

## **MODULE 4**

### **Organizing**

Organizing is the function of management that involves developing an organizational structure and allocating human resources to ensure the accomplishment of objectives. The structure of the organization is the framework within which effort is coordinated. The structure is usually represented by an organization chart, which provides a graphic representation of the chain of command within an organization. Decisions made about the structure of an organization are generally referred to as organizational design decisions.

Organization is a pattern of relationships among the individuals working together for a common goal.

### **Concept or Nature of Organizing or Organization**

There are two essential concepts regarding with organizing:

#### **Organization as a Process**

The concept of organizing can be considered as a process, because a large number of events or activities are done under the process of organizing with-a-view to accomplish the preset goals in an appropriate way. In fact, organizing involves division of works, determination of activities, grouping of activities, delegation of authority and the establishment of proper co-ordination and balance among various departments of individuals towards the attainment of predetermined goals. On the whole it is clear that the objectives of business firm cannot be obtained by doing single activity, so organizing is set to be a process.

#### **Organization as a Structure of Relationship**

Organization refers to a structure of relationship due to involvement of a large number of groups. In fact, under the process of organizing the relationship of departments to departments, groups to groups and individuals to individuals are analyzed carefully through the process of communication system with a view to establish proper unity and co-ordination among them. So that everyone can take initiative for the welfare of enterprise. Thus it is clear that Organization can be considered as a structure of relationship.

### **Characteristics or Features of Organizing or Organization**

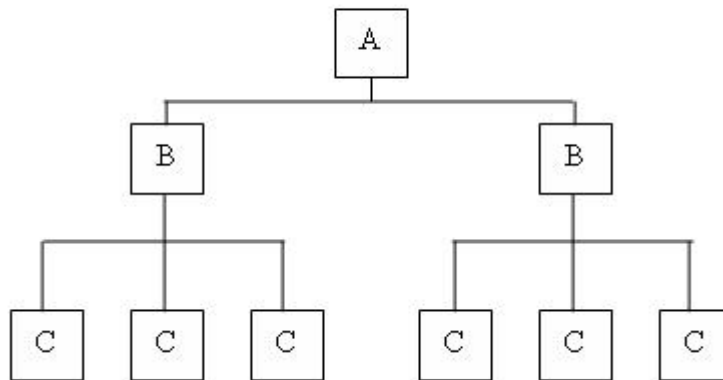
- 1) Organization is made up of a group of people
- 2) The group works under an executive head
- 3) Organization is a tool of management
- 4) It leads to division of work and responsibilities
- 5) It defines and fixes the duties and responsibilities of employees
- 6) It establishes a relationship between authority and responsibility and controls the effort of the group
- 7) Organization is a step towards achievement of established goals

## Elements of Organization

The main elements or components of an organization are:

- 1) Well defined objectives
- 2) Well organized and coordinated group of people
- 3) Proper division of work and labour
- 4) Clear and well defined policies and procedures
- 5) Proper division of authority and responsibility
- 6) An effective system of communication

## Organization Chart



*Simple Organization Chart*

An organization chart is a simple drawing of lines and boxes showing how the firm is organized. Boxes represent the activities of the firm and the people who perform these activities. Lines indicate the relationships among them. Positions near the top of the chart have more authority and responsibility than those below them. The number of horizontal rows of boxes will indicate the levels of management in an organization. The above figure shows a sample organization chart.

## Levels of Management

The term “Levels of Management’ refers to a line of demarcation between various managerial positions in an organization. The number of levels in management increases when the size of the business and work force increases and vice versa. The level of management determines the chain of command, the amount of authority, and status enjoyed by any managerial position. Although it would be possible to slice the management structure in an organizational hierarchy into any number of vertical levels usually three levels are cited namely:

- 1) Top management
- 2) Middle management, and
- 3) Supervisory (or) first (or) lower level management

Managers at all these levels perform different functions. The role of managers at all the three levels is discussed below:

### **Top level Management**

Top level management is responsible for framing policies of the organization. All critical decisions are also made at this level. Top level management consists of board of directors, managing director, general manager and senior most managers. Top level management is administrative in nature. Following are the important functions performed by top level management:

- 1) Develops long - range plans and strategies
- 2) Top management lays down the objectives and broad policies of the enterprise.
- 3) Issues necessary instructions for preparation of department budgets
- 4) Consults subordinate managers on subjects or problems of general scope
- 5) Involved in selection of key personnel
- 6) Controls and coordinates the activities of all the departments

### **Middle level Management**

Middle level management is the link between top level and low level management. They devote more time to organizational and directional functions. These managers supervise, direct and control the activities of foremen, inspectors and supervisors. The activities at this level include:

- 1) Makes plan of intermediate range and prepares long - range plans for review by top level management
- 2) Establishes departmental policies
- 3) Counsels subordinates on production, personal or other problems
- 4) Selection and recruitment of personnel
- 5) Training of lower level management
- 6) Interpret and explain policies from top level management to lower level
- 7) Coordinating activities within the division or department
- 8) Sends important reports and other relevant data to top level management
- 9) Evaluate performance of junior managers
- 10) Motivate lower level managers towards better performance

### **Lower level Management**

Lower level is also known as supervisory / operative level of management. It consists of foremen, inspectors, supervisors etc. They will be mainly concerned with direction of operative employees and the major functions performed at this level include:

- 1) Makes detailed, short - range operating plans
- 2) Assigning of jobs and tasks to various workers
- 3) Supervise and guide the sub-ordinates
- 4) Reviews performance of subordinates
- 5) Supervises day - to - day operations
- 6) Responsible for the quality as well as quantity of production
- 7) Solve the grievances of the workers.
- 8) Training of workers
- 9) Arrange necessary materials, machines, tools etc. for day - to - day operations
- 10) Prepare periodical reports about the performance of the workers
- 11) Ensure discipline in the enterprise
- 12) Motivate workers

## Managerial Skills

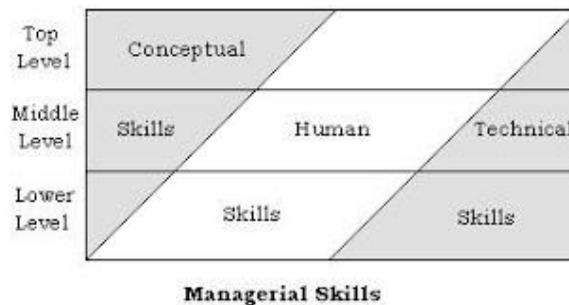
Despite variations in the duties and responsibilities of a manager, there are several skills that all managers must develop. Three basic and essential skills that are needed by all managers are technical, human, and conceptual.

**Technical skill** is the knowledge and proficiency in activities involving methods, processes, and procedures. It involves working with tools and specific techniques. For example mechanics works with tools, and their supervisors should have the ability to teach them how to use these tools. Similarly, accountants apply specific techniques in doing their job.

**Human skill** is the ability to work with others by getting along with them, motivating them, and communicating effectively with others. The manager must focus his attention on improving his interpersonal relations with peers, subordinates, and his own supervisors.

**Conceptual skill** is the ability to coordinate and integrate the entire organizational interests and activities. A manager must have the ability to see the organization as a whole and not make decisions from his own departmental point of view. He must be able to see how his department is affected by the decisions of others.

The relative importance of skills varies according to the level of management as illustrated in the following figure.



To these may be added a fourth - the ability to design. **Design skill** is the ability to solve problems in ways that will benefit the enterprise. To be effective, particularly at upper organizational levels, the managers must be able to do more than see a problem. They must have, in addition, the skill of a good design engineer in working out a practical solution to a problem. Managers must have the valuable skill of being able to design a workable solution to the problem in the light of the realities of a given situation.

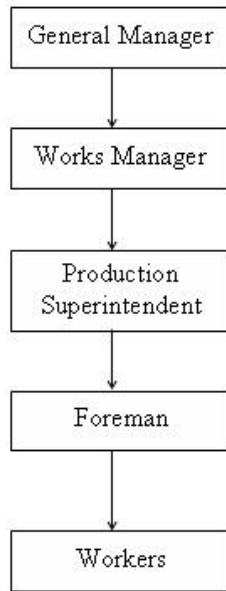
## Types of Organization

A few commonly known forms of organization structures or types of organization are:

- 1) Line organization
- 2) Line and staff organization
- 3) Functional Organization
- 4) Project Organization, and
- 5) Matrix Organization

### Line Organization

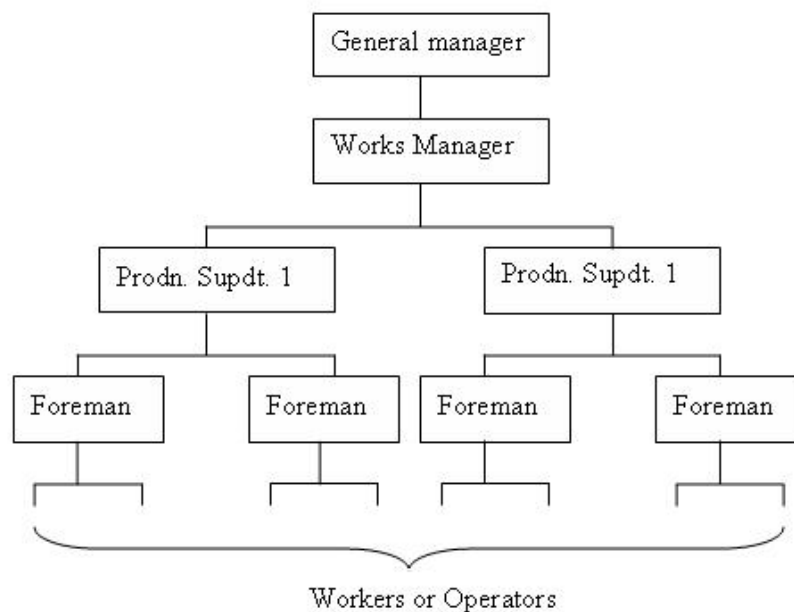
Line structure is historically the oldest type, and all other kinds of structures are modifications of line structures. This structure is characterized by the direct vertical flow of authority from top to bottom. A simplified line structure is shown in the following figure.



*Line Structure*

In this structure, the authority flows from the General Manger to Works Manager to production Superintendent to Foreman and to Workers.

Line Organization is also called military or scalar organization. Line organization is suitable for small concerns and for automatic and continuous process industries such as paper, sugar, cement, textile, etc.



*Line structure*

### Advantages of Line structure

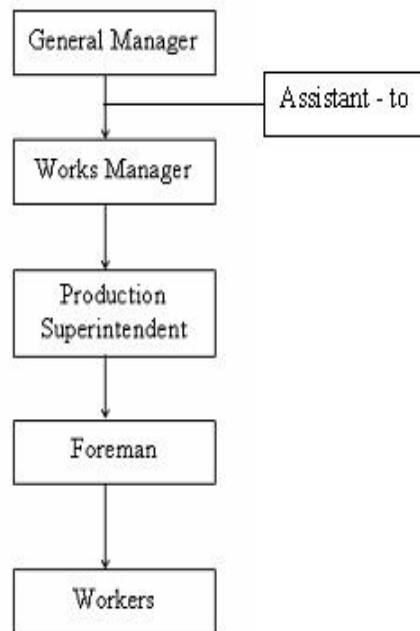
1. *Simplicity and clarity*
2. *Clear cut authority and responsibility*
3. *Strong discipline*
4. *Capable of developing all round executives at higher levels of authority*

### Disadvantages of Line structure

1. *Neglects specialists*
2. *Lack of specialization may lead to wastage of materials as well as man and machine hours*
3. *Overloads a few important executives*
4. *Encourages dictatorial way of working*
5. *Limited to very small concerns*

### **Line and Staff Organization**

Line and staff organization is a development of line organization. In this type of structure, special executives known as staff are employed to assist the line executives. Staff personnel act as helpers to the line and, as such, have no direct authority. The nature of staff relationship is advisory.



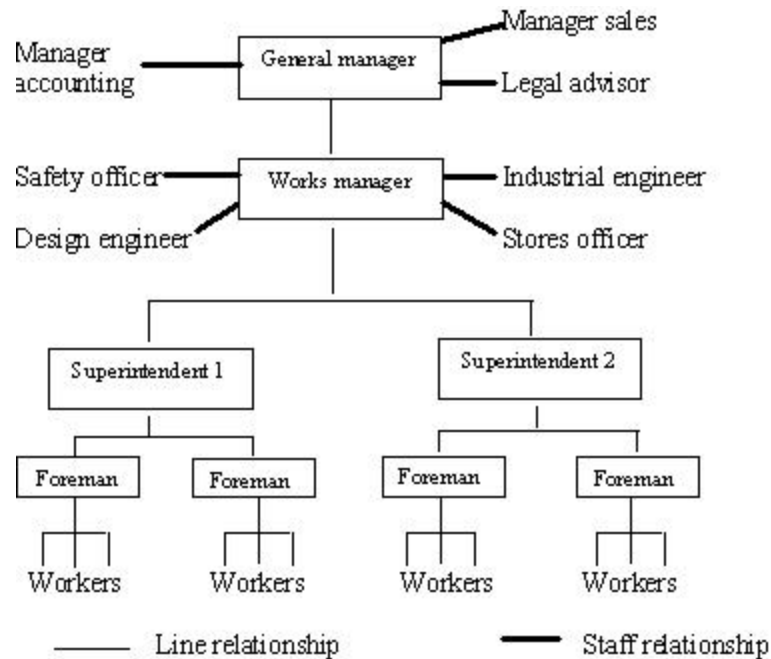
*Line and Staff Organization*

### Advantages

1. *Specialization benefits of staff can be profitably utilized to have standard operations.*
2. *Line executives are relieved of some of their workloads and are thus able to concentrate on other important matters.*
3. *Less wastage of material and labour*
4. *Improved product quality*
5. *Relatively flexible*

### Disadvantages

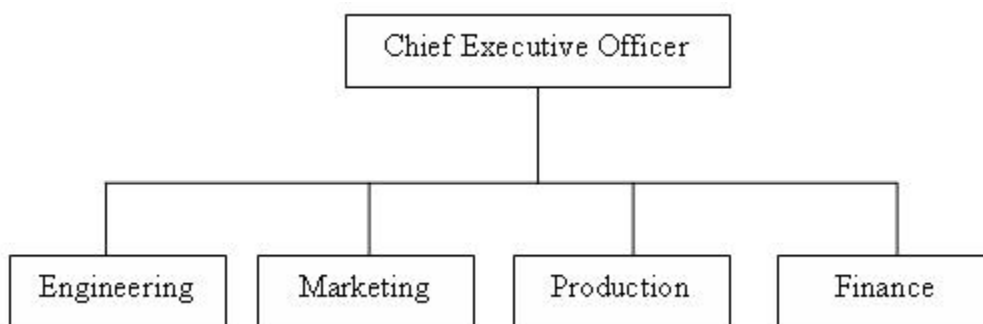
1. Staff – line conflict
2. Paper work may be increased very much
3. Staff men may dominate over the lower the lower-level line managers
4. Increased product cost because of high salaries of staff executives
5. Too much staff activity may complicate a line executive's job of leadership and control



*Line and Staff Organization*

### **Functional Structure**

In a functional structure activities are grouped in accordance with the functions of an enterprise. This specialization leads to greater efficiency and refinement of particular expertise. The functional structure helps to focus on those departments that are critical for the success of the enterprise. The following figure shows the model of a functional structure.



*Functional Structure*

### Advantages

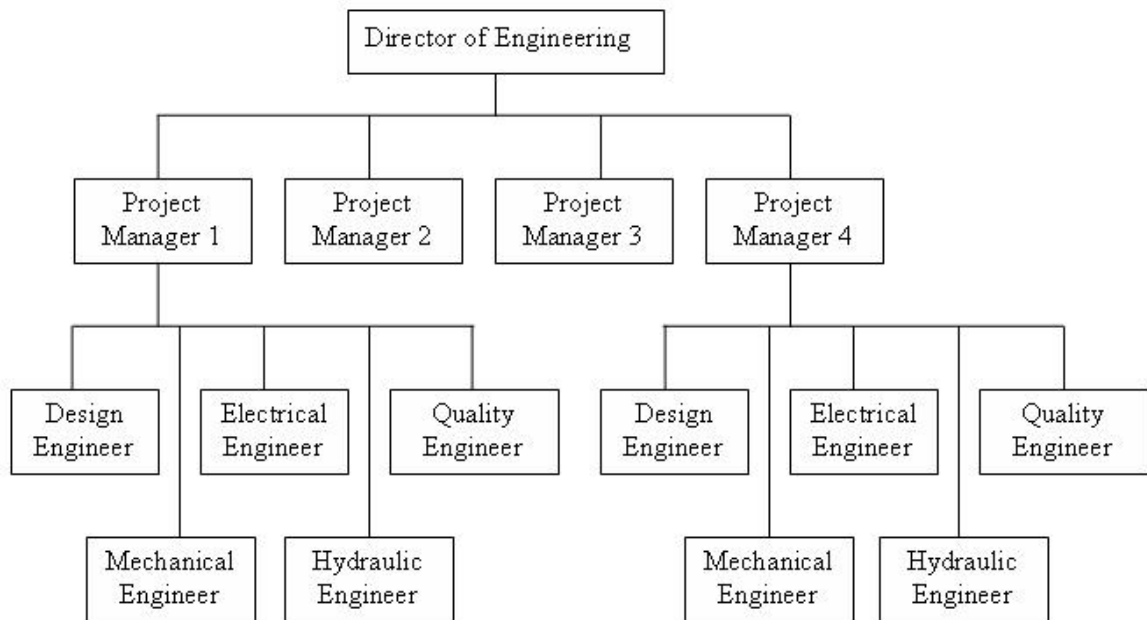
1. *Efficient use of resources*
2. *Simplifies training*
3. *Promotes professional development*
4. *Centralized control of strategic decisions*
5. *Improved quality of work*

### Disadvantages

1. *Limits development of general managers or all-round executives*
2. *Restricted view of company objectives*
3. *Difficulty in multifunctional decision making*
4. *Promotes narrow specialization*
5. *Makes industrial relationships more complex*

### **Project Organization**

Firms dealing with multiple products or different projects usually adopt project organization. In this type of organization, a project manager is put in charge of all engineering and support personnel necessary to accomplish an entire project. The emphasis in project organization is on creation of teams for the accomplishment of specific objectives. The following figure shows a project organization in Engineering.



*Project Organization*

### Advantages

1. *Flexibility*
2. *Responsive to changing environment*
3. *Encourages team work*

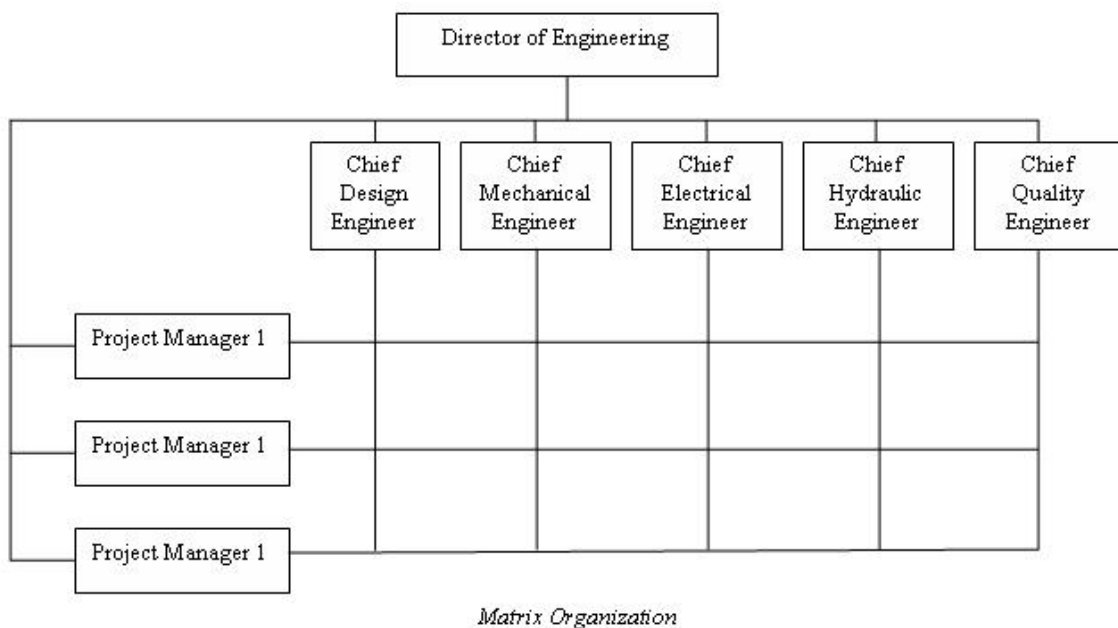


### Disadvantages

1. Projects can be of short duration leading to frequent change in organization structure
2. Professionals prefer to be allied with their professional group rather than being allied with a project
3. Trained professionals need not tolerate the insecurity of frequent organization change

### **Matrix Organization**

The matrix organization is an organization structure that establishes two chains of command, one vertical and one horizontal, at the same time. It is intended to combine the advantages of functional structure and project structure. The following figure shows a matrix organization in Engineering.



In the matrix organization shown above the chiefs of design, mechanical, electrical, hydraulic and quality represent the functional departments that make up the vertical hierarchy. Simultaneously, the managers of projects 1,2 and 3 operate across the structure. This graphically creates a grid or matrix.

### Advantages

1. Decentralized decision making
2. Efficient use of functional managers
3. Capable of adapting to fast environmental changes
4. Flexibility

### Disadvantages

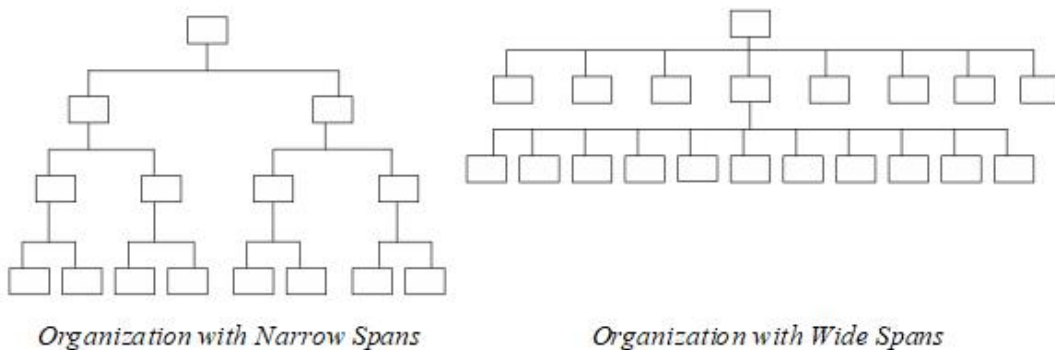
1. Violates the principle of unity of command
2. High administrative costs
3. Requires tremendous horizontal and vertical co-ordination
4. Chances of interpersonal conflicts

## Span of Management Control

Span of management control (frequently shortened to span of control or span of management) refers to the number of people a manager can effectively supervise.

Choosing an appropriate span of management control for an organizational hierarchy is important for two reasons. First, the span can affect what happens to work relationships in one particular department. Too wide a span may mean that managers are over extended and subordinates receiving too little guidance. When this happens, subordinates may start thinking that they are too remote from the point of control and may become careless. Too narrow span, on the other hand, is inefficient because managers are under utilized.

Second, the span can affect the speed of decision making in situations where multiple levels in the organizational hierarchy are involved. A narrow span of management results in many organizational levels and a long chain of command slows decision-making. In contrast, wide spans results in few organizational levels.



### Advantages of Narrow Spans

1. Close supervision
2. Close control
3. Little or no sub-ordinate training required

### Disadvantages of Narrow Spans

1. Managers under utilized
2. High costs due to many levels of management
3. Excessive distance between lowest level and top level
4. Slow decision-making
5. Superiors tend to get too involved in sub-ordinates' work

### Advantages of Wide Spans

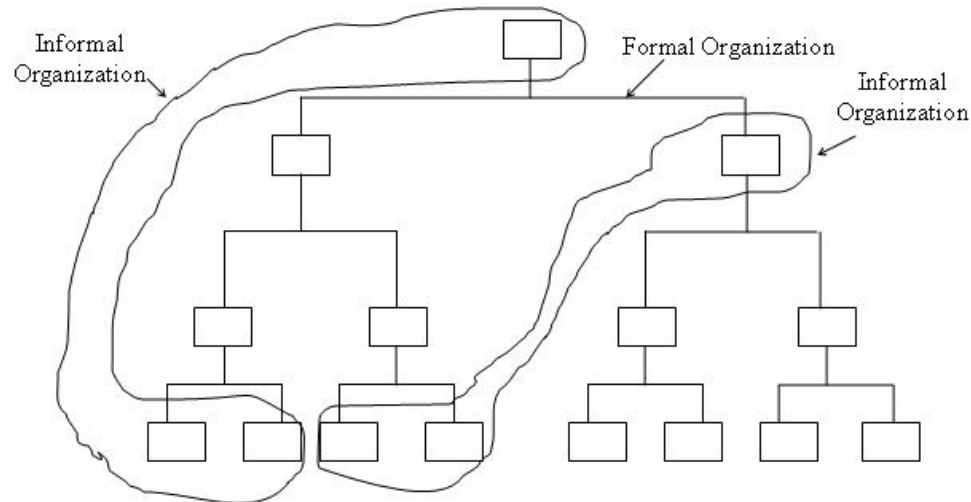
1. Quick decision-making
2. Superiors are forced to delegate
3. Low costs due to few levels of management

### Disadvantages of Wide Spans

1. Managers are over extended
2. Requires exceptional quality of managers
3. Tendency of over loaded superiors to become decision bottlenecks

*Note: There is no definite number of people a manager can effectively supervise; the number depends on several underlying factors. These include nature of work and capability of managers and sub-ordinates, the degree of sub-ordinate training required and possessed, the clarity of authority delegated, the clarity of objectives, plans and policies, the effectiveness of communication techniques and the type of organization.*

## Formal and Informal Organization



*Formal and Informal Organization*

- 1) Formal Organization is an organization in which job of each member is clearly defined, whose authority, responsibility and accountability are fixed. Informal Organization is formed within the formal organization as a network of interpersonal relationship when people interact with each other.
- 2) Formal organization is created deliberately by top management. Conversely, informal organization is formed spontaneously by members.
- 3) Formal organization is aimed at fulfilling organization's objectives. As opposed to an informal organization is created to satisfy their social and psychological needs.
- 4) Formal organization is permanent in nature; it continues for a long time. On the other hand, informal organization is temporary in nature.
- 5) The formal organization follows official communication, i.e. the channels of communication are predefined. Unlike informal organization, the communication flows in any direction.
- 6) In the formal organization, the rules and regulations are supposed to be followed by every member. In contrast to informal communication, there are norms, values, and beliefs, that work as a control mechanism.
- 7) In the formal organization, the focus is on the performance of work while in the case of an informal organization, interpersonal communication is given more emphasis.

- 8) The size of a formal organization keeps on increasing, whereas the size of the informal organization is small.
- 9) In a formal organization, all the members are bound by the hierarchical structure, but all the members of an informal organization are equal.

## **Decision Making**

Decision making is the process by which a course of action is selected from among alternatives. It is at the core of planning. A plan cannot be said to exist unless a decision has been made. People at all levels in an organization are constantly making decisions and solving problems. For managers, the decision-making and problem-solving tasks are particularly important aspects of their jobs. The process leading to decision making involves (1) premising, (2) identifying alternatives, (3) evaluating the alternatives, and (4) selecting the best alternative.

### **(1) Premising**

Though there are innumerable factors in the environment, all of them do not affect operations of the business enterprise. Top managers should select the premises which have direct impact on developing organisational plans. There are many factors that affect business decisions, some of which are general in nature while others are selective.

The general factors affect all the firms alike but specific factors affect different firms differently. While developing premises, organisations should focus more on specific factors (or its micro environment) as they have immediate impact on making the plans.

### **(2) Identifying alternatives**

Assuming that we are clear regarding our goals as well as premises, it is necessary to develop alternatives. In order to choose the best alternative and make a decision, every manager needs to have the ideal resources - information, time, personnel, equipment, and supplies. But this is an ideal situation and may not always be possible. A limiting factor is something that stands in the way of accomplishing a desired objective. Recognizing the limiting factor in a given situation makes it possible to narrow down the search for alternatives and make the best decision possible with the information, resources, and time available. The principle of limiting factor states that, by recognizing and overcoming those factors that stand critically in the way of goal, the best alternative course of action can be selected.

Some methods for developing alternatives are Brainstorming, Nominal group technique, and Delphi technique.

### **(3) Evaluating the alternatives**

After making all the alternatives, the next step in planning is to evaluate these alternatives. Evaluation is required in order to select the best alternative for implementation.

While evaluating alternatives, the managers must compare the alternative plans or decisions. For this, the manager must consider the quantitative and qualitative factors.

Quantitative factors are those factors that can be measured numerically. For e.g. Number of units sold, costs in rupees, etc. The quantitative factors are tangible in nature. Qualitative factors, on the other hand, are intangible in nature. For e.g. quality of labour force, customer satisfaction, etc.

The management must give importance not only to quantitative factors but also to qualitative factors. For e.g. an excellent production plan may prove to be a failure due to bad quality of labour force, poor maintenance of machines, etc.

The methods or techniques for the evaluation of alternatives are:

**(i) Marginal Analysis**

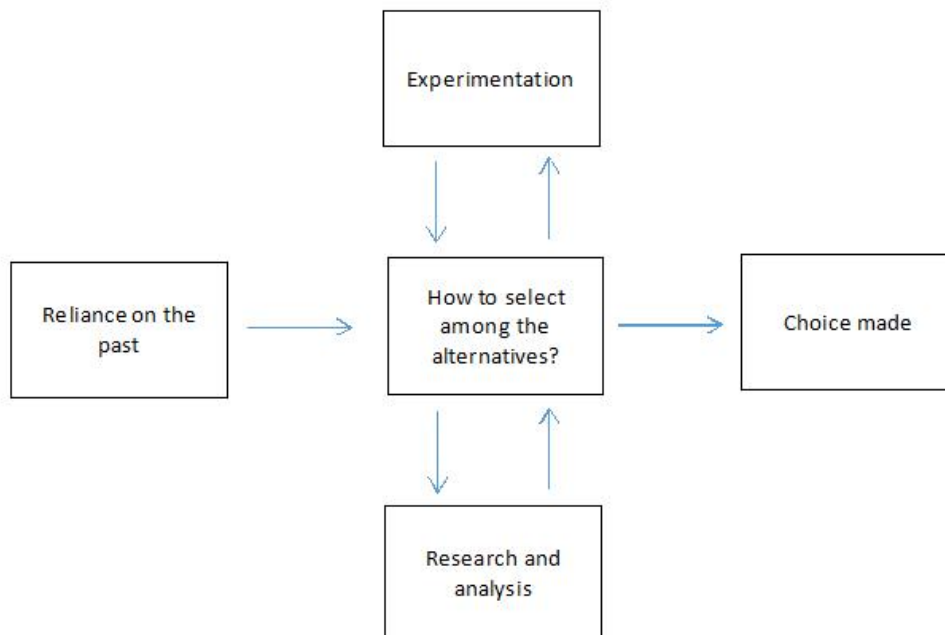
The marginal analysis technique helps to compare additional revenues with additional costs. If the additional revenue is greater than the additional costs, more profit can be made by producing more. However, if the additional revenue is less than the additional costs, more profit can be made by producing less.

**(ii) Cost-Effectiveness Analysis**

This technique, also known as cost-benefit analysis, is an improvement of the traditional marginal analysis. The alternative that provides the maximum benefits at the minimum cost is selected. The cost can be measured in terms of money, time, risk, goodwill, etc.

**(4) Selecting the best alternative, that is making a decision**

(i) Experience, (ii) experimentation, and (iii) research and analysis are the three or approaches for choosing the best alternative in decision making.



*Basis for Selection among Alternatives*

**(i) Experience**

Reliance on past experience, plays a comparatively big role in decision-making. Experienced managers usually believe, often without realizing it, that the things they have successfully accomplished and the mistakes they have made provide almost a foolproof guide to the future. Experience helps a great deal to develop the ability to exercise good judgment.

**(ii) Experimentation**

Trying one of the alternatives and see what happens is a usual way of choosing an alternative. This kind of experimentation is often used in scientific inquiry. It is frequently suggested that this method should be employed more often in managing. Because only by trying various alternatives a manager can be sure about the best way, especially in view of the intangible factors involved in the decision process. The experimental method is likely to be the most expensive of all methods, particularly where it involves a substantial amount of money and manpower. Moreover, even after carrying out an experiment, there may still be doubt about what it proved, since future may not duplicate the present. Therefore, this technique should be used only after considering other alternatives.

**(iii) Research and analysis**

One of the best techniques for selecting from among alternatives when major decisions are involved is research and analysis. This approach means solving a problem by first comprehending it. It involves a search for relationships among the more critical variables, constraints, and premises that bear upon the goal sought. It is the pen-and-paper approach to decision-making. Solving a planning problem requires breaking it into its component parts and studying the various quantitative and qualitative factors. A major step in the research-and-analysis approach is to develop a model stimulating the problem. Conceptualizing a problem is a major step toward its solution.

**Rational Model of Decision Making**

Intuition is the ability to have a grasp on a situation or information without the need for reasoning. The opposite of intuitive decision making is rational decision making, which is when individuals use analytics, facts and a step-by-step process to come to a decision.

In a rational model, an individual has goals and objectives and has a payoff, utility or preference function that permits that person to rank all possible alternative actions by the actions contribution to the desired goal. The person is presented with and understands alternative courses and actions. Each alternative has a set of consequences. The decision maker chooses the alternative and consequences that rank highest in terms of the payoff functions, that is, that contribute most to the ultimate goal.

**Bounded Rationality**

The 'Theory of Bounded Rationality' was developed by economist Herbert A. Simon, who was awarded the Nobel Prize in Economics in 1978 for his study of

decision-making. The theory states that humans are incapable of taking purely rational decisions, and are often influenced by various factors.

According to him, instead of choosing the optimum solution as per rational methods, humans tend to opt for something that is most satisfying to their aspiration level. It is not possible for a human to consider all the alternatives, and analyze them without being biased. His decision might be coloured with his own perspective, and may not be crystal clear and rational.

Herbert A. Simon created the term satisficing, that states that instead of aiming for the optimum solution, humans tend to take decisions that set in their mind's mapping and fulfills all restraints.

### **Significance of Decision Making**

- 1) Managers who use a rational, intelligent, and systematic approach are more likely to come up with high quality solutions to the problems they face than the ones who do not use this approach.
- 2) Rational decision-makers have a clear understanding of alternative courses of action to accomplish a goal under a particular set of circumstances.
- 3) Rational decision-making is based on the information available with the decision-makers and their ability to evaluate alternatives.
- 4) Rational decision-making aims at deciding the best solution by selecting the alternative that most effectively facilitates goal achievement

### **Limitations of Decision-Making**

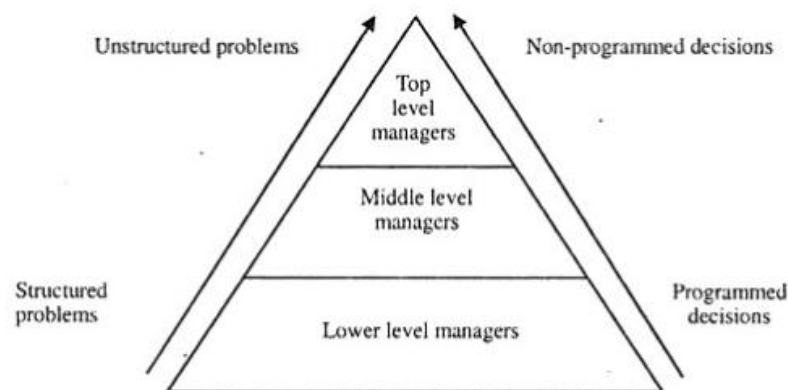
- 1) It is very difficult for managers to be completely rational in their decision-making since decisions are taken keeping the future in mind, and the future is very uncertain.
- 2) It is very difficult to determine all the alternative courses of action that might be followed to accomplish a goal.
- 3) Rational decision-making becomes almost an impossible task when one has to explore areas which have never been ventured into before.
- 4) In most cases, all possible alternatives generated cannot be thoroughly analyzed, even with sophisticated analytical techniques and computers.
- 5) Even though the decision-maker strives to be completely rational, sometimes limitations of information, time and certainty, curb rationality.
- 6) Sometimes, managers allow their risk-avoiding tendency to disrupt their rational decision-making process.

### **Programmed and non Programmed Decisions**

The Programmed decisions in Management are concerned with the relatively routine problems. These decisions are taken in the regular course of any business operations and occur at a day-to-day frequency. These decisions are repetitive and structured in nature. They are small and have a low scope of impact. The Information related to these types of decisions are readily available and can be processed in a pre-determined manner. These demand very little time and effort as there are

pre-determined decision rules and procedures. These are taken at lower levels of management. For example, a decision regarding a personnel coming late regularly.

The Non-programmed decisions in management are concerned with unique or unusual problems. They are encountered in a very non-frequent manner. These decisions are unstructured, non-recurring and ill-defined in nature. Such decisions are relatively complex and have a long-term impact. The Information regarding these problems are not easily available. As such, they require high degree of executive judgement and deliberation. These are generally taken at higher levels in the organization. For example, Decisions regarding the expansion of business.

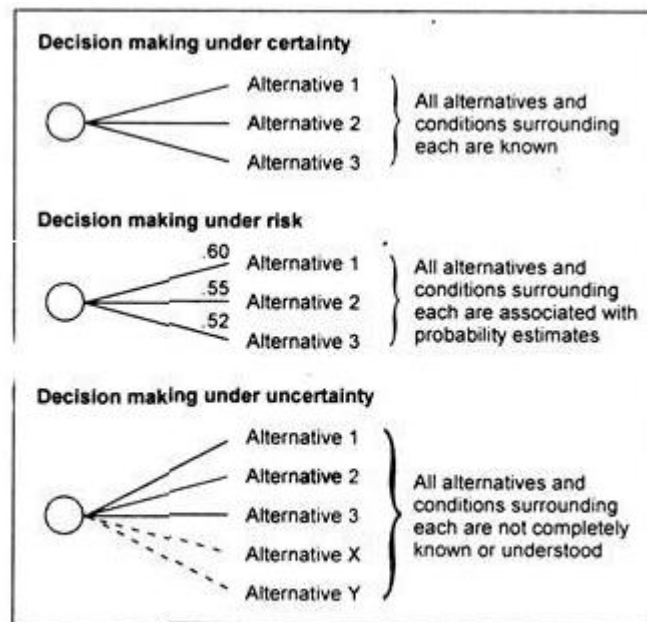


Characteristics	Programmed Decisions	Nonprogrammed Decisions
Type of Problem	Structured	Unstructured
Managerial level	Lower levels	Upper levels
Frequency	Repetitive, routine	New,unusual
Information	Readily available	Incomplete
Goal	Clear,specific	Vague
Time frame for solution	Short	Relatively long
Solution relies on	Procedures,rules,and policies	Judgment and creativity

*Difference between Programmed and Non- Programmed Decisions*



## Decisions Under Certainty, Risk and Uncertainty



Decision-making conditions

### Taking Decisions Under Certainty

When managers know with certainty what their possible alternatives are and what conditions are associated with each alternative, a state of certainty exists.

### Taking Decisions Under Risk

A more realistic decision-making situation is a state of risk. Under a state of risk, the availability of each alternative and its potential pay-offs (rewards) and costs are all associated with profitability estimates. It is, therefore, quite obvious that the key element in decision-making under a state of risk is accurately determining the probabilities associated with each alternative.

### Taking Decisions Under Uncertainty

However, most important and strategic decisions in modern organisations are taken under conditions of uncertainty. A state of uncertainty refers to a situation in which the decision maker does not know what all the alternatives are, and the risks associated with each, or what consequences each is likely to have.

This complexity arises from the complexity and dynamism of today's organisations and their environments. All successful organisations have made various effective decisions under uncertainty. The key to effective decision-making under uncertainty is to acquire as much relevant information as possible and to approach the situation from a logical and rational perspective. Intuition, judgement and experience always play a very important role in decision-making under uncertain conditions.

## Creativity and Innovation

Creativity is a way of thinking that generates new ideas. Creativity is the driver that leads to innovation. It's about seeing things through a different lens, often called thinking outside the box, and coming up with novel and useful ways to solve problems or come up with opportunities. Innovation is the implementation of a new idea. Two important types of innovation are product innovation (new things such as goods/services) and process innovation (new ways of doing things). Creativity is needed, but essentially useless if not implemented.

Unfortunately, many employees come up with great ideas, but managers fail to implement them. So employees give up trying to improve products and processes; they even hide creative knowledge. Conversely, managers who ask for employees' ideas, reward them for sharing, and innovate get improved managerial effectiveness through increased performance. Creativity obviously leads to innovation, but it can be costly, and there is always the risk of failure.

The three stages in the creative process are (1) preparation, (2) incubation and illumination, and (3) evaluation.

**1. Preparation:** Define the problem by getting others' opinions, feelings, and ideas, as well as the facts. Look for new angles, use imagination and invention, and don't limit yourself to the boundaries of past thinking. Generate as many possible solutions as you can think of without making a judgment.

**2. Incubation and illumination:** After generating alternatives, take a break; sleep on the problem. Creativity seems to happen outside the "ordinary groves of thought and action." During the incubation stage, as your subconscious works on the problem, you may gain an insight into the solution - illumination. Illumination can also happen while working on the problem.

**3. Evaluation:** Before implementing a solution, you should evaluate the alternative to make sure the idea is practical. A good approach is to become the devil's advocate. With the devil's advocate approach, group members focus on defending a solution while others try to come up with reasons the solution will not work. Using the devil's advocate approach usually leads to more creativity as the idea is improved upon.

According to Koontz and Wehrich, creativity usually refers to the ability and power to develop new ideas and the creative process consists of four interacting and overlapping phases: (1) Unconscious Scanning (2) Intuition (3) Insight, and (4) Logical formulation.

*Unconscious Scanning* is difficult to explain as it is a condition beyond consciousness. This scanning requires an absorption in the problem, which may be vague in the mind. *Intuition* connects the unconscious with the conscious and may involve a combination of factors that may seem contradictory at first. Intuition needs time to work and it requires that people find new combinations and integrate diverse concepts and ideas. *Insight* is mostly the result of hard work. Insight may come at times when thoughts are not directly focused on the problem and also new insights may last only for a few minutes. It is necessary that managers have pen and pencil

ready to make notes of their creative ideas. Insights needs to be tested by **logic or experiment**. This may be accomplished by continuing to work on an idea or by inviting critiques from others.

Creativity can thrive in small groups, so there is a trend today toward using groups to develop creative ideas and make decisions. Five of the more popular group creativity techniques are as follows:

**1) Brainstorming** - Brainstorming is the process of suggesting many possible alternatives without evaluation. It is necessary to include diverse people. The group is presented with a problem and asked to develop as many solutions as possible. Members should be encouraged to make wild, extreme suggestions. You should also build on suggestions made by others. Everyone should have an equal voice. No criticizing others' ideas, and none of the alternatives should be evaluated until all possible alternatives have been presented. Research has also shown that we are more creative when walking, so with small groups, some companies are holding walking brainstorming sessions. Using technology, a newer form of brain storming is electronic e-brainstorming. Participants synchronously send ideas without getting together. People who are far apart geographically can brainstorm this way, and the number of participants does not have to be limited.

**2) Synectics** - Synectics is the process of generating novel alternatives through role playing and fantasizing. Synectics focuses on generating novel ideas rather than a large quantity of ideas. At first, the group leader does not even state the exact nature of the problem so that group members avoid preconceptions.

**3) Nominal Grouping** - Nominal grouping is the process of generating and evaluating alternatives using a structured voting method. This process usually involves six steps:

- i. **Listing** - Each participant generates ideas in writing.
- ii. **Recording** - Each member presents one idea at a time, and the leader records these ideas where everyone can see them. This continues until all ideas are posted.
- iii. **Clarification** - Alternatives are clarified through a guided discussion, and any additional ideas are listed.
- iv. **Ranking** - Each employee rank orders the ideas and identifies what he or she sees as the top three; low-ranked alternatives are eliminated.
- v. **Discussion** -Rankings are discussed for clarification, not persuasion. During this time, participants should explain their choices and their reasons for making them
- vi. **Vote** - A secret vote is taken to select the alternative

4) **Consensus Mapping** - Consensus mapping is the process of developing group agreement on a solution to a problem. If a consensus cannot be reached, the group does not make a decision. Consensus mapping can be used after brainstorming by categorizing or clustering ideas in the process of trying to agree on a single solution.

5) **The Delphi Technique** - The Delphi technique involves using a series of confidential questionnaires to refine a solution. Responses on the first questionnaire are analyzed and resubmitted to participants on a second questionnaire. This process may continue for five or more rounds before a consensus emerges.