CHAPTER 3

PLANNING & DECISION MAKING

LEARNING OBJECTIVES

3.1 THE CONCEPT OF CORPORATE PLANNING

A plan is a predetermined course of action to be taken in the future. It is a document containing the details of how the action will be executed and it is made against a time scale. The goals and the objective that a plan is supposed to achieve are the prerequisites of a

plan. The setting of the goals and the objective is the primary task of the Management without which planning cannot begin.

Planning means taking a deep look into the future and assessing the likely events in the total business environment and taking a suitable action to meet any eventuality. It further means generating the courses of action to meet the most likely eventuality. Planning is a dynamic process. As the future becomes the present reality, the course of action decided earlier may require a change. Planning, therefore, calls for a continuous assessment of the predetermined course of action versus the current requirements of the environment. The essence of planning is to see the opportunities and the threats in the future and predetermine the course of action to convert the opportunity into a business gain, and to meet the threat to avoid any business loss. Planning involves a chain of decisions, one dependent on the other, since it deals with along term period. A successful implementation of a plan means the execution of these decisions in a right manner one after another.

Planning, in terms of future, can be long-range or short-range. Long-range planning is for a period of five years or more, while short-range planning is for one year at the most. The long-range planning is more concerned about the business as a whole, and deals with subject like the growth and the rate of growth, the direction of business, establishing some position in the business world by way of a corporate image, a business share and so on. On the other hand, short-range planning is more concerned with the attainment of the business results of the year. It could also be in terms of action by certain business tasks, such as lunching of a new product, starting a manufacturing facility, completing the project, achieving intermediate milestones on the way to the attainment of goals. The goals relate to long-term planning and the objective relate to the short-term planning. There is a hierarchy of objectives which together take the company to the attainment of goals. The plans, therefore, relate to the objectives when they are short-range and to goals when they are the long-range. Long-range planning deals with resource selection, its acquisition and allocation. It deals with the technology and not with the methods or the procedures. It talks about the strategy of achieving the goals. The right strategy improves the chance of success tremendously. At the same time, a wrong strategy means a failure in achieving the goals.

Corporate business planning deals with the corporate business goals and objectives. The business may be a manufacturing or a service, it may deal with the industry or trade may operate in a public or a private sector; may be a national or an international business. Corporate business planning is a necessity in all cases. Though the corporate business planning deals with a company, its universe is beyond the company. The corporate business plan considers the world trends in the business, the industry, the technology, the international markets, the national priorities, the competitors, the business plans, the corporate strengths and the weaknesses for preparing a corporate plan. Planning therefore, is a complex exercise of steering the company through the complexities, the difficulties, the inhibitions and the uncertainties towards the attainment of goals and objective.

3.2 MIS: BUSINESS PLANNING

Business environment is prone to changes and this factor makes business planning very complex. Some factors such as the market forces, technological changes, complex diversity of business and competition have a significant impact on any business prospects. MIS is designed to assess and monitor these factors. The MIS design is supposed to provide some insight into these factors enabling the management to evolve some strategy to deal with them. Since these factors are a part of the environment, MIS design is required to keep a watch on environment factors and provide information to the management for a strategy formulation. Strategy formulation is a complex task based on the strength and the weakness of the organization and the mission and goals it wishes to achieve. Strategy formulation is the responsibility of the top management and the top management relies on the MIS for information.

There are various business strategies such as overall company growth, product, market, financing and so on. MIS should provide the relevant information that would help the management in deciding the type of strategies the business needs. Every business may not require all the strategies all the time. The type of strategy is directly related to the current status of business and the goals it wishes to achieve. The MIS is supposed to provide current status information on the status of the business vis-à-vis the goals. MIS is supposed to give a status with regard to whether the business is on a growth path or is stagnant or is likely to decline, and the reasons thereof. If the status of the business shows a declining trend, the strategy should be of growth. If business is losing in a particular market segment, then the strategy should be a market or a product strategy.

The continuous assessment of business progress in terms of sales, market, quality, profit and its direction becomes the major role of MIS. It should further aid the top management in strategy formulation at each stage of business. The business does not survive on a single strategy but it requires a mix of strategy operating at different levels of the management. For example, when a business is on the growth path, it would require a mix of price, product and market strategies. If a business is showing a decline, it would need a mix of price-discount, sales promotion and advertising strategies.

The MIS is supposed to evaluate the strategies in terms of the impact they have on business and provide an optimum mix. The MIS is supposed to provide a strategy-pay off matrix for such an evaluation. In business planning, MIS should provide support to top management for focusing its attention on decision making and action. In business management, the focus shifts from one aspect to another. In the introductory phase, the focus would be on a product design and manufacturing. When the business matures and requires and requires to sustain or to consolidate, the focus would be on the post sales services and support. The MIS should provide early warning to change the focus of the management from one aspect to the other.

Evolving the strategies is not the only task the top management has to perform. It also has to provide the necessary resources to implement the strategies. The assessment of resource need, and its selection becomes a major decision for the top management. The MIS should provide information on resources, costs, quality and availability, for deciding the cost effective resource mix.

When the strategies are being implemented, it is necessary that the management gets a continuous feedback on its effectiveness in relation to the objective which they are supposed to achieve. MIS is supposed to give a critical feedback on the strategy performance. According to the nature of the feedback, the management may or may not make a change in the strategy mix, the focus and the resource allocation. MIS has certain other characteristics for the top management. It contains forecasting models to probe into the future-the business model for evaluation of the strategy performance by simulation business conditions. It contains functional models such as the model for a new product launching, budgeting, scheduling and the models using PERT / CPM technique for planning.

MIS for the top management relies heavily on databases which are external to the organization. The management also relies heavily on the internal data which is evolved out of transaction processing. Management uses the standards, the norms, the rations and the yardsticks while planning and controlling the business activities. They are also used for designing strategies and their mix. The MIS is supposed to provide correct, precise and unbiased standards to the top management for planning. We can summaries the role of the MIS in the top management function as follows. MIS supports by way of information, to :

1. Decide the goals and objectives,
2. Determine the correct status of the future business and projects,
3. Provide the correct focus for the attention and action of the management,
4. Evolve, decide and determine the mix of the strategies,
5. Evaluate the performance and give a critical feedback on the strategic failures,
6. Provide cost-benefit evaluation to decide on the choice of resources, the mobilization of resources, and the mix of resources.
7. Generate the standards, the norms, the ratios and the yardsticks for measurement and control.

Success of a business depends on the quality of support the MIS gives to the management. The quality is assured only through an appropriate design of the MIS integrating the business plan with the MIS plan.

3.3 DIMENSIONS OF PLANNING

The corporate business plan has five dimensions. These are time, entity, organization, elements and characteristics.

Time

The plan may either be long-range or short-range, but the execution of the plan is, year after year. The plan is made on a rolling basis where every year it is extended by one year, keeping the plan period as the next five years. The rolling plan provides an opportunity to correct or revise the plan in the light of any new information the planner may receive.

Entity

The plan entity is the thing on which the plan is focused. The entity could be the production in terms of quantity or it could be a new product. It could be about the finance, the marketing, the capacity, the manpower or the research and development. The goals and the objectives would be stated in terms of these entities. A corporate plan may have several entities.

Organization

The corporate plan would deal with the company as a whole, but it has to be broken down for its subsidiaries, if any, such as the functional groups, the divisions, the product groups and the projects. The breaking of the corporate business plan into smaller organizational units helps to fix the responsibility for execution. The corporate plan, therefore, would be a master plan and it would comprise several subsidiary plans.

Elements

The plan is made out of several elements. The plan begins with the mission and goal which the organization would like to achieve. It may provide a vision statement for all to understand as also the purpose, focus, and direction the organization would like to move towards. It would at the outset, place certain policy statements emerging out of management.s business philosophy, culture and style of functioning followed by policy statements. Next it would declare the strategies in various business functions, which would enable the organization to achieve the business objectives and targets. It would spell out a program of execution of plan and achievements. It provides support on rules, procedures and methods of plan implementation, wherever necessary. One important element of the plan is a budget stipulated for achieving certain goals and business targets. The budgets are provided for sales, production, stocks, resources, expenses which are monitored against the time in execution period. The budgets and performance provide meaningful measure about success and failure of the plan designed to achieve certain goals.

Characteristics

There are no definite characteristics of a corporate plan. The choice of characteristics is a matter of convenience helping to communicate to everybody concerned in the organization and for an easy understanding in execution. The features of a plan could be several and could have several parts. The plan is a confidential written document subject to charge, and known to a limited few in the organization. It is described in the quantitative and qualitative terms. The long-term plan is normally flexible while the short-term one is generally not. The plan is based on the rational assumptions about the future and gives weight age to the past achievements and corporate strength and weal messes. The typical characteristics of a corporate plan are the goals, the resources, the important milestones, the investment details and a variety of schedules.

3.4 TOOLS OF PLANNING

Planning, long-range or short-range, strategic or tactical, involves a series of decisions to be taken by the managers in the organization. So when we talk about the tools of planning, we are talking about the tools of decision-making with reference to planning. Decisions relate to several aspects of corporate business planning. There are number of alternatives, choices and options available while planning the business. Further, there is selection of resources and their allocation in an optimum manner to maximize the gains. Then there is selection of method whereby the efforts at all the levels are coordinated towards a common goal and direction. The planning, therefore, involves decision-making with the help of tools. These tools are based on one or more factors. These factors are: Creativity: Systems approach: Sensitivity analysis: and Modeling.

Creativity

Creativity comes out of an experience, a judgment, an intuition of an individual or a group of individuals. When decision making is called for a situation which has no precedent then creativity is the only tool to resolve the problem of decision making. Creativity is the result of the conceptual skills of an individual. The conception skills comprise the following skills.

1. The ability to generate a number of ideas rapidly.
2. The ability to change quickly from one frame of reference to another.
3. Originality in interpreting an event and generating different views on the situation.
4. The abilit· ɔ handle with clarity and ease a complex relationship of various factors in a giv· situation.

A person ·ho possesses these skills in said to have a conceptual fluency. If an organization has a number of people, at least at key positions, with conceptual fluency, then it becomes a creative organization. Such an organization creates new ideas and new strategies for development of business. The plans are made on the strength of experience and conceptual fluency.

Systems Approach

Systems approach to planning considers all the factors and their inter-relationship relevant to the subject. It takes a course to an analytical study of the total system, generates alternative courses of action and helps to select the best in the given circumstances. It is uses in situation of risk or uncertainty, and examines the various alternative courses of action. I help to find solutions to problems. The systems approach helps to understand the situation with clarity. It helps to sort out the factors on the principles of critical and non-critical, significant and insignificant, relevant and irrelevant, and finally controllable and uncontrollable. It tests the solutions for feasibility-technical, operational and economic. It further studies the problems of implementation of the solution. Broadly, the systems approach has the following characteristic:

1. It uses all the areas and the branches of knowledge.
2. It follows a scientific analysis to identify the problem.
3. It uses a model of a complex situation to handle the problem.
4. It weighs cost against benefit for assessment of the alternatives.
5. It deals with the problems where time context is futuristic.
6. It considers the environment and its impact on the problem situation.
7. Every solution is tested on the grounds of rationality and feasibility, and accepts a given criterion for selection of the most preferred alternative.
8. It uses operations research models if the problem is well defined. Alternately, it uses a simulation approach to solve the problem. It uses tools such a Gantt chart, PERT/CPM, Network analysis for scheduling and coordinating the activities.

The systems approach is a way of looking at a problem in a systematic manner using the scientific methods and applying the principles of a rational decision making to solve the problem.

Sensitivity Analysis

The sensitivity analysis helps to test the validity of the solution in variable conditions. The problem situation is handled with certain assumptions and conditions. Based on these considerations, a rational solution is found. Sensitivity analysis requires to know whether the solution will still remain valid if the assumptions changed, constraints were relaxed and new condones emerged. It helps to assess the impact of change on the solution in economic terms. If various factors are involved, the sensitivity analysis helps to assess the criticality of the factor against the impact it makes on the solution. Some factors will be highly sensitive and some will not be so. Most of the decision making problems are resolved on the principle of optimality, where you are trying to balance the two aspects of the problems, such as, inventory carrying cost versus ordering cost, waiting time cost versus idle time cost, costs, verses benefits, opportunity loss versus investment cost and so on. The sensitivity analysis helps to test the validity of the optimal solution under changed conditions. .

Sensitivity analysis helps to test the solutions on the principle of utility. A solution which is economically rational and is based on sound business principles may be rejected on the principle of utility. The utility profiles of all the people in the organization are not the same. The utility profile, alternately known as a preference curve, shows the attitude and preference of the decision maker towards the gains and the losses against a time scale. The profile shows indirectly the risk-taking ability of the decision maker. It uses techniques such as the decision tree analysis, methods of discounting, payoff matrix, simulation, and the modeling.

Modeling

A model is a meaningful representation of a real situation on a mini scale, where only the significant factors of the situation are highlighted. The purpose of a model is to understand the complex situation based on only the significant factors. There are several types of models. The model could be a physical model, like a model of a house, a park, a sports complex, etc. The model could be a scale model reducing a large body to a small one. The model could be mathematical model like break even analysis model, linear programming model, queuing model, network model, etc. Here a situation is represented in a mathematical form such as equations, matrices graphs and polynomials.

A complex situation is represented using variables, constants and parameters which play a significant role in that situation. The model is based on the relations the variables have. The relation among the variables may be linear or non-linear. The model only considers the relation of high significance. The model, when a situation is complex, tries to simplify the complexity by ignoring minor factors and emphasizing only minor important factors.

A model could be static or dynamic. The physical models are static models. Some business models like the break even analysis model, the statistical regression models and some of the O.R. programming models are static models. The static model does not change over a time period. All the planning models and all the forecasting models are dynamic models. In a dynamic model, in addition to the variables considered, time is a dimension of the variables. The values of these variables change with the change in time. Such variables are called the stochastic variables. A model, physical or mathematical, static or dynamic, needs to be tested for its utility or effectiveness. The model can be tested by using the control results already obtained. This would show the difference between the result given by the model and the actual result in a real life situation. If the difference is not significant, then one can say that the model represents the real situation. Once the model is proved useful, it is used for testing the various solution alternatives. The selection of a solution from many alternative solutions, depends on the objective chosen. In a linear programming model, a solution is selected on the principle of maximization of the profit or minimization of the cost. In the queuing model a solution is selected, when the cost of the waiting time of a customer is less than the cost of the idle time of facility. The selection of a solution is based on the attainment of certain value of some aspect of the business, such as the turnover, the cost and the profit and so on.

The planning model considers those business variables which affect the business prospects and which show a significant impact on the business results. The long-range strategic models are, generally, dynamic models and the short-range management and operations models are mostly static models.

3.5 STRATEGIC PLANNING

The essence of management includes the ability to plan. As you work your way up the organization, planning moves from operational to strategic. Strategic Planning is one of the principal responsibilities of upper-level management. Once management decides on the Strategic Plan, lower-level managers implement the Strategic Plan through an Operating Plan.

Strategic Planning attempts to answer a very fundamental question: Where do we want to be one year from now, two years from now, three years from now, etc.? Strategic Planning requires that an organization develop a vision of itself - how do we see ourselves in the future? Strategic Planning looks at the big picture from a long-range perspective whereas the Operating Plan represents the specific tactics for carrying out the Strategic Plan year to year. Strategic planning enables you to answer the following questions:

- Who are we?
- What capacity do we have/what can we do?
- What problems are we addressing?
- What difference do we want to make?
- Which critical issues must we respond to?
- Where should we allocate our resources?/what should our priorities be?

Only once these questions are answered, is it possible to answer the following:

- What should our immediate objective be? (See the section on Immediate Objectives)
- How should we organise ourselves to achieve this objective?
- Who will do what when?

A strategic plan is not rigid. It does, however, give you parameters within which to work. That is why it is important to:

- Base your strategic planning process on a real understanding of the external environment
- Use work you have already done to extend your understanding of the external environment and of your own capacity, strengths and weaknesses.

3.6 THE STRATEGIC PLANNING PROCESS

Strategic Planning helps management understand the current situation. This in turn allows management to plan for the future. In a world of rapid change, it is becoming imperative for management to think strategically (plan for the future). And since the rate of change seems to be escalating, the importance of strategic planning continues to grow. In fact, the best managed companies tend to engage in continuous strategic planning. Some organizations have intuitive thinkers who almost seem to see into the future. Therefore, strategic planning is a way of preparing for the future by attempting to simulate the future.

Strategic Planning has a tendency to force people to think about the future. This is extremely important since many organizations are inward thinking, focusing too much on the short-term. Strategic planning looks at the long-term which is how organizations survive and thrive. It has been proven that organizations that focus on the long-term through strategic planning outperform organizations that lack long-term planning. Consequently, one of the benefits of strategic planning is long-term performance and growth. Another benefit of strategic planning is communication. Strategic Plans communicate the intentions of management to employees, shareholders, and others.

A simplified view of the strategic planning process is shown by the following diagram:

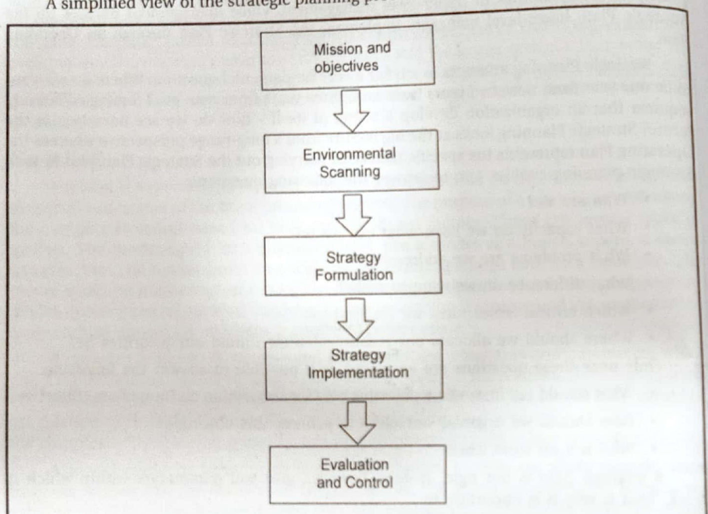

Figure 3.1 Strategic Planning Processes

(I) Mission and Objectives

The mission statement describes the company's *business vision*, including the unchanging values and purpose of the firm and forward-looking visionary goals that guide the pursuit of future opportunities.

Guided by the business vision, the firm's leaders can define measurable financial and strategic objectives. Financial objectives involve measures such as sales targets and earnings growth. Strategic objectives are related to the firm's business position, and may include measures such as market share and reputation.

The three components of the business vision can be portrayed as follows (Figure 3.2):

Core Values: The core values are a few values (no more than five or so) that are central to the firm. Core values reflect the deeply held values of the organization and are independent of the current industry environment and management fads.

One way to determine whether a value is a core value to ask whether it would continue to be supported if circumstances changed and caused it to be seen as a liability. If the answer is that it would be kept, then it is core value. Another way to determine which values are core is to imagine the firm moving into a totally different industry. The values that would be carried with it into the new industry are the core values of the firm. The following are a few examples of values that some firms has chosen to be in their core:

- excellent customer service
- pioneering technology
- creativity
- integrity
- social responsibility

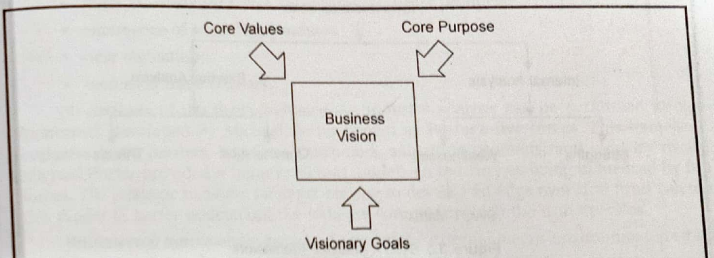

Figure 3.2

Core Purpose: The core purpose is the reason that the firm exists. This core purpose is expressed in a carefully formulated mission statement. Like the core values, the core purpose is relatively unchanging and for many firms endures for decades or even centuries. This purpose sets the firm apart from other firms in its industry and sets the direction in which the firm will proceed.

The core purpose is an idealistic reason for being. While firms exist to earn a profit, the profit motive should not be highlighted in the mission statement since it provides little direction to the firm's employees. What is more important is *how* the firm will earn its profit since the "how" is what defines the firm.

Visionary Goals: The visionary goals are the lofty objectives that the firm's management decides to pursue. This vision describes some milestone that the firm will reach in the future and may require a decade or more to achieve. In contrast to the core ideology that the firm discovers, visionary goals are selected.

(I) Environmental Scan

The environmental scan includes the following components:

(i) Internal analysis of the firm
(ii) Analysis of the firm's industry
(iii) External macro environment (PEST analysis)

(i) Internal analysis of the firm: The internal analysis can identify the firm's strengths and weaknesses and the external analysis reveals opportunities and threats. A profile of the strengths, weaknesses, opportunities, and threats is generated by means of a SWOT analysis. A scan of the internal and external environment is an important part of the strategic planning process. Environmental factors internal to the firm usually can be classified as strengths (S) or weaknesses (W), and those external to the firm can be classified as opportunities (O) or threats (T). Such an analysis of the strategic environment is referred to as a SWOT analysis.

The SWOT analysis provides information that is helpful in matching the firm's resources and capabilities to the competitive environment in which it operates. As such, it is instrumental in strategy formulation and selection. The following diagram shows how a SWOT analysis fits into an environmental scan (Figure 3.3):

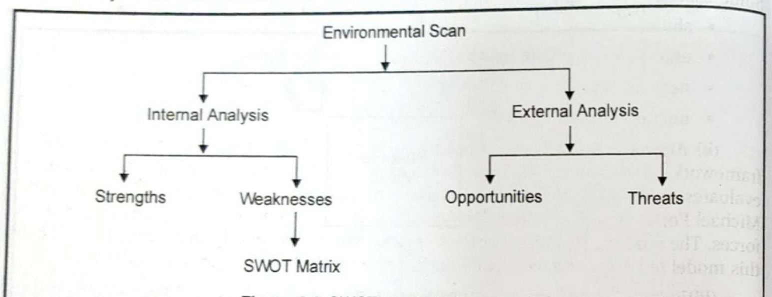

Figure 3.3 SWOT Analysis Framework

Strengths: A firm's strengths are its resources and capabilities that can be used as a basis for developing a competitive advantage. Examples of such strengths include:

- patents
- strong brand names
- good reputation among customers
- cost advantages from proprietary know-how
- exclusive access to high grade natural resources
- favorable access to distribution networks

Weaknesses: The absence of certain strengths may be viewed as a weakness. For example, each of the following may be considered weaknesses:

- lack of patent protection
- a weak brand name
- poor reputation among customers
- high cost structure
- lack of access to the best natural resources
- lack of access to key distribution channels

In some cases, a weakness may be the flip side of strength. Take the case in which a firm has a large amount of manufacturing capacity. While this capacity may be considered a strength that competitors do not share, it also may be a considered a weakness if the large

investment in manufacturing capacity prevents the firm from reacting quickly to changes in the strategic environment.

Opportunities: The external environmental analysis may reveal certain new opportunities for profit and growth. Some examples of such opportunities include:

- an unfulfilled customer need
- arrival of new technologies
- loosening of regulations
- removal of international trade barriers

Threats: Changes in the external environmental also may present threats to the firm. Some examples of such threats include:

- shifts in consumer tastes away from the firm's products
- emergence of substitute products
- new regulations
- increased trade barriers

(ii) Analysis of the firm's industry: An industry analysis can be performed using a framework developed by Michael Porter known as **Porter's five forces.** This framework evaluates entry barriers, suppliers, customers, substitute products, and industry rivalry. Michael Porter provided a framework that models an industry as being influenced by five forces. The strategic business manager seeking to develop an edge over rival firms can use this model to better understand the industry context in which the firm operates.

(iii) External macro environment: A scan of the external macro-environment in which the firm operates can be expressed in terms of the following factors:

- Political
- Economic
- Social
- Technological

The acronym PEST (or sometimes rearranged as "STEP") is used to describe a framework for the analysis of these macro environmental factors. A PEST analysis fits into an overall environmental scan as shown in the following diagram:

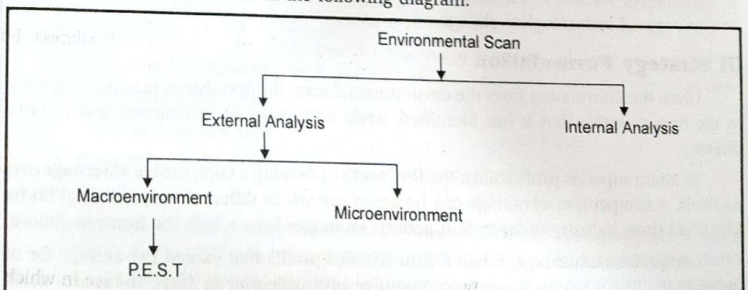

Figure 3.4 PEST Analysis

Political Factors: Political factors include government regulations and legal issues and define both formal and informal rules under which the firm must operate. Some examples include:

- tax policy
- employment laws
- environmental regulations
- trade restrictions and tariffs
- political stability

Economic Factors: Economic factors affect the purchasing power of potential customers and the firm's cost of capital. The following are examples of factors in the macroeconomy:

- economic growth
- interest rates
- exchange rates
- inflation rate

Social Factors: Social factors include the demographic and cultural aspects of the external microenvironment. These factors affect customer needs and the size of potential markets. Some social factors include:

- health consciousness
- population growth rate
- age distribution
- career attitudes
- emphasis on safety

Technological Factors: Technological factors can lower barriers to entry, reduce minimum efficient production levels, and influence outsourcing decisions. Some technological factors include:

- R&D activity
- automation
- technology incentives
- rate of technological change

(I) Strategy Formulation

Given the information from the environmental scan, the firm should match its strengths to the opportunities that it has identified, while addressing its weaknesses and external threats.

To attain superior profitability, the firm seeks to develop a **competitive advantage** over its rivals. A competitive advantage can be based on cost or differentiation. Michael Porter identified three industry-independent **generic strategies** from which the firm can choose.

Competitive advantage: When a firm sustains profits that exceed the average for its industry, the firm is said to possess a competitive advantage over its rivals. The goal of much of business strategy is to achieve a sustainable competitive advantage.

A competitive advantage exists when the firm is able to deliver the same benefits as competitors but at a lower cost (cost advantage), or deliver benefits that exceed those of competing products (differentiation advantage). Thus, a competitive advantage enables the firm to create superior value for its customers and superior profits for itself.

Cost and differentiation advantages are known as positional advantages since they describe the firm's position in the industry as a leader in either cost or differentiation.

A resource-based view emphasizes that a firm utilizes its resources and capabilities to create a competitive advantage that ultimately results in superior value creation. The following diagram combines the resource-based and positioning views to illustrate the concept of competitive advantage:

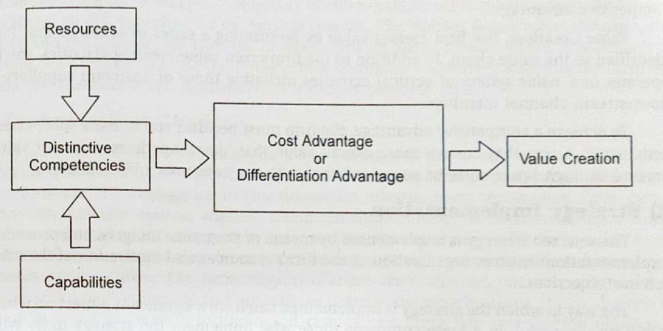

Figure 3.5 A Model of competitive advantage

Resources and Capabilities: According to the resource-based view, in order to develop a competitive advantage the firm must have resources and capabilities that are superior to those of its competitors. Without this superiority, the competitors simply could replicate what the firm was doing and any advantage quickly would disappear.

Resources are the firm-specific assets useful for creating a cost or differentiation advantage and that few competitors can acquire easily. The following are some examples of such resources:

- Patents and trademarks
- Proprietary know-how
- Installed customer base
- Reputation of the firm
- Brand equity

Capabilities: It refers to the firm's ability to utilize its resources effectively. An example of a capability is the ability to bring a product to market faster than competitors. Such capabilities are embedded in the routines of the organization and are not easily documented as procedures and thus are difficult for competitors to replicate.

The firm's resources and capabilities together form its distinctive competencies. These competencies enable innovation, efficiency, quality, and customer responsiveness, all of which can be leveraged to create a cost advantage or a differentiation advantage.

Cost Advantage and Differentiation Advantage: Competitive advantage is created by using resources and capabilities to achieve either a lower cost structure or a differentiated product. A firm positions itself in its industry through its choice of low cost or differentiation. This decision is a central component of the firm's competitive strategy.

Another important decision is how broad or narrow a market segment to target. Porter formed a matrix using cost advantage, differentiation advantage, and a broad or narrow focus to identify a set of generic strategies that the firm can pursue to create and sustain a competitive advantage.

Value Creation: The firm creates value by performing a series of activities that Porter identified as the value chain. In addition to the firm's own value-creating activities, the firm operates in a *value system* of vertical activities including those of upstream suppliers and downstream channel members.

To achieve a competitive advantage, the firm must perform one or more value creating activities in a way that creates more overall value than do competitors. Superior value is created through lower costs or superior benefits to the consumer (differentiation).

(I) Strategy Implementation

The selected strategy is implemented by means of programs, budgets, and procedures. Implementation involves organization of the firm's resources and motivation of the staff to achieve objectives.

The way in which the strategy is implemented can have a significant impact on whether it will be successful. In a large company, those who implement the strategy likely will be different people from those who formulated it. For this reason, care must be taken to communicate the strategy and the reasoning behind it. Otherwise, the implementation might not succeed if the strategy is misunderstood or if lower-level managers resist its implementation because they do not understand why the particular strategy was selected.

(II) Evaluation & Control

The implementation of the strategy must be monitored and adjustments made as needed. Evaluation and control consists of the following steps:

1. Define parameters to be measured
2. Define target values for those parameters
3. Perform measurements
4. Compare measured results to the pre-defined standard
5. Make necessary changes

3.7 ESSENTIALITY OF STRATEGIC PLANNING

There are some compelling reasons which force all the organizations to resort to strategic business planning. The following reasons make planning an essential management process to keep the business in a good shape and condition:

1. Market forces
2. Technological change
3. Complex diversity of business
4. Competition
5. Environment (Threats, Challenges, and Opportunities)

1. Market Forces

It is very difficult to predict the market forces such as the demand and supply, the trend of the market growth, the consumer behavior and the choices, the emergence of new product and the new product concepts. The ability of the organization to predict these forces and plan the strategies is limited for the various reasons. The market forces affect the sales, the growth and the profitability. With the problems arising out of market forces, it is difficult to reorient the organization quickly to meet the eventualities adversely affecting the business unless the business is managed through a proper business plan.

2. Technological Change

There are a number of illustrative cases throughout the world on the technological breakthroughs and changes which have threatened the current business creating new business opportunities. The emergence of the microchip, plastic, laser technology, fiber optics technology, unclear energy, wireless communication, audio-visual transmission, turbo engines, thermal conductivity and many more, are the examples which have made some products obsolete, threatening the current business, but at the same time, have created new business opportunities. The technological changes have affected not only the business prospects but the managerial and operational styles of the organizations. In the absence of any corporate plan, such a technological change can bring the organization into some difficult problems and, in some cases, can pose a threat to its survival. The corporate plan is expected to ensure the recovery of the business investment before such a technological change takes over.

3. Complex Diversity of Business.

The scope of business is wide, touching many fronts. The variety of products, the different market segments, the various methods of manufacturing the multiple locations, the dependence on the external factors, such as the transport, the communications and the manufacturing resources brings complexity in the management of business. Many factors are uncontrollable and unless there is a plan, prepared with due consideration to the diverse and complex nature of business, handling these factors is not possible. This might lead to the loss of business opportunity.

As the business grows, it reaches a stage where the strategies such as the expansion vertical or horizontal, integration-forward or backward, diversification-in the same line or in the diverse line of business, are the issues which the management is required to handle. These issues are investment-oriented and have a far-reaching effect on the business growth, direction and profitability.

4. Competition

Facing competition in the business means fighting on a number of fronts. Competition could be direct or indirect. It may share the marker or create a new product which will shift the market affecting your business. Competitions could be solely in the management of business, when there is hardly any product distinction or it may come from certain sectors which are being promoted by the government. The companies compete on the merits such as the know how, quality, prompt delivery, after sales service, etc. Competition is a natural phenomenon in business, and it has to be dealt with in a proper manner to protect business interests. This means that the management has to continuously evolve new strategies to deal with the competition. Evolving strategies and their implementation, calls for forward thinking and planning, without which it is not possible to handle competition.

Competition forces the management to look for new products, new markets, and new technologies to keep the market share intact, the process controlled and the quality improved. Strategies also have to be implemented in a proper sequence as business competition demands an intricate planning, testing and implementation of the strategies. The competition should never be underestimated and has to be met squarely through corporate planning.

5. Environment

The environment is beyond the control of the management. Depending upon the organizations business and its purpose, different environments have bearing on the fortunes of business. It could be one of the social, businesses, economic, industrial, technological environments affecting the business. Many a times, it could be a mix of different environments. The environmental changes are difficult to predict and are generally slow. Therefore, many times the managements are caught unaware by the environmental changes. To illustrate the environment's impact on business, some examples of recent origin are mentioned as follows.

Widespread education programmers have created new opportunities for knowledge processing and communication. The introduction of television has adversely affected the film industry and its immense popularity has considerably retracted other amusement activities like going for a picnic or to a circus. Personal computers are fast replacing the typewriters on account of changing office environment.

Values and attitudes make the penetration in the market difficult. The difference in the values and attitudes of the rural and urban consumers calls for separate products with different advertising strategies for them. The attitude of the consumer towards fast food or frozen food decides its spread and popularity. Similarly continuous increase in the cost of transport affects the tourism and hotel industry but promotes the home entertainment industry. The policies of the Government also affect the business and the industry. The international laws and agreement create new opportunities and threats to the business.

Forecasting the probable environment changes like the change in population population mix consumer preferences and their behavior government policies new opportunities and so on and forth is a major task.

Business planning therefore is absolutely essential for the survival of the business Peter Drucker defines long-range planning as the process of making the present managerial (risk taking) decisions systematically and with the best possible knowledge of their futurity organizing systematically the efforts needed to carry out these decisions and measuring the results of these decisions against the expectations through organized through systematic feedback. Planning is neither forecasting nor making future decisions today it is making current decisions in the light of future.

Planning does not eliminate the risk but provides an effective tool to face it. Comprehensive corporate planning is not an aggregate of the functional plans but it is a systematic approach aiming to maneuver the enterprise direction over a period of time through an uncertain environment to achieve the stated goals and the objective of the organization.

3.8 LIMITATIONS OF STRATEGIC PLANNING

Strategic Planning should not be viewed as a guarantee to future success. Strategic Planning have limitations, such as the following:

1. Strategic Planning is not a way of making future decisions. There is no way anyone can predict the future. Strategic Planning provides overall guidance and direction based on what we think will happen.
2. Strategic Planning is not a blueprint for the future. There are too many changes taking place - marketplace is changing, customer preferences are changing, new competition, new technologies, new opportunities, declining financial condition, etc. Strategic Planning is a dynamic process, which is receptive to change.
3. Strategic Planning cannot resolve critical situations threatening the organization. Strategic Planning will not get you out of a crisis. The organization should be stable before engaging in strategic planning.
4. Strategic Planning should not replace good intuitive judgments. If an organization is lucky enough to have good intuitive thinkers, then exercise extreme care before embarking on formal strategic planning. You do not want to destroy intuitive thinking within the organization.
5. Strategic Planning will not identify all critical issues related to the organization. Strategic Planning attempts to identify the most significant issues that will confront the organization. By focusing on major issues, strategic plans minimize the detail and thereby improve the chances for successful implementation.

3.9 TYPES OF STRATEGIES

A strategy means a specific decision (S) usually but not always regarding the deployment of the resources to achieve the mission or goals of the organization The right strategy beats competition and ensures the attainment of goals while a wrong strategy fails to achieve the goals Correction and improvement in case of a wrong strategy is possible at a very high cost .such a situation is described as a strategic failure.

If a strategy considers a single point of attack by a specific method .it is a mixed strategy. If a strategy acts on many fronts by different means then it is a mixed strategy the business strategy could be series of pure strategies handling several external forces simultaneously.

Hence the strategy may fall in any area of the business and may deal with any aspects of the business It could be aspects like price market product technology process quality service finance management strength and so on when the management decides to fight the external forces of a single area by choice it becomes a pure strategy if it uses or operates in more then one area then it becomes a mixed strategy.

The success of an organization in spite of its strength depends on the strategic moves or planning the management pursues. The strategy may be pure or mixed It can be classified into four broad classes 1. Overall Company Strategy 2. Growth Strategy 3.Product Strategy and 4. Marketing Strategy.

These strategies are applicable to all the types of businesses and industries.

OVERALL COMPANY STRATEGY

This strategy a very long- term business perspective deals with the overall strength of the entire company and evolves those policies of the business which will dominate the course of the business movement it is the most productive strategy if chosen correctly and fatal if chosen wrongfully the other strategies act under the overall company strategy. To illustrate the overall company strategy following examples is given: 1. A two wheeler manufacturing company will have a strategy of mass production and an aggressive marketing. 2. A computer manufacturer will have a strategy of adding new products every two or three years. 3. A consumer goods manufacturer will have a strategy of maximum reach to the consumer and exposure by way of a wide distribution network. 4. A company can have a strategy of remaining in the low price range and catering to the masses. 5. Another company can have a strategy of expanding very fast to capture the market. 6. A third company can have a strategy of creating a corporate brand image to build a brand loyalty e.g. Escorts , kirloskar , Godrej ,Tata , Bajaj, BHEL , MTNL.

The overall company strategy is broad- based having a far reaching effect on the different facets of business and forming the basis for generating strategies in the other areas of business.

Growth Strategy

A growth strategy entails introducing new products or adding new features to existing products. Sometimes, a small company may be forced to modify or increase its product line to keep up with competitors. Otherwise, customers may start using the new technology of a competitive company. For example, cell phone companies are constantly adding new features or discovering new technology. Cell phone companies that do not keep up with consumer demand will not stay in business very long.

A small company may also adopt a growth strategy by finding a new market for its products. Sometimes, companies find new markets for their products by accident. For example, a small consumer soap manufacturer may discover through marketing research that industrial workers like its products. Hence, in addition to selling soap in retail stores the company could package the soap in larger containers for factory and plant workers.

Product Differentiation Strategy

Small companies will often use a product differentiation strategy when they have a competitive advantage, such as superior quality or service. For example, a small manufacturer or air purifiers may set themselves apart from competitors with their superior engineering design. Obviously, companies use a product differentiation strategy to set themselves apart from key competitors. However, a product differentiation strategy can also help a company build brand loyalty.

Marketing strategy

Marketing strategy is a process that can allow an organization to concentrate its resources on the optimal opportunities with the goals of increasing sales and achieving a sustainable competitive advantage. Marketing strategy includes all basic and long-term activities in the field of marketing that deal with the analysis of the strategic initial situation of a company and the formulation, evaluation and selection of market-oriented strategies and therefore contribute to the goals of the company and its marketing objectives

3.10 INTRODUCTION TO DECISION MAKING

Everybody makes decisions. It's a natural part of life, and most of the time we don't even think about the process. In an organization, decisions are made at every level. The level at which the decision is made can also determine the complexity of the decision in relation to the input of data and output of information.

The Standard Definitions of Decision Making

- The cognitive process of reaching a decision.
- A position or opinion or judgment reached after consideration
- Choosing between alternative courses of action using cognitive processes - memory, thinking, evaluation, etc
- The process of mapping the likely consequences of decisions, working out the importance of individual factors, and choosing the best course of action to take.

3.11 DECISION MAKING CONCEPTS

Business decisions are those, which are made in the process of conducting business to achieve its objectives in a given environment. In concept, whether we are talking about business decisions or any other decision, we assume that the decision maker is a rational person.

The major characteristics of the business decision making are:

(a) Sequential in nature.

(b) Exceedingly complex due to risks and trade offs.

(c) Influenced by personal values.

(d) Made in institutional settings and business environment.

The business decision making is sequential in nature. In business, the decisions are not isolated events. Each of them has a relation to some other decision or situation. The decision may appear as "snap" decision but it is made only after a long chain of developments and a series of related earlier decisions.

The decision making process is a complex process in the higher hierarchy of management. The complexity is the result of many factors, such as the interrelationship among the experts or decision makers, a job responsibility, a question of feasibility, the codes of morals and ethics, and a probable impact on business.

The personal values of the decision maker play a major role in decision making. A decision otherwise being very sound on the business principle and economic rationality may be rejected on the basis of the personal values, which are defeated if such a decision is implemented. The culture, the discipline and the individual's commitment to goals will decide the process and success of the decision.

Whatever may be the situation, if one analyses the factors underlying the decision making process, it would be observed that there are common characteristics in each of them. There is a definite method of arriving at a decision; and it can be put in the form of decision process model.

The decision making process requires creativity, imagination and a deep understanding of human behaviour. The process covers a number of tangible and intangible factors affecting the decision making process. It also requires a foresight to predict the post decision implications and a willingness to face those implications. All decisions solve a 'problem' but over a period of time they give rise to a number of other 'problems.'

3.11.1 Rational Decision making

Rational decision is the one which, effectively and efficiently, ensures the achievement of the goal for which the decision is made. If it is raining, it is rational to look for a cover so that you do not get wet. If you are in business and want to make profit, then you must produce goods and sell them at a much higher price than cost of production. In reality, there is no right or wrong decision but a rational or irrational decision. The quality of decision making is to be judged on the rationality and not necessarily on the result it produces.

Simon Herbert differentiates among the types of rationality. A decision, in a given situation is:

- ***Objectively*** rational if it maximises the value of the objective.
- **Subjectively** rational if it maximises the attainment of value within limitation of the knowledge and awareness of the subject.
- ***Consciously*** rational to the extent the process of the decision making is deliberate and a conscious one.
- ***Organisationally*** rational to the degree of the orientation towards the organisation.
- ***Personally*** rational to the extent it achieves an individual's personal goals.

In other words, so long as the decision maker can explain with logic and reason, the objectivity and the circumstances in which the decision is made, it can be termed as a rational decision. Whether the rationality applied is appropriate or not could be a point for debate. Gross Bertram M. suggests three dimensions of rationality. *First,* the degree of satisfaction of human interest; *Second,* the degree of feasibility in achieving the objectives; *Third,* consistency in decision making. If a decision maker shows a consistent behavior in the process of decision making, then one can say that he meets the test of the rationality.

3.11.2 The Problems in Making Rational Decisions

(a) Ascertaining the problem: As Peter Drucker points out, "the most common source of mistakes in the management decisions is the emphasis on finding the right answers rather than the right questions." The main task is to define the right problem in clear terms. The management may define the problem as the "Sales are declining." Actually, the decline of sales is symptomatic; the real problem may be somewhere else. For example, the problem may be the poor quality of the product and you may be thinking of improving the quality of advertising.

(b) Insufficient knowledge: For perfect rationality, total information leading to complete knowledge is necessary. An important function of a manager is to determine whether the dividing line is reached between insufficient knowledge and the enough information to make a decision.

(c) Not enough time to be rational: The decision maker is under pressure to make decisions. If time is limited, he may make hasty decisions which may not satisfy the test of rationality of the decision.

(d) The environment may not cooperate: Sometimes, the timing of the decision is such that one is forced to make a decision but the environment is not conducive for it. The

decision may fail the test of rationality as the environmental factors considered in the decision making turn out to be untrue. For example, in a product pricing, the factor of oil and petroleum product price is considered as stable. But the post decision environment proves the consideration to be wrong.

(e) Other limitations: Other limitations are the need for a compromise among the different positions, misjudging the motives and values of people, poor communications, misappraisal of uncertainties and risks, and Inability to handle the available knowledge and human behaviour.

How do we then ensure rationality? It is ensured, if the process of decision making is carried out systematically, whereby all the aspects of the decision making discussed above are taken care of.

Herbert Simon said that a decision maker follows the process of decision making disregarding the decision or the type of decision and the motive behind the decision. This process is followed consciously or without knowing it. We can put this process in the Decision Making Model.

3.12 LEVELS OF DECISION MAKING

In the previous chapter, we discussed the various types of Information Systems and how they relate to the levels of an organization. We can also relate those Information Systems to the types of decisions managers make.

- **Strategic Decision Making:** These decisions are usually concerned with the major objectives of the organization, such as "Do we need to change the core business we are in?" They also concern policies of the organization, such as "Do we want to support affirmative action?"
- **Management Control:** These decisions affect the use of resources, such as "Do we need to find a different supplier of packaging materials?" Management-level decisions also determine the performance of the operational units, such as "How much is the bottleneck in Production affecting the overall profit and loss of the organization, and what can we do about it?"
- **Knowledge-Level Decision Making:** These decisions determine new ideas or improvements to current products or services. A decision made at this level could be "Do we need to find a new chocolate recipe that result in a radically different taste for our candy bar?"
- **Operational control:** These decisions determine specific tasks that support decisions made at the strategic or managerial levels. An example is "How many candy bars do we produce today?"

3.13 DECISION METHODS, TOOLS AND PROCEDURES

Some people seem to make sudden or impulsive decisions. Other people seem to make very slow, deliberate decisions. But regardless of appearances, the decision-making process follows the same stages of development and implementation. Initially the problem comes and we are in the intelligence phase thinking of the problem as it comes and then we try to find out what the solution to the given problem and then we move to design phase. In the design phase the way and method to solve the problem is thought and we actually try analyze the problem, we try to find the algorithms and the way that can actually solve the problem and hence we use the genetic algorithm to find the solution to the given problem .After finding the method which is to be applied to the given problem we move to choice phase and here the actual work of finding the best algorithm come .Here we try to find the best algorithm from the given set of algorithm we have the option of choosing the algorithms such as "ACO" algorithm which is called the ant colony optimization algorithm or we have the choice of finding the algorithm such as Simulated annealing (SA) is a related global optimization technique that traverses the search space by testing random mutations on an individual solution. After deciding that genetic algorithm is the most suitable algorithm for the programming we move to the next step which is the implementation phase, here the real implementation of the solution is done we implement the solution to the given problem by using the genetics algorithm according to the given problem.

3.13.1 Herbert Simon Model

Let's use the example of purchasing a new television, using the following figure.

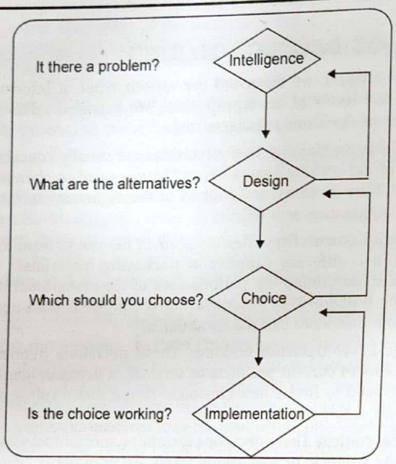

Figure 3.6 Stages of Decision Making (Simon model of decision making)

- **Intelligence:** You identify the facts: You don't have a television or the one that you do have isn't any good. You intuitively understand what the problem is and the effect it's having on you. You missed your favorite show last night.
- **Design:** You design possible solutions: You could watch the television in your neighbor's apartment or you could purchase a new one for yourself. Your neighbor will get annoyed if you keep coming over. On the other hand, you won't be able to go on vacation if you use your money to buy a new television.

- **Choice:** You gather data that helps you make a better decision: Your neighbor doesn't like the same shows you like or she's getting rather tired of you being there. You also determine that televisions cost a lot of money so you figure out how you can afford one. You choose to purchase a new television instead of watching your neighbor's.
- **Implementation:** You implement the decision: You stop at the appliance store on your way home from work and carry out your decision to purchase a new television.
- **Feedback:** You gather feedback: You're broke but you can watch anything you want! Of course this is a simplified example of the decision-making process. But the same process is used for almost every decision made by almost every person.

Information Systems help improve the decision-making process by :

- providing more information about the problem
- presenting a greater variety of possible alternatives
- showing consequences and effects of choices
- measuring the outcome of different possible solutions
- providing feedback on the decision that is made

Different types of decisions require different types of systems. All decisions follow the same pattern although some may be more complex and require several iterations of the decision-making stages.

3.13.2 Types of Decisions

There are three types of decisions:

(1) Programmed decisions

(2) Non programmed decisions

(3) Semi programmed decisions

(1) **Programmed decisions:** The decisions in which a problem is solved by a predefined procedure or algorithm. These decisions are repetitive and routine in nature and are capable of being modeled mathematically in their entirety. The examples of such decisions are :

(i) Preparation of pay in accordance with the laid out regulations

(ii) Inventory ordering.

To arrive at the programmed decisions, a solution manual to problems is prepared to help the users. Some characteristics of such decisions are:

(i) These decisions can be delegated

(ii) The cost of solving a problem is low compared to non-programmed rules

(iii) Such decisions can be made with the help of the computer system.

(2) **Non programmed decisions:** These decisions are unstructured, occasional, of high consequence, complex and involve major commitments. There is no predefined program or set decision rule or algorithm available to solve these problems automatically. The examples of such decisions are:

(i) Advertising budget

(ii) New product decisions

(iii) Acquisition of capital projects

Some characteristics of such decisions are

(i) These decisions are novel and difficult to structure in logical mathematical terms.

(ii) These decisions cannot be delegated, and are based on management direction, thinking and deliberations, e.g., purchase of scarce and capital items under fluctuating price conditions cannot be delegated

(iii) Computers cannot be used directly for such decisions. However, they may be used to process large volumes of necessary data.

(3) **Semi programmed decisions**: In these types of decision, at least one but not more than two of the above stages can be handled by a well defined preset procedure. An example of such a decision is the intelligence phase, which is well structured, having diverse kinds of variance analysis. Here a comparison with a budget is undertaken in a well defined way to indicate the need for a decision. Subsequent stages of design and choice are, however, not handled by any set procedure.

3.13.3 The Law of of Requisite Variety

In programmed decision making, it is necessary for the manager, to enumerate all the stages of the decision making situation, and provide the necessary support through rules and a formula for each one of them. The failure to provide the decision making rule, in each of them, will lead to a situation where the system will not be able to make a decision. It is, therefore, necessary to cover a requisite variety of situations with the necessary decision response.

The requisite variety of situations means that for efficient programmed decision making, it is necessary for the manager to provide.

(a) All the decision alternatives and the choices in each state.

(b) The decision rules to handle the situation; and

(c) The system or the method to generate a decision choice.

It has been found that in a closed-decision-making situation, the programmed decision making system works efficiently, while in the open-decision-making situation, it is not efficient. With the advent of expert systems and the knowledge-based artificial intelligence systems, it is now possible for a computer to develop the alternatives, test them and handle them on the criteria of selection leading to a decision. The MIS is expected to provide the necessary information and knowledge support to the computer based system.

3.13.4 Methods For Deciding Decision Alternatives

There are several methods to help the manager decide among the alternatives. The methods basically are search processes to select the best alternative upon satisfying certain goals. Three methods for selection of decision alternatives with the goals in view are:

(a) Optimization Techniques; (b) Payoff Analysis; and (c) Decision Tree Analysis.

All the operational research models use optimization techniques, to decide on the decision alternatives. When a decision making situation can be expressed, in terms of decision versus the probable event, and its pay-off value, then it is possible to construct a matrix of the decision versus the events described by a value for each combination. The manager can then apply the criteria such as the maximum expected value, the maximum profit and the minimum loss or the minimum regrets.

The method of decision tree can be adopted, if the decision making situation can be described as a chain of decisions. The process of the decision making is sequential and a chain of decisions achieves the end regrets. The use of both pay-off matrix and the decision tree requires a probabilistic knowledge of the occurrence of events. In many situations this knowledge is not available and the MIS has to provide the information support in this endeavor.

(a) Optimization techniques: Linear Programming, Integer Programming, Dynamic Programming, Queuing Models, Inventory Models, Capital Budgeting Models and so on are the examples of optimization methods. These methods are used in cases where decision making situation is closed, deterministic and requires optimizing the use of resources under conditions of constraints. To handle these situations, software packages are available. These methods are termed operational research (OR) methods. All the OR methods attempt to balance the two aspects of business under conditions of constraint. In the linear programming models, the use of resources versus demand is balanced to maximize the profit. In the Inventory Model, the cost of holding inventory versus the cost of procuring the inventory is balanced under the constraint of capital and meeting the demand requirement. In the Queuing Model, the cost of waiting time of the customer versus the cost of an idle time of the facility is balanced under the constraint of investment in the facility and the permissible waiting time for the customer. In the capital budgeting model, the return on investment is maximized under the capital constraint versus the utility of the investment. The MIS supports the formulation of a model, and then using it for the decision making.

(b) The payoff analysis: When all the alternatives and their outcomes are not known with certainty, the decision is made with the help of payoff analysis. The payoff matrix is constructed where the rows show the alternatives and the columns show the conditions or the states of nature with the probability of occurrence. The intersection of column and row shows the value of an outcome resulting out of the alternative and the state of the nature. A typical payoff matrix in pricing decision is as given in Table 3.1.

Table 3.1 Payoff Matrix I

Your decision	Competitor's Probability	No changes 0.50	Increase 0.20	Decrease 0.30	Expected gain
No Change in the price		4	5	8	5.40
Increase the price		6	4	3	4.70
Decrease the price		10	12	4	8.60

For example, if the decision chosen is no change in the price and the competition also does not change the price, then your gain is '4'. The decision is taken by choosing that decision alternative which has the maximum expected value of outcome. Since, the expected value in case of the third alternative is the highest; the decision would be to decrease the price.

The concept of utility relates to the money value considered by the decision maker. Utility is measured in terms of utile. Money has a value of a different degree to different decision makers depending upon the amount, and also the manner in which it is received. If rupee one is equal to one utile, then Rs 100 million is not 100 million utile but could be much more. The utile value will be different if the money is received in one lot as against in parts in several years. The utility function is different for different decision makers. The utile value of utility has an influence on the risk taking ability of the decision maker. A well placed manager with a sound business will tend to gamble or take more risk, than a manager not so well placed in the business. In such decision making situations, the monetary values of the outcomes are replaced by the utile values, suitable to the decision makers utility function. In our example of pricing, if we replace the values by utiles, the matrix would be as given below in Table 3.2.

Table 3.2. Payoff Matrix II

Decision	Competitor's choice	No Change	Increase	Decrease	Expected Utility
	Probability	0.50	0.20	0.30	
No Change in Price		4	50	200	72.00
Increase in Price		200	4	400	220.80
Decrease in Price	100	20	4	54.12	

Since the highest value of utility is 220.80 utiles, the decision would be to increase the price.

(c) Decision tree analysis: When a decision maker must make a sequence of decisions, the decision tree analysis is useful in selecting the set of the sequence decisions.

The method of analysis can be explained by an example. The decision tree is drawn in Figure 3.7 with the help of symbols.

DECISION POINT   CHANCE EVENT   ( ) PROBABILITY

Let us take an example of investment in production capacity for a planning period of five years.

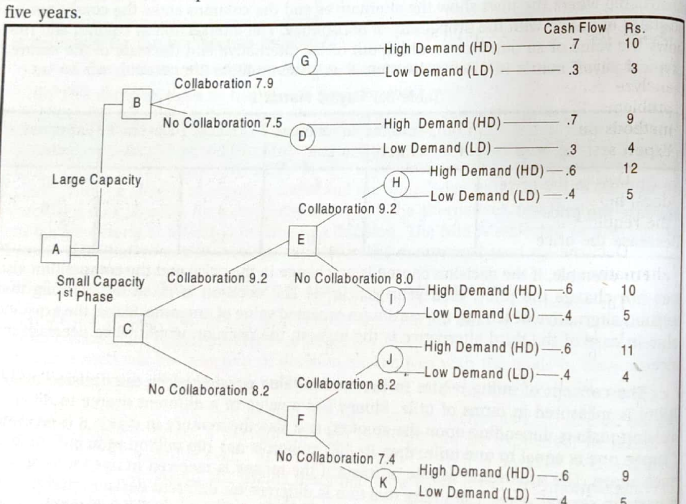

Figure 3.7 Decision Tree

In this decision situation there are two decision points and six paths as given below. The path which given maximum cash flow is the right decision path. The cash flow values are the under.

Path	Exp. Cash flow
ABC — Collaboration	7.9
ABD — No Collaboration	7.5
ACEH — Collaboration Ist Phase, Collaboration IInd Phase	9.5
ACEI — Collaboration 1st Phase, No Collaboration IInd Phase	8.0
ACFJ — No collaboration Ist Phase, Collaboration IInd Phae	8.2
ACFK — No Collaboration Ist Phase, No Collaboration IInd Phase	7.4

The problem is whether to expand now with a large capacity or to invest now in small capacity and make a decision of expansion after one year with the help of collaboration or without collaboration under certain demand conditions.

Since, the highest expected cash flow path is ACEH, the decision is to invest in a small capacity in the Ist phase and invest in the remaining capacity in the second phase with the assistance of the collaboration.

The decision tree approach is useful when you visualize a series of decisions having alternative paths with the associated probabilities and the cash flows for each path for more than one year.

3.14 MIS & DECISION MAKING CONCEPTS

A management information system is a system that has important tools to supports, analyze, delivery and adding reliability to any organization. Also this helps to solve business problems. The term MIS is often used to submit to a group of information management methods tied to the support of human decision making, e.g. Decision Support Systems, Expert systems, and Executive information systems.

Decision making is an essence of management. In other words, whatever a manager does, he/she does it through decision making and MIS assists every manager in providing the required information, which is a vital and necessary input in decision making.

Decision making is a process of selecting one optimum alternative from various alternatives.Thus, decision is the end result of the decision making process.

The objectives of MIS in an organization are :

1. Deliver the right information to the right people, at the right time, with the right form. Ultimately, MIS should improve the workers' productivity.
2. To standardize the system of obtaining reports and statistical information from the various hierarchical levels on top, middle as well as lower level people.
3. To record such information on CD's or drives on an organization and send to BOD's for budgeting, information storage, analysis and retrieval purposes.
4. To ensure that such information are accurate and timely.
5. To organize information for planning, budgeting and decision making.

6. To help an organizations put in place effective management system and improve utilization of resources.

Based on these objectives, it is expected that MIS will assist an organization in decision making on various issues in their operations. To this end, efforts are made by an organization in the areas of the acquisition and use of computers in information processing, computer literacy, establishment of computer services units among others.

Management Information System (MIS) is basically concerned with the process of collecting, processing, storing and transmitting relevant information to support the management operation in any organization.

Thus, the success of decision making, which is the heart of administration process, is highly dependent partly on available information, and partly on the functions that are the components of the process.

It is necessary to understand the concepts of decision making as they are relevant to the design of the MIS. The decision making process can be broken down into five stages, namely:–

1. Trigger: (find what to fix): Find or recognize a problem, need, or opportunity (also called the diagnostic phase of decision making). This phase involves detecting and interpreting signs that indicate a situation which needs your attention. These "signs" come in many forms: consistent customer requests for new-product features, the threat of new competition, declining sales, rising costs, an offer from a company to handle your distribution needs, and so on.
2. Information gathering: Identifies preliminary information needs; obtain information.
3. Design: (find fixes): Consider possible ways of solving the problem, filling the need, or taking advantage of the opportunity. In this phase, you develop all the possible solutions you can.
4. Choice: (pick a fix): Examine and weigh the merits of each solution, estimate the consequences of each, and choose the best one (which may be to do nothing at all). The "best" solution may depend on such factors as cost, ease of implementation, staffing requirements, and timing. This is the prescriptive phase of decision making—it's the stage at which a course of action is prescribed.
5. Evaluation: (apply the fix): Carry out the chosen solution, monitor the results, and make adjustments as necessary. Simply implementing a solution is seldom enough. Your chosen solution will always need fine-tuning, especially for complex problems or changing environments.

This five-phase process is not necessarily linear: You'll often find it useful or necessary to cycle back to an earlier phase. When choosing an alternative in the choice phase, for example, you might become aware of another possible solution. Then you would go back to the design phase, include the newly found solution, return to the choice phase, and compare the new solution to the others you generated.

The concepts of the organizational and behavioral aspects of decision making provide an insight to the designer to handle the organizational culture and the constraints in the MIS. The concepts of the rationality of a business decision, the risk averseness of the managers and the tendency to avoid an uncertainty, makes the designer conscious about the human limitations, and prompts him to provide a support in the MIS to handle these limitations. The reliance on organizational learning makes the designer aware of the strength of the MIS and makes him provide the channels in the MIS to make the learning process more efficient.

The relevance of the decision making concepts is significant in the MIS design. The significance arises out of the complexity of decision making, the human factors in the decision making, the organizational and behavior aspects, and the uncertain environments. The MIS design addressing these significant factors turns out to be the best design.

3.15 LEVELS OF DECISION MAKING

In the previous chapter, we discussed the various types of Information Systems and how they relate to the levels of an organization. We can also relate those Information Systems to the types of decisions managers make.

- **Strategic Decision Making:** These decisions are usually concerned with the major objectives of the organization, such as "Do we need to change the core business we are in?" They also concern policies of the organization, such as "Do we want to support affirmative action?"
- **Management Control:** These decisions affect the use of resources, such as "Do we need to find a different supplier of packaging materials?" Management-level decisions also determine the performance of the operational units, such as "How much is the bottleneck in Production affecting the overall profit and loss of the organization, and what can we do about it?"
- **Knowledge-Level Decision Making:** These decisions determine new ideas or improvements to current products or services. A decision made at this level could be "Do we need to find a new chocolate recipe that result in a radically different taste for our candy bar?"
- **Operational control:** These decisions determine specific tasks that support decisions made at the strategic or managerial levels. An example is "How many candy bars do we produce today?"

3.16 ORGANISATION DECISION MAKING

An organization is an arrangement of individuals having different goals. Each individual enjoys different powers and rights because of his position, function and importance in the organization. Since there is an imbalance in the power structure, the different individuals cannot equally influence the organizational behavior, the management process and the setting of business goals. Ultimately, what emerges is a hierarchy of goals which may be conflicting, self-defeating and inconsistent.

The corporate goals and the goals of the departments/divisions or the functional goals, may a time, are in conflict. If the organization is a system, and its departments / divisions or functions are its subsystems, then unless the system ís objective and the subsystem ís objectives are aligned and consistent to each other, the corporate goals are not achieved.

In case of inconsistent goals, the conflict in the organization increases, affecting the organizationís overall performance. The organizational decision making should help in the resolution of such conflicts. Otherwise, the organization suffers from indecision. The organizational behavior theory provides different methods for resolution of avoiding such conflicting goals as explained in Table