problem would go away;
- Form a Committee - nobody can pin the blame you;
- Members of the Armed Forces are required to "Follow the Rules";

## **6. The Nature of Information and Decisions**

### A - Probabilistic vs. Deterministic Information

Since all decisions are made on the basis of information we need to understand the quality of the information.

What is the probability that the interest rate would remain constant?  
What is the likelihood that it would rain on the day of the parade?

Examples of deterministic information are the number of employees or the cost of a product, the average age of a team, etc. This type of information is known and is fixed.

Note that often - Statistical Analysis, Forecasting and Operational Studies give the right answers to the wrong questions. The type of questions determines the response. Thus you need to know the basis and the source of your information.

Additionally, we must caution you to pay close attention to the impact of time on the information and data.

### B - Unique vs. Repetitive Decisions

Decisions may be categorized as "Unique/One-time" or as "Frequent/Repetitive". As the names imply, the ""One-time"" decisions, require our attention each time, while with the latter, we have only to analyze it once. Thereafter we can continue to apply our findings each time. E.g. we do not have to decide every morning how we get to work, because we had decided to use a certain mode of transport.

We must be aware of the frequency of a decision and take that into account in our final deliberations.

### C - Important and Trivial

Which tie should I wear, is a trivial decision, where the consequences of an error is not likely to be disastrous. We make these decisions, intuitively. Now consider some serious problems such as:

- Should we set up a new company or should we acquire an existing company?
- Which contractor is best suited for a specific job?
- Who should we hire or layoff?
- Who should manage a particular project?
- How to allocate the funds?
- Jury selection, Wine tasting, etc.

With these types of problems, the consequences of an erroneous decision can be quite costly, even disastrous. Of course a problem that is serious to one entity might be trivial to another.

Since we are not dealing with a thesis on decision-making - we can safely ignore trivial problems. Such problems can be handled without much effort and without serious consequences. Within this article, we shall deal only with serious problems - where your decision has an impact on you, on third parties, the environment or on the entity you represent.

### D - Rational v. Rationalize

Rather than be Rational, we humans tend to Rationalize,. To "Rationalize" is to identify all possible reasons and explanations that would "justify" our decision.

We decide to wake up at 3.00 a.m., to take a flight at 8.00 a.m., because we recognize the presence of morning traffic and the construction in the area. This is a "Rational" decision, a decision based on a sound analysis of the impact of relevant factors. However, in the morning we feel a bit lazy, hence we "Rationalize" our need for a little more sleep, by saying to ourselves, "well today is school holiday, traffic is likely to be lighter than usual", etc. Beware of these types of pitfalls.

### E - Subjectivity vs. Objectivity

As we shall see, decision-making is not something cold, mechanical or mathematical. It is more of an ART, than a SCIENCE. Too often people have tried to make decisions based on "pure numbers". What they do not realize is that each of those numbers - have been based on some "subjective" decision. Such decisions are a reflection of our preferences, our feelings and our state of mind at the time of making the decision. To confirm this, consider two painters, painting the same scenery. One has just arrived from his honeymoon. The other had just been told that his highly vocal mother-in-law is arriving to spend a week with them. Without a doubt the two paintings would reflect their state of mind.

Somebody might predict - "based on the current trends, and our past experience, etc. the prime rate will go up one-percent this year". This is a subjective statement - even though the analyst had done a lot of background work, he made several subjective decisions. That is why we keep insisting that "subjectivity" is present in all phases of the decision-making process. Studies have shown that nearly 90% of all decisions are "highly" subjective. The typical leader makes a decision based on a "hunch" - and then tries to justify this with pseudo-rational arguments. This is what we term the (modern) - Ready, Fire, Aim principle. Many companies "revere" this type "Seat-of-the-pants" or "Think-on-your-feet" decision-making. They hire and promote people who display "hunch-based" decision-making abilities. Unfortunately this can be a recipe for disaster. Volumes have been written on "bad-decisions" made in the corporate arena.

### F - Deciding vs. Reacting

A Soldier or a Quarterback is required to make a decision in the field - without guidance. He has been trained to react in a certain manner - under certain situations. He does not have the luxury of thinking "rationally" or "analytically" - he reacts to a situation. Decision-Making is not reacting! We should not attempt to mimic this in a corporate environment. Hopefully we will not have "tin-soldiers" and "armchair quarterbacks" running our companies.

We must return to Ready, Aim, Fire principle! In the decision-making arena, this translates to - Describe, Dissect, Decide.

## **7. When is a "Decision" a Good Decision?**

Imagine the case of a young couple, falling in love and getting married. During their courtship period, they discuss many of the pros and cons of their relationship, and decided to get married. After several years - the marriage does not work out, and they get a divorce. The perennial question is "was it a good decision to have got married to each other?" In most cases, the response is - "yes it was a good decision". Based on the information available at that time (about their nature and desires) marriage was a good idea.

Consider the case of a "toss of a coin". I offer you, \$ 1,000.00 if it turns HEADS; but if it turns TAILS, you should give me \$ 500.00. Would you play? (Ignore any moral issues associated with gambling). Let us assume that you agree to play. Now I ask you - "without knowing the outcome of the first "toss" would you play a second time - under the same terms?" Probably you might say NO. If your original decision was based on a sound analysis of probability of success -you should play, not just a second time, but as many times as it is offered to you. Since the probability of winning is 50%, the more times you play, the more money you stand to win.

Now consider the case of a Consulting Group bidding on a job. The cost of preparing a proposal is about \$ 100,000.00, while the profit potential is about \$ 200,000.00. Being a very specialized area of work - there is only one other rival bidder for the contract. Should you bid for the job! In this instance you would bid without any hesitation. Yet you hesitated when the "toss of a coin" problem was presented to you. Now would you submit a proposal for second project with the same company - in a different city, without knowing the outcome of the first tender? Sure you would and you should.

The moral is - if a decision was based on a sound analysis, it remains a good decision irrespective of the outcome. We may state that - given the same set of information, we would make the same decision again.

## **8. Delegating - A lifesaver!**

"If I delegate this assignment to someone, it will never get done the way it should be" - how often have we heard this phrase.

How many of us actually practice it even today? We want to make every decision. We think that operations would grind to a halt - if we are not around to make all the decisions. The defensive argument is that subordinates do not possess the experience necessary to make decisions. Yet a good manager recognizes - the need to, how to and what to - delegate. Ken Blanchard, in the "One-Minute Manager", stresses the virtues of delegation in no uncertain terms.

The President of a company can never make all the decisions - he must delegate all but the most serious tasks of decision-making to his subordinates. Similarly the Vice Presidents, Directors, Managers and Supervisors have to delegate down the line. However you cannot delegate unless you provide your subordinates with the necessary tools and the training.

## **Part 2: The "XpertUS" Decision-Maker**

The safest way to ensure that you reach the "best" decision is to use the decision-making technique offered by the "XpertUS" Decision-Maker.

## **1. What is the "XpertUS" Decision-Maker**

In Part 1 of this paper we discussed the nature of, and the factors that affect, decision-making. We showed that decision-making is highly subjective which makes it an "Art".

We also demonstrated that decision-making is in fact a process of ranking criteria and options. Now we will go on to show how to apply mathematical techniques to the process of ranking in a "scientific" manner. These sophisticated mathematical techniques are incorporated into the "XpertUS" Decision-Maker. We have also incorporated "random-sampling" statistical techniques to validate the process.

## **2. Steps Of Decision-Making**

The process of decision-making entails a set of distinct steps.

### A - Criteria

Whenever you have to make a decision, you have a set of requirements that need to be satisfied. E.g. In the case of a beauty contest - some of the factors may be facial beauty, physical proportions, presentation, communication skills, intelligence, etc. We call these factors - "criteria". We must always identify - which criteria are relevant to a particular problem. Thus the first step is to select the criteria that affect the problem. This is vital in decision-making. However to be able to identify the criteria - we need to define the problem. It has been said that, "A proper definition of the problem provides 50% of the solution".

### Quantitative vs. Qualitative.

The Cost of the car is Quantitative while the Comfort of the ride is Qualitative.

### Obligatory vs. Desirable.

When building a house it is Obligatory that we remain within the budget; however it might be Desirable to make the bedrooms smaller to get a larger study.

Never confuse the problem. You may be trying to decide on which computer to buy, when your real problem is how to increase productivity?

### B - Candidates

Of course in most situations - we have several "options" as solutions to the problem. That is why we have to make a decision. While it is good to have "options", having too many options - adds to the confusion. We refer to these "options" as "candidates". Where applicable include the option of ""leave things as they are"". Many analysts forget that this is an Option.

Thus, every decision-making situation will have criteria & candidates.

Remember Pareto's Law - "80% of the problems are caused by 20% of the causes". You can apply this to criteria selection - in actual fact 20% of the criteria has 80% of the impact on the decision.

### C - The Yes/No Decision - (Pre-qualifying)

This "yes/no" process is a pre-qualifying process. Do not confuse this with the "yes/no" techniques used in the conventional "Process of Elimination" methods.

The "yes/no" decision often entails accessing a list or a database and selecting candidates that meet a given set of requirements. This is a simple process. E.g. If you need a house with a Fireplace and a Swimming Pool in a given area of town (zip-code) - it is easy to generate a list of candidates that meet these criteria. There are many programs designed to perform such tasks.

In a simpler situation - say you are seeking a young chemical engineer - it is easy to specify that a "Bachelor's Degree in Chemical Engineering" and "Knowledge of Spanish" are prerequisites, and then eliminate all those that do not qualify. We do not need sophisticated computer programs to do this.

However - beware! The Yes/No decision is always based on a set of criteria that are considered as a prerequisite to the problem at hand. If the assumed criteria are not relevant to the problem at hand, one might reject a candidate on the basis of a "flawed" assumption.

#### D - Ranking of Criteria and Candidates

When faced with complex problems with a multitude of criteria, and a wide list of acceptable candidates - how do you select the best candidate?

This is where "ranking" comes into play. You need an acceptable method or technique to rank the candidates. Ranking requires a systematic procedure of representing all the elements of the problem. It is imperative that the reader be aware that all the candidates that are subjected to the ranking analysis are considered to be "acceptable".

### **3. Conventional Methods**

#### A - Decision Trees & Process of Elimination Methods

The classical "Decision Trees" and "Process of Elimination" method are both "Yes/No" methods of decision-making. They are not suitable for ranking. Thus they are really useless in decision-making.

#### B - Intelligent Databases

There are many programs in the market place that maintain a database of messages - then based on the user's responses - the program spews out a collection of standard phrases that mimic a pseudo-personalized response.

Programs used in "Astrological" predictions are a classic example of such techniques. These are not suited for "ranking" of criteria or candidates.

#### C - Ranking - The Conventional Matrix Method

The conventional method of ranking (selecting a candidate) - be it a House, Car, Employee, Company, etc. is as follows.

- Identify an adequate number of criteria (5-15) that are relevant to the problem.
- Assign weights to the criteria to represent their relative importance to the problem.
- Select an acceptable group of candidates or options.
- Compare all the candidates as a group - taking one Criterion at a time, and assign points to each candidate.
- Finally, multiply the points by the weights and declare the winner.

The candidate with the highest number of total points is declared to be the winner.

There are several weaknesses in the conventional process.

Criteria Selection - did we select all the relevant criteria? It is likely that we imposed our views arbitrarily on what is relevant or important for the problem at hand.

Having selected the criteria - did we err in the assignment of weights? Who is to say that there was no bias intentional or otherwise? Additionally, when we have to depend on our judgment to assign weights, this is an extremely difficult task.

When we know the weighting, a priori, our decision is inevitably skewed. A person could attach a "heavy" weight to one criterion (due to a vested interest), thereby ensuring that the other criteria would not make a material impact on the final outcome.

During the process of assigning points to candidates, it is almost impossible to look at five or six candidates and decide who is "superior" over the others - and to what degree!

It is these weaknesses that led to the development of XpertUS.

#### **4. Biasing Decisions**

When large projects are tendered government agencies are cognizant of Political-pressure (National and International), Bribery, Corruption, Nepotism, etc. The responsible organization has to ensure that the process of evaluation is "transparent". Many, with vested interests try to influence the final decision. This is often done in a very subtle manner.

Let us consider a hypothetical case where oil exploration concessions are being granted - competitively. This is a multi-million dollar project. The President of the Issuing Authority may be connected to Bidder A, while the President of the Nation may be connected to Bidder B. Bidder C is from a country providing aid to this particular country.

Now bidder A has extensive experience in this area of work, bidder B has the best personnel and the latest technology, while bidder C has the best "financing". What typically happens is that each person will push to "weight" the criteria in favor of their preferred party. The "issuing authority" will argue that "experience" needs to carry 40% of the weight, while The President of the Nation would insist that latest technology and personnel should weigh at least 50%. Of course friends of bidder C would push for high weighting for "financial stability". This is an evaluator's worst nightmare.

Even if the process of evaluation was subject to strict monitoring and honesty - proving this transparency, to higher authorities, is a daunting task. Additionally, even the best of us would have difficulty trying to decide on a particular Service Provider when five or six very competent Consultants/Companies bid on a project.

So how do we make the best decision? How do we present our decision to higher authorities and convince them that our findings are unbiased and the Committee did not have any "interest" in the final selection?

These very same arguments hold true in every decision-making scenario.

#### **5. The "XpertUS" Process**

XpertUS provides a comprehensive framework to cope with the intuitive, the rational and the irrational in all of us, at the same time. It is a method that integrates our purpose and perception. It does not require our judgment be consistent. While we recognize that in decision-making, "subjectivity" can never be totally eliminated, XpertUS seeks to minimize the "subjective" element. The sophisticated mathematical technique used within XpertUS is capable of identifying inconsistencies in the human judgment. Additionally XpertUS will evaluate the impact of such inconsistencies and make appropriate recommendations.

The XpertUS process involves three distinct steps: Describe; Dissect; Decide

First - It is imperative that you DESCRIBE the problem - in as much detail as possible. This will help immensely in Step Two.

Second - We must DISSECT the problem. We must break it down to identify all the criteria, (however remote their impact) which might play a role in this problem. Many leaders commit the "fatal" error of adding or eliminating criteria or candidates, a priori, based entirely on their personal experiences. We strongly advise you to use XpertUS even to determine which criteria are important in a given task.

E.g. when hiring an employee, you may think that "Personality" is an important criterion. We suggest you let XpertUS rank the criteria and indicate how important Personality is, when compared to the other criteria. Determining which criteria are significant is the first and most important step in decision-making. XpertUS is ideal for this task.

Third - Now we must DECIDE. Conduct a pairwise comparison of criteria and determine how superior (or inferior) one Criterion is compared to the other. XpertUS does not require you to look at all the criteria at the same time and assign relative weights. Most people can look at two items and compare them and express their feelings about the relative merits of one over the other - however it is nearly impossible to look at 15 criteria and state with confidence how they stack up against each other. This is the first instance where most people falter.

Now conduct pairwise comparison of candidates - considering one criterion at a time. XpertUS will then use this pairwise information to assign weights to the candidate. This is the second instance where conventional evaluations fail. There is ample room to bias the results.

Finally XpertUS will provide you with a "ranking" supported by a Reliability Index. This index tells us how consistent the evaluation was, and whether the results are reliable.

What makes XpertUS such a unique product?

1. It guides you to the best candidate.
2. Helps you select the most relevant criteria.
3. Ranks criteria based on their relative merits.
4. Identifies if your Decision is valid.
5. Provides Transparency.
6. Avoids Group comparisons.
7. Accepts Inconsistencies.
8. It is an excellent Training tool.
9. Management can Delegate decision-making.
10. A vital link to your IT & ERP implementations

## **6. Reliability**

Experiments conducted with XpertUS has demonstrated that it is Accurate, Reliable and Consistent Information on these experiments are available on request.

## **7. The Final Decision**

It is not our intention to take the decision making process away from humans. We stress that XpertUS is a process of ranking - given an acceptable list of candidates/options.

There may be valid reasons where a user may opt to select the second ranked, over the first. The user has to consider factors such as Risks, Uncertainties, Exclusivity, Interdependency, etc.

The user must also recognize that the Decision on which candidate - is the Strategy. Even with the "best"

Strategy, "Timing" (when you implement it) might make all the difference. Acquiring a Rival Company, Making an Investment, Declaring War, Taking a Vacation, Changing a Careers, etc. are highly dependent on good timing.

If sufficient information is available - XpertUS can be used even to determine the best timing to implement your Strategy.