UNIT-IV
DECISION-MAKING ENVIRONMENT UNDER UNCERTAINTY

Concept of Decision-Making Environment:

The starting point of decision theory is the distinction among three different states of nature or decision environments: certainty, risk and uncertainty.

The distinction is drawn on the basis of the degree of knowledge or information possessed by the decision-maker. Certainty can be characterized as a state in which the decision-maker possesses complete and perfect knowledge regarding the impact of all of the available alternatives.

In our day-today conversation, we use the two terms ‘risk’ and ‘uncertainty’ synonymously. Both imply ‘a lack of certainty’. But there is a difference between the two concepts. Risk can be characterized as a state in which the decision-maker has only imperfect knowledge and incomplete information but is still able to assign probability estimates to the possible outcomes of a decision.

These estimates may be subjective judgments, or they may be derived mathematically from a probability distribution. Uncertainty is a state in which the decision-maker does not have even the information to make subjective probability assessments.

It was Frank Knight who first drew a distinction between risk and uncertainty. Risk is objective but uncertainty is subjective; risk can be measured or quantified but uncertainty cannot be. Modern decision theory is based on this distinction.

Some Characteristics of a Decision Problem:

All business decision problems have certain common characteristics.

These not only constitute a formal description of the problem but also provide the structure necessary for a solution:

1. A decision-maker

2. Alternative courses of action (strategies)

3. Events or outcomes

4. Consequences or payoffs.

In order to illustrate these common characteristics of a decision problem, we may start with a simple real life example. Suppose you are the inventory manager of Calcutta's New York, which is selling men's dresses. Your company is not a dress manufacturer. It is just a retail store selling readymade garments. You have to decide how many men's T-shirts to order for the summer season.

DECISION MAKING

Definition on Decision Making

Decision making **is termed as the process of finding or identifying any certain problem/opportunity in order to resolve them professionally through legal and logical ways. Besides, it can be said that making a decision is the preparation for practical actions.**

Concept of Managerial Decision Making in Management

In the field of management, decision-making is known as a cognitive process, which results in a collection of a set of actions from current multiple alternatives. At some point, decision –making is the process which is performed by every individual in daily life; nobody can deny it.

Regarding businesses, decision-making is a regular process or simply a habit. Managerial Decision Making is one of the most critical processes in every organization. Successful and effective decision making gives profitable outcomes, whereas unsuccessful decision making causes a great loss.

The use of several tools and techniques is possible in the entire process, as the management team has to choose one beneficial decision from a range of many. Besides, several perceptions can also help to identify and solve any issue.

Additionally, a few managers also like to make decisions on their own or give priority to a collective decision. As decision-making is a hard process, so sometimes, it involves dissatisfaction with another party. For preventing all the major conflicts and hurdles in decision-making, managers should follow the professional process of making managerial decisions. The following is the entire process of managerial decision making.

MANAGERIAL DECISION-MAKING PROCESS

The decision making process involves the following 8 main and important steps. Each step may cover different techniques and tools. The main steps are purpose identification, gathering information, alternatives judgment principles, analyzing the choices and brainstorming, alternatives evaluation, pick the best alternative, decision executions and results in the evaluation.

1.Purpose Identification

In the problem purpose identification steps, the problem is analyzed entirely in order to find its basic symptoms and possible loss. When it comes to identifying the problem, the following questions can provide enough help.

- What is the problem?
- Why it should be solved?
- What parties are affected by it?
- Any specific period or deadline for the problem?

Asking these questions to oneself will eventually find the problem, its impact, affected parties, and future possible losses.

2.Gathering Information

The main target of the problem can either be one of the shareholders or all of them. While on the other hand, it may involve many factors that are affected by it. In order to have a complete look at the problem, the information should be gathered thoroughly, which relates to the involved shareholders or factors.

Techniques and tools like “Check Sheets” can help a lot in the step of gathering information and it can be used effectively and efficiently.

3.Alternatives Judgment Principles

The ultimate focus of this step is to set baseline criteria for the alternatives in order to judge them appropriately. Regarding criteria, the corporate culture and goals of the organization should be considered also. For example, profit is the only one and the most needed factor of every organization and is also an important factor that should be considered while decision-making.

Nothing should be done that may cause the decrement of the profit unless there is an exceptional case that cannot be resolved without sacrificing a little profit. Aside from it, baseline criteria should comprise entire relation to the problem.

4.Brainstorming and Analyzing the Choices

Brainstorming refers to listing down all the ideas and ways to solve the problem. At very first, it is necessary to understand the possible causes of the problem and classifying them in priority order such as from the most to the least effective cause. Cause-and-Effect diagrams & Pareto Chart tool can provide the needed help in this step.

The cause-and-Effect diagram will help the management team to identify the certain causes of the problem, whereas the Pareto Chart will perform its role in classifying them from the highest effect and identifying the level of the causes. After that, further steps can be taken for generating all the possible alternatives to the problem.

5.Alternatives' Evaluation

After performing logical and professional steps, the next is to use one's own judgment based on decision-making skills and experience along with judgment power. Find out the pros and cons of every alternate and eventually evaluate them on such a basis to find out the one which seems to be more effective than the rest. Comparing different alternatives can also give efficient output.

6.Pick the Best Alternative

After following the above methodology from steps 1 to 5, this step is very easy. Probably, one might have found the best alternative after comparing the pros and cons of different alternatives, yet the one should be 100% confident and sure to pick the best possible alternative.

7.Execute the Decision

The second last step in the process of Decision Making is to give a practical shape to the decision by converting it into a plan, which contains a sequence of actions to be performed. It can be done alone or with the help of the management team.

8.Results Evaluation

Now that every step is performed and the decision is converted into a plan, eventually, there is a need of evaluating the outcome of the decision which will help the team of managers to learn from the problem and prepare precautions for the future time. Besides, it is the best practice to improve managerial decision making.

BASICS OF RISK AND UNCERTAINTY

The concept of (fundamental) uncertainty was introduced in economics by Keynes (1921, 1936 and 1937) and Knight (1921). They felt a distinction should be made between risk and uncertainty.

In case of risk all possible future events or consequences of an action or decision are known. However, the events that will actually materialise are unknown beforehand. In case of risk the probability calculus is applicable and provides a sound basis for risk management, cost/benefit analysis, budget planning, etc.

Both Keynes and Knight argued that often in human decisions not all possible outcomes of an action or decision can be known. These are cases of (fundamental) uncertainty. There are things people simply do not know in advance. In situations of uncertainty the probability calculus has no sound foundation. There is no objective basis for risk management, cost/benefit analysis and other control techniques.

Knight stresses that *risk* provides a basis for insurance. *Uncertainty* cannot be insured against. Knight argued that entrepreneurs who dare to act in the presence of the unknown future, emerged as a major response to fundamental uncertainty. Profits are their reward. Without uncertainty no profits would exist.

In Keynes' view uncertainty gave money, liquidity and finance in general a central role in the economy. The existence of uncertainty of the future is the root cause for economies not automatically tending to full employment. If people are not confident about their own expectations they do not want to commit themselves to irreversible investments. They would like to remain liquid instead. Money in a way is a hedge against uncertainty. It allows its holder to respond quickly and flexibly to any ,at present unknown, future event when it occurs.

By holding money you do not commit yourself. But the supply of money can be increased without almost using any labour. A higher demand for money at the expense of demand for goods and services creates unemployment. If confidence is low, an economy can be locked into below full employment.

Uncertainty is inescapable

The existence of uncertainty is an inescapable element of human existence. People cannot know now what they will discover in the future. Yet future discoveries may co-determine the pay-off/consequences of today's decisions and shape future events relevant to today's decisions. There is only one certainty that people have with respect to the future. That is that they may be surprised. Uncertainty is an inherent property of the future. It cannot be reduced.

The existence of uncertainty leads to the role of confidence in people's own calculations, expectations, et cetera, in making their decisions. Confidence can fluctuate and thereby impact our decisions and their consequences. Confidence is subjective. It cannot be grounded in knowledge about the future, only about that of the past and present.

The nature of the future

The future of society cannot be seen by mankind as being predetermined and as objectively waiting to be discovered. The future cannot be predicted, but people can imagine the future and form subjective expectations about the future (cf. Shackle 1972). They act and interact on the basis of these imaginations and expectations. The future emerges from these (inter)actions. That may create surprises, positive and negative ones alike, to (some) people. People will respond and adapt to what the future shows to be when it becomes present (see also Arthur 2013). Again in the face of uncertainty of the further future. This is a continuous process without knowable end point or equilibrium. This continuous process is characterised by both bottom-up and top-down causality. The actions and interactions of individuals together determine the future and the emerged future is one of the determinants of next actions and interactions by individuals.