

MANAGEMENT SCIENCE

LECTURE NOTES

B.TECH (II YEAR – II SEM) (2017-18)

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MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

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MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

II Year B.Tech. ECE-II Sem

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**OPEN ELECTIVE - II
(R15A0065) MANAGEMENT SCIENCE**

OBJECTIVES:

1. This course is intended to familiarize the students with the basic knowledge of Management related concepts, Organization structures, Control charts, Marketing management, Human resource management, Project management, Strategic management in order to achieve the positions of future leaders and managers.

Unit-I

Introduction to Management: Nature of Management, importance functions of Management, Systems approach to Management, Taylor's scientific Management theory, Fayal's principles of Management, Maslow's need hierarchy theory, McGregor's Theory X and Theory Y, Hertzberg Two Factor Theory of Motivation, Leadership Styles, Social responsibilities of Management.

Unit-II

Organization Structures, Control charts and Marketing Management: Line Organization structure, Line and Staff organization structure, Matrix organization structure, Team Organization structure, Control charts (\bar{X} chart, R chart, C chart, P chart), EOQ, ABC analysis, Functions of Marketing, Marketing Mix, Marketing strategies based on PLC.

Unit-III

Human Resource Management: Importance of HRM, HRM Vs PMIR (Personnel Management and Industrial Relations), Functions of HR Manager: Man power planning, Recruitment, Selection, Training and Development, Wage and Salary administration, Performance Appraisal, Grievance handling and welfare administration, Job evaluation, and merit rating.

Unit-IV

Project Management(PERT and CPM): Network analysis, Program Evaluation and Review Technique(PERT), Critical Path Method (CPM), Identifying Critical path, Probability of completing the project within given time, Project cost analysis, Project crashing(simple problems).

Unit-V

Strategic Management: Vision, Mission, Goals, Objectives, Policy, Strategy, Programs, Corporate planning process, Environmental scanning, SWOT analysis, Steps in strategy formulation and implementation.

TEXT BOOKS:

1. Harold Koontz, Heinz Weihrich, A.R.Aryasri, Principles of Management, TMH, 2010.
2. K. Aswathappa, "Human Resource Management, Text and Cases", TMH, 2011.
3. Philip Kotler, Kevin Lane Keller, Abraham Koshy and Mithleshwar Jha: Marketing Management, 13/e, Pearson Education, 2012.
4. Dipak Kumar Bhattacharyya, Production and Operations Management, Universities Press, 2012.

REFERENCES:

1. Dilip Kumar Battacharya, Principles of Management, Pearson, 2012.
2. Gary Dessler, "Human Resource Management", 12 Edition, Pearson- 2012.
3. Rajan Saxena: Marketing Management, 4/e, TMH, 2013
4. Aryasri: Management Science, McGraw Hill, 2012

OUTCOMES:

1. To know the basic management practices, functional areas of the organisation which helps the students to build up their career in the corporate world.

UNIT-1

INTRODUCTION TO MANAGEMENT

Management is a universal phenomenon. It is a very popular and widely used term. All organizations - business, political, cultural or social are involved in management because it is the management which helps and directs the various efforts towards a definite purpose.

Definition: “Management is knowing exactly what you want men to do and then seeing that they do it the best and cheapest ways”.

___F.W.Taylor

“Management is an art of getting things done through and with the people in formally organized groups. It is an art of creating an environment in which people can perform and individuals can co-operate towards attainment of group goals”.

___ Koontz and O’Donell

Nature of Management: The study and application of management techniques in managing the affairs of the organization have changed its nature over the period of time.

Multidisciplinary: Management is basically multidisciplinary. This implies that, although management has been developed as a separate discipline, it draws knowledge and concepts from various disciplines. It draws freely ideas and concepts from such disciplines as psychology, sociology, anthropology, economics, ecology, statistics, operations research, etc. Management integrates the ideas and concepts taken from these disciplines and present newer concepts which can be put into practice for managing the organization.

Dynamic nature of principle: Based on integration and supported by practical evidences, management has formed certain principles. However, these principles are flexible in nature and change with the changes in the environment in which an organization exists.

Relative, not absolute principles: Management principles are relative, not absolute, and they should be applied according to the need of the organization. Each organization may be different from others. The difference may exist because of time, place, socio-cultural factors, etc.

Management - Science or Art: There is a controversy whether management is science or art. However, management is both a science and art.

Management as profession: Management has been regarded as profession by many while many have suggested that it has not achieved the status of a profession.

Characteristics of Management:

Management is an activity concerned with guiding human and physical resources such that organizational goals can be achieved. Nature of management can be highlighted as:

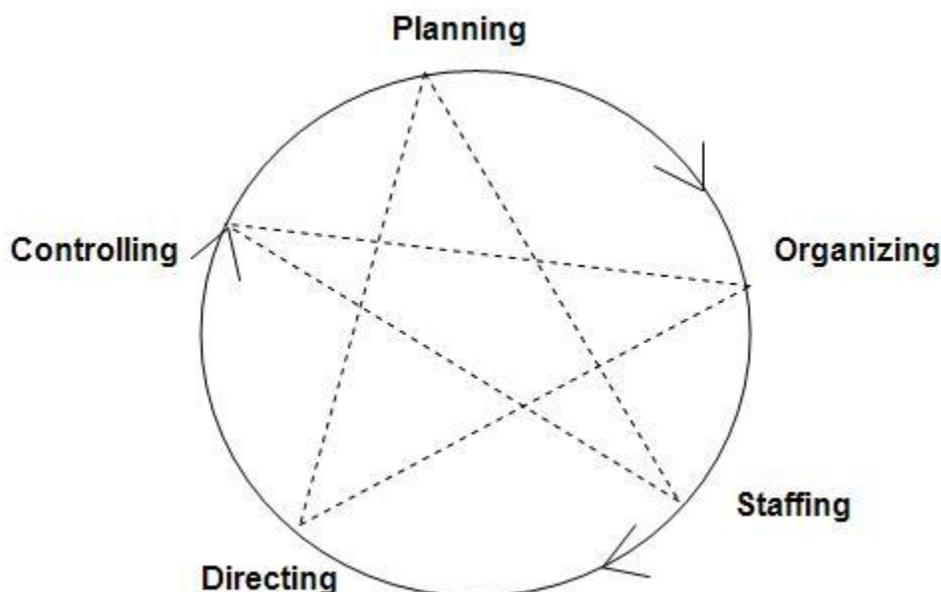
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1. **Management is Goal-Oriented:** The success of any management activity is assessed by its achievement of the predetermined goals or objective. Management is a purposeful activity. It is a tool which helps use of human & physical resources to fulfill the predetermined goals. For example, the goal of an enterprise is maximum consumer satisfaction by producing quality goods and at reasonable prices. This can be achieved by employing efficient persons and making better use of scarce resources.

2. **Management integrates Human, Physical and Financial Resources:** In an organization, human beings work with non-human resources like machines. Materials, financial assets, buildings etc. Management integrates human efforts to those resources. It brings harmony among the human, physical and financial resources.
3. **Management is Continuous:** Management is an ongoing process. It involves continuous handling of problems and issues. It is concerned with identifying the problem and taking appropriate steps to solve it. E.g. the target of a company is maximum production. For achieving this target various policies have to be framed but this is not the end. Marketing and Advertising is also to be done. For this policies have to be again framed. Hence this is an ongoing process.
4. **Management is all Pervasive:** Management is required in all types of organizations whether it is political, social, cultural or business because it helps and directs various efforts towards a definite purpose. Thus clubs, hospitals, political parties, colleges, hospitals, business firms all require management. When ever more than one person is engaged in working for a common goal, management is necessary. Whether it is a small business firm which may be engaged in trading or a large firm like Tata Iron & Steel, management is required everywhere irrespective of size or type of activity.
5. **Management is a Group Activity:** Management is very much less concerned with individual's efforts. It is more concerned with groups. It involves the use of group effort to achieve predetermined goal of management of ABC & Co. is good refers to a group of persons managing the enterprise.

FUNCTIONS OF MANAGEMENT

According to Henry Fayol, "To manage is to forecast and plan, to organize, to command, & to control". Whereas Luther Gullick has given a keyword 'POSDCORB' where P stands for Planning, O for Organizing, S for Staffing, D for Directing, Co for Co-ordination, R for reporting & B for Budgeting. But the most widely accepted are functions of management given by KOONTZ and O'DONNEL i.e. Planning, Organizing, Staffing, Directing and Controlling.



1. **Planning**

It is the basic function of management. It deals with chalking out a future course of action & deciding in advance the most appropriate course of actions for achievement of pre-determined goals. According to KOONTZ, “Planning is deciding in advance - what to do, when to do & how to do. It bridges the gap from where we are & where we want to be”. A plan is a future course of actions. It is an exercise in problem solving & decision making. Planning is determination of courses of action to achieve desired goals. Thus, planning is a systematic thinking about ways & means for accomplishment of pre-determined goals. Planning is necessary to ensure proper utilization of human & non-human resources. It is all pervasive, it is an intellectual activity and it also helps in avoiding confusion, uncertainties, risks, wastages etc.

2. **Organizing**

It is the process of bringing together physical, financial and human resources and developing productive relationship amongst them for achievement of organizational goals. According to Henry Fayol, “To organize a business is to provide it with everything useful or its functioning i.e. raw material, tools, capital and personnel’s”. To organize a business involves determining & providing human and non-human resources to the organizational structure. Organizing as a process involves:

- Identification of activities.
- Classification of grouping of activities.
- Assignment of duties.
- Delegation of authority and creation of responsibility.
- Coordinating authority and responsibility relationships.

3. **Staffing**

It is the function of manning the organization structure and keeping it manned. Staffing has assumed greater importance in the recent years due to advancement of technology, increase in size of business, complexity of human behavior etc. The main purpose of staffing is to put right man on right job i.e. square pegs in square holes and round pegs in round holes. According to Kootz & O’Donell, “Managerial function of staffing involves manning the organization structure through proper and effective selection, appraisal & development of personnel to fill the roles designed in the structure”. Staffing involves:

- Manpower Planning (estimating man power in terms of searching, choose the person and giving the right place).
- Recruitment, Selection & Placement.
- Training & Development.
- Remuneration.
- Performance Appraisal.
- Promotions & Transfer.

4. Directing

It is that part of managerial function which actuates the organizational methods to work efficiently for achievement of organizational purposes. It is considered life-spark of the enterprise which sets it in motion the action of people because planning, organizing and staffing are the mere preparations for doing the work. Direction is that inert-personnel aspect of management which deals directly with influencing, guiding, supervising, motivating sub-ordinate for the achievement of organizational goals. Direction has following elements:

- Supervision
- Motivation
- Leadership
- Communication

Supervision- implies overseeing the work of subordinates by their superiors. It is the act of watching & directing work & workers.

Motivation- means inspiring, stimulating or encouraging the sub-ordinates with zeal to work. Positive, negative, monetary, non-monetary incentives may be used for this purpose.

Leadership- may be defined as a process by which manager guides and influences the work of subordinates in desired direction.

Communications- is the process of passing information, experience, opinion etc from one person to another. It is a bridge of understanding.

5. Controlling

It implies measurement of accomplishment against the standards and correction of deviation if any to ensure achievement of organizational goals. The purpose of controlling is to ensure that everything occurs in conformities with the standards. An efficient system of control helps to predict deviations before they actually occur. According to Theo Haimann, "Controlling is the process of checking whether or not proper progress is being made towards the objectives and goals and acting if necessary, to correct any deviation". According to Koontz & O'Donell "Controlling is the measurement & correction of performance activities of subordinates in order to make sure that the enterprise objectives and plans desired to obtain them as being accomplished". Therefore controlling has following steps:

- a) Establishment of standard performance.
- b) Measurement of actual performance.
- c) Comparison of actual performance with the standards and finding out deviation if any.
- d) Corrective action.

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 a chain of command, the amount of authority & status enjoyed by any managerial position. The levels of management can be classified in three broad categories:

1. **Top level / Administrative level**
2. **Middle level / Executory**
3. **Low level / Supervisory / Operative / First-line managers**

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



LEVELS OF MANAGEMENT

1. Top Level of Management

It consists of board of directors, chief executive or managing director. The top management is the ultimate source of authority and it manages goals and policies for an enterprise. It devotes more time on planning and coordinating functions.

The role of the top management can be summarized as follows -

- a. Top management lays down the objectives and broad policies of the enterprise.
- b. It issues necessary instructions for preparation of department budgets, procedures, schedules etc.
- c. It prepares strategic plans & policies for the enterprise.
- d. It appoints the executive for middle level i.e. departmental managers.
- e. It controls & coordinates the activities of all the departments.
- f. It is also responsible for maintaining a contact with the outside world.
- g. It provides guidance and direction.
- h. The top management is also responsible towards the shareholders for the performance of the enterprise.

2. Middle Level of Management

The branch managers and departmental managers constitute middle level. They are responsible to the top management for the functioning of their department. They devote more time to organizational and directional functions. In small organization, there is only one layer of middle level of management but in big enterprises, there may be senior and junior middle level management. Their role can be emphasized as -

- a. They execute the plans of the organization in accordance with the policies and directives of the top management.
- b. They make plans for the sub-units of the organization.
- c. They participate in employment & training of lower level management.
- d. They interpret and explain policies from top level management to lower level.
- e. They are responsible for coordinating the activities within the division or department.
- f. It also sends important reports and other important data to top level management.
- g. They evaluate performance of junior managers.
- h. They are also responsible for inspiring lower level managers towards better performance.

3. Lower Level of Management

Lower level is also known as supervisory / operative level of management. It consists of supervisors, foreman, section officers, superintendent etc. According to *R.C. Davis*, "Supervisory management refers to those executives whose work has to be largely with personal oversight and direction of operative employees". In other words, they are concerned with direction and controlling function of management. Their activities include -

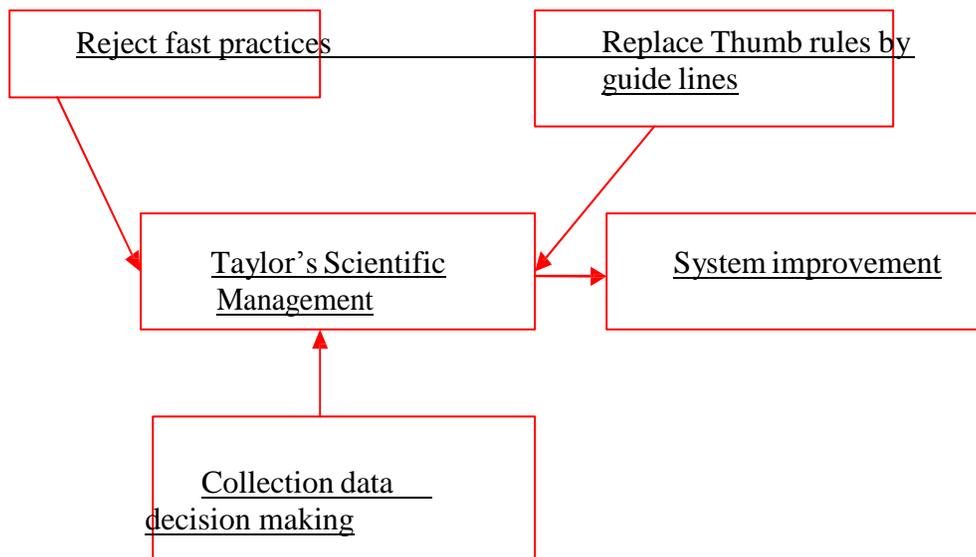
- a) Assigning of jobs and tasks to various workers.
- b) They guide and instruct workers for day to day activities.
- c) They are responsible for the quality as well as quantity of production.
- d) They are also entrusted with the responsibility of maintaining good relation in the organization.
- e) They communicate workers problems, suggestions, and recommendatory appeals etc to the higher level and higher level goals and objectives to the workers.
- f) They help to solve the grievances of the workers.
- g) They supervise & guide the sub-ordinates.
- h) They are responsible for providing training to the workers.
- i) They arrange necessary materials, machines, tools etc for getting the things done.
- j) They prepare periodical reports about the performance of the workers.
- k) They ensure discipline in the enterprise.
- l) They motivate workers.
- m) They are the image builders of the enterprise because they are in direct contact with the workers.

Taylor's Scientific Management: The utility of scientific methods to problems of management was first introduced by F.W.Taylor

Definition: Scientific management may be defined as the “Art of knowing exactly what is to be done and the best way of doing it”.

Scientific management is the result of applying scientific knowledge and scientific methods to the various aspects of management and the problems that arise from them.

Principles of Scientific Management: Taylor through his principles of scientific management initiated a system in which there would be an effective and fruitful coordination and cooperation between the management and the workers.



Principles of Scientific Management

- 1. Development of Science for each part of men's job (replacement of rule of thumb)**
 - a. This principle suggests that work assigned to any employee should be observed, analyzed with respect to each and every element and part and time involved in it.
 - b. This means replacement of odd rule of thumb by the use of method of enquiry, investigation, data collection, analysis and framing of rules.
 - c. Under scientific management, decisions are made on the basis of facts and by the application of scientific decisions.
- 2. Scientific Selection, Training & Development of Workers**
 - a. There should be scientifically designed procedure for the selection of workers.
 - b. Physical, mental & other requirement should be specified for each and every job.
 - c. Workers should be selected & trained to make them fit for the job.
 - d. The management has to provide opportunities for development of workers having better capabilities.
 - e. According to Taylor efforts should be made to develop each employee to his greatest level and efficiency & prosperity.
- 3. Co-operation between Management & workers or Harmony not discord**
 - a. Taylor believed in co-operation and not individualism.
 - b. It is only through co-operation that the goals of the enterprise can be achieved efficiently.
 - c. There should be no conflict between managers & workers.
 - d. Taylor believed that interest of employer & employees should be fully harmonized so as to secure mutually understanding relations between them.
- 4. Division of Responsibility**
 - a. This principle determines the concrete nature of roles to be played by different level of managers & workers.
 - b. The management should assume the responsibility of planning the work whereas workers should be concerned with execution of task.
 - c. Thus planning is to be separated from execution.
- 5. Mental Revolution**
 - a. The workers and managers should have a complete change of outlook towards their mutual relation and work effort.
 - b. It requires that management should create suitable working condition and solve all problems scientifically.
 - c. Similarly workers should attend their jobs with utmost attention, devotion and carefulness. They should not waste the resources of enterprise.
 - d. Handsome remuneration should be provided to workers to boost up their moral.
 - e. It will create a sense of belongingness among worker.
 - f. They will be disciplined, loyal and sincere in fulfilling the task assigned to them.
 - g. There will be more production and economical growth at a faster rate.
- 6. Maximum Prosperity for Employer & Employees**
 - a. The aim of scientific management is to see maximum prosperity for employer and employees.
 - b. It is important only when there is opportunity for each worker to attain his highest efficiency.

- c. Maximum output & optimum utilization of resources will bring higher profits for the employer & better wages for the workers.
- d. There should be maximum output in place of restricted output.
- e. Both managers & workers should be paid handsomely.

Principle of Management by Exception: Taylor suggested that only major or significant deviations between the actual performance and standard performance should be brought to the notice of top management. Top management should pay more attention to those areas of work where standards and procedures could not be established and where there is a significant variation between standard performance and actual performance.

Administrative Management Theory (Henry Fayol and Others):

Henry Fayol is called as father of Modern Management

He established the pattern of management and the pyramidal form of organization. He pointed out that technical ability is more dominating on the lower level of management managerial ability is more important on the higher level of management.

There are 14 Principles of Management described by Henry Fayol.

1. Division of work

- a. Henri Fayol has stressed on the specialization of jobs.
- b. He recommended that work of all kinds must be divided & subdivided and allotted to various persons according to their expertise in a particular area.
- c. Subdivision of work makes it simpler and results in efficiency.
- d. It also helps the individual in acquiring speed, accuracy in his performance.
- e. Specialization leads to efficiency & economy in spheres of business.

2. Authority & Responsibility

- a. Authority & responsibility are co-existing.
- b. If authority is given to a person, he should also be made responsible.
- c. In a same way, if anyone is made responsible for any job, he should also have concerned authority.
- d. Authority refers to the right of superiors to get exactness from their sub-ordinates whereas responsibility means obligation for the performance of the job assigned.
- e. There should be a balance between the two i.e. they must go hand in hand.
- f. Authority without responsibility leads to irresponsible behavior whereas responsibility without authority makes the person ineffective.

3. Discipline

- a. According to Fayol, "Discipline means sincerity, obedience, respect of authority & observance of rules and regulations of the enterprise".
- b. This principle applies that subordinate should respect their superiors and obey their order.
- c. It is an important requisite for smooth running of the enterprise.
- d. Discipline is not only required on path of subordinates but also on the part of management.
- e. Discipline can be enforced if -
 - There are good superiors at all levels.
 - There are clear & fair agreements with workers.
 - Sanctions (punishments) are judiciously applied

4. Unity of Command

- a. A sub-ordinate should receive orders and be accountable to one and only one boss at a time.
- b. In other words, a sub-ordinate should not receive instructions from more than one person because -
 - It undermines authority
 - Weakens discipline
 - Divides loyalty
 - Creates confusion
 - Delays and chaos
 - Escaping responsibilities
 - Duplication of work
 - Overlapping of efforts
- c. Therefore, dual sub-ordination should be avoided unless and until it is absolutely essential.
- d. Unity of command provides the enterprise a disciplined, stable & orderly existence.
- e. It creates harmonious relationship between superiors and sub-ordinates.

5. Unity of Direction

- a) Fayol advocates one head one plan which means that there should be one plan for a group of activities having similar objectives.
- b) Related activities should be grouped together. There should be one plan of action for them and they should be under the charge of a particular manager.
- c) According to this principle, efforts of all the members of the organization should be directed towards common goal.
- d) Without unity of direction, unity of action cannot be achieved.
- e) In fact, unity of command is not possible without unity of direction.

Basis	Unity of command	Unity of direction
Meaning	It implies that a sub-ordinate should receive orders & instructions from only one boss.	It means one head, one plan for a group of activities having similar objectives.
Nature	It is related to the functioning of personnel's.	It is related to the functioning of departments or organization as a whole.
Necessity	It is necessary for fixing responsibility of each subordinates.	It is necessary for sound organization.
Advantage	It avoids conflicts, confusion & chaos.	It avoids duplication of efforts and wastage of resources.
Result	It leads to better superior sub-ordinate relationship.	It leads to smooth running of the enterprise.

Therefore it is obvious that they are different from each other but they are dependent on each other i.e. unity of direction is a pre-requisite for unity of command. But it does not automatically come from the unity of direction.

6. Sub-Ordination of Individual Interest to General Interest

- a. An organization is much bigger than the individual it constitutes therefore interest of the undertaking should prevail in all circumstances.
- b. As far as possible, reconciliation should be achieved between individual and group interests.
- c. But in case of conflict, individual must sacrifice for bigger interests.
- d. In order to achieve this attitude, it is essential that -
 - Employees should be honest & sincere.
 - Proper & regular supervision of work.
 - Reconciliation of mutual differences and clashes by mutual agreement. For example, for change of location of plant, for change of profit sharing ratio, etc.

7. Remuneration

- a) The quantum and method of remuneration to be paid to the workers should be fair, reasonable, satisfactory & rewarding of the efforts.
- b) As far as possible it should accord satisfaction to both employer and the employees.
- c) Wages should be determined on the basis of cost of living, work assigned, financial position of the business, wage rate prevailing etc.
- d) Logical & appropriate wage rates and methods of their payment reduce tension & differences between workers & management creates harmonious relationship and pleasing atmosphere of work.

Fayol also recommended provision of other benefits such as free education, medical & resident Equity

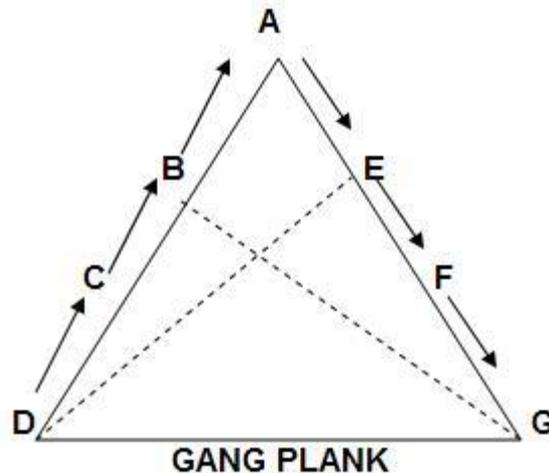
- a. Equity means combination of fairness, kindness & justice.
- b. The employees should be treated with kindness & equity if devotion is expected of them.
- c. It implies that managers should be fair and impartial while dealing with the subordinates.
- d. They should give similar treatment to people of similar position.
- e. They should not discriminate with respect to age, caste, sex, religion, relation etc.
- f. Equity is essential to create and maintain cordial relations between the managers and sub-ordinate.
- g. But equity does not mean total absence of harshness.
- h. Fayol was of opinion that, “at times force and harshness might become necessary for the sake of equity”.

8. Centralization & De-Centralization

1. Centralization means concentration of authority at the top level. In other words, centralization is a situation in which top management retains most of the decision making authority.
2. Decentralization means disposal of decision making authority to all the levels of the organization. In other words, sharing authority downwards is decentralization.
3. According to Fayol, "Degree of centralization or decentralization depends on no. of factors like size of business, experience of superiors, dependability & ability of subordinates etc.
4. Anything which increases the role of subordinate is decentralization & anything which decreases it is centralization.
5. Fayol suggested that absolute centralization or decentralization is not feasible. An organization should strike to achieve a lot between the two.

9. Scalar Chain

1. Fayol defines scalar chain as 'The chain of superiors ranging from the ultimate authority to the lowest'.
2. Every orders, instructions, messages, requests, explanation etc. has to pass through Scalar chain.
3. But, for the sake of convenience & urgency, this path can be cut short and this short cut is known as Gang Plank.
4. A **Gang Plank** is a temporary arrangement between two different points to facilitate quick & easy communication as explained below:



In the figure given, if D has to communicate with G he will first send the communication upwards with the help of C, B to A and then downwards with the help of E and F to G which will take quite some time and by that time, it may not be worth therefore a gang plank has been developed between the two.

10. Order

1. This principle is concerned with proper & systematic arrangement of things and people.
2. Arrangement of things is called material order and placement of people is called social order.

3. Material order- There should be safe, appropriate and specific place for every article and every place to be effectively used for specific activity and commodity.
4. Social order- Selection and appointment of most suitable person on the suitable job. There should be a specific place for everyone and everyone should have a specific place so that they can easily be contacted whenever need arises.

11. Equity

- a. Equity means combination of fairness, kindness & justice.
- b. The employees should be treated with kindness & equity if devotion is expected of them.
- c. It implies that managers should be fair and impartial while dealing with the subordinates.
- d. They should give similar treatment to people of similar position.
- e. They should not discriminate with respect to age, caste, sex, religion, relation etc.
- f. Equity is essential to create and maintain cordial relations between the managers and subordinate.
- g. But equity does not mean total absence of harshness.
- h. Fayol was of opinion that, "at times force and harshness might become necessary for the sake of equity"

12. Stability of Tenure

- a) Fayol emphasized that employees should not be moved frequently from one job position to another i.e. the period of service in a job should be fixed.
- b) Therefore employees should be appointed after keeping in view principles of recruitment & selection but once they are appointed their services should be served.
- c) According to Fayol, "Time is required for an employee to get used to a new work & succeed to doing it well but if he is removed before that he will not be able to render worthwhile services".
- d) As a result, the time, effort and money spent on training the worker will go waste.
- e) Stability of job creates team spirit and a sense of belongingness among workers which ultimately increase the quality as well as quantity of work.

13. Initiative

- a) Workers should be encouraged to take initiative in the work assigned to them.
- b) It means eagerness to initiate actions without being asked to do so.
- c) Fayol advised that management should provide opportunity to its employees to suggest ideas, experiences & new method of work.
- d) It helps in developing an atmosphere of trust and understanding.
- e) People then enjoy working in the organization because it adds to their zeal and energy.
- f) To suggest improvement in formulation & implementation of place.
- g) They can be encouraged with the help of monetary & non-monetary incentives.

14. Espirit De' Corps (can be achieved through unity of command)

- a) It refers to team spirit i.e. harmony in the work groups and mutual understanding among the members.
- b) Spirit De' Corps inspires workers to work harder.
- c) Fayol cautioned the managers against dividing the employees into competing groups because it might damage the moral of the workers and interest of the undertaking in the long run.
- d) To inculcate Espirit De' Corps following steps should be undertaken –

1. There should be proper co-ordination of work at all levels
2. Subordinates should be encouraged to develop informal relations among themselves.
3. Efforts should be made to create enthusiasm and keenness among subordinates so that they can work to the maximum ability.
4. Efficient employees should be rewarded and those who are not up to the mark should be given a chance to improve their performance.
5. Subordinates should be made conscious of that whatever they are doing is of great importance to the business & society.

- e) He also cautioned against the more use of Britain communication to the subordinates i.e. face to face communication should be developed. The managers should infuse team spirit & belongingness. There should be no place for misunderstanding. People then enjoy working in the organization & offer their best towards the organization.

MOTIVATION

Motivation is the word derived from the word 'motive' which means needs, desires, wants or drives within the individuals. It is the process of stimulating people to actions to accomplish the goals. In the work goal context the psychological factors stimulating the people's behaviour can be -desire for money

- success
- recognition
- job-satisfaction
- team work, etc

One of the most important functions of management is to create willingness amongst the employees to perform in the best of their abilities. Therefore the role of a leader is to arouse interest in performance of employees in their jobs. The process of motivation consists of three stages:-

1. A felt need or drive
2. A stimulus in which needs have to be aroused
3. When needs are satisfied, the satisfaction or accomplishment of goals.

Therefore, we can say that motivation is a psychological phenomenon which means needs and wants of the individuals have to be tackled by framing an incentive plan.

1. Maslow's Hierarchy of Needs Theory

Abraham Maslow is well renowned for proposing the Hierarchy of Needs Theory in 1943. This theory is a classical depiction of human motivation. This theory is based on the assumption that there is a hierarchy of five needs within each individual. The urgency of these needs varies. These five needs are as follows-

According to Maslow, individuals are motivated by unsatisfied needs. As each of these needs is significantly satisfied, it drives and forces the next need to emerge. Maslow grouped the five needs into two categories - **Higher-order needs** and **Lower-order needs**. The physiological and the safety needs constituted the lower-order needs. These lower-order needs are mainly satisfied

externally. The social, esteem, and self-actualization needs constituted the higher-order needs. These higher-order needs are generally satisfied internally, i.e., within an individual.

1. **Physiological needs-** These are the basic needs of air, water, food, clothing and shelter. In other words, physiological needs are the needs for basic amenities of life.
2. **Safety needs-** Safety needs include physical, environmental and emotional safety and protection. For instance- Job security, financial security, protection from animals, family security, health security, etc.
3. **Social needs-** Social needs include the need for love, affection, care, belongingness, and friendship.
4. **Esteem needs-** Esteem needs are of two types: internal esteem needs (self-respect, confidence, competence, achievement and freedom) and external esteem needs (recognition, power, status, attention and admiration).
5. **Self-actualization need-** This include the urge to become what you are capable of becoming / what you have the potential to become. It includes the need for growth and self-contentment. It also includes desire for gaining more knowledge, social- service, creativity and being aesthetic. The self- actualization needs are never fully satiable. As an individual grows



FIGURE: Maslow's Need Hierarchy Model

psychologically, opportunities keep cropping up to continue growing.

Implications of Maslow's Hierarchy of Needs Theory for Managers

- ✓ As far as the physiological needs are concerned, the managers should give employees appropriate salaries to purchase the basic necessities of life. Breaks and eating opportunities should be given to employees.
- ✓ As far as the safety needs are concerned, the managers should provide the employees job security, safe and hygienic work environment, and retirement benefits so as to retain them.
- ✓ As far as social needs are concerned, the management should encourage teamwork and organize social events.
- ✓ As far as esteem needs are concerned, the managers can appreciate and reward employees on

accomplishing and exceeding their targets. The management can give the deserved employee higher job rank / position in the organization.

- ✓ As far as self-actualization needs are concerned, the managers can give the employees challenging jobs in which the employees' skills and competencies are fully utilized. Moreover, growth opportunities can be given to them so that they can reach the peak.

The managers must identify the need level at which the employee is existing and then those needs can be utilized as push for motivation.

Limitations of Maslow's Theory

- It is essential to note that not all employees are governed by same set of needs. Different individuals may be driven by different needs at same point of time. It is always the **most powerful unsatisfied need that motivates an individual**.
- The theory is not empirically supported.
- The theory is not applicable in case of starving artist as even if the artist's basic needs are not satisfied, he will still strive for recognition and achievement.

Theory X and Theory Y

In 1960, Douglas McGregor formulated Theory X and Theory Y suggesting two aspects of human behaviour at work, or in other words, two different views of individuals (employees): one of which is negative, called as Theory X and the other is positive, so called as Theory Y. According to McGregor, the perception of managers on the nature of individuals is based on various assumptions.

Assumptions of Theory X

- An average employee intrinsically does not like work and tries to escape it whenever possible.
- Since the employee does not want to work, he must be persuaded, compelled, or warned with punishment so as to achieve organizational goals. A close supervision is required on part of managers. The managers adopt a more dictatorial style.
- Many employees rank job security on top, and they have little or no aspiration/ ambition.

- Employees generally dislike responsibilities.
- Employees resist change.
- An average employee needs formal direction.

Assumptions of Theory Y

- Employees can perceive their job as relaxing and normal. They exercise their physical and mental efforts in an inherent manner in their jobs.
 - Employees may not require only threat, external control and coercion to work, but they can use self-direction and self-control if they are dedicated and sincere to achieve the organizational objectives.
 - If the job is rewarding and satisfying, then it will result in employees' loyalty and commitment to organization.
 - An average employee can learn to admit and recognize the responsibility. In fact, he can even learn to obtain responsibility.
 -
-
- The employees have skills and capabilities. Their logical capabilities should be fully utilized. In other words, the creativity, resourcefulness and innovative potentiality of the employees can be utilized to solve organizational problems.

Thus, we can say that Theory X presents a pessimistic view of employees' nature and behaviour at work, while Theory Y presents an optimistic view of the employees' nature and behaviour at work. If correlate it with Maslow's theory, we can say that Theory X is based on the assumption that the employees emphasize on the physiological needs and the safety needs; while Theory Y is based on the assumption that the social needs, esteem needs and the self-actualization needs dominate the employees.

McGregor views Theory Y to be more valid and reasonable than Theory X. Thus, he encouraged cordial team relations, responsible and stimulating jobs, and participation of all in decision-making process.

Implications of Theory X and Theory Y

- ✓ Quite a few organizations use Theory X today. Theory X encourages use of tight control and supervision. It implies that employees are reluctant to organizational changes. Thus, it does not encourage innovation.
- ✓ Many organizations are using Theory Y techniques. Theory Y implies that the managers should create and encourage a work environment which provides opportunities to employees to take initiative and self-direction. Employees should be given opportunities to contribute to organizational well-being. Theory Y encourages decentralization of authority, teamwork and participative decision making in an organization. Theory Y searches and discovers the ways in which an employee can make significant contributions in an organization. It harmonizes and matches employees' needs and aspirations with organizational needs and aspirations.

System Approach to Management:

Following are the important features of systems approach to management thought:

1. System approach considers the organisation as a dynamic and inter-related set of parts. Each part represents a department or a sub-system. Each department has its sub-system. Continuous and effective interaction of sub-systems helps to attain goals of the larger system. Thus, every sub-system is a system and has sub-systems which together make an organisation a set of mutually dependent parts and their sub-parts.
2. It considers the impact of both near and distant future on organisational activities. Organisations constantly respond to changes in the internal and external environmental conditions. They also act as market leaders in the dynamic, competitive environment.
3. System approach integrates goals of different parts of the organisation (sub-systems or departments) with the organisation as a whole. It also integrates goals of the organisation with goals of the environment or society in which it operates. Integration of goals maintains equilibrium or balance and enables organisations to grow in the dynamic environment.
4. It synthesizes knowledge of different fields of study such as biology, sociology, psychology, information systems, economics etc. As business organisation deals with different components of society, it makes best use of different fields of study to improve interaction with its counterparts.
5. System approach enables organisations to frame policies that promote business objectives and social objectives. Business operates in the social system and social values, culture, beliefs and ethics are important constituents of business operations.

Evaluation of System Approach:

The system approach has the following merits:

1. System approach provides a holistic view of the organisations and emphasises on their adaptive nature. It increases organisation's adaptability to environmental changes. The organisation is studied as a whole and not through its parts. This enables it to adapt to the needs of the environment. Decisions are made keeping in mind organisation-environment interface.
2. It analyses the system at different levels and inter-relates and integrates it into a unified set of direction. Starting from individual goals, it focuses on overall organisational goals, synthesizes the two and converges them into global economy.
3. System approach provides a framework for effective interaction of parts of the organisation in a specific arrangement for attainment of its goals. It does not focus on one part of the organisation.
4. It considers the impact of environment on the organisation and vice versa. Interaction of external environment with the internal environment is the most significant contribution of systems theory.

System approach, thus, analyses the organisation as an adaptive and dynamic entity.

5. System approach synthesizes the classical and behavioural theories into a broader framework to solve managerial problems.

It, thus, focuses on organisations as multi-dimensional in nature.

Limitations of System Approach:

1. Critics of this theory claim this as a theoretical approach to management. The way an organisation actually works and solves problems (by applying different techniques and methods) has no appeal in the theory.
2. Relationship amongst parts of the organisation is emphasised upon but the exact nature of inter-dependence is not defined.
3. Exact relationship between internal and external environment of the organisation is also not defined.

For example, it specifies that change in economic policies necessitates change in internal policies of the organisation but what changes are required to match the changes in economic environment is not talked about.

4. System approach fails to provide uniform approach to management. Management practices change with changes in environmental variables. No standard set of principles apply to all types of organisations.

It has added nothing new to the study of management. Even before this approach was introduced, managerial decisions were taken keeping in mind the environmental variables. No specific decision-making techniques are offered to deal with specific problems.

5. It fails to provide concepts that apply to all types of organisations. The small organisations are less adaptive to environmental variables than large organisations. The theory assumes that most of the organisations are big, complex and open systems. It, thus, fails to provide a unified theory.

Herzberg's Two-factors Theory:

In 1959, Frederick Herzberg, a behavioural scientist proposed a two-factor theory or the motivator-hygiene theory. According to Herzberg, there are some job factors that result in satisfaction while there are other job factors that prevent dissatisfaction. According to Herzberg, the opposite of "Satisfaction" is "No satisfaction" and the opposite of "Dissatisfaction" is "No Dissatisfaction"

"Herzberg called these factors as 'dissatisfiers' and not motivators, by this he means their presence or existence does not motivate in the sense of yielding satisfaction, but their

absence would result in dissatisfaction. These are also referred to as 'hygiene' factors.

In the second group are the 'satisfiers' in the sense that they are motivators, which are related to 'Job content'. He included the factors of achievement, recognition, challenge work, advancement and growth in the job. He says that their presence will yield feelings of satisfactory or no satisfaction, but not dissatisfaction.

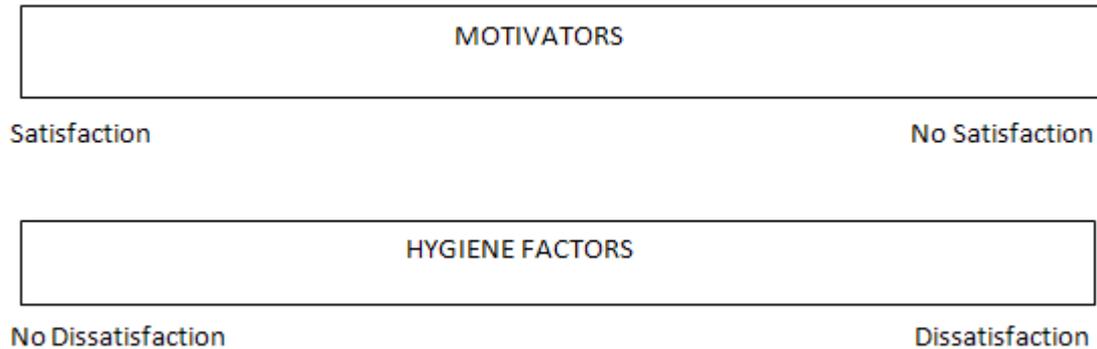


FIGURE: Herzberg's view of satisfaction and dissatisfaction

Herzberg classified these job factors into two categories-

a. **Hygiene factors-** Hygiene factors are those job factors which are essential for existence of motivation at workplace. These do not lead to positive satisfaction for long-term. But if these factors are absent / if these factors are non-existent at workplace, then they lead to dissatisfaction. In other words, hygiene factors are those factors which when adequate/reasonable in a job, pacify the employees and do not make them dissatisfied. These factors are extrinsic to work. Hygiene factors are also called as **dissatisfiers or maintenance factors** as they are required to avoid dissatisfaction. These factors describe the job environment/scenario. The hygiene factors symbolized the physiological needs which the individuals wanted and expected to be fulfilled. Hygiene factors include:

- Pay - The pay or salary structure should be appropriate and reasonable. It must be equal and competitive to those in the same industry in the same domain.
- Company Policies and administrative policies - The company policies should not be too rigid. They should be fair and clear. It should include flexible working hours, dress code, breaks, vacation, etc.
- Fringe benefits - The employees should be offered health care plans (mediclaim), benefits for the family members, employee help programmes, etc.
- Physical Working conditions - The working conditions should be safe, clean and hygienic. The work equipments should be updated and well-maintained.
- Status - The employees' status within the organization should be familiar and retained.
- Interpersonal relations - The relationship of the employees with his peers, superiors and subordinates should be appropriate and acceptable. There should be no conflict or humiliation element present.
- Job Security - The organization must provide job security to the employees.

b. **Motivational factors-** According to Herzberg, the hygiene factors cannot be regarded as motivators. The motivational factors yield positive satisfaction. These factors are inherent to work. These factors motivate the employees for a superior performance. These factors

are called satisfiers. These are factors involved in performing the job. Employees find these factors intrinsically rewarding. The motivators symbolized the psychological needs that were perceived as an additional benefit. Motivational factors include:

- Recognition - The employees should be praised and recognized for their accomplishments by the managers.
- Sense of achievement - The employees must have a sense of achievement. This depends on the job. There must be a fruit of some sort in the job.
- Growth and promotional opportunities - There must be growth and advancement opportunities in an organization to motivate the employees to perform well.
- Responsibility - The employees must hold themselves responsible for the work. The managers should give them ownership of the work. They should minimize control but retain accountability.
- Meaningfulness of the work - The work itself should be meaningful, interesting and challenging for the employee to perform and to get motivated.

Limitations of Two-Factor Theory

The two factor theory is not free from limitations:

1. The two-factor theory overlooks situational variables.
2. Herzberg assumed a correlation between satisfaction and productivity. But the research conducted by Herzberg stressed upon satisfaction and ignored productivity.
3. The theory's reliability is uncertain. Analysis has to be made by the raters. The raters may spoil the findings by analyzing same response in different manner.
4. No comprehensive measure of satisfaction was used. An employee may find his job acceptable despite the fact that he may hate/object part of his job.
5. The two factor theory is not free from bias as it is based on the natural reaction of employees when they are enquired the sources of satisfaction and dissatisfaction at work. They will blame dissatisfaction on the external factors such as salary structure, company policies and peer relationship. Also, the employees will give credit to themselves for the satisfaction factor at work.
6. The theory ignores blue-collar workers. Despite these limitations, Herzberg's Two-Factor theory is acceptable broadly.

Implications of Two-Factor Theory

✓ The Two-Factor theory implies that the managers must stress upon guaranteeing the adequacy of the hygiene factors to avoid employee dissatisfaction. Also, the managers must make sure that the work is stimulating and rewarding so that the employees are motivated to work and perform harder and better. This theory emphasize upon job-enrichment so as to motivate the employees. The job must utilize the employee's skills and competencies to the maximum. Focusing on the motivational factors can improve work-quality

Leadership and Leadership Styles:

Leadership is a process by which an executive can direct, guide and influence the behavior and work of others towards accomplishment of specific goals in a given situation. Leadership is the ability of a manager to induce the subordinates to work with confidence and zeal.

Leadership is the potential to influence behaviour of others. It is also defined as the capacity to influence a group towards the realization of a goal. Leaders are required to develop future visions, and to motivate the organizational members to want to achieve the visions.

According to Keith Davis, “Leadership is the ability to persuade others to seek defined objectives enthusiastically. It is the human factor which binds a group together and motivates it towards goals.”

Characteristics of Leadership

It is an inter-personal process in which a manager is into influencing and guiding workers towards attainment of goals.

It denotes a few qualities to be present in a person which includes intelligence, maturity and personality.

It is a group process. It involves two or more people interacting with each other.

A leader is involved in shaping and moulding the behaviour of the group towards accomplishment of organizational goals.

Leadership is situation bound. There is no best style of leadership. It all depends upon tackling with the situations.

All leaders do not possess same attitude or same perspective. As discussed earlier, few leaders adopt the carrot approach and a few adopt the stick approach. Thus, all of the leaders do not get the things done in the same manner. Their style varies. The leadership style varies with the kind of people the leader interacts and deals with. A perfect/standard leadership style is one which assists a leader in getting the best out of the people who follow him.

Some of the important leadership styles are as follows:

1. Autocratic leadership style: In this style of leadership, a leader has complete command and hold over their employees/team. The team cannot put forward their views even if they are best for the team's or organizational interests. They cannot criticize or question the leader's way of getting things done. The leader himself gets the things done. The advantage of this style is that it leads to speedy decision-making and greater productivity under leader's supervision. Drawbacks of this leadership style are that it leads to greater employee absenteeism and turnover. This leadership style works only when the leader is the best in performing or when the job is monotonous, unskilled and routine in nature or where the project is short-term and risky.

2. Democratic/Participative leadership style: The leaders invite and encourage the team members to play an important role in decision-making process, though the ultimate decision-making power rests with the leader. The leader guides the employees on what to perform and how to perform, while the employees communicate to the leader their experience and the suggestions if any. The advantages of this leadership style are that it leads to satisfied, motivated and more skilled employees. It leads to an optimistic work environment and also encourages creativity. This leadership style has the only drawback that it is time-consuming.

3. Bureaucratic leadership style: Here the leaders strictly adhere to the organizational rules and policies. Also, they make sure that the employees/team also strictly follows the rules and procedures. Promotions take place on the basis of employees' ability to adhere to organizational rules. This leadership style gradually develops over time. This leadership style is more suitable when safe work conditions and quality are required. But this leadership style discourages creativity and does not make employees self-contented.

4. The Laissez Faire Leadership Style: Here, the leader totally trusts their employees/team to perform the job themselves. He just concentrates on the intellectual/rational aspect of his work and does not focus on the management aspect of his work. The team/employees are welcomed to share their views and provide suggestions which are best for organizational interests. This leadership style works only when the employees are skilled, loyal, experienced and intellectual.

Social Responsibility of Management:

Social responsibility refers to the process which includes several activities from providing safe products and services to giving apportion of the company's profits to welfare organizations.

Responsibility towards shareholders: The business enterprise has the responsibility to provide fair return on capital to the shareholders. The firm must provide them regular, accurate, and full information about the working of enterprise in order to fulfill and encourage their interest in the affairs of the company.

Responsibility towards consumers: The management has to provide quality products and services to the customers at reasonable prices. It should consider customer suggestions and also plan its services more effectively through consumer satisfaction survey.

Responsibility towards employees: Good working conditions motivate workers to contribute their best it is the responsibility of the management to recognize their unions and respect their right to associate with a union of their choices.

Responsibility towards creditors: The business has to repay the loans it has taken from the financial institutions as per the repayment schedule also it should inform the creditors about the developments in the company from time-to-time.

Responsibility towards Government: The business firm has to pay its taxes and be fair

in its endeavours. It should also support the government in community development projects.

Responsibility towards competitors: The business firm should always maintain the highest ethical standards and maintain cordial relations with each of the competitors, which is a critical and sensitive segment.

Responsibility towards public: Business units have tremendous responsibility towards the general public to support the cause of community development. Most of the companies maintain public relations departments exclusively to maintain good relations with the community.

Designing an Organisation structure

Organization is form of organizing which is a part of management process

Organization defined as collectivity of people for achieving common objectives

“Organization means the determination and assignment of duties to people, and also the establishment and the maintenance of authority relationships among these grouped activities it is the structural frame work with in which the various efforts are coordinated and related to each other”.

Definitions: “Organization are collectivities of people that have been established for the pursuit of relatively specific objectives on a more or less continuous basis”.

William Scott

“Organization is the form of every human association for the attainment of a common purpose”.

Mooney and Reilly

“Organization involves the grouping of activities necessary to accomplish goals and plans assignment and these activities to appropriate departments and positions to appropriate departments and positions for authority delegation and coordination”.

Koontz and O’Donnell

Organization is used in the following ways with or without prefix or suffix

1. as entity
2. as group of people
3. as structure
4. as process

Process of Organization:

Determination of objectives, strategies, plans and policies: Objectives should be clear and precise, because the entire organization is to be built around the objectives of the enterprises.

Determination of activities: Determine activities needed to execute these plans and policies and accomplish the objectives. The work load is broken into component activities that are to be performed by all the employees. The activities are so split to determine the job which can be performed by an individual.

Separation and grouping of activities: To attain the benefits of specialization and division of labour, every company, will separate its activities on the basis of primary functions like finance, engineering, purchasing, production, sales and industrial relations. All the similar or directly related activities are grouped together in the form of departments.

Delegation of authority: Authority is necessary for the performance of the job and therefore authority is delegated to the subordinates for enabling them to carry out their work smoothly and efficiently.

Delegation of responsibility: Responsibility may be described as the obligation and accountability for the performance of delegated duties. A superior is always accountable for the acts of his subordinate. Therefore, responsibility always flows from subordinates to superiors.

Establish inter-relationships: The grouped activities are placed in the overall organization structure at appropriate level. It is necessary to integrate or the these groups of activities through.

- a) Authority relationship horizontally, vertically and diagonally
- b) Organized information or communication system i.e., with the help of effective coordination and communication.

Providing physical facilities and proper environment: Physical facilities means provide machinery, tools equipments, infrastructure etc, environment means provide proper lighting, ventilation, heating, cooling arrangement at the work place, reasonable hours of work, safety devices, job security etc

Principles of Organization:

Principle of unity of objectives: An organization structure is effective if it enables individuals to contribute to entire objectives.

Principle of co-ordination: The aim of the objective can be achieved if proper co-ordination exists for different activities

Principles of organizational efficiency: An organization is efficient if it is structured to aid the accomplishment of enterprise objective with a minimum of unwanted consequences or costs.

Span of management principle: In each managerial position, there is a limit to the number of persons an individual can effectively manage but the exact number will depend on the impact of underlying variables.

Scalar principle: The clearer the line of authority from the ultimate management position in an enterprise to every subordinate position, the clearer will be the responsibility for decision making the more effective will be organization communication.

Principle of delegation by results expected: Authority delegated to all individual managers should be adequate enough to ensure their ability to accomplish the results expected.

Principle of responsibility: The responsibility of subordinates to their superiors for performance is absolute, and superiors can not escape responsibility for the organization activity of their subordinates.

Principle of parity of authority and responsibility: The responsibility for actions can not be greater than that implied by the authority delegated, not should it be less.

Principle of unity command: The more complete an individual's reporting relationships to a single superior, the smaller the problem of conflicting instructions and the greater the feeling of personal responsibility for results.

Authority level principle: Maintenance of intended delegation requires that decisions within the authority of individual managers should be made by them and not be referred upward in the organization structure.

Principle of balance: The application of principles or technique must be balanced to ensure the overall effectiveness of the structure in meeting enterprise objectives.

Principle of flexibility: the more that provisions are made for building flexibility in to an organization structure can fulfill its purpose.

Principle of leadership facilitation: The more an organization structure and its delegations of authority enable managers to design and maintain an environment for performance, the more they will help the leadership abilities of those managers.

Design of Organization structure: The main objective of an organization structure is to ensure that efforts of all the people working in various sections are co-ordinate and integrated for achieving the task in the most efficient effective way with minimum consumption of resources i.e. economical ways

- 1) Formal organization structure
- 2) Informal organization structure

Formal organization structure: According to classical theorists the formal organization is built on four pillars

- 1) Division of labour
- 2) Scalar functional processes
- 3) Structure
- 4) Span of control

Definition: An organization is formal when the activities of two or more persons are consciously coordinated towards common objectives.

Informal organization: Informal organization arises spontaneously based on friendship or some common interest and not based on rules, regulation and procedures. It is developed by the employees themselves and not by the formal authority.

Definition: Informal organization brings cohesiveness to a formal organization, it brings to the members of formal organization a feeling of belonging of status, of self-respect and of gregarious satisfaction.

Comparison between formal and informal organization:

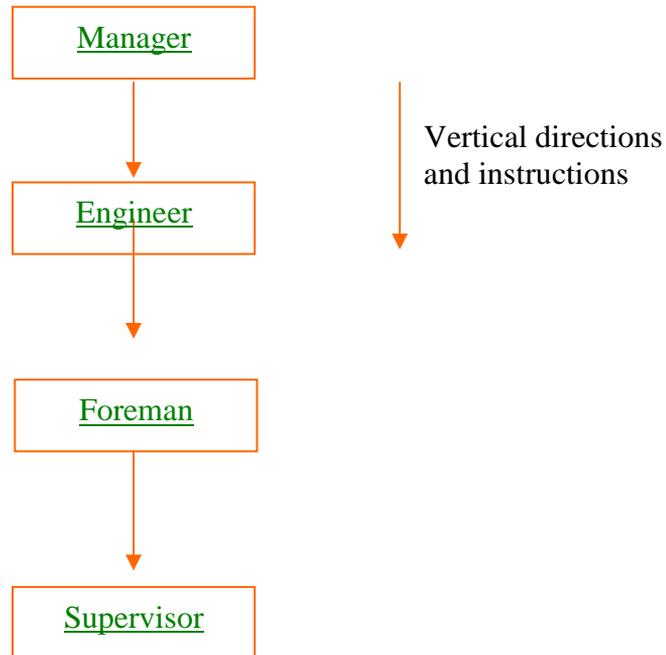
Basis of comparison	Formal	Informal
Formation	Planned & deliberated	Spontaneous
Purpose	Well-set goals	Social interaction
Structure	Well structured	Un structured
Focus	Positions	Persons
Nature	Official	Unofficial
Leadership	Superior	Any one
Source of power	Delegated	Given by group
Guidelines for behaviour	Rules procedures	Group norms
Source of control	Rewards/Punishment	Sanctions

Type of organization: On the basis of authority relationships organization classified as follows

1. Line organization or Military organization or Scalar organization
2. Functional organization
3. Line and Staff organization
4. Project organization

5. Committee organization
6. Matrix organization

1. Line organization:



Where efforts of large number of people have to be controlled and discipline is of prime importance line type organization structure will serve the purpose. This is also one of the oldest structures. However, in present conditions this type of structure has lost the applicability. In line structure ten lines of instruction, directing is vertical. This means in this type boss is always right and his orders are to be obeyed at any cost.

Merits:

Simplicity: Line organization is very simple to establish and can be easily understood by the employees

Discipline: Since each position is subject to control by its immediate superior position, often the maintenance of discipline is easy. Unity of command and unity of direction foster discipline among the people in the organization.

Co-ordination: The hierarchy in management helps in achieving effective coordination

Effective communication: There will be a direct link between superior and his subordinate; both can communicate properly among themselves.

Economical: Line organization is easy to operate and less expensive

Unity of command: In line organization every person is under the command of one boss only.

Prompt decision: Only one person is in charge of one division or department. This enables manager to take quick decisions.

Over all development of the managers: The departmental head has to look after all the activities of his department; therefore, it encourages the development of all round managers at the higher level of authority.

Demerits:

Undue reliance: The success of the enterprise depends upon the caliber and ability of few departmental heads, loss of one or two capable men may put the organization in difficulties.

Personnel limitations: In this type of organization an individual executive is suppose to discharge different types of duties. He cannot do justice to all different activities because he cannot be specialized in all the trades.

Overload of work: Departmental heads are overloaded with various routine jobs hence they can not spare time for important managerial functions like planning, development budgeting etc.

Dictatorial way: In line organization, too much authorities centre on line executive. Hence it encourages dictatorial way of working.

Duplication of work: Conflicting policies of different departments result in duplication of work.

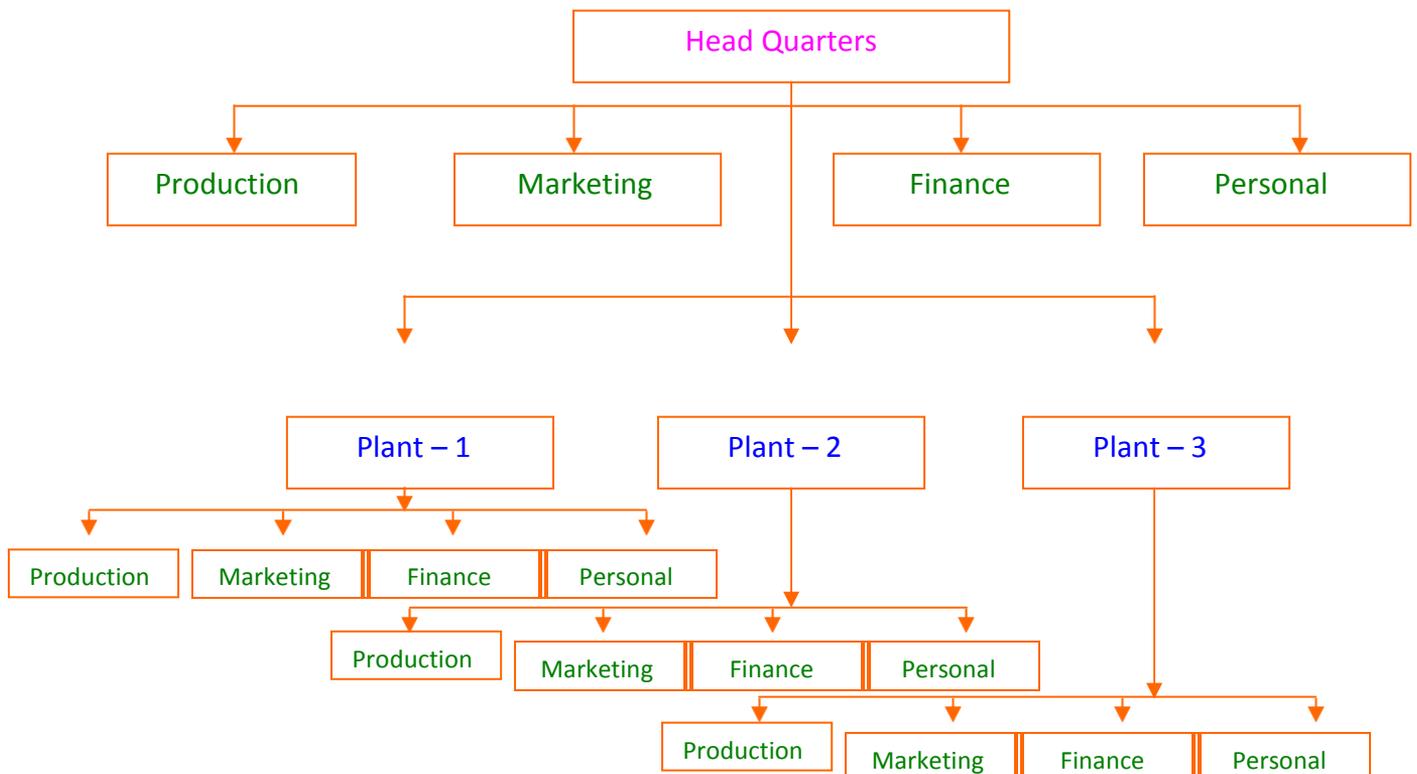
Unsuitable for large concerns: It is limited to small concerns

General interest of enterprise may be over looked: Departments may work for their self-interest and may sacrifice the general interest of the enterprise.

Scope of favourism: As the departmental heads has the supreme authority, there is chance of favourism.

- 2. Functional organization:** This structure most widely used, in the medium and large organizations having limited number of products.

This was introduced by F.W.Taylor and is logical extension of the division of labour cover departments as well as men. In this authority is delegated to an individual or department to control specified processes, policies or other matter relating to activities under taken by persons in other departments.



In this system planning is separated from performance since the direction of work is divided by various function in the factory. It has been found that this type of structure becomes ineffective when the work of departments and individuals increases in variety and complexity.

Merits:

Separation of work: In functional organization, work has been separated from routine work. The specialist has been given the authority and responsibility for supervision and administration pertaining to their field of specialization unnecessary over loading of responsibilities is thus avoided.

Specialization: Specialization and skilled supervisory attention is given to workers the result is increase in rate of production and improved quality of work. Narrow range with high depth: The narrow range of activities enable the functional expert to developing in depth understanding in his particular area of activity

Ease in selection and training: Functional organization is based upon expert knowledge. The availability of guidance through experts makes it possible to train the workers properly in comparatively short span of time.

Reduction in prime cost: Since for every operation expert guidance is there, wastage of material is reduced and thus helps to reduce prime cost.

Scope of growth and development of business: This type of organization presents ample scope for the growth and development of business.

Demerits:

Indispline: Since the workers receive instructions from number of specialist it leads to confusion to whom they should follow. Therefore, it is difficult to maintain discipline

Shifting of responsibility: It is difficult for the top management to locate responsibility for the unsatisfactory work every body tries to shift responsibility on others for the faults and failure.

Kills the initiative of workers: As the specialized guidance is available to the workers the workers will not be using their talents and skills therefore their initiative cannot be utilized.

Overlapping of authority: The sphere of authority tends to overlap and gives rise to friction between the persons of equal rank.

Lack of co-ordination between functions: except the function in which he is specialized

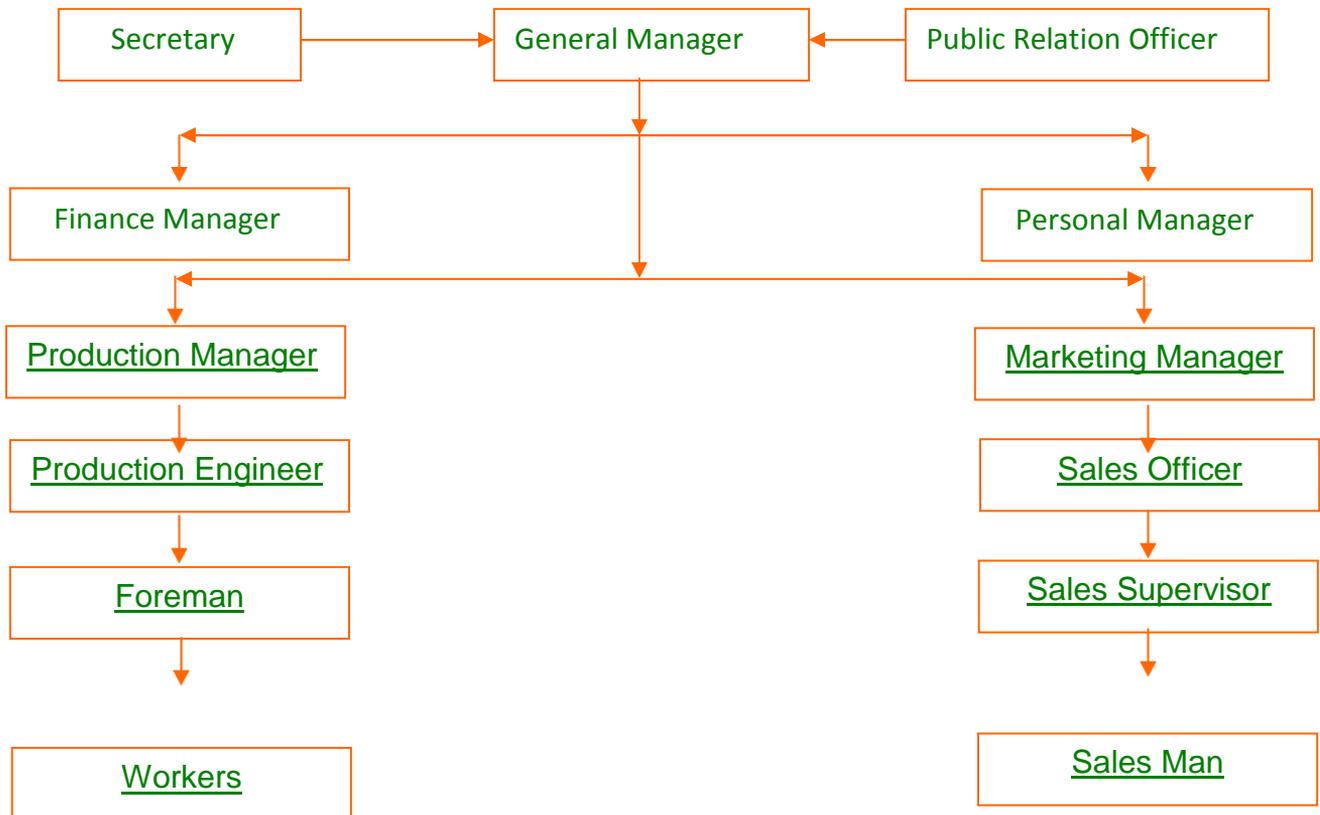
he is absolutely indifferent to other functions. Therefore, there is a lack of coordination of function and efforts.

3. Line and Staff Organization: Line and Staff organization is the in which the line heads are assisted by specialist staff.

If the firm is of large size, manager cannot give careful attention to every aspect of management. They are busy with ordinary task of production and selling. Hence staff is deputed to do the work of investigation, research, recording, and advising to managers. Thus the staff brings advising to managers. Thus the staff brings specialization by assisting the line officers.

“Line” means - Operating

“Staff” means - Service



Merits:

Planned specialization: The line and staff structure is based upon the principle of specialization. The line managers are responsible for operations contributing directly to the achievement of organizational objectives where as staff people are there to provide expert advice on the matters of their concerns.

Quality decisions: Decisions come after careful consideration and thought each expert gives his advise in the area of his specialization which is reflected in the decisions.

Prospect for personal growth: Prospect for efficient personal to grow in the organization not only that, it also offers opportunity for concentrating in a particular area, there by increasing personal efficiency

Less wastage: There will be less wastage of material.

Training ground for personnel: It provides training ground to the personnel in two ways. First, since everybody is expected to concentrate on one field, one's training needs can easily be identified. Second, the staff with expert knowledge provides opportunities to the line managers for adopting rational multi- dimensional approach towards a problem.

Demerits:

Chances of Misinterpretation: Although the expert advice is available, yet it reaches the workers through line supervisors. The line officers may fail to understand the meaning of advice and there is always a risk of misunderstanding and misinterpretation.

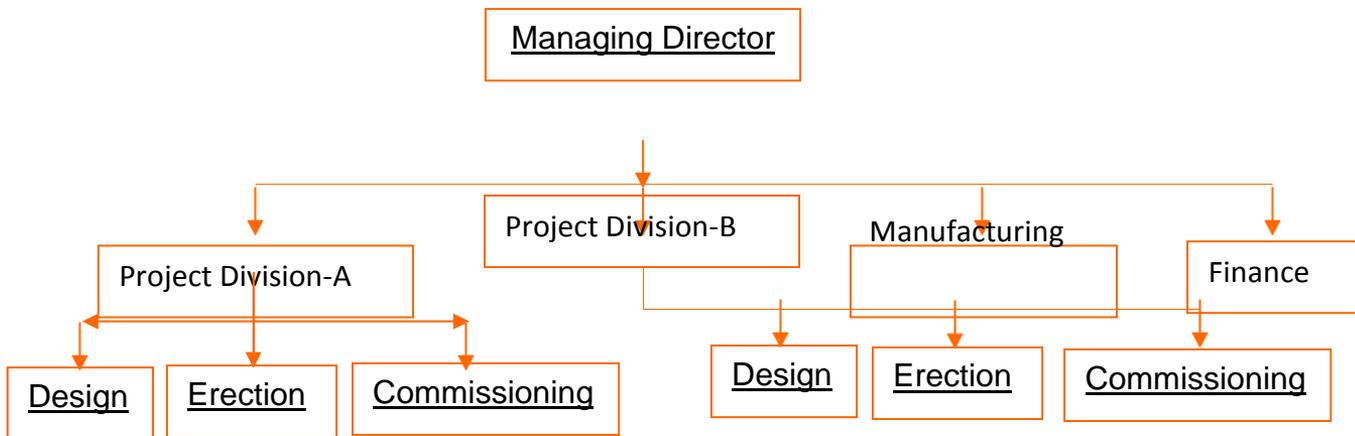
Chances of friction: There are bound to be occasions when the line and staff may differ in opinion may resent in conflict of interests and prevents harmonious relations between the two.

Ineffective Staff in the absence of authority: The staff has no authority to execute their own advice. Their advice is not a binding on the line officers. Therefore the advice given by specialist may be ignored by line heads.

Expensive: The overhead cost of the product increases because of high salaried specialized staff.

Loss of initiative by line executives: If is they start depending too much on staff may loose their initiative drive and ingenuity.

4. **Project Organization:** A project organization is a special case where common service like finance, purchase etc. are organized at the functional level. But project resources are allocated to the project manager. Since the business responsibility rests with the project manager, necessary authority is given to him with the requisite resources. This type of organization structure helps in making decisions for project control in terms of cost, resource and time. In a project organization some of the functions are corporate responsibility and some of them are project manager's responsibility.



Merits:

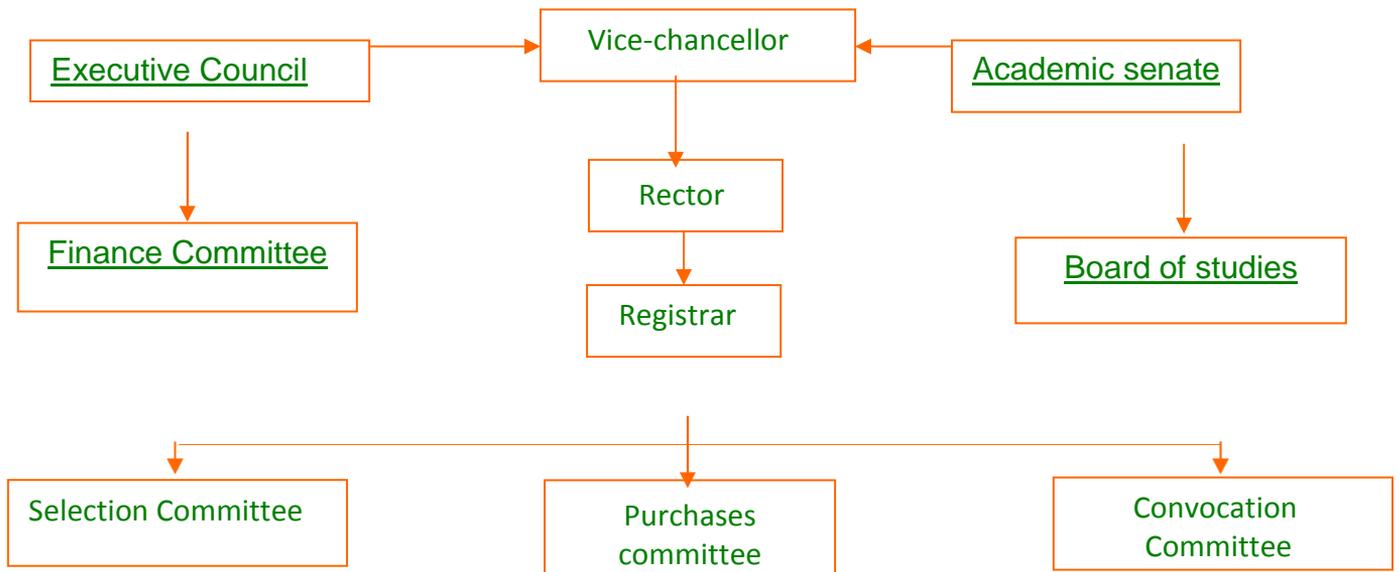
1. This calls for quick divisions
2. Organizing all functional
3. Proper coordination of work of different departments

Demerits:

1. It tends to increase the problems of control for top management
2. It is special case of product organization
3. The organization may get disintegrated with increasing focus on departments

5. **Committee Organization:** A committee is formed when two or more persons are appointed to work as a team to arrive at a decision on the matters referred to it. It is intended to utilize the knowledge, skills, and experiences of all the

concerned parties. Particularly, in large organizations, problems are too big to be handled by one single expert.



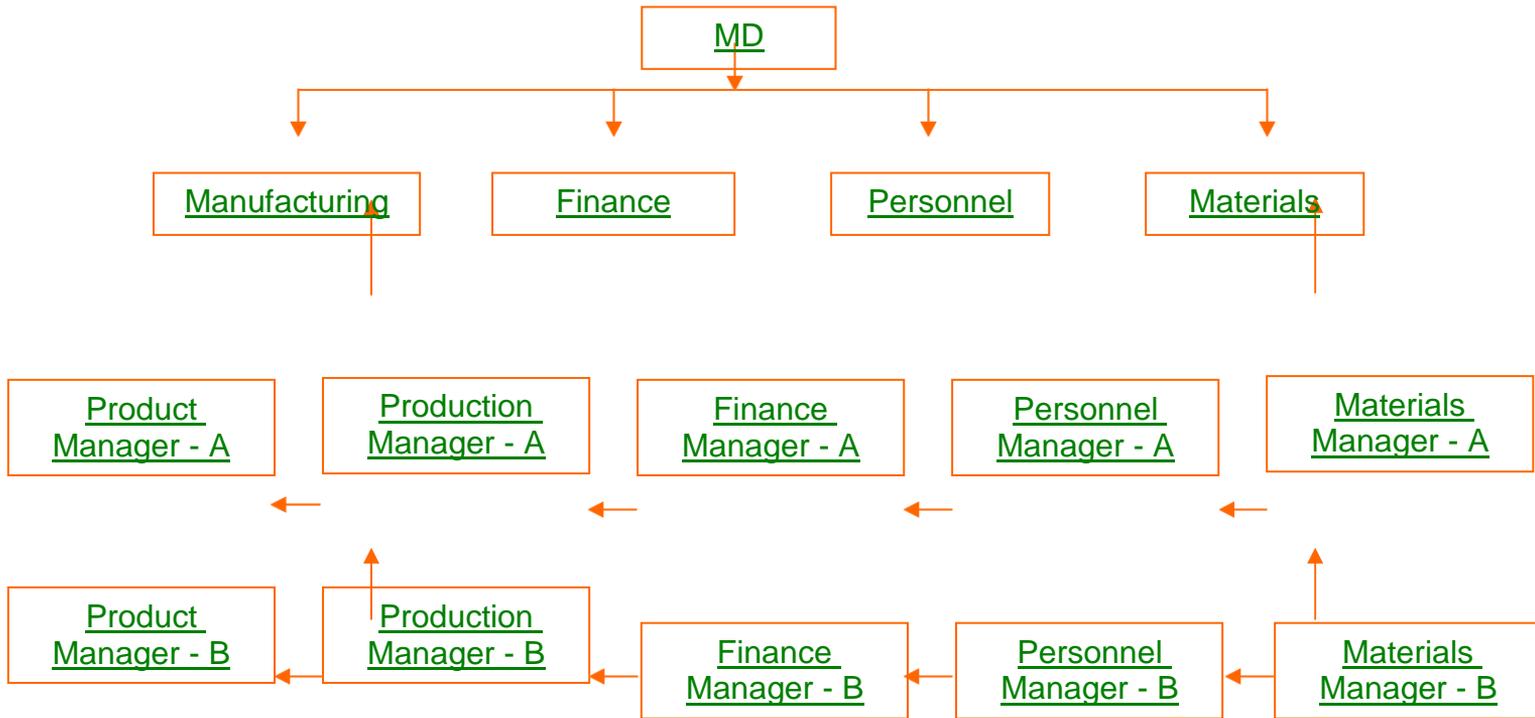
Merits:

1. It pools up the organizational resources in terms of knowledge skills and experiences.
2. It represents all interested groups and thus, facilitates group decision.
3. It yields good results if the committee are headed by taskmaster like chairman and time bound in terms of decision-making.
4. It minimizes the fear of too much authority vested in one person
5. It motivates all the concerned or effected groups to participate.

Demerits:

1. Responsibility of decisions cannot be fixed on a particular person.
2. It calls for high degree of coordination.
3. It involved high cost in terms of time and money.

6. **Matrix Organization:** This is also called as project organisation it is a combination of all relationships in the organization in vertical, horizontal and diagonal. It is mostly used in complex projects. It provides a high degree of operational freedom, flexibility and adoptability for both the line and staff managers in performing their respective roles. The main objective of matrix organization is to secure a higher degree of coordination than what is possible from the conventional organizational structure as the line and staff.



Merits:

1. It offers operational freedom and flexibility
2. It seeks to optimize the utilization of resources
3. It focuses on results
4. It maintains professional identity
5. It holds employees responsible for management of resources

Demerits:

1. It calls for greater degree of coordination
2. It violates unity of command principle
3. It may be difficult to define authority and responsibility precisely
4. Employees may find it frustrating to work with two bosses

MODERN TRENDS IN ORGANISATIONAL STRUCTURE DESIGNS:

Organizations in the recent times have been gearing themselves to suit to the growing demands from their stakeholders in terms of responsiveness, flexibility, agility, adaptability etc. In this process, they are following organic structure, which are more agile, flexible and adaptable to the changing circumstances. Virtual organizations, cellular organizations, team structure, boundaryless organization and inverted pyramid and different forms of organic structure that are widely seen among most of the sun-rise sectors such as financial services, Information Technology (IT) and IT enabled services. These structures have been contributing to the organic growth of the organization.

The focus of organic structures is to do away with those activities which do not directly contribute to the growth of the organization and focus only on those activities which directly lead the organization for the achievement of the given goals.

These are discussed below:

1. Virtual Organisation:

Virtual organizations facilitate competitiveness particularly when these organizations are part of the global economy. Here, there can be alliances and partnerships with other organizations almost all over world. It is a flexible organization structure that removes the traditional boundaries. It allows easy reassignment and reallocation of resources to take quick advantage of shifting opportunities in global markets. To avoid disintegration and to attain the effective needed focus, the lead virtual organizations must have a shared vision,, strong brand and high trust culture.

The virtual organization is a temporary network of companies that come together quickly to exploit fast changing opportunities. Virtual organizations appear to be bigger than traditional organizations. As virtual organizing required a strong information technology

(IT) platform, The boundaries that traditionally separate a firm from its suppliers, customers and even competitors are largely eliminated, temporarily and in respect to a given transaction or business purpose. Virtual organizations

come into being 'as needed' when alliances are called into action to meet specific operating needs and objectives. When the task is complete, the alliances rests until next called into action. Each partner in the alliance contributes to the virtual organization what it is best as-its core competence.

2. Cellular Organization:

Organizations structured around the units/cells that complete the entire assembly process are called cellular organizations. In the modern organizations, cellular organizations have been replacing the continuous line or linear production process system. In cellular organizations, workers manufacture total product or sub-assemblies in teams (cells). Every team (cell) of workers has the responsibility to improve or maintain the quality and quantity of its products. Each team is free to recognize itself to improve performance and product quality. These cells comprise self-managed teams. They monitor themselves and also correct where necessary on their own. Cellular organizations are characterized by much smaller staff all over the organization with middle management positions reduced and lean management members at the top. It is both a lean and flat structure.

3. Team Structure:

A structure in which the entire organization is made up of work groups or teams is known as team structure. Team structures are both permanent and temporary in nature as situation demands. Traditional organizations are characterized by vertical structures and modern organizations are identified by the horizontal i.e., team structures. 'We report to each other' is the main feature of team structure. It leads to boundary less organsiation in a borderless world. In team structures, we find cross-functional teams meant for improving lateral relations, solving problem, completing special projects and accomplishing routine tasks. A cross- functional team comprises members from different functional departments such as marketing, finance, HR, production etc. Project teams are convened for a particular task or project and these get dissolved once task is completed. The intention here is to quickly bring together the people with the needed talents and focus their efforts intensely to solve a problem or take advantage of a special

opportunity. Here employees are more involved and empowered because of reduced barriers among functional areas. Sometimes, when there is pressure on teams to perform and there is no clear chain of command, team structure fails to deliver results.

4. Boundaryless Organization:

At the name indicates, a boundary less organization eliminates internal boundaries among subsystems and external boundaries with external environment. It is a combination of team and network structures with the addition of temporariness. Such type of organization structure is characterized by spontaneous teamwork and communication. This replaces formal chain of command. It is a dynamic organization structure wherein organizational needs are met through a judicious mix of outsourcing contracts and alliances as and when needed. The key features of boundary less organization include knowledge-sharing, absence of hierarchy and bureaucracy, empowerment voluntary participation of expert members, technology utilization and temporariness. The focus is on mustering necessary talent and competencies required for the achievement of a task without any bureaucratic restrictions. Creativity, quality, timeliness, increase in speed and flexibility are the benefits the boundary less organization yields. It also reduces inefficiencies. The boundary less organization is highly flexible and responsive. These draw on talent wherever it is found. Sometimes, they are ineffective due to problems in communication.

5. Inverted Pyramid:

This is an alternative to the traditional chain of command. This is a structure, which is narrow at the top and wide at the base. It includes a few levels of management. For instance, sales people and sales support staff sit on the top as the key decision makers for all the issues related to sales and dealing with the customers. Since the sales staffs are in touch with the customer and aware of the requirements of the customers, they are given all the freedom to follow their own best judgment at all levels.

Departmentation: On the basis activity or departmentation

Industrialisation has created problems, which are complex in nature. It created a necessity of large-scale industries to meet the increased demand. In large scale, industries there are large number of employees. For the sake of efficient supervision and control, the factory/enterprise is divided into different

departments. Each department is entrusted with a particular function for carrying out particular activity each departmental head is expected to control and supervise the work in his department.

Definition: The process of dividing the work and then grouping them into units and submits or departments for the purpose of administration.

Method of Departmentation:

By function: It is divided into primary function to be performed such as, finance, marketing, production, personnel etc. each function separate departments

By product: All activities related to a particular product line may be grouped together. This basis of departmentation has become increasingly important, especially for complex organizations producing different types of products.

By process: In this method, the manufacturing activity are sub divided on the basis of their process of production, similar machines such as all laths, milling machines, grinding machines, milling machine etc. are grouped into separate section, such as lathe department, milling department, drilling department.

By geographical region: This method may be adopted when the enterprise produces and sells in the wide market, often in international markets.

UNIT – 2

INTRODUCTION TO OPERATIONS MANAGEMENT

Plant location: Plant location is a strategic decision several factors influence this decision. The main objective of any business is to optimize its cost and revenue that is, minimize its costs and maximize its returns.

The degree of significance for the selection of location for any enterprise mainly depends on its size and nature large scale industries requiring huge amount of investment there are many considerations other than the local demand in the selection proper plant location these plants cannot be easily shifted to other place and an error of judgment in the selection of site can be vary expensive to the organization. However, small-scale industry mainly selects the site where in accordance with its capacity; the local market is available for its products. It can easily shift to other place when there is any change in the market.

Factors affecting plant location:

1. Nearness to Market: If the plant is located close to the market the cost of transportation can be minimized. This also helps the producers to have direct knowledge of the requirements of the customers.
2. Nearness to supply of raw materials: As far as possible the site selected should be near the source of raw materials, so that the cost of transportation can be minimized and storing cost can be reduced due to shorter lead time.
3. Availability of labour: Availability of right kind of labour force in required number at reasonable rates is also a deciding factor in selection of site
4. Transport and communication facilities: Generally, industries have a tendency to locate the industrial units near the railway station, highway or port areas. Availability of power and fuel: Coal, electricity, oil and natural gas are the important sources of power in the industries.

Ex: Tata iron and steel industry is established near the coalmines of Bihar. Climatic conditions: Climatic conditions largely affect certain production processes and also the efficiency of the employees.

Ex: Textile mills require moist climate that why these plant located at Mumbai and Ahmedabad.

5. Availability of water: Water is used in industries for processing as in paper in chemical industries, for generation of power in hydroelectric power, plants and also required for drinking sanitary purpose also.
6. Ancillary industries: Many industries such as processing and assembly industries are not producing all the parts of their product but purchase some of the parts from ancillary industries producing it.
7. Financial and other aids: For the development of backward regions central as well as state government provide certain incentives and facilities such as cash- subsidies, concession financial assistance, land, power and other facilities at cheaper rates, tax concession etc.

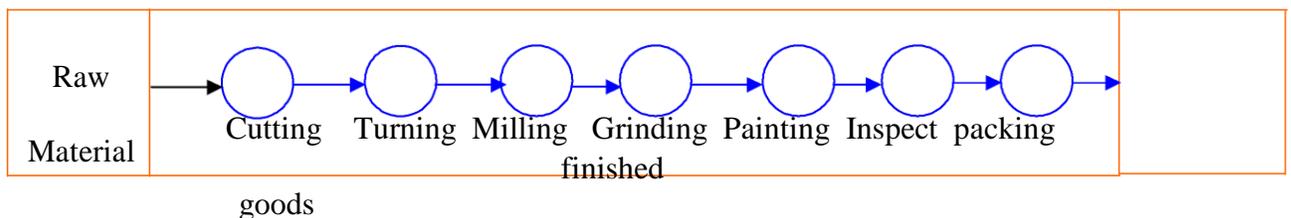
Plant Layout:

A technique of locating machines, processes and plant services within the factory in order to secure the greatest possible output of high quality at the lowest possible total cost of production

Type of plant layout:

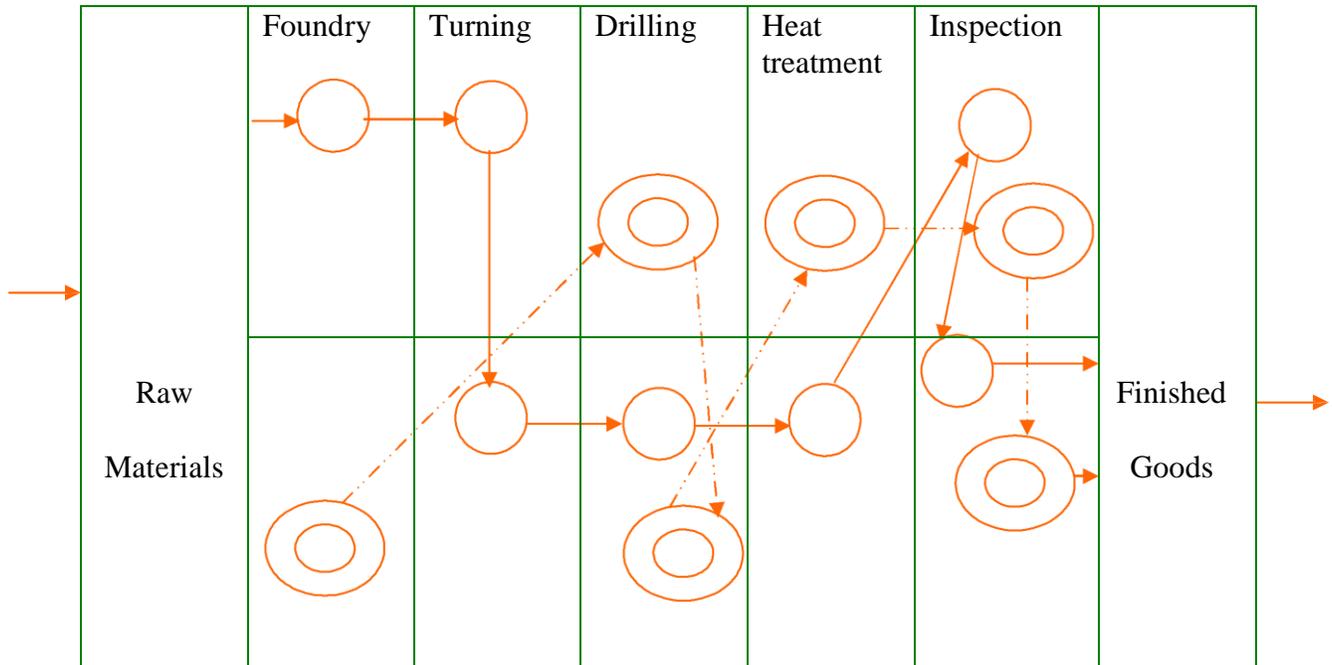
1. Product or line layout: This type of layout is developed for product-focused systems. In this type of layout only one product, or one type of product, is produced in a given area. In case of product being assembled, this type of layout is popularly known as an assembly line layout.

The work centers are organized in the sequence of appearance. The raw material centre at one end of the line and goes from one operation to another rapidly with minimum of work-in-process storage and material handling



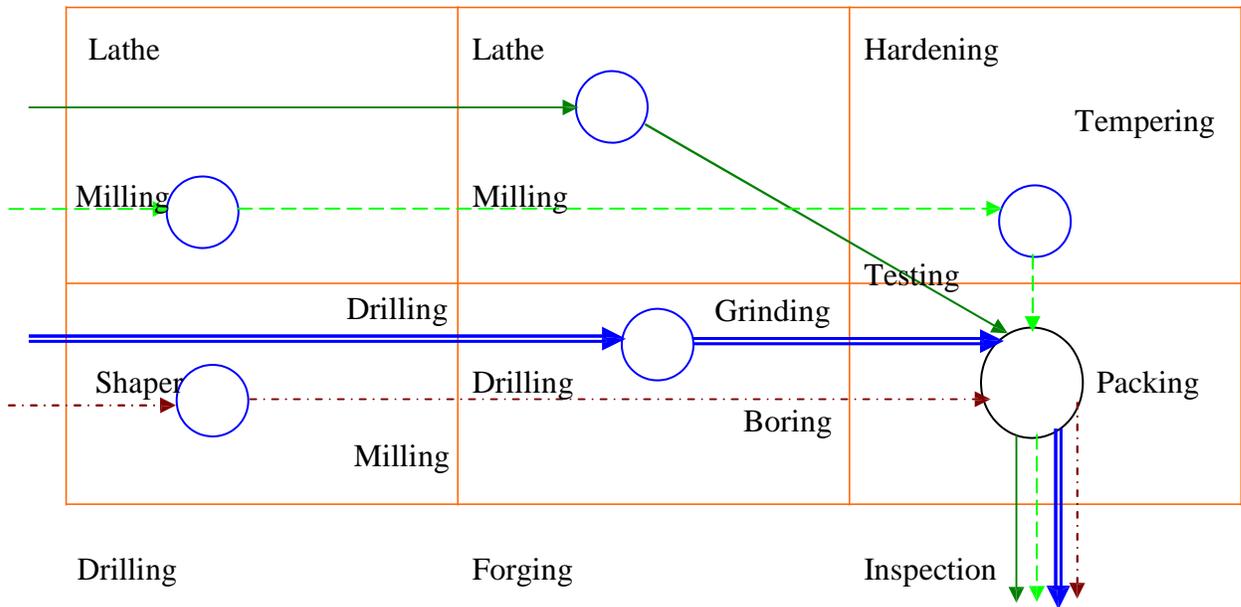
2. Process or Functional layout: This type of layout is developed for process focused systems. The processing units are organized by functions into departments on the assumption that certain skills and facilities are available in each department similar equipments and operations are grouped together, e.g., milling, foundry, drilling, plating, heat treatment etc.

The use of process-focused systems is very wide in both manufacture and other service facilities such as hospitals, large offices, municipal services, etc.



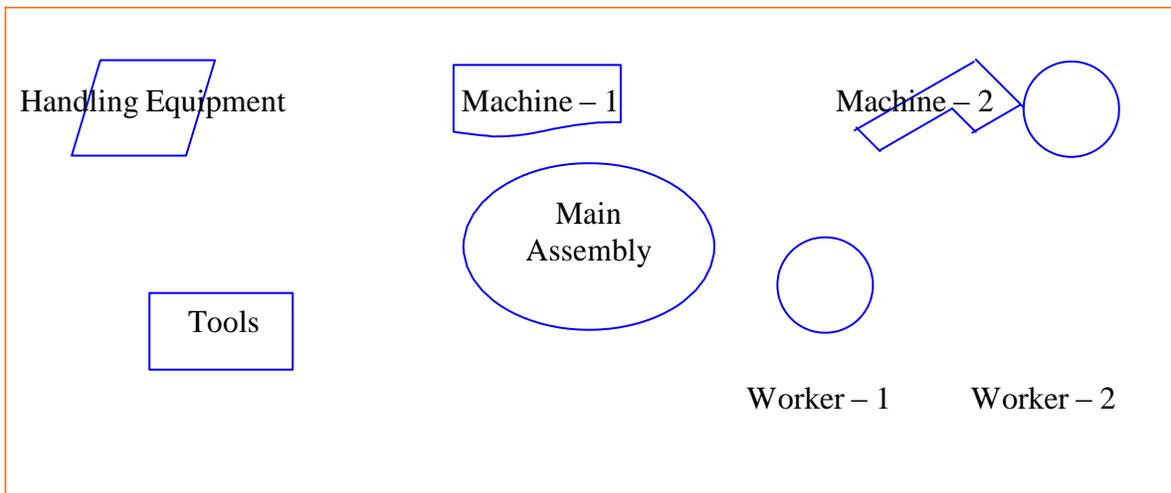
 Product - A
 Product - B

3. Cellular or group layout: It is special type of functional layout in which the facilities are clubbed together into cells. This is suitable for systems designed to use the concepts, principles and approaches of 'group technology'. Such a layout offers the advantages of mass production with high degree of automation even if the numbers of products are more with flexible requirement. In such a system the facilities are group in to cells which are able to perform similar type of functions for a group of products.



A B C D

4. **Job Shop Layout:** It is a layout for a very general flexible system that is processing job production, The preparation of such a layout is dependent on the analysis of the possible populations of orders and is a relatively, complex affair.
5. **Project or Fixed position Layout:** This is the layout for project type systems in which the major component is kept at a fixed position and all other materials, components, tools machines, work etc. are brought and assembly or fabrication is carried out. This type of layout is now not used very commonly as the machines required for manufacturing work are big and complicated. The fixed position layout is used only when it is difficult to move the major component and fabrication is to be carried out. Ex: production of ships.



Factors influencing plant layout:

1. Management policy: Management has to decide on many matters e.g. nature and quality of products, size of the plant, integration of production process, plans for expansion, amount of inventory in stock, employee facilities
2. Manufacturing process: The type of manufacturing process e.g. synthetic/analytical, continuous/intermittent and repetitive/non-repetitive, will govern the type of plant layout.
3. Nature of product: Small and light products can be moved easily to the machines, whereas for heavy and bulky products the machines may have to be moved.
4. Type of equipment: The use of single purpose and multi-purpose machine substantially affects the plant layout. Similarly, noisy and vibrating machines require special attention in the plant layout decision.
5. Types of buildings: The plant layout in a single storey building will be different from that in a multi storey building. The covered areas, the number of storey's, elevators and stairs, parking and storage area all affect the layout.
6. Availability of total floor area: The allocation of space for machines, work-benches, sub-store aisles etc., is made on the basis of the available floor area use of overhead space is made in case of shortage of space.
7. Arrangement of materials handling equipment: Provide sufficient aisles for free movement of material handling equipment such as hand truck, fork truck etc. Service facilities: The layout of factory must include proper service facilities required for the comfort and welfare of workers. These include canteen, lockers, drinking water, first aid etc.
8. Possibility of future expansion: Plant layout is made in the light of future requirement and installations of additional activities.

Principles of plant layout:

Principle of integration: The best layout is one which integrates the men, materials, machinery, supporting activities and any other such a factors that results in the best compromise.

Principle of minimum movement: The number of movement of workers and materials and the distance moved should be minimized. The materials should be transported in bulk rather than in small amounts.

Principle of smooth and continue flow: It states that bottlenecks, congestion points and bulk tracking should be removed by proper line balancing techniques. Principle of cubic space: Space of a room, it the ceiling height is also utilized, more materials can be accommodated in the same space.

Principle of satisfaction of safety: Working places-safe, well-ventilated and free from dust, noise fumes, odors and other hazardous conditions, help to increase the efficiency of the workers and improve their morale.

Principle of flexibility: It means the best layout in one which can be adopted and re-arranged at a minimum cost with least inconvenience.

Productivity:

Definition: Productivity is defined as the rate at which the goods and services are produced.

It refers to the relationship between the inputs and the output. It is calculated as a ratio between the amount produced and the amount of resources (land, labour, capital, technology etc.) used in the course of production in other words

$$Productivity = \frac{Output}{Input}$$

And also defined productivity as human efforts to produce more and more with less and less inputs of resources as a result of which the benefits of production are distributed among maximum number of people.

Method of Production:

1. Job production: In this system, goods are produced according to the orders with this method, individual requirements of the consumers can be met. Each job order stands alone and is not likely to be repeated. This type of production has a lot of flexibility of operation and hence general purpose machines are required. Factories adopting this type of production, are generally small in size.

Advantages:

1. It is the only method, which can meet the individual requirement.
2. There is no managerial problem, because of very less number of workers, and small size of concern.
3. Such type of production requires less money and is easy to start.

Disadvantages:

1. There is no scope for continuous production and demand
2. As the purchase of raw materials is less, hence cost of raw materials per unit will be slightly more.
3. For handling different type of jobs, only skilled and intelligent workers are needed, thus labour cost increases.

2. Batch production: This type of production is generally adopted in medium size enterprise. Batch production is in between job production and mass production. Batch production is bigger in scale than the job production. While it is smaller than that of mass production, batch production requires more machines than job production and fewer machines than the of mass production.

Advantages:

1. While comparing with mass production it requires less capital
2. Comparing with job production, it is more advantageous commercially.
3. If demand for one product decrease then production, for another product may be increased, thus the risk of loss is very less.

Disadvantages:

1. Comparing with mass production cost of scales and advertisement per unit is more
2. Raw materials to be purchased are in less quantity than that in mass production; therefore it is slightly costlier than that of mass production because less quantity discount is available.

3.Mass production: This method of production is used by concerns where manufacturing is carried on continuously in anticipation of demand though demand of the product may not be uniform through the year.

In mass production, simplification and standardization of products are made with the help of specialized (one purpose) machine, articles of standardized nature can easily and economically be produced on a large scale.

There is a small difference between mass production and continuous production. This is mainly in the kind of product and its relation to the plant. In mass production plant and equipment are flexible enough to deal with other products, involving same production process. Where as in continuous or process production only standardized product in a sequence produced. In this method layout and requirement of additional tools and equipment

Advantages:

1. A smooth flow of materials from one work station to the next in logical order.
2. Since the work from one process is fed directly into the next, small in process inventories result
3. Total production time per unit short
4. Simple production planning control system are possible
5. Little skill is usually required by operations at the production line, hence training is simple, short and inexpensive.

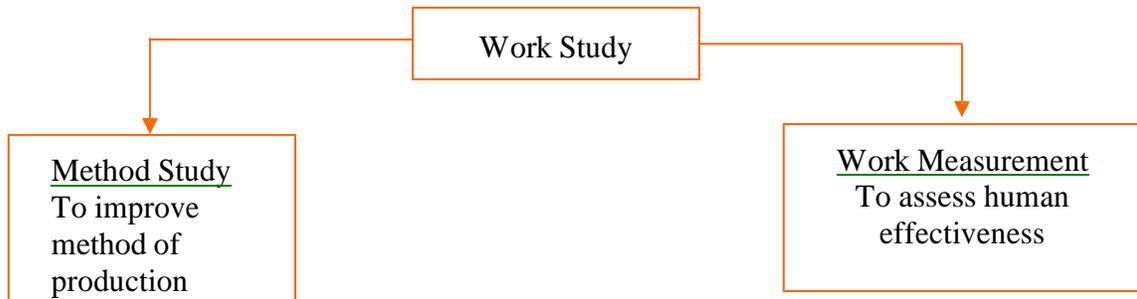
Disadvantages:

1. A breakdown of one machine may lead to a complete stoppage of the line that follows the machine. Hence maintenance and repair is challenging job.
2. Since the product dictates the layout, changes in product design may require major changes in the layout.
3. Generally high investment are required owing to the specialized nature of the machines and their possible duplication in the line

Work Study:

Work study is one of the most important management techniques which is employed to improve the activities in the production. The main objective of work study is to assist the management in the optimum use of the human and material resources.

Definition: Work study refers to the method study and work measurement, which are used to examine human work in all its contexts by systematically investigating into all factors affecting its efficiency and economy to bring forth the desired improvement.



1. Method Study:

Definition: The systematic recording and critical examination of existing and proposed ways of doing work, as a means of developing and applying easier and more effective methods and reducing cost it is also called motion study.

2. Work Measurement:

Definition: Work measurement is the application of techniques designed to establish time for a qualified worker to carry out a specified job at a defined level of performance.

Work study has two parts, Method Study and Work Measurement. Method study deals with the techniques of analyzing the way to do a given job better, Work Measurement seeks to measure the time required to perform the job.

Symbol	Meanings
	<u>Operation:</u> Operation involving changes in the condition of a product Ex: Assembly of spare parts
	<u>Transport:</u> Something from the location to another Ex: Assemble PC is moved to inspection section
	<u>Storage:</u> (permanent) To store the materials, goods etc. Ex: When PC is put into the store after inspection
	<u>Delay:</u> (Temporary storage) Arises when the product waits for next stage in the process Ex: Machinery breakdown etc.
	<u>Inspection:</u> To check whether the quality and quantity of the product is satisfactory or not
	<u>Operation – cum – Inspection:</u> Inspection is taken place during the production process
	<u>Operation – cum – Transportation:</u> Assemble is taking place while the belt conveyer transports the spares.

1. Business Process Reengineering (BPR):

Definition: The fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality service and speed.

--- By Hammer and Champy

BPR is a management approach aiming at improvements by means of elevating efficiency and effectiveness of the processes that exist within and across organizations. The key to BPR for organizations to look at their business processes from a “clean slate” perspective and determine how they can best construct these processes to improve how they conduct business.

STATISTICAL QUALITY CONTROL

Introduction: Quality is the determining factor the success of any product or service large resource are committed in every organization to ensure quality

Definition: It is defined as customer satisfaction in general and fitness for use in particular. Both the external consumer who buy the product and services and the internal consumers that is, all divisions or departments of the business organization are equally interested in the quality.

Statistical quality control: The process of applying statistical principles to solve the problem of controlling the quality control of a product or service is called statistical quality control.

Quality elements: a) Quality design b) Quality conformance

a) **Quality design:** Quality of design refers to product feature such as performance, reliability durability, ease of use, serviceability

b) **Quality conformance:** Quality conformance means whether the product meets the given quality specification or not

Inspection: The process of measuring the out put and comparing it to check whether it meets the given specified requirements or not, is called inspection.

Inspection Methods: The following are the methods of inspection based on merits

1) **Incoming inspection:** In this method, the quality of the goods and services arriving into the organization is inspected. This ensures that the material suppliers adhere to the given specifications with this defective material cannot enter into the production process. This focuses on the vendor’s quality and ability to supply acceptable raw materials.

2) **Critical point inspection:** Inspecting at the critical points of a product manufacture gives valuable insight into the completely functional process. At the points of manufacture that involve high costs or which offer no possibility for repair or rework, inspection is crucial further operation depend on these results critical point inspection helps to drop the defective production, and thereby, facilitate avoiding unnecessary further expenditure on them.

3) **Process inspection:** This is also called patrolling inspection or floor inspection or roving inspection. Here the inspector goes around the manufacturing points in the shop floor to inspect the goods produced on random sample basis from time to time.

4) Fixed inspection: It provides for a centralized and independent where work is brought for inspection from time to time. This method is followed where the inspection equipment cannot be moved to the points of productions.

5) Final inspection: This is centralized inspection making use of special equipment. This certifies the quality of the goods before they are shipped.

Elements of statistical Quality Control: The technique under SQC can be divided in to two parts a) Process control b) Acceptance sampling

a) Process control: Process control is a technique of ensuring the quality of the products during the manufacturing process itself. If a process consistently produces items with acceptable or tolerable range of specification. It is said to be statically under control. Process control is achieved through control charts. Process control aims to control and maintain the quality of the products in the manufacturing process. Statistical control charts: A control chart compares graphically the process performance data to computed statistical control limits. These control limits act as limit lines on the chart control charts are the tools to determine whether the process is under control or not.

The quality of the production process may be affected by chance cause or assignable cause.

Chance cause: such causes, which may or may not affect the manufacturing process are called chance cause, chance cause cannot even be identified. It is not possible to always maintain the given specification.

Assignable Cause: Assignable causes affect the quality of the production process. These causes can be identified and specified. Causes such as change in the labour shift, power fluctuations, or excessive tool wear are said to be assignable causes as they affect the quality of manufacturing process in different ways.

Process capability: Process capability refers to the ability to achieve measurable results from a combination of machines, tools, methods, materials and people engaged in production.

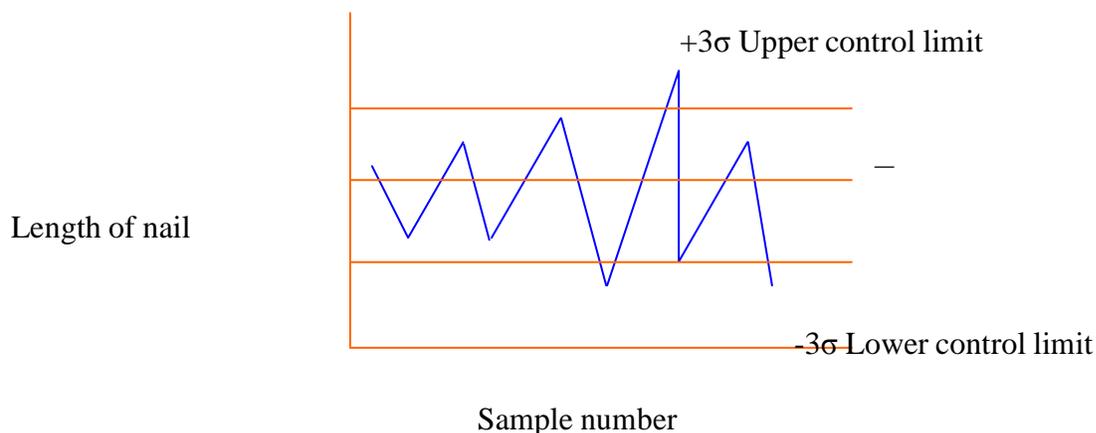
Confidence limits and control limit:

Confidence limit: It indicate the range of confidence level. A confidence level refers to the probability that the value of measurement or parameter, such as length of screw, is correct.

Ex: If a component is required with measurement of 50 mm. across, then the buy accept all components measuring between 48 mm and 52 mm across, considering a five percent confidence level.

Control limit: Control limits are found in the control charts. There are two control limits 1) Upper control limit (UCL) and 2) Lower control limit (LCL). These are determined based on the principles of normal distribution

Ex: In a pilot investigation of the length of the nails produced in the shop floor, it is found that the mean length is cm, the S.D 3σ , the measure of variability of the nails produced 0.2 cm. How do you construct the control chart for this data.



Control charts for variables: A variable is one whose quality measurement changes from unit to unit. The quality of these variables is measured in terms of hardness, thickness, length, and so on. The control charts for variables are drawn using the principles of normal distribution. There are two types of control charts for variables

and R chart.

and R Chart: The \bar{x} chart is used to show the process variations based on the average measurement of samples collected. It shows more light on diagnosing quality problem when read along with R chart. It shows the erratic or cyclic shifts in the manufacturing process. It can also focus on when to take a remedial measure to set right the quality problems. However, collecting data about all the variables involves a large amount of time and resources.

The R chart is based on the range of the items in the given sample. It highlights the changes in the process variability. It is a good measure of spread or range. It shows better results when read along with the \bar{x} chart.

For \bar{x} charts:
$$UCL = \bar{\bar{x}} + A_2 \bar{R}$$

$$LCL = \bar{\bar{x}} - A_2 \bar{R}$$
 When $\bar{\bar{x}}$ = Mean of Means
 \bar{R} = Mean of sample range

A_2 = Constant

For R chart:
$$UCL = D_4 \bar{R}$$

$$LCL = D_3 \bar{R}$$
 D_4, D_3 are constants

\bar{R} is the average of sample ranges (Range is the difference between the maximum variable and minimum variable)

EX: Construct \bar{x} -and R charts from the following information and state whether the process is in control for each of the following \bar{x} has been computed from a sample of 5 units drawn at an interval of half an hour from an ongoing manufacturing process.

Samples	1	2	3	4	5	6	7	8	9	10
\bar{x}	24	34	35	39	26	29	13	34	37	29
R	23	39	14	5	20	17	21	11	40	10

$$\sum \bar{x} = 300$$

$$\bar{\bar{x}} = \frac{300}{10} = 30$$

Solution: The mean of means

$$\sum R = 170$$

$$\bar{R} = \frac{170}{10} = 17$$

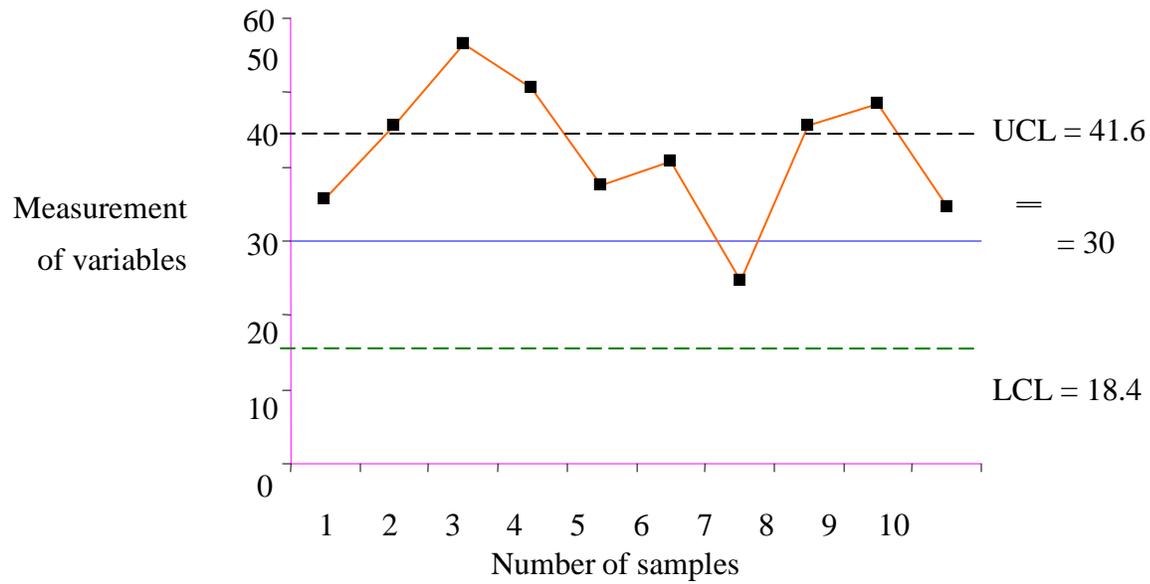
\bar{R} is calculated as

$$\bar{R} = \frac{\sum R}{n}$$

\bar{x} Chart: \bar{x} chart UCL and LCL compute at sample size 5 A 2 table value is 0.58

$$UCL = \bar{x} + A_2 \bar{s} = 30 + (0.58 \times 20) = 41.6$$

$$LCL = \bar{x} - D_3 \bar{s} = 30 - (0.58 \times 20) = 18.4$$

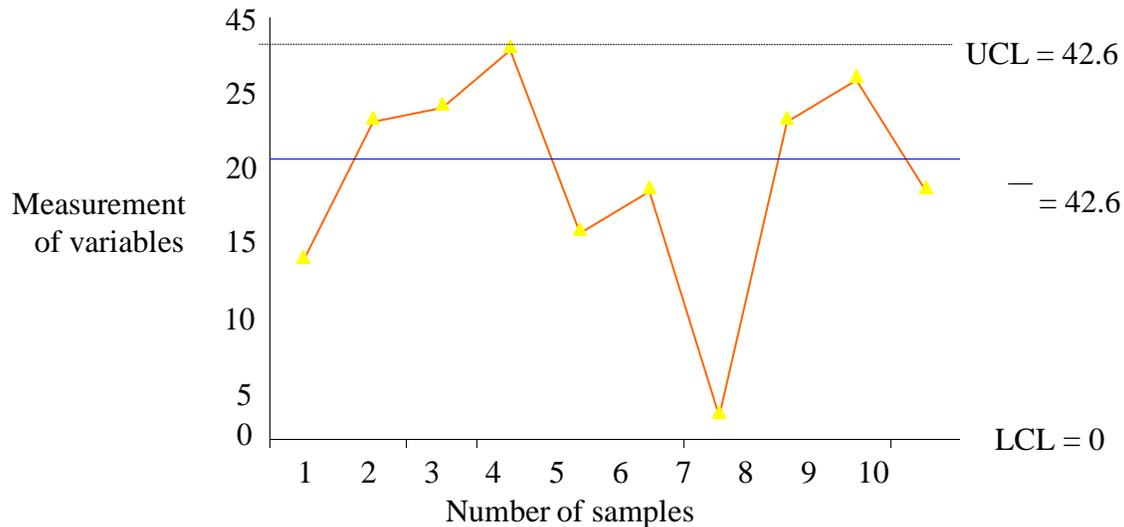


R Chart: R chart UCL and LCL compute at sample size 5, D4 table value is 2.11 and

D3 table value is 0

$$UCL = D4 \bar{c} = 2.11 \times 20 = 42.2$$

$$LCL = D3 \bar{c} = 0 \times 20 = 0$$



Therefore 3, 7 points the process is out of control.

Control charts for attributes: The quality of attributes can be determined on the basis of 'Yes' or 'No', 'Go' or 'No go'. In other words, in case of a mirror glass, even if there is one scratch it is not considered to be a quality mirror, in such a case quality is decided base on whether the mirror has any scratch or not.

The control charts for attributes are 'C' chart and 'P' charts

'C' Chart: 'C' chart is use where there a number defects per unit. This control charts controls the number of defects per unit. Here the sample size should be constant. This calculate as below.

$$UCL = \bar{c} + 3 \sqrt{\bar{c}} \text{ and } LCL = \bar{c} - 3 \sqrt{\bar{c}}$$

Total number of defects in all the samples

Where the $\bar{c} =$

$$\frac{\text{Total number of defects in all the samples}}{\text{Total number of samples inspected}}$$

Ex:

Sample Number	No. of defects	Sample Number	No. of defects
1	5	11	4
2	4	12	6
3	9	13	7
4	7	14	3
5	8	15	5
6	9	16	3
7	4	17	3
8	5	18	1

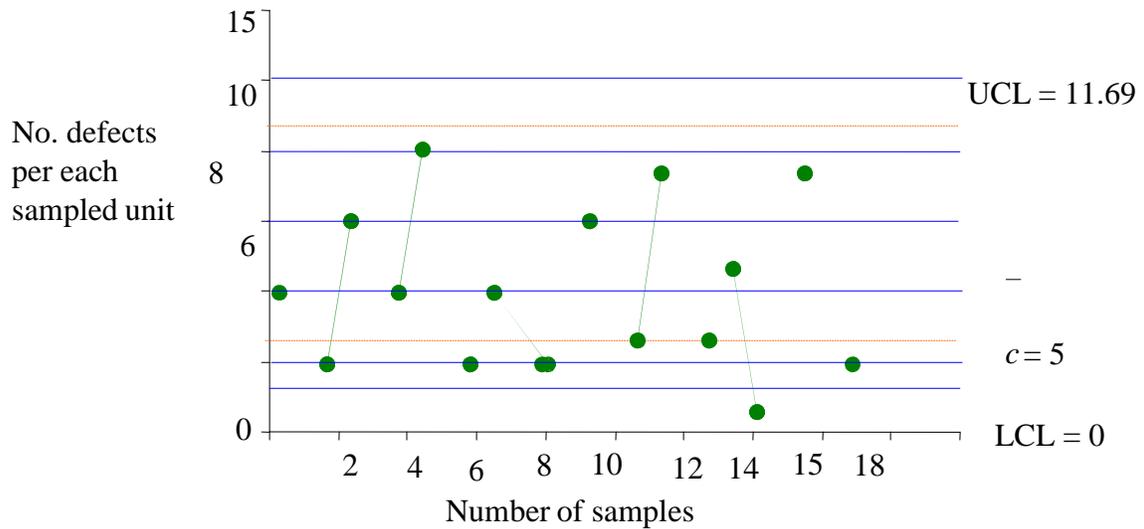
Total number of defects = 100

$$\bar{c} = \frac{100}{20} = 5$$

$$UCL = \bar{c} + 3\sqrt{\bar{c}} = 5 + 3\sqrt{5} = 11.69$$

$$LCL = \bar{c} - 3\sqrt{\bar{c}} = 5 - 3\sqrt{5} = 0$$

LCL = 0 means, LCL got negative value, take it as equal to zero



'P' Chart: 'P' Chart is used where there is data about the number of defectives per sample. It is also called fraction defective chart or percentage defectives chart. Here each item is classified on 'go or no go' basis that is good or bad. Hence if the sample size is larger, the results could be better.

$$UCL =$$

$$LCL =$$

$$\text{Where average defective } (\bar{p}) = \frac{\text{Total no of defective found}}{\text{Total no of pieces inspected}}$$

'n' = Number of pieces inspected per day

Ex: For each of the 14 days a number of magnets used in electric relays are inspected and the number of defectives is recorded. The total number of magnets tested is 14,000. The following are the particular of the number of defectives found every day.

Day number	Number of defective	Day number	Number of defective
1	100	8	120
2	50	9	60
3	150	10	140
4	200	11	50
5	150	12	70
6	50	13	40
7	80	14	40

Solution:

$$\text{Total number of defectives} = 14000$$

$$\text{The average sample size}(n) \text{ per day} = 14000/14 \text{ days} = 1000$$

$$\text{Percentage of defective per day} = \frac{\text{Total no of defective found per day}}{\text{Total no of pieces inspected per day}}$$

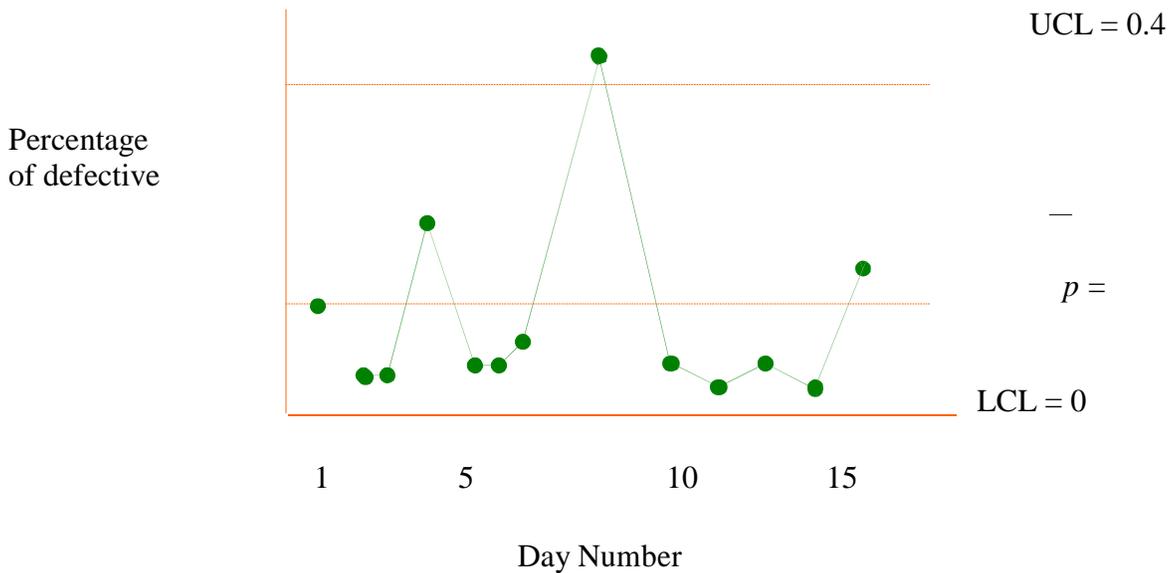
Day number	Percentage of defectives	Number of defective	Percentage of defectives	Day number	Number of defective
1	100/1000=0.10	100	120/1000=0.12	8	120
2	50/1000 =0.05	50	60/1000 =0.06	9	60
3	150/1000=0.15	150	140/1000=0.14	10	140
4	200/1000=0.20	200	50/1000 =0.05	11	50
5	150/1000=0.15	150	70/1000 =0.07	12	70
6	50/1000 =0.05	50	40/1000 =0.04	13	40
7	80/1000 =0.08	80	140/1000=0.14	14	40

$$\bar{p} = \frac{\text{Total no of defective found}}{\text{Total no of pieces inspected}}$$

$$1400/14000 = 0.1$$

$$UCL = 0.1 + 3\sqrt{\frac{\bar{p}(1-\bar{p})}{n}} = 0.4$$

$$LCL = 0.1 - 3\sqrt{\frac{\bar{p}(1-\bar{p})}{n}} = 0$$

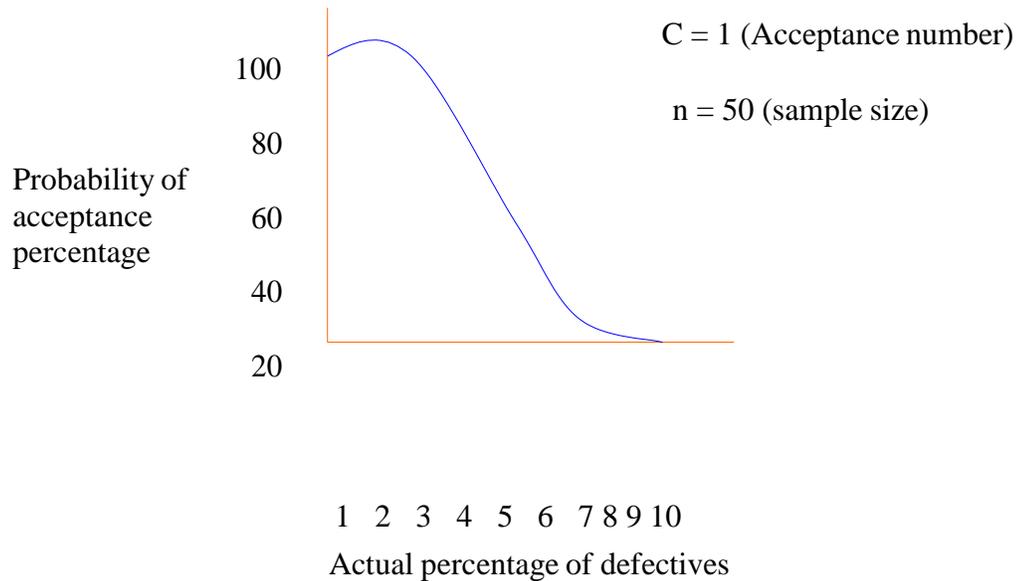


Acceptance Sampling: Acceptance sampling is a technique of deciding whether to accept the whole lot or not based on the number of defectives from a random drawn sample.

It is widely use in buying food products, such as rice, wheat etc. Before buying the random samples drawn from the bags of say rice are tested. If the quality of sample drawn looks good or free from defects then according to the requirement the entire bag or part of it can be brought

The process of acceptance sampling through operating characteristic curve (OCC)

Operating characteristic curve (OCC): The graphical relationship between percentage defective in the lots being submitted for inspection and the probability acceptance is termed as “operating characteristic of a particular sampling plan”

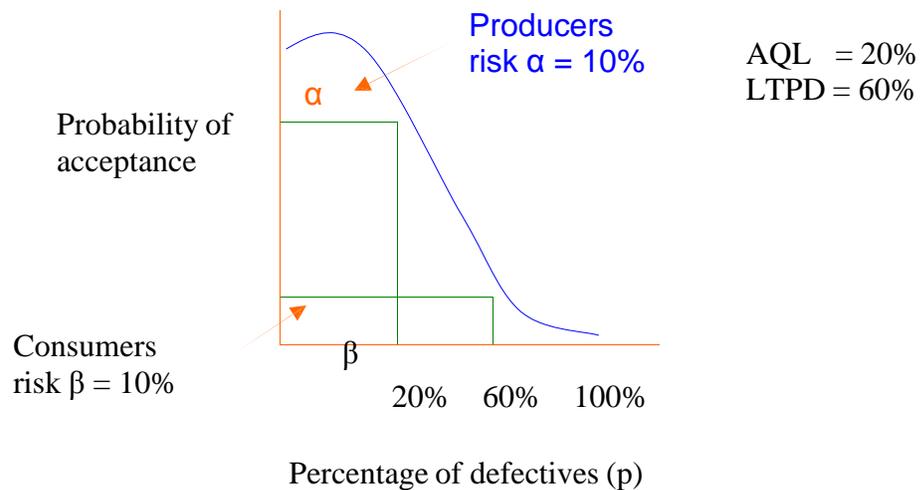


It gives a clear picture about the probability of acceptance of lot for various values of percent defectives in the lot. The probability of acceptance of a lot is high for low values of actual percentage decrease and it is low for high values of actual percentage defectives.

Construction of OC curve: To develop a sampling plan for acceptance sampling, an appropriate O.C curve must be selected to construct an OC curve an agreement has to be reached between the producer and the consumer on the following four point.

- 1) Acceptable quality level (AQL): This is the maximum proportion of defectives that will make the lot definitely acceptable.
- 2) Lot tolerance percentage defective (LTPD): This is the maximum proportion of defectives that will make the lot definitely unacceptable.
- 3) Producers risk (α): This is the risk, the producer is willing to take that lots of the quality level AQL will be rejected, even though, they are acceptable usually $\alpha = 5\%$

4) Consumer risk (β): This is the risk, the consumer is willing to take that lots of the quality level LTPD will be accepted, even though, they are actually unacceptable usually $\beta = 10\%$.



Sampling plans: Based on the number of samples drawn for taking accept/ reject decisions, the sampling methods are used. There are four methods of acceptance samplings.

1) Single sampling plan: A lot is accepted or rejected on the basis of a single sample drawn from that cost

2) Double sampling plan: If it is not possible to decide the fate of the lot on the basis of first sample, a second sample is drawn and the decision is taken on the basis of the combined results of first and second sample.

3) Multiple sampling plan: A lot is accepted or rejected based upon the result obtained from several samples (of parts) drawn from the lot.

4) Sequential sampling plan: (Item by item analysis)

Sequential sampling involves increasing the sample size by one part at a time till the sample becomes large enough and contains sufficient number of defectives to decide intelligently whether to accept or reject the lot.

Total Quality Management: It is term first coined by the U.S Naval air systems command to describer, its Japanese-style management approach to quality improvement. It is a management approach to long-term success through customer satisfaction.

In a TQM effort, all members of an organization participate in improving processes, products, services and the culture in which they work

Six Sigma: Six sigma is a set of practices developed by Motorola to systematically improve processes by eliminating defects. A defect is defined as non-conformity of a product or service to its specifications.

Six Sigma refers to the ability of highly capable processes to produce output within specification. In particular processes that operate with Six Sigma quality produce at defect level below 3.4 defects per million opportunities.

The statistical representation of six sigma quantitatively how a process is performing. To achieve six sigma, a process must not produce more than 3.4 defects per million opportunities. A six sigma defect is defined as anything outside of customer specification. A six sigma opportunity is then the total quantity of chances for a defect.

Definition: Six Sigma at any organizations simply means a measure of quality that strives for near perfection. Six sigma is a disciplined, data-driven approach and methodology for eliminating defects in any process from manufacturing to transactional and from product to service.

Just – In – Time (JIT): When components arrive as and when required in a manufacturing operating by workers. It is called just-in-time.

Some we would at a stroke eliminate any inventory of parts, they would simply arrive just-in-time. Similarly we could produce finished goods just-in-time to be handed to a customer who wants them. So at conceptual extremes. JIT has no need for inventory or stock, either of raw materials or work in progress or finished goods.

Supply Chain Management: It is the process of planning, implementing and controlling the operations of the supply chain as efficiently as possible supply chain management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of consumption.

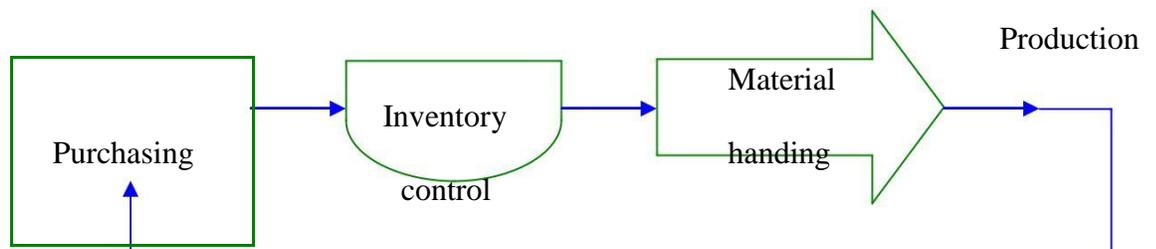
MATERIALS MANAGEMENT

Definition of Materials: Materials refer to inputs into the production process, most of which are embodied in the finished goods being manufactured. It may be raw materials, work-in-progress, finished goods, spare parts and components, operating supplies such as lubricating oil, cleaning materials, and others, required for maintenance and repairs.

Definition on Material Management: Material management deals with controlling and regulating the flow of materials in relation to changes in variables like demand, prices, availability, quality, delivery schedules etc.

Objects of materials management:

1. Minimization of materials cost s
2. To reduce inventory for use in production process and to develop high inventory turnover ratios.
3. To procure materials of desired quality when required, at lowest possible overall cost of the country.
4. To reduce paper work procedure in order to minimize delays in procuring materials.
5. To note changes in market conditions and other factors affecting the concern.



6. The purchase, receive, transport, store materials efficiently
7. To reduce cost, through simplification, standardization, value analysis etc.
8. To conduct studies in new areas e.g., equality consumption and cost of materials so as to minimize cost of product

Function of Materials Management:

1. Materials planning and programming
2. Purchasing materials inspection of materials
3. Inspection of Materials
4. Classification, codification and standardization in stores
5. Storage of materials
6. Issuing of materials
7. Maintenance of proper inventory records
8. Materials receiving

Inventory: It defined as a comprehensive list of movable items which are required for manufacturing the products and to maintain the plant facilities in working conditions.

Inventory Control: The systematic location, storage and recording of goods in such a way the desired degree of service can be made to the operating shops at minimum ultimate cost.

Objectives of Inventory Control:

1. To support the production departments with materials of the right quality in the right quantity, at the right time and the right price, and from the right supplier
2. To minimize investments in the materials by ensuring economies of storage and ordering costs
3. To avoid accumulation of work in process
4. To ensure economy of costs by processing economic order quantities
5. To maintain adequate inventories at the required sales outlets to meet the market needs promptly, thus avoiding both excessive stocks or shortages at any given time
6. To contribute directly to the overall profitability of the enterprise

Functions of inventory control:

To develop policies, plans and standards essential to achieve the objectives

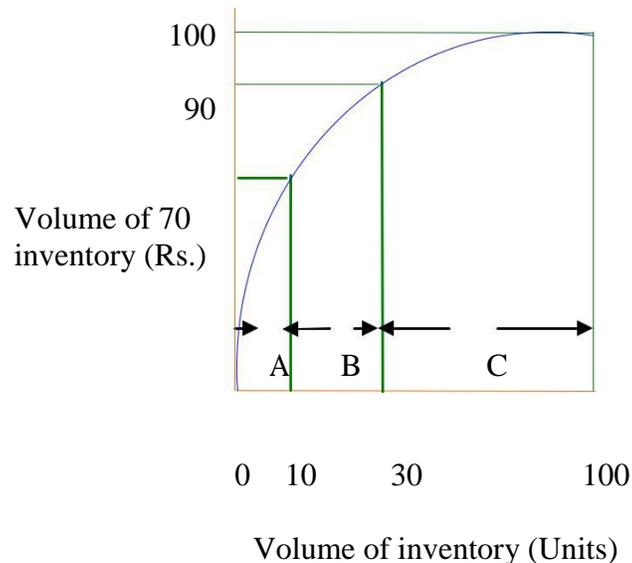
To build up a logical and workable plan of organization for doing the job satisfactory

To develop procedure and methods that will produce the desired results economically

To provide the necessary physical facilities

To maintain overall control by checking results and taking corrective actions.

ABC Analysis: ABC analysis is a technique of controlling inventories based on their value and quantities. It is more remembered as an analysis for 'Always Better Control' of inventory. Here all items of the inventory are listed in the order of descending values, showing quantity held and their corresponding value. Then, the inventory is divided into three categories A, B and C based on their respective values.



A – Refers to high value item

B – Refers to medium value item
C – Refers to low value item

A category comprises of inventory, which is very costly and valuable. Normally 70% of the funds are tied up in such costly stocks, which would be around 10% of the total volume of stocks. Because the stocks in this category are very costly, these require strict monitoring on a day-to-day basis.

B category comprises of inventory, which is less costly. Twenty percent of the funds are tied up in such stocks and these accounts for over 20% of the volume of stocks. These items require monitoring on a weekly or fortnightly basis.

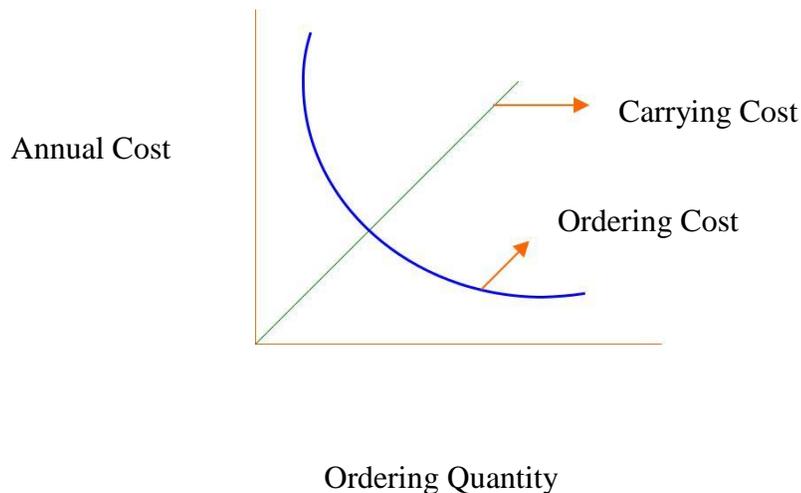
C category consists of such stocks, which are of least cost. Volume-wise, they form 70% of the total stocks but value-wise, they do not cost more than 10% of the investment in the stocks. This category of stocks can be monitored on a monthly or bi-monthly basis.

The following table summarizes the concept of ABC analysis;

Category	Value (%)	Volume (%)	Desired Degree of Control
A	70	10	STRICT
B	20	20	MODERATE
C	10	70	LOW

Economic Order Quantity (EOQ): Economic order quantity is defined that quantity of materials, which can be ordered at one time to minimize the cost of ordering and carrying the stocks. In other words, it refers to size of each order that keeps the total cost low.

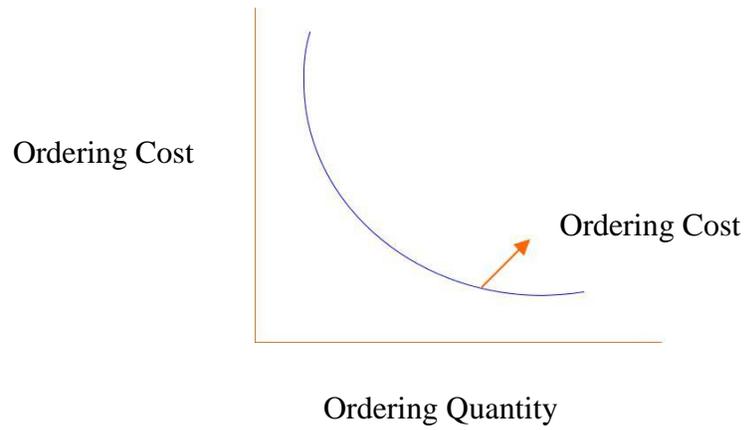
Inventory costs: The inventory costs can be classified into two categories, 1) Inventory ordering cost 2) Inventory carrying cost.



Inventory Ordering Costs (C_o): The cost refer to the cost incurred to procure the materials particularly in large organizations, these cost are significant. This is also called as procurement cost.

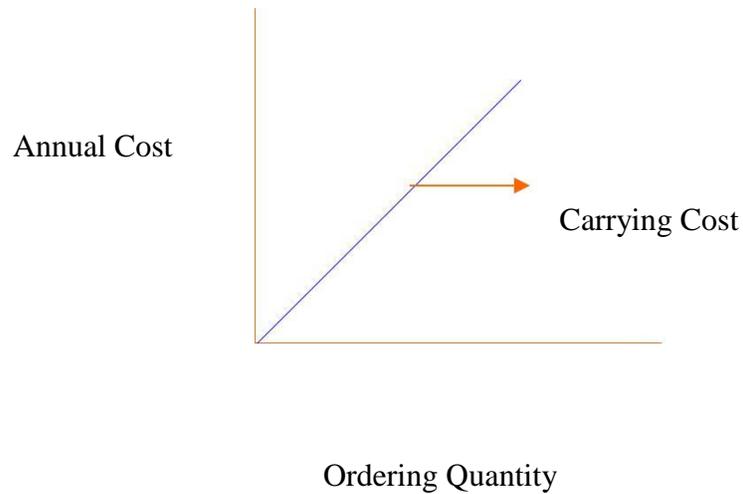
Definition: It is the cost of placing an order from a vendor. This includes all costs incurred from calling for quotation to the point at which the item is taken into stock.

Ex: Receiving quotations, Processing purchase requisition, Receiving materials and then inspecting it , Follow up and expediting purchase order, Processing sellers invoice.



Inventory Carrying cost: Carrying cost which are also known as holding costs are the costs incurred in maintaining the stores in the firm. They are based on average inventory and consist of:

Ex: Storage cost includes: Rent for storage facilities, Salary of person and related storage expenses, Cost of insurance, Cost of capital.



Determine EOQ:

Step1:

$$\begin{aligned} \text{Total Ordering cost per year} &= \\ \text{No. of orders placed per year} \times \text{ordering cost per order} \\ &= (A/S) \times O \end{aligned}$$

A = Annual demand

S = Size of each order (units per order)

O = Ordering cost per order

Step2:

$$\begin{aligned} \text{Total Carrying cost per year} &= \text{Average inventory level} \times \text{Carrying cost per year} \\ &= (S/2) \times C \end{aligned}$$

A = Annual demand

S = Size of each order (units per order)

C = Carrying cost per unit

Step3:

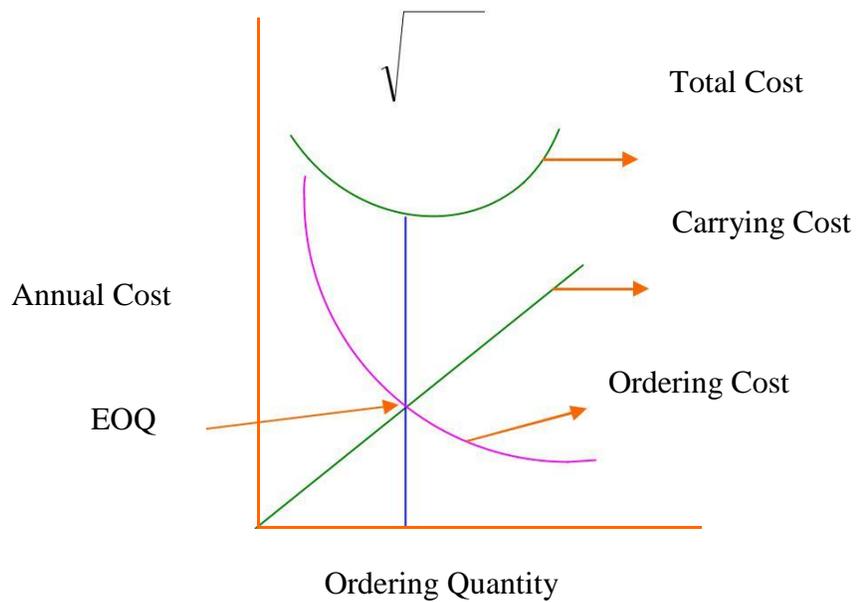
EOQ is one where the total ordering is equal to total carrying cost

$$\frac{A}{S} \times O = \frac{S}{2} \times C$$

$$2AO = S^2 \times C$$

$$S^2 = \frac{2AO}{C}$$

$$S = \frac{\sqrt{2AO}}{C}$$



Where S is the Economic order quantity, A is the annual demand in units, O is the ordering cost per order and C is the carrying cost per unit

Ex: A biscuit manufacturing company buys a lot bags of 10,000 bags wheat per annum. The cost per bag is Rs.500 and ordering cost is Rs.400. The inventory carrying cost is estimated at 10% of the price of the wheat determine EOQ and number of orders required per year.

Solution:

Annual demand (A) = 10,000 bags

Ordering cost per order (O) = Rs.400

Carrying cost per unit (C) = 10% of Cost price

$$= 0.10 \times 500 = \text{Rs.}50/-$$

$$\begin{aligned} \text{EOQ} &= \sqrt{\frac{2AO}{C}} \\ &= \sqrt{\frac{2 \times 10,000 \times 400}{50}} \\ &= \sqrt{1,60,000} \end{aligned}$$

$$\text{EOQ} = 400 \text{ bags}$$

The number of orders to be placed during the year = $\frac{\text{ANNUAL DEMAND (UNITS)}}{\text{EOQ}}$

$$\frac{10,000}{400} = 25 \text{ ORDERS}$$

In the above case, the company has to place 25 orders to optimize its

ordering and carrying costs.

Method of pricing the materials issued:

It is necessary to value the stocks at the end of the accounting period. These are different methods followed in different industries at different points of time for this purpose. .

The Methods are:

1. First in First out (FIFO)
2. Last in First out (LIFO)
3. Simple average price method
4. Weighted average price method

First in First Out (FIFO) : In this system, the materials first received are issued first materials from the second lot are issued only, when first lot is exhausted and so on. The prices of the materials are charged at the cost at which that lot was purchased.

Last in First out (LIFO): In this system, the materials first received are issued first materials from the second lot are issued only when first lot is exhausted and so on. The prices of the materials are charged at the cost at which that lot was purchased.

Simple average price method: In this method, the stock are issued at an average price. The average price is determined by dividing the sum of the prices (at which the goods are received) by the number of price available.

Weighted average price method: This method is an improvement over simple average price. While calculating the average price, the quantities of each of the receipts are considered. The weighted average price is calculated as given below:

$$\text{Weighted average price} = \frac{(W_1 \times P_1) + (W_2 \times P_2) + (W_3 \times P_3)}{W_1 + W_2 + W_3}$$

Where W_1 , W_2 , and W_3 refer to the quantities of each of the three receipts and P_1 , P_2 , and P_3 are the prices of each of the receipts. Under this method, the quantity of each of the receipts is called the weight. Hence, the average price so computed is called the weighted average price. Weighted average is calculated after each time a purchase is made.

Purchasing: It deals with investment, overheads dealing with other and also result in server losses mass production industries that requires large purchasing for a continues flow of materials, demand for an efficient purchase decision. It implies procurement of raw materials machinery, service etc. needed for production and maintenance of the concern.

It has several benefits in terms of reduced costs, higher inventory turnover, buying the materials at the best prices, turnover, buying the materials at the best prices, continues supplies, reduced lead time and so on.

Objectives:

1. To procure right material
2. To procure materials in desired quantities
3. To procure material of desired quality
4. Purchasing from reliable source
5. To pay less for materials purchased
6. To receive and deliver materials at right place and time.

Purchasing process:

The following are the logical steps in the purchasing process:

1. Requisitioning purchases
2. Exploring sources of supply
3. Issuing of tenders and obtaining quotations
4. Opening of tenders and quotations and preparation of comparative statement
5. Negotiating over the purchase price and terms of supply
6. Placing purchase order
7. Receiving of materials along with the invoice
8. Checking inward invoice
9. Inspecting and testing materials
10. Forwarding the materials to stores
11. Checking invoice and passing of bills for payments

Stores Management: It deals with planning, coordination and control of various activities pertaining or effective efficient and economic storage and store keeping.

Store: Generally, un worked material is known as store **Storage:** The store room is the place where stores are housed

Storage: Storage is meant holding in custody all kinds of stores and materials semi-processed and fully processed products.

Store Keeping: It may be defined as that aspect of materials control concerned with physical storage of goods.

Functions of stores:

1. To receive raw materials, semi-finished or purchased items from vendors and to check them for identification.
2. To receive parts and components which has been processed in the factory?
3. To make a record of material receipt and current status of material in the store
4. To maintain positioning of materials in the store.
5. To maintain stock safety and in good condition to ensure that they do not suffer from damage
6. Issuing the items/materials to operational personnel
7. Making a record of receipt and issue slips
8. To avoid illegal attics in store areas.
9. To plan for optimum utilization of space.
10. Cooperating to full extent with purchasing, manufacturing and production planning and control departments.

Stores Records:

Material requisition note: Whenever the materials are required by a department/section, this form has to be filled in. This note provides information about the job number, description of the items required in terms of number. The head of the department/section should authorize it. Whenever the materials are issued, the receiving person should sign the note.

This is to be entered in the materials issued record, which is to be signed by the storekeeper.

Purchase order: The purchasing officer will release the purchase order. The following is the format of a purchase order. Here, we find Vivek enterprises placing a purchase order on Business Solutions Ltd., for the following materials. The terms and conditions of the purchase order such as delivery, payment, and other have to be mentioned clearly.

Invoice: Invoice is a statement sent by the seller to the buyer mentioning the particulars of the goods supplied, net amount payable for the goods, and the

terms and conditions governing the sale. It is very important document because it shows the net amount payable by the buyer after all the discounts and the taxes, if any.

Goods received note: The goods received note furnishes the particulars of the suppliers, purchase order number, purchase requisition number, and the job for which the goods are received. These details are to be certified by a competent authority. On this basis, the accounts department initiates the process of payment for the goods received.

Goods returned note: Sometimes, a part or whole of the goods received may not be of acceptable quality, and hence, these have to be returned to the supplier. In this context, the goods received note is prepared. This is also called the 'debit note' because the suppliers or creditors' account has to be debited by the amount mentioned in this debit note for the goods returned.

Stores ledger account: This is maintained to provide the details of the quantity, price and amount of the receipts, issues, and balance of stocks on a day-to-day basis. At any given time, the physical quantity of stocks should match with the balance as per the stores ledger account. A separate account is maintained for each type of the material in the stores. It should necessarily mention the method such as FIFO or LIFO, followed to value the issues of stocks. It is a valuable tool for the costing department in exercising stores control. It facilitates the valuation of stock from time to time.

Bin card: Bin card is the slip or tag attached to the bin where the goods are stocked. Whenever the materials are received or issued, an entry is made on the bin card. The purpose of bin card is to reveal the particulars of the quantities received, issued, and available as on a given date at a glance. Where separate bins are maintained for each item of the store, each bin will have a tag hung to it.

Marketing Management

Marketing: Marketing as a social process by which individuals and groups obtain what they need and want through creating, offering exchanging products and services of value with others.

Selling versus Marketing:

Selling refers to the act of transferring the ownership of the goods and services from the seller to the buyer.

Marketing refers to the whole process encompassing the entire range of activities starting from identifying the customers' requirements to satisfying these in a mutually beneficial manner.

Selling	Marketing
1. Product enjoys the supreme importance	1. Customer enjoys unique importance
2. Emphasis on company (sellers) needs	2. Emphasis on market customers needs
3. Company oriented selling effects	3. Market oriented selling effects
4. Goods are already produced and then sold as profit	4. customers demand determines production supply is adjusted to demand
5. Selling aims at short-term objectives	5. Marketing aims as long-term objectives
6. Top priority is given to sales volume rather than profits increasing sales	6. To priority is given to profitable volume of sales and market share at fair prices and reasonable risk
7. Production oriented	7. Customer oriented.

Marketing Function:

Buying: Buying involves both the marketing and the customers. The marketing manager must know about the type of customers, their consuming habits demands and buying pattern.

Selling: It creates a demand for a product selling function involves.

1. Product planning and development
2. Finding out or locating buyers
3. Demand creation through salesmanship, advertising and sales promotion
4. Negotiation of terms of sales such as price, quantity and quality etc.

Transporting: It involves the creation of place utility. In order to have value goods must first be transported from the place they are produced to the place where they are needed.

Storage: It concerned with storing finished products properly without any damage, until they are dispatched to the customers it is also concerned to the customers it is also concerned with maintaining stock of raw materials with maintaining stock of raw materials, components etc. to meet production schedules.

Standardization and grouping: These two functions are supplementary and complementary to each other. A standard is a measure of fixed value. The standard could be based on colour, weight, quality, and number of items, price, or any other parameter. Both domestic and export markets rely extensively on this function. Grading is the process of sorting the goods. The price varies with the grade of the goods. This function enables the marketer to fix a uniform price for a given grade of the goods. It further promotes good understanding between the buyer and the seller.

Finance: Finance is the life blood of business value of goods is expressed is money and it donated by price to be paid by buyer to seller credit is necessary in marketing it plays all important role in retail trade particularly in the sales of costly consumer goods.

Marketing research: The marketing personnel must study the trends in market demand, supply prices and related market information. The knowledge about the latest market information may help the firm to reduce risk loss in purchasing, in pricing, in forecasting market demand and in facing competition in the market

Marketing Mix: It refers to the combination of four basic elements, viz., product, price, promotion and the place, known as the four P's of marketing.

Product Mix: It is used to describe the assortment of different product types (product lines) and their varieties (product depth). In addition, different tangible and intangible features of the product also form the product mix.

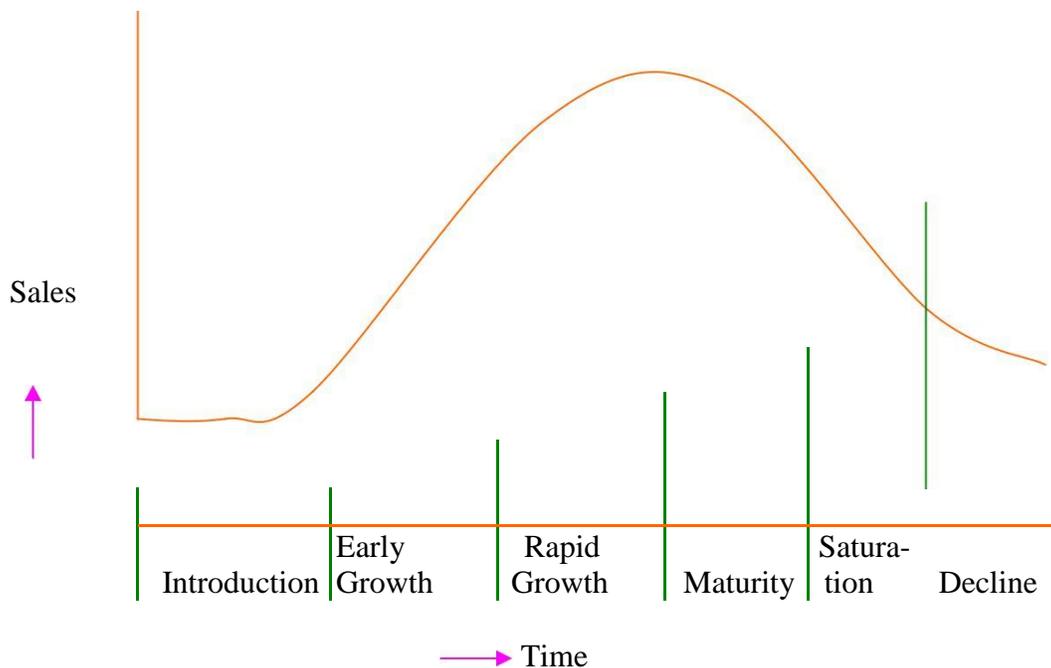
Price Mix: Price mix refers to the decisions relating to the price charged for the product, service or idea.

Promotion Mix: Refers to the activities relating to promotion of the product, service or idea.

Place Mix: Place or physical distribution mix refers to the activities that are involved in transferring ownership to consumers at the right time and price.

Product life cycle:

1. Products have limited life.
2. Products sales pass through distinct stages, each passing different challenges, opportunities and problems to seller.
3. Profits rise and fall at different stages of product life cycle.



Early growth: when the results of usage of product start flowing into the market and the results are encouraging, more and more buyers come forward to try. The sales revenue remains very low till this point of time. This is also a very critical stage, as the manufacturer cannot avail scale economies.

Rapid growth: A new product enters the stage of rapid growth when it satisfies the needs of the customers. The sales start picking up with repeat purchases and by word of mouth publicity, coupled with continued promotion outlay from the manufacturer's side. As new customers get attracted to the product for the first time, sales soar, sales revenues increase faster than costs, and profits start accruing. This trend attracts the attention of the competitors who release a similar product copying the best features of the new product.

Maturity: when the product's sales growth slows down, it is called maturity. Due to this slow down, the industry as a whole suffers from overcapacity. At this stage, firms tend to attract the customers away from their competitors through cheaper prices and larger promotional efforts and outlay. Those who cannot afford such large promotional outlay and woo customers of the competitors.

Saturation: When the sales growth slows down to zero, such a stage is called saturation. This size of the market does not increase beyond this stage. In other words, old customers who have stopped buying the product replace any new customer entering the market. All sales are simply replacement sales or repeat purchases by the same customers.

Decline: When sales of a product tend to fall, such a stage is called decline. When a product ceases to satisfy the customer's needs in relation to those available in the market, it is no more preferred. As a result, its competing products offering superior benefits take over the market. This leads to weakened profitability.

Type of Channels of Distribution: Channels of distribution refer to the ways and means of reaching the customer through the intermediaries such as wholesalers, retailers, and other agencies, if any.

Manufacturer – consumer: This is a direct marketing channel where the manufacturer contacts the customer directly without involving middlemen or intermediaries. The manufacturers of industrial goods such as aero planes, turbo-engines, ships, and other high-value capital goods mostly follow this route.

However, consumer product manufacturers also through Internet, mail order operations, and door-to-door selling are following this method. It is common sight to find the representatives of the manufacturers going from house to house to sell their products, which are normally used in the households.

Manufacturer – wholesaler – consumer: This channel is primarily used in the case of industrial goods and high-value consumer durable products. The wholesaler, who may also be called as distributor in this channel, carries out the functions of retailing to large customers who may in themselves be the manufacturers also. The wholesalers in this channel buy goods from many manufacturers, stock, and subsequently, sell them

through internet or directly to the customers in a wider geographical area. An example of the use of this method can be observed in the computer hardware industry.

Manufacturer – retailer – consumer: Here, the large retailing chains, including supermarkets, use this channel to buy products in large quantities from manufacturers at a very competitive price and sell the same to the ultimate consumers. As the retailers enjoy large discounts in this process, they share this benefit with their customers by keeping their products competitively priced. The consumers patronage this channel because they can buy in small quantities from a wide variety at lower prices.

Manufacturer – wholesaler – retailer – consumer: This is a chain widely followed for fast moving consumer goods, which are likely to have mass markets. When the consumers are large in number, widely dispersed geographically, and products are of low value, this channel is favored. Manufacturers would find it prohibitively expensive to set up their own outlets in such circumstances. For manufacturers of consumer goods such as hosiery, food items, confectionery, clothes, and readymade garments, cosmetics, and so on, intermediaries are indispensable in the distribution chain.

UNIT – 3

HUMAN RESOURCE MANGEMENT

Behind the production of every product or service there is an human mind, effort and man hours (working hours). No product or service can be produced without help of human being. Human being is the fundamental resource for making or constructing anything. Today many experts claim that machines and technology are replacing human resource and minimising their role or effort. However, indeed, machines and technology are built by the humans; they need to be operated or at least monitored by humans. Maybe because of this reason, companies have continuously been searching for talented, skilled and qualified professionals to further develop latest machines and technology, which again have to be controlled or Monitored by humans to bring out products.

It is undisputed fact that humans are being replaced by artificial intelligence which means robots. But all jobs cannot be handed over to Robots, to say in other words robots have its own limitations and all roles cannot be handled by robots. Though British theoretical physicist Stephen Hawking, Cambridge professor expressed about destruction of middle-class jobs due to raise of artificial intelligence, he still felt that natural intelligence or need for application of human mind is inevitable in certain roles.

Meaning:

Human Resource Management: Human resource management is the process of managing the human resources of an organization in tune with the vision of the top management.

Human Resource Management is the process of recruitment and selecting employee, providing orientation and induction, training and development , assessment of employee (performance of appraisal), providing compensation and benefits, motivating, maintaining proper relations with employees and with trade unions, maintaining employees safety, welfare and healthy measures in compliance with labor laws of the land.

Why name 'Human Resource Management'?

Human: refers to the skilled workforce in the organisation.

Resource: refers to limited availability or scarceness.

Management: refers how to optimize and make best use of such limited and a scarce resource so as to meet the ordination goals and objectives.

Altogether, human resource management is the process of proper and maximise utilisation of available limited skilled workforce. The core purpose of the human resource management is to make efficient use of existing human resource in the organisation. The Best example at present situation is, construction industry has been facing serious shortage of skilled workforce. It is expected to triple in the next decade from the present 30 per cent, will negatively impact the overall productivity of the sector, warn industry experts.

Every organisations' desire is to have skilled and competent people to make their organisation more effective than their competitors. humans are very important assets for the organisation rather than land and buildings, without employees (humans) no activity in the organisation can be done. Machines are meant to to produce more goods with good quality but they should get operated by the human only.

Definitions:

Many great scholars had defined human resource management in different ways and with different words, but the core meaning of the human resource management deals with how to manage people or employees in the organisation.

Edwin Flippo defines- HRM as “planning, organizing, directing, controlling of procurement, development, compensation, integration , maintenance and separation of human resources to the end that individual, organizational and social objectives are achieved.”

The National Institute of Personal Management (NIPM) of India has defined human resources – personal management as “that part of management which is concerned with people at work and with their relationship within an enterprise. Its aim is to bring together and develop into an effective organization of the men and women who make up enterprise and having regard for the well – being of the individuals and of working groups, to enable them to make their best contribution to its success”.

Human Resource Management

For any organisation to function effectively, it must have resource of men (Human Resource), money, materials and machinery. The resources by themselves cannot fulfill the objectives of an organisation, they need to be collected, co-ordinated and utilised through human resources. And, the effective management of human resources is also vital. Hence, Human Resource Management (HRM) has emerged as a major function in organisations. Human Resource Management is the organizational function that deals with issues related to people such as compensation, hiring, performance management, organization development, safety, wellness, benefits, employee motivation, communication, administration, and training.

The administrative discipline of hiring and developing employees so that they become more valuable to the organization.

Human Resource management includes:

1. conducting job analyses,
2. planning personnel needs, and recruitment,
3. selecting the right people for the job,
4. orienting and training,
5. determining and managing wages and salaries,
6. providing benefits and incentives,
7. appraising performance,
8. resolving disputes,
9. communicating with all employees at all levels. Formerly called personnel management.
10. Maintaining awareness of and compliance with local, state and federal labor laws.
11. These are also called as functions of human resource management for the purpose of effect you utilization of human resource.

Objectives of HRM

Societal objective. To be socially responsible to the needs and challenges of society while minimizing the negative impact of such demands upon the organization. The failure of organizations to use their resources for society's benefit may result in restrictions. For example, societies may pass laws that limit human resource decisions.

Organizational objective. To recognize that HRM exists to contribute to organizational effectiveness. HRM is not an end in itself; it is only a means to assist the organization with its primary objectives. Simply stated, the department exists to serve the rest of the organization.

Functional objective. To maintain the department's contribution at a level appropriate to the organisation's needs. Resources are wasted when HRM is more or less sophisticated than the organisation demands. A department's level of service must be appropriate for the organisation it serves.

Personal objective. To assist employees in achieving their personal goals, at least insofar as these goals enhance the individual's contribution to the organisation. Personal objectives of employees must be met if workers are to be maintained, retained and motivated. Otherwise, employee performance and satisfaction may decline, and employees may leave the organisation.

Nature of Human Resource Management

Human Resource Management involves management functions like planning, organizing, directing and controlling

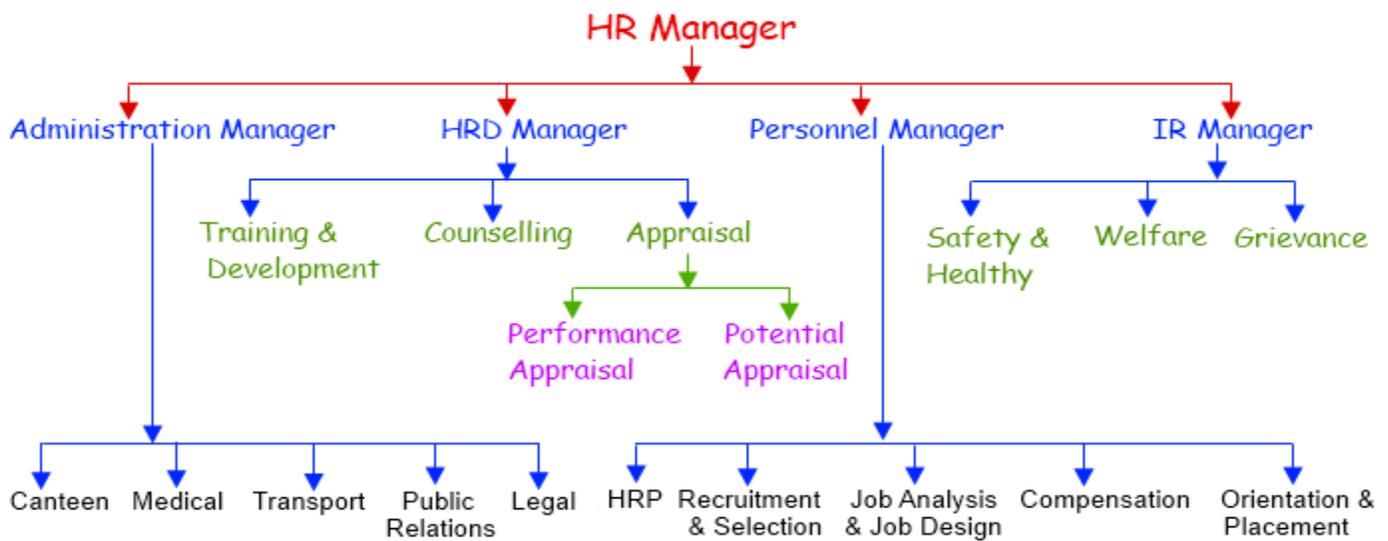
- It involves procurement, development, maintenance of human resource
- It helps to achieve individual, organizational and social objectives
- Human Resource Management is a multidisciplinary subject. It includes the study of management, psychology, communication, economics and sociology.
- It involves team spirit and team work.
- It is a continuous process.

HR manager

The Human Resource Manager is a mid-level position responsible for overseeing human resources activities and policies according to executive level direction. They supervise human resources staff as well as control compensation and benefits, employee relations, staffing, training, safety, labor relations, and employment records.

Key responsibilities of Human Resource Manager.

Human Resource Manager is one of the most important key to open a lock hanging on the door of success in an organisation. If an Human Resource Manager is efficient enough to handle and to take out best from his team members any organisation and can achieve more from his target goals. Human Resource manager plays an very important role in hierarchy, and also in between the higher management and low level employees. Stated below are major responsibilities of Human Resource Manager:-



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Scope of Human Resource Management

The scope of Human Resource Management refers to all the activities that come under the banner of Human Resource Management. These activities are as follows.



- **Human resources planning :-** Human resource planning or Human Resource Planning refers to a process by which the company to identify the number of jobs vacant, whether the company has excess staff or shortage of staff and to deal with this excess or shortage.
- **Job analysis design :-** Another important area of Human Resource Management is job analysis. Job analysis gives a detailed explanation about each and every job in the company.
- **Recruitment and selection :-** Based on information collected from job analysis the company prepares advertisements and publishes them in the newspapers. This is recruitment. A number of applications are received after the advertisement is published, interviews are conducted and the right employee is selected thus recruitment and selection are yet another important area of Human Resource Management.
- **Orientation and induction :-** Once the employees have been selected an induction or orientation program is conducted. This is another important area of Human Resource Management. The employees are informed about the background of the company, explain about the organizational culture and values and work ethics and introduce to the other employees.
- **Training and development :-** Every employee goes under training program which helps him to put up a better performance on the job. Training program is also conducted for existing staff that have a lot of experience. This is called refresher training. Training and development is one area where the company spends a huge amount.
- **Performance appraisal :-** Once the employee has put in around 1 year of service, performance appraisal is conducted that is the Human Resource department checks the performance of the employee. Based on these appraisal future promotions, incentives, increments in salary are decided.

- **Compensation planning and remuneration :-** There are various rules regarding compensation and other benefits. It is the job of the Human Resource department to look into remuneration and compensation planning.
- **Motivation, welfare, health and safety :-** Motivation becomes important to sustain the number of employees in the company. It is the job of the Human Resource department to look into the different methods of motivation. Apart from this certain health and safety regulations have to be followed for the benefits of the employees. This is also handled by the HR department.
- **Industrial relations :-** Another important area of Human Resource Management is maintaining co-ordinal relations with the union members. This will help the organization to prevent strikes lockouts and ensure smooth working in the company.

Personnel Management:

Personnel Management - Personnel Management is basically an administrative record-keeping function, at the operational level. Personnel Management attempts to maintain fair terms and conditions of employment, while at the same time, efficiently managing personnel activities for individual departments etc. It is assumed that the outcomes from providing justice and achieving efficiency in the management of personnel activities will result ultimately in achieving organizational success.

Defines personnel management as the planning, organizing, and controlling of the procurement, development, compensation, integration and maintenance of people for the purpose of contributing to the organizational goals.

Personal management versus Human resource management:

HRM has a long history of growing from a simple welfare and maintenance function to that of a board level activity of the companies. In recent years, the focus on people management from human capital/intellectual capital perspective is also shaping firmly. However, the hard fact is that this growth can be generally witnessed in management literature and rarely in practice. Peripheral observation of people management in organization can mislead the observers since, hardly there could be any organization that is yet to rename its old fashioned title of industrial relations/ personnel /welfare/ administration department into HRM department. But, in practice, these organizations continue to handle the people management activities the way they had been handling earlier. The reasons for this could be many and varied. Among them, the potential reason is lack of clear understanding about the differences between personnel/IR and HRM

BASIS FOR COMPARISON	PERSONNEL MANAGEMENT	HUMAN RESOURCE MANAGEMENT
Meaning	The aspect of management that is concerned with the work force and their relationship with the entity is known as Personnel Management.	The branch of management that focuses on the most effective use of the manpower of an entity, to achieve the organizational goals is known as Human Resource Management.
Approach	Traditional	Modern
Treatment of manpower	Machines or Tools	Asset
Type of function	Routine function	Strategic function
Basis of Pay	Job Evaluation	Performance Evaluation
Management Role	Transactional	Transformational
Communication	Indirect	Direct
Labor Management	Collective Bargaining Contracts	Individual Contracts
Initiatives	Piecemeal	Integrated
Management Actions	Procedure	Business needs
Decision Making	Slow	Fast
Job Design	Division of Labor	Groups/Teams

**BASIS FOR
COMPARIS
ON****PERSONNEL MANAGEMENT****HUMAN RESOURCE MANAGEMENT**

Focus	Primarily on mundane activities like employee hiring, remunerating, training, and harmony.	Treat manpower of the organization as valued assets, to be valued, used and preserved.
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1. Personnel management function is often viewed as a function of the specialized staff.

Human resource management function is the responsibility of all the line managers in the organization.

2. Personnel management goal is employee orientation

Human resource management goal is organization orientation

3. Personnel management managerial function

Human resource management operative function

4. Personnel management cooperative level manager concern

Human resource management top level manager concern.

Personnel Management and Industrial Relations:

The word personnel management is popular with different names, such as staff management, labour management, manpower management, industrial relations and modern times as human resources management. Industrial relations refer to the relation between the employees and management.

Features in Personnel Management:

1. Personnel management is concerned with managing people at all level in the organization
2. It is concerned with employees both as individuals and as a group
3. It is a method of helping the employees to identify and develop their potential.
4. It is a method of channelising this potential for the attainment of organizational goals.

It is required in very organization, in the form of the services of the personnel manager.

Characteristics of personnel management:

Maximum individual development: This principle stresses on the development of every person working in an organization. Workers are able to fulfill the objectives of an organization with the minimum cost. Hence, the employees in the organization should be properly developed. By this, employees will be able to develop themselves to the maximum extent of their capabilities. Their ability, productivity and efficiency can be used for achieving the objectives of the organization.

Scientific selection: For the proper co-ordination between work and workers, it is necessary to select the right person for the right job. Workers should be selected after a careful weighing of the requirements of the jobs on the other hand, and assessment and evaluation of the abilities and attitudes of man on the other.

High morale: It is necessary to have high morale among the workers in an organization. For this purpose, ideal wage policy should be offered in the organization. Workers should be motivated by monetary and non-monetary incentives.

Dignity of labour: Human resource management specially act, so that the workers feel proud of their work or labour. Sometimes, like 'work is worship' notion should be developed in workers. This principle requires treating every job and every jobholder with dignity and respect.

Team spirit: Team spirit must be developed in the workers. They should work collectively and they should feel collective responsibility for the attainment of the objectives of the organization. For this purpose, workers must have the sense of cooperation, unity and mutual trust.

Effective communication: There must be effective channel of communication between the management and the workers. The orders of higher authorities should reach the workers, while worker's request and grievances should reach the higher authorities in a proper way. If communication system is not effective, then there will arise complex problem like mistrust, hatred and ill-will, and this in turn affects the production of the organization.

Fair remuneration: Labour should be given fair and proper compensation for the work they rendered. They should also be given fair incentives or rewards to recognize good performance. This develops industrial peace.

Effective utilization of human resources: The skills and abilities of human resources should be effectively utilized. Proper training facilities should be provided to workers. Human resource management is an art to get the work done by the people, to get the desired result. For this employees should be given humanly treatment in the organization.

Participation: This principle emphasizes the idea of labour participation in the management of the enterprise. Workers participation in management aims at increasing productivity of labour by improving co-operation between employer and employees.

Contribution to national prosperity: This principle stresses to provide a higher purpose of work to all employees and to contribute to national prosperity. For this purpose, human resource management should develop the sense of participation in labour to make them realize that their efforts alone can contribute to the prosperity of the organization and of the country

Human Resource Development

Human Resource Development is the part of human resource management that specifically deals with training and development of the employees in the organization.

Human resource development includes training a person after he or she is first hired, providing opportunities to learn new skills, distributing resources that are beneficial for the employee's tasks, and any other developmental activities.

INTRODUCTION

Development of human resources is essential for any organisation that would like to be dynamic and growth-oriented. Unlike other resources, human resources have rather unlimited potential capabilities. The potential can be used only by creating a climate that can continuously identify, bring to surface, nurture and use the capabilities of people. Human Resource Development (HRD) system aims at creating such a climate. A number of HRD techniques have been developed in recent years to perform the above task based on certain principles. This unit provides an understanding of the concept of HRD system, related mechanisms and the changing boundaries of HRD.

HRD concept was first introduced by **Leonard Nadler** in 1969 in a conference in US. "He defined HRD as those learning experience which are organized, for a specific time, and designed to bring about the possibility of behavioral change".

Human Resource Development (HRD) is the framework for helping employees develop their personal and organizational skills, knowledge, and abilities. Human Resource Development includes such opportunities as employee training, employee career development, performance management and development, coaching, mentoring, succession planning, key employee identification, tuition assistance, and organization development.

The focus of all aspects of Human Resource Development is on developing the most superior workforce so that the organization and individual employees can accomplish their work goals in service to customers.

Human Resource Development can be formal such as in classroom training, a college course, or an organizational planned change effort. Or, Human Resource Development can be informal as in employee coaching by a manager. Healthy organizations believe in Human Resource Development and cover all of these bases.

Definitions of HRD

HRD (Human Resources Development) has been defined by various scholars in various ways. Some of the important definitions of HRD (Human Resources Development) are as follows:

- According to **Leonard Nadler**, "Human resource development is a series of organised activities, conducted within a specialised time and designed to produce behavioural changes."
- In the words of **Prof. T.V. Rao**, "HRD is a process by which the employees of an organisation are helped in a continuous and planned way to (i) acquire or sharpen capabilities required to

perform various functions associated with their present or expected future roles; (ii) develop their journal capabilities as individual and discover and exploit their own inner potential for their own and /or organisational development purposes; (iii) develop an organisational culture in which superior-subordinate relationship, team work and collaboration among sub-units are strong and contribute to the professional well being, motivation and pride of employees." .

- According to **M.M. Khan**, "Human resource development is the across of increasing knowledge, capabilities and positive work attitudes of all people working at all levels in a business undertaking."

THE CONCEPT OF HUMAN RESOURCE DEVELOPMENT

Human resource development in the organisation context is a process by which the employees of an organisation are helped, in a continuous and planned way to:

1. Acquire or sharpen capabilities required to perform various functions associated with their present or expected future roles;
2. Develop their general capabilities as individuals and discover and exploit their own inner potentials for their own and/or organisational development purposes; and
3. Develop an organisational culture in which supervisor-subordinate relationships, teamwork and collaboration among sub-units are strong and contribute to the professional well being, motivation and pride of employees.

This definition of HRD is limited to the organisational context. In the context of a state or nation it would differ.

HRD is a process, not merely a set of mechanisms and techniques. The mechanisms and techniques such as performance appraisal, counselling, training, and organization development interventions are used to initiate, facilitate, and promote this process in a continuous way. Because the process has no limit, the mechanisms may need to be examined periodically to see whether they are promoting or hindering the process. Organisations can facilitate this process of development by planning for it, by allocating organisational resources for the purpose, and by exemplifying an HRD philosophy that values human beings and promotes their development.

Difference between HRD and HRM

Both are very important concepts of management specifically related with human resources of organisation. Human resource management and human resource development can be differentiated on the following grounds:

- The human resource management is mainly maintenance oriented whereas human resource development is development oriented.
- rganisation structure in case of human resources management is independent whereas human resource development creates a structure, which is inter-dependent and inter-related.
- Human resource management mainly aims to improve the efficiency of the employees whereas aims at the development of the employees as well as organisation as a whole.
- Responsibility of human resource development is given to the personnel/human resource management department and specifically to personnel manager whereas responsibility of HRD is given to all managers at various levels of the organisation.

- HRM motivates the employees by giving them monetary incentives or rewards whereas human resource development stresses on motivating people by satisfying higher-order needs.

THE NEED FOR HRD

HRD is needed by any organisation that wants to be dynamic and growth-oriented or to succeed in a fast-changing environment. Organisations can become dynamic and grow only through the efforts and competencies of their human resources. Personnel policies can keep the morale and motivation of employees high, but these efforts are not enough to make the organisation dynamic and take it in new directions. Employee capabilities must continuously be acquired, sharpened, and used. For this purpose, an “enabling” organisational culture is essential. When employees use their initiative, take risks, experiment, innovate, and make things happen, the organisation may be said to have an “enabling” culture.

Even an organisation that has reached its limit of growth, needs to adapt to the changing environment. No organisation is immune to the need for processes that help to acquire and increase its capabilities for stability and renewal.

HRD FUNCTIONS

The core of the concept of HRS is that of development of human beings, or HRD. The concept of development should cover not only the individual but also other units in the organisation. In addition to developing the individual, attention needs to be given to the development of stronger dyads, i.e., two-person groups of the employee and his boss. Such dyads are the basic units of working in the organisation. Besides several groups like committees, task groups, etc. also require attention. Development of such groups should be from the point of view of increasing collaboration amongst people working in the organisation, thus making for an effective decision-making. Finally, the entire department and the entire organisation also should be covered by development. Their development would involve developing a climate conducive for their effectiveness, developing self-renewing mechanisms in the organisations so that they are able to adjust and pro-act, and developing relevant processes which contribute to their effectiveness.

Hence, the goals of the HRD systems are to develop:

1. The capabilities of each employee as an individual.
2. The capabilities of each individual in relation to his or her present role.
3. The capabilities of each employee in relation to his or her expected future role(s).
4. The dyadic relationship between each employee and his or her supervisor.
5. The team spirit and functioning in every organisational unit (department, group, etc.).
6. Collaboration among different units of the organisation.
7. The organisation’s overall health and self-renewing capabilities which, in turn, increase the enabling capabilities of individuals, dyads, teams, and the entire organisation.

Features of Human Resource development

The essential features of human resource development can be listed as follows:

- Human resource development is a process in which employees of the organisations are recognized as its human resource. It believes that human resource is most valuable asset of the organisation.

- It stresses on development of human resources of the organisation. It helps the employees of the organisation to develop their general capabilities in relation to their present jobs and expected future role.
- It emphasise on the development and best utilization of the capabilities of individuals in the interest of the employees and organisation.
- It helps in establishing/developing better inter-personal relations. It stresses on developing relationship based on help, trust and confidence.
- It promotes team spirit among employees.
- It tries to develop competencies at the organisation level. It stresses on providing healthy climate for development in the organisation.
- HRD is a system. It has several sub-systems. All these sub-systems are inter-related and interwoven. It stresses on collaboration among all the sub-systems.
- It aims to develop an organisational culture in which there is good senior-subordinate relations, motivation, quality and sense of belonging.
- It tries to develop competence at individual, inter-personal, group and organisational level to meet organisational goal.
- It is an inter-disciplinary concept. It is based on the concepts, ideas and principles of sociology, psychology, economics etc.
- It form on employee welfare and quality of work life. It tries to examine/identify employee needs and meeting them to the best possible extent.
- It is a continuous and systematic learning process. Development is a life long process, which never ends.

Benefits of Human Resource Development

Human resource development now a days is considered as the key to higher productivity, better relations and greater profitability for any organisation. Appropriate HRD provides unlimited benefits to the concerned organisation. Some of the important benefits are being given here:

- HRD (Human Resource Development) makes people more competent. HRD develops new skill, knowledge and attitude of the people in the concern organisations.
- With appropriate HRD programme, people become more committed to their jobs. People are assessed on the basis of their performance by having a acceptable performance appraisal system.
- An environment of trust and respect can be created with the help of human resource development.
- Acceptability toward change can be created with the help of HRD. Employees found themselves better equipped with problem-solving capabilities.
- It improves the all round growth of the employees. HRD also improves team spirit in the organisation. They become more open in their behaviour. Thus, new values can be generated.

- It also helps to create the efficiency culture In the organisation. It leads to greater organisational effectiveness. Resources are properly utilised and goals are achieved in a better way.
- It improves the participation of worker in the organisation. This improve the role of worker and workers feel a sense of pride and achievement while performing their jobs.
- It also helps to collect useful and objective data on employees programmes and policies which further facilitate better human resource planning.
- Hence, it can be concluded that HRD provides a lot of benefits in every organisation. So, the importance of concept of HRD should be recognised and given a place of eminence, to face the present and future challenges in the organisation.

Functions of human resource Management:

Managerial Function

Planning

Organizing

Staffing

Motivating

Controlling

Operative Functions

Procurement of personnel

Development of personnel

Compensation of personnel

Employees benefits schemes

Maintaining good industrial relations

Record keeping

Personnel planning and evaluation

Personnel research and audit

Managerial Function:

Planning: It is concerned with manpower planning

1. To forecast future vacancies
2. To anticipate retirements promotions and transfer
3. Preparing job analysis, job description and job specifications
4. Analyzing resources of potential employees

Organizing: It is concerned with organizing manpower

1. To analysis organization structure
2. Recommending organizational changes
3. To analyze applications and determine suitability of candidates
4. Interviewing conducting test

5. Investigating references
6. Arranging medical examination

Staffing: Staffing comprises these are functions induction, transfer/promotion, Manpower development and training.

Induction: To ensure new recruits are provided with appropriate training,

1. Orienting new employees into their jobs
2. Reviewing their performances
3. Ascertaining training requirements

Transfer/Promotion: To utilize employees enhanced capabilities

1. Continuously analyzing job description
2. Evaluating employee qualification/performance
3. Determining further training requirement

Manpower development: To provide individual employees development

1. Developing performance standards
2. Appraising performance
3. Planning individual development program

Training: It includes the followings

1. Conducting training program
2. Evaluating training results

Motivating: Motivating comprises these are the functions payment recreation, communication, health and safety.

Payment: To set pay scales for different job positions and considering pay scales in other organization

1. Analyzing jobs as per job description
2. Evaluating such jobs
3. Develop scales

Recreation: To provide facilities for enjoyment

1. Conducting social activities
2. Sports and games
3. Recreational activities

Communication: To provide needed exchange of information throughout the organization.

1. Developing channels and media of information system
2. Introducing suggestion scheme
3. Conducting opinion surveys

Health and safety: Prevent diseases and provide security measures

1. Providing medical facilities
2. Providing safety measures

Controlling: Controlling comprises these are the functions performances appraisal, security, employees' attitude and coordination.

Performance appraisal: To appraise performance as per their duties and responsibilities

1. Developing performance evaluating system
2. Conducting performance evaluating interviews
3. Analyzing evaluation results

Security: To provide precautionary measure to prevent theft, fire etc.

1. To develop and implement security measures
2. To provide watchman
3. To organize fire fighting training

Employee attitude and coordination: To improve employees attitude and coordination of work.

1. Analyzing personal problems arrange consulting

2. Implement improved practices

Operative Functions:

Procurement of personnel: It deal with determination of man power requirement, their recruitment, selection, placement and orientation **Development of personnel:** After personnel have been obtained, they must to some degree be developed before going to work. Development has to do with the increase of skill, through training that is necessary for proper job performance.

Compensation of personnel: Compensation means, determination of adequate and equitable remuneration of personnel for their contribution to organization objectives.

Record keeping: In this system personnel manager collects and maintain information which is concerned with the staff of the organization

Personnel planning and evaluation: Under this system different types of activities are evaluated such as evaluation of performances personnel policy of an organization and its practices, personnel audit, moral survey and performance appraisal etc.

Personnel research and audit: This function is concerned with the research in motivational techniques and auditing.

Job Analysis: Job analysis can be defined as the process of identifying the tasks comprising a particular job to assess whether they could be organized in a productive manner. This will identify the main features of the job, the major tasks undertaken, the results to be achieved, and how one job is related to the other jobs in the organizational hierarchy. The product of job analysis is job description.

Job Description: Job description is an accurate and concise description of

(a) the overall purposes of the job (b) the principal duties of the person doing this job. The job description emphasizes the job requirements. Clear job description constitutes the basis for advertising the vacancy positions and for drawing up job specifications. Once individuals are selected to the posts, job description allows them to know exactly what their roles are and what is expected of them.

Job Specification

Job specification identifies the requirements on the part of the person to perform the given job. It provides the interviewer an understanding of the job and helps him to assess the qualities necessary for its performance to an acceptable standard, at the time of interview. This helps him to compare the performance of candidates objectively and to eliminate unsuitable candidates.

Manpower Planning: It is the scientific process of evolving the right quantity of right men to be required in future at right time on the right job.

Definition: Manpower planning may be defined as a rational method of assessing the requirements of human resources at different levels in the organization. It ends with proposals for recruitment, retention, or even dismissal, where necessary.

Objectives of Manpower Planning:

1. Making correct estimate of manpower requirement
2. Managing the manpower according to the need of enterprises
3. Helps in recruitment and selection
4. Maintaining production level
5. Making employees development programme effecting
6. Establishing industrial peace
7. Reduction in labour costs
8. Minimization of labour costs.

Recruitment: Applications are invited at this stage for further scrutiny and short listing. Before advertising for the position, it common to check up of the position could be filled in internally.

Selection: The process of identifying the most suitable persons for the organization is called selection. Selection is also called a negative function because at a stage the applications are screened and short-listed based on the selection criteria. The main purpose of selection is to choose the right person for the right job. The job analysis, job description, and job specifications are carried out before the position is advertised. These provide adequate insight about nature of the job, its description, and its specifications and further focus on what type of person is to be selected for a given position. These simplify the process of selection.

Selection process involves the following stages:

9. Initial screening/Short listing
10. Comprehensive application/bio data screening
11. Aptitude or written tests
12. Group discussion
13. Personal interviews
14. Group discussion
15. Personal interviews
16. Medical examination
17. Employment offer letter

Training and development

Training: Training is short-term process of utilizing systematic and organized procedure by which the staff acquires specific technical knowledge and functional skills for a definite purpose. The focus of training is the job or task.

Training Needs:

- High turnover among the new recruits
- Increase in wastage of materials
- Increase in the number of rejected units of production
- Increase in the number of customer complaints
- Increase in the accident rate
- Reduced productivity levels
- Increase in machine breakdowns

Methods of Training: There are two methods of training

- A. On-the job training
- B. Off-the job training

A) **On-the job training:** It is designed to make the employees immediately productive. It is learning by physically doing the work. The focus here is to provide specific skills in a real situation. These methods include:

1) **Job instruction training:** This is a method used for such jobs which can be performed with relatively low skill. Here, the trainees systematically acquire skills by following routine instructions in key processes from a qualified instructor.

2) **Experiential learning:** This is a modern approach to the learning process. This method is more . used for training the senior executives. It is a technique, which empowers the manager-trainee with the freedom of choice to act upon and the capacity to initiate, rather than simply respond, to circumstances.

3) **Demonstration:** Here, the work procedures are demonstrated to the trainees. Each of the trainees is asked to carry out the work, on a sample basis, based on his/her observation and understanding of the demonstration.

4) **Apprentice training:** Those who are selected to work in the shop floor are trained as apprentices in the factory for a brief period ranging from three months to one year, depending upon the complexity of the training. Those who show good progress in this training are likely to be absorbed in the same organization. Those who complete apprentice training are likely to get good jobs outside also.

B) Off-the-job training methods: provide a relatively broad idea relating to a given job or task. These are meant for developing an understanding of general principles, providing background knowledge, or generating an awareness of comparative ideas and practice. These methods include:

1) Lectures/talks and class room instructions: These techniques are designed to communicate specific interpersonal, technical, or problem-solving skills. Here, the trainer can maintain a tight control over learning. However, this method restricts the trainee's freedom to develop his/her own approaches to learning.

2) Conferences: Conferences refer to get-together of the experts from different areas of a given topic. These experts present their views based on their work experience and research results. When employees participate in such events they get a feel of the real world. They may also get motivated to perform better.

3) Seminars: Seminars are held periodically by the professional organisations for the benefit of all the practicing managers by taking into consideration the recent advances in a specialized area. Participation in such seminars enables the executives to get exposed to the recent developments in the area of their interest.

4) Team discussions: This technique develops team spirit among the executives from different departments. It also enables them to understand and appreciate each other's problems. It reinforces a feeling of unity among those who work towards common goals.

5) Case study: This is a predominant technique followed even in premier management institutes. This technique helps to provide an understanding of what has gone wrong in a particular case, such as Delhi Cloth Mills (DCM). Similarly, what are the factors responsible for the success of organizations such as Reliance or Hindustan Lever. Case study technique is a very good method of learning the principles and concepts. However, this method has one weakness. The circumstances you are likely to face in your life may be very different from the cases you have analyzed earlier! Case studies help to enhance the analytical & decision making skills.

5) Role-playing: The participants are assigned roles and are asked to react to one another, as they would do in their managerial jobs. These roles are eventually exchanged. In other words, each participant will get a turn to play all the roles. For instance, the role-playing in a grievance-handling situation involves two players: In the first step, the worker presents his grievance to the personnel manager. In the second step, the worker plays the role of the personnel manager while the personnel manager plays the role of the worker. Role-playing allows participants to understand problems of each other. It enhances the interpersonal-handling skills.

6) Programmed instruction: It is a system of instruction within which pre-established subject matter is broken into small, discrete steps and carefully organized into logical sequence in which, it can be learned by the trainee. Each step is built upon the previous one. The programmed instruction techniques can be in the form of programmed tests and manuals, or video displays. For instance, withdrawal of money through automatic teller machines (ATMs) involves responding to programmed instructions; working on a personal computer or internet involves responding to a series of programmed instructions.

7) Simulation exercises: These include interactive exercises in which trainees practice their skills on working models or in mock situations based on real-life situations.

8) Group decision-making: Group decision-making refers to the process of making decisions based on the opinions expressed by all the concerned — may be subordinates, peers, or outside consultants. The manager thus ensures that more people are involved in taking decisions. Each member of the group will accept the responsibility for the decisions made as he is a party to it. This method facilitates to generate more alternative solutions to a given problem because more people are involved in the thinking exercise. This facilitates coordination among the groups also.

Development: Development is an activity aimed at career growth rather than immediate performance. Employee development is the process, which helps him or her to understand and interpret knowledge rather than teaching a specific set of functional skills. Development, therefore, focuses more on employee's personal growth in the near future.

Placement: After training, the employee is placed in his/her position under the charge of a manager. The new recruit is allowed to exercise full authority and is held responsible for the results.

a) **Promotion:** Promotion refers to the advancement of an employee to a job with a higher authority and responsibility. It may also carry a better compensation package. Promotion can also be viewed as a means of filling up vacancies in the organization occurring from time to time.

b) **Demotion:** Where an employee is not in a position to perform a given job, he may be demoted or transferred to a position with a lower authority and salary. In other words, demotion is a punishment.

c) **Transfer:** It is a lateral shift that moves an individual employee from one position to another. It may be in the same department, or to a different department or location. This does not involve any changes in the duties, responsibilities, or skills needed. The salary benefits also may remain the same.

d) **Separation:** Separation refers to termination of employment. In other words, the employee is separated from his job. In case of misconduct or misbehavior, where the employee is not in a position to improve his performance despite notice, his/her employment is terminated. This is also called dismissal.

e) **Absenteeism:** Absenteeism refers to the practice of an employee who does not report to work for any particular reason. Absenteeism affects the productivity adversely. It becomes difficult for the departments to cope up with the work pressures, if any particular employee is absent. As a measure of control, the employees are not allowed to be absent without prior permission from the management.

Wages and Salary Administration: Wages and salary administration is the process of fixing wages/salary for different jobs in the organization through job evaluation, negotiations with the unions, and so on.

Grievance Handling: A complaint from employees, when ignored, takes the form of a grievance. Grievance is a complaint genuine or otherwise, about any issue relating to the job such as about supervisor, wages, working conditions and so on. It is necessary to create an in-build mechanism to redress the grievances, at the earliest, at the departmental level. If the individual grievances are ignored, they may take the form of industrial disputes.

Performance Appraisal: Performance appraisal is the process of measuring and evaluating the

performance or accomplishments, including behaviour, of an employee on the job front for a given period. The purpose is to assess the worth and value of a person to the organization. It is also meant for assessing his/her potential for future development in an objective manner.

Why appraise the performance:

1. To assess the employee's present level of performance
2. To identify the strengths or weaknesses of individual employee
3. To provide feedback to the employee so that he can improve his/her performance
4. To provide an objective basis for rewarding the employees for their performance
5. To motivate those employees who perform
6. To check and punish those employees who fail to perform
7. To identify the gaps in performance, and thus, assess training and development needs
8. To identify the employee's potential to perform
9. To provide a database for evolving succession strategies
10. To provide a basis for many other decisions such as fixation of incentives or increment, regularization or confirmation of the services of the employee, promotion, transfer or demotion.

Steps in performance Appraisal:

1. Create set up performance standards
2. Mutually set identifiable and measurable
3. Measure present level of performance
4. Compare and appraise present level of performance with standard
5. Discuss the appraisal with employee
6. Identify and initiate the corrective action

Job Evaluation: An attempt to determine and compare the demands which the normal performance of particular job makes on normal workers without taking account of the individual abilities or performance of workers concerned. It rates the job not the rank.

Objectives:

1. To establish correct wage differentials for all jobs within the factory
2. To bring new jobs into their proper relative with jobs previously established
3. To help clarify lines of authority, responsibility and promotion
4. To accomplish the foregoing by means of the facts and principles, which can be readily explained to and accepted by all concerned
5. To establish a general wage level for a given factory which will have parity with those of neighboring factories

Advantages:

1. It is simple, inexpensive and expeditious
2. It is easily understood and easily administered
3. It helps setting better rates than the arbitrary rates based purely on judgment and experience
4. Some unions prefer it, because it leaves more room for bargaining.

Disadvantages:

1. Job may be ranked on the basis of incomplete information and without the benefits of well defined standards
2. The rank position of different jobs is likely to be influenced by the prevailing wage ranks
3. No one committee member is likely to be familiar with all the jobs

Method of Job Evaluation: It is broadly be classified as

- 1) Qualitative Method
- 2) Quantitative Method

1) Qualitative Method: It can broadly be classified as ranking or classifying the job from lowest to highest.

A) Ranking technique: In this method, the jobs in the organization are arranged in either in the ascending or descending order and numbered serially. The basis of such arrangement could be the job description in terms of duties, responsibilities, qualifications needed, relative difficulty involved in don the job, or value to the company.

Points considered:

1. Amount of work involved

2. Supervision needed
3. Extent of responsibility required
4. Difficulties involved in the work
5. Work conditions required

b) Classification Method: This is also called job-grading method. Here, the number of grades and the salary particulars for each grade are worked out first. The grades are clearly described in terms of knowledge, skill and so on. Major steps for job evaluation:

1. Deciding the number of grades
2. Writing grade descriptions
3. Identifying/listing of the jobs to be evaluated
4. Preparing job descriptions

2) Quantitative Method: Where point values are assigned to the various demands of a job and relative value is obtained by summing all such point values.

a) Factor comparison method: Every job requires certain capabilities on the part of the person who does the job. These capabilities are considered as critical factors, which can be grouped as follows:

Mean effort Skill

Physical

Responsibility

Working conditions

Step involved in the factor comparison method:

Identify the key jobs

Rank the key job, factor by factor

Apportion the salary among each factor and rank the key jobs
Compare factor ranking of each job with its monetary ranking
Develop a monetary comparison scale

Evaluate non-key jobs based on the monetary comparison scale

b) Point-rating method: There are four widely accepted factors used in the point-rating method, skill, effort, responsibility and job conditions each of these factors is divided into sub-factors

Skills	-	1. Education and training
		2. Experience
		3. Judgment and initiative
Efforts	-	1. Physical
		2. Mental
Responsibility towards	-	1. Materials or product
		2. Equipment or process
		3. Safety of others
		4. Work of others

Merit Rating: Merit rating is the process of evaluating the relative merit of the person on a given job. It is an essential task of the personnel manager to distinguish the meritorious employees from the other. The data collected from this task is used for strategic decisions such as releasing an increment in pay, promotion, transfer, and transfer on promotion to a critical assignment or even discharge.

Objectives of Merit Rating:

- To determine salary increments
- To decide who has to be transferred, promoted, or demoted
- To discover the workers needs for retaining and advanced training
- To unfold the exceptional skills among the employees based on their innate potentials
- To guide and monitor the performance of those who are lagging behind.

Method of Merit Rating:

Ranking method: In this method, all the staff of a particular cadre or a department are arranged either in the ascending or the descending order in order of merit or value to the firm. Though this is a simple method, it cannot be followed where the employees in the department are many in number.

Paired comparison method: Here, every employee is compared with all others in a particular cadre in the department. By comparing each pair of employees, the rater can decide which of the employees is more valuable to the organization.

Rating scale: Here, the factors dealing with the quantity and quality of work are listed and rated. A numeric value may be assigned to each factor and the factors could be weighed in the order of their relative importance. All the variables are measured against a three or five point scale.

Forced distribution method: Here, employees are given a set of alternatives and they have to choose one, which reflects their understanding of the true nature of the job. Their thinking is conditioned by the given set of answers.

Narrative or essay method: Here, the candidate is required to narrate in an essay format his/her strengths, weaknesses, and potential to perform. Here, the candidate is not restricted by any given set of alternatives. The candidate is free to decide what to furnish or what not to furnish.

Management by objectives (MPO): The short-term objectives standards. This method considers the actual performance as the basis mutually agreed upon by the management and the employees are used as performance for evaluation. It is a systematic method of goal setting. In addition, it provides for reviewing performance based on results rather than personality traits or characteristics. However, this is not practical at all levels and for all kinds of work in the

organizations.

Capability Maturity Model levels

Capability Maturity Model is a bench-mark for measuring the maturity of an organization's software process. It is a methodology used to develop and refine an organization's **software development** process. CMM can be used to assess an organization against a scale of five process maturity levels based on certain Key Process Areas (KPA). It describes the maturity of the company based upon the project the company is dealing with and the clients. Each level ranks the organization according to its standardization of processes in the subject area being assessed.

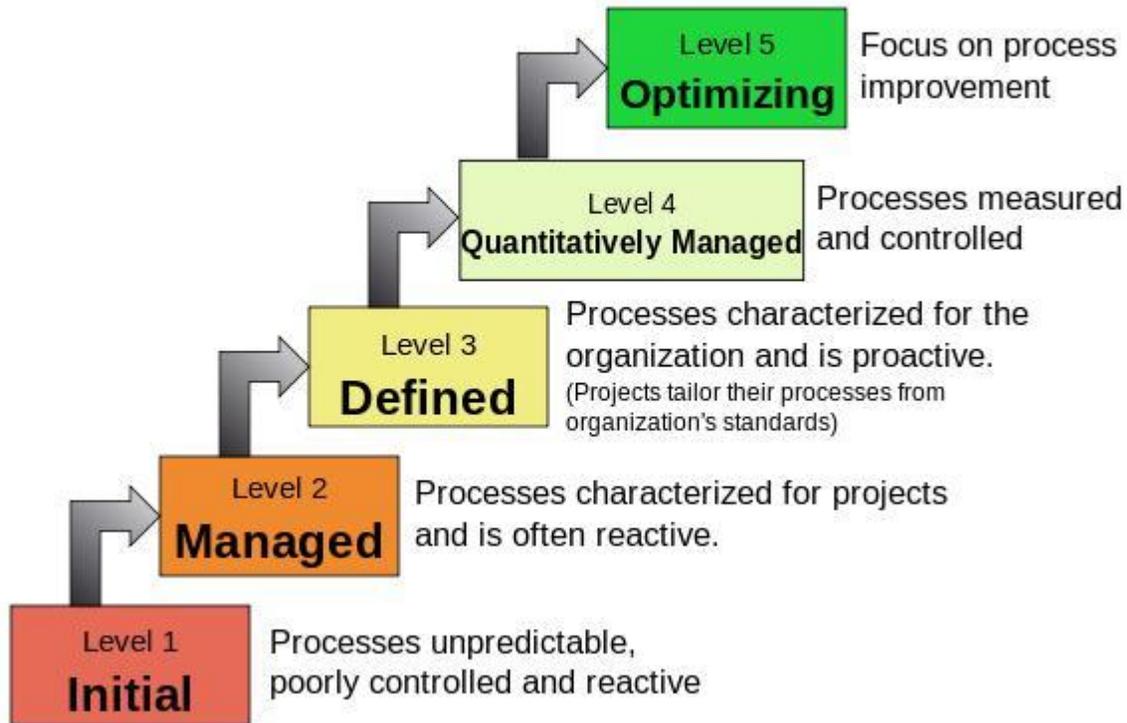
A maturity model provides:

- A place to start
- The benefit of a community's prior experiences
- A common language and a shared vision
- A framework for prioritizing actions
- A way to define what improvement means for your organization

In CMMI models with a staged representation, there are five maturity levels designated by the numbers 1 through 5 as shown below:

1. Initial
2. Managed
3. Defined
4. Quantitatively Managed
5. Optimizing

Characteristics of the Maturity levels



Maturity levels consist of a predefined set of process areas. The maturity levels are measured by the achievement of the **specific** and **generic goals** that apply to each predefined set of process areas. The following sections describe the characteristics of each maturity level in detail.

What happens at different levels of CMM?

Levels	Activities	Benefits
Level 1 Initial	<ul style="list-style-type: none"> At level 1, process is usually chaotic and ad hoc Capability is characterized on the basis of the individuals and not of the organization Progress not measured Products developed are often schedule and over budget Wide variations in schedule, cost, 	None. Project is Total Chaos

functionality and quality targets

Level 2
Managed

- Requirement Management
- Estimate project parameters like cost, schedule, and functionality
- Measure actual progress
- Develop plans and process
- Software project standards are defined
- Identify and control products, problem reports changes, etc.
- Processes may differ between projects
- Processes become easier to comprehend
- Managers and team members spend less time in explaining how things are done and more time in executing it
- Projects are better estimated, better planned and more flexible
- Quality is integrated into projects
- Costing might be high initially but goes down overtime
- Ask more paperwork and documentation

UNIT-4 Project Management¹

A project is any sort of planned undertaking

All of us have been involved in projects, whether they be our personal projects or in business and industry. Examples of typical projects are for example:

- Personal projects:
 - obtain an MBA
 - write a report
 - plan a wedding
 - plant a garden
 - build a house extension
- Industrial projects:
 - construct a building
 - provide a gas supply to an industrial estate
 - build a motorway
 - design a new car
- Business projects:
 - develop a new course
 - develop a new course
 - develop a computer system
 - introduce a new product
 - prepare an annual report
 - set up a new office

Projects can be of any size and duration. They can be simple, like planning a party, or complex like launching a space shuttle.

Generally projects are made up of:

- a defined beginning,
- multiple activities which are performed to a plan,
- a defined end.

Therefore a project may be defined as a means of moving from a problem to a solution via a series of planned activities.

- A project is a means of moving from a problem to a solution via a series of planned activities.
- A project has a definite beginning and end.
- Projects consist of several activities.

Two essential features are present in every project no matter how simple or complicated they are. In the first place, all projects must be *planned* out in advance if they are to be successfully executed. Secondly, the execution of the project must be *controlled* to ensure that the desired results are achieved.

On most projects it is possible to carry out multiple activities simultaneously. Usually it is possible to perform several activities at the same time, however there will be activities which cannot begin until a preceding activity has been completed. Such relationships are referred to as dependencies or precedencies, and when planning a project it is important to establish the order of precedence of dependent activities, and to establish those activities which can be performed in parallel with other activities.

Regardless of the nature or size of your project a successful outcome can only be achieved by using sound project management techniques. The most widely used and popular methods of project management are Gantt Charts, Critical Path Method (CPM) and Programme Evaluation and Review Technique (PERT). However, it is important to remember that projects are carried out by people, and the human aspects of project management are critical for the project success.

Terminology and Definitions

A ***project*** is an interrelated set of activities that has a definite starting and ending point and results in the accomplishment of a unique, often major outcome. "Project management" is, therefore, the planning and control of events that, together, comprise the project. Project management aims to ensure the effective use of resources and delivery of the project objectives on time and within cost constraints.

An ***activity*** or task is the smallest unit of work effort within the project and consumes both time and resources which are under the control of the project manager. A project is a sequence of activities that has a definite start and finish, an identifiable goal and an integrated system of complex but interdependent relationships.

A ***schedule*** allocates resources to accomplish the activities within a timeframe. The schedule sets priorities, start times and finish times.

Project management is:

the adept use of techniques and skills (hard and soft) in planning and controlling tasks and resources needed for the project, from both inside and outside of organisation, to achieve results.

The purpose of project management is to achieve successful project completion with the resources available. A successful project is one which:

- has been finished on time
- is within its cost budget
- performs to a technical/performance standard which satisfies the end user.

Features of projects

- Projects are often carried out by a team of people who have been assembled for that specific purpose. The activities of this team may be co-ordinated by a project manager.
- Project teams may consist of people from different backgrounds and different parts of the organisation. In some cases project teams may consist of people from different organisations.
- Project teams may be inter-disciplinary groups and are likely to lie outside the normal organisation hierarchies.
- The project team will be responsible for delivery of the project end product to some sponsor within or outside the organisation. The full benefit of any project will not become available until the project has been completed.

In recent years more and more activities have been tackled on a project basis. Project teams and a project management approach have become common in most organisations. The basic approaches to project management remain the same regardless of the type of project being considered. You may find it useful to consider projects in relation to a number of major classifications:

a) **Engineering and construction**

The projects are concerned with producing a clear physical output, such as roads, bridges or buildings. The requirements of a project team are well defined in terms of skills and background, as are the main procedures that have to be undergone. Most of the problems which may confront the project team are likely to have occurred before and therefore their solution may be based upon past experiences.

b) **Introduction of new systems**

These projects would include computerisation projects and the introduction of new systems and procedures including financial systems. The nature and constitution of a project team may vary with the subject of the project, as different skills may be required and different end-users may be involved. Major projects involving a systems analysis approach may incorporate clearly defined procedures within an organisation.

c) **Responding to deadlines and change**

An example of responding to a deadline is the preparation of an annual report by a specified date. An increasing number of projects are concerned with designing organisational or environmental changes, involving developing new products and services.

Responsibilities of the Project Manager

1. To plan thoroughly all aspects of the project, soliciting the active involvement of all functional areas involved, in order to obtain and maintain a realistic plan that satisfies their commitment for performance.
2. To control the organization of manpower needed by the project.
3. To control the basic technical definition of the project, ensuring that "technical" versus "cost" trade-offs determine the specific areas where optimisation is necessary.
4. To lead the people and organizations assigned to the project at any given point in time. Strong positive leadership must be exercised in order to keep the many disparate elements moving in the same direction in a co-operative.
5. To monitor performance, costs and efficiency of all elements of the project and the project as a whole, exercising judgement and leadership in determining the causes of problems and facilitating solutions.
6. To complete the project on schedule and within costs, these being the overall standard by which performance of the project manager is evaluated.

Gantt Charts

A Gantt Chart is a simple technique that can be used to attach a time scale and sequence to a project.

A Gantt Chart is a form of horizontal bar chart and horizontal bars are drawn against a time scale for each project activity, the length of which represents the time taken to complete. To construct a Gantt Chart the following steps are necessary:

- 1) Use the horizontal axis to represent time
- 2) Use the vertical axis to represent activities
- 3) Represent each activity by a horizontal bar of appropriate length

- 4) Take activity procedures into account by starting each activity bar to an appropriate point along the time axis after its preceding activities. Normally the start point for an activity is the earliest time that it could start after its preceding activities had finished.

It is possible to enhance the Gantt Chart in several ways. For instance the number of staff required to do a task can be entered into the bar on the diagram.

Gantt charts, also commonly known as milestone plans, are a low cost means of assisting the project manager at the initial stages of scheduling. They ensure that:

1. all activities are planned for,
2. the sequence of activities is accounted for,
3. the activity time estimates are recorded; and
4. the overall project time is recorded.

They are therefore a simple, rough and ready means of planning a project and assessing progress and are sufficient for most simple projects.

However, where projects become complex, it becomes difficult to see relationships between activities by using a Gantt Chart. For more complex projects Network Analysis techniques are used.

Gantt charts also provide a summary of the project as a whole and can be used as a rough and ready means of assessing progress at the project control phase. At any date, the project manager can draw a dateline through the Gantt chart and see which activities are on-time, which are behind schedule and generally record project status against plan.

Gantt charts, named after Henry L. Gantt, one of the pioneers of scientific management, are a useful means of representing a schedule of activities comprising a project and enable the operations manager to know exactly what activities should be performed at a given time and, more importantly, to monitor daily progress of a project so that corrective action may be taken when necessary.

To construct a Gantt chart, the various activities are listed on a vertical axis and the horizontal axis is used to represent time. Activity precedencies are taken into account by starting a horizontal bar to represent the next activity at an appropriate point after its preceding activities, i.e. those activities which must take place before the next activity can start, have taken place. Normally this would be at the earliest time that it could start after its preceding activities had finished.

Example:

Suppose a project comprises five activities: A,B,C,D, and E. A and B have no preceding activities, but activity C requires that activity B must be completed before it can begin. Activity D cannot start until both activities A and B are complete. Activity E requires activities A and C to be completed before it can start. If the activity times are A: 9 days; B: 3 days; C: 9 days; D: 5 days; and E: 4 days,

- i) determine the shortest time necessary to complete this project.
- ii) identify those activities which are critical in terms of completing the project in the shortest possible time.

Solution:

The figure below indicates the form that a Gantt chart would take from the above information.



The above chart shows that activities A and B have no preceding activities and so can start right away. Activity C requires Activity B to have been completed before it can begin. The chart is then completed using such precedence relationships as listed in the question, with each horizontal bar being proportional in length to the activity time that it represents.

Looking at the chart it is apparent that the project ends when activity E has been completed.

Working back in time from activity E the "steps" which are crucial or critical in order to ensure that the project duration does not extend beyond the planned length are: E,C and B. The shortest time in which the project could be completed from the given information is therefore 16 days. The

set of activities B,C and E which together determine the project duration are referred to as the **critical path** through the chart.

Those activities forming the critical path can be highlighted on the Gantt chart to help the operations manager to give priority to them if lack of resources mean that such decisions have to be made.

It is important to realize though that activities not on the critical path can become so if they are allowed to drift too far. How far could activities A and D drift before they affected the duration of the project?

Provided the project is not too complex in its activity relationships or simply too big to be mapped on reasonably sized graph paper, Gantt charts can be very useful tools for the project manager and are graphically superior to the network analysis methods of CPM and PERT. They allow the critical activities to be found, i.e. those activities which must be performed on time if the project duration is not to increase, and any "slack" or "float" in the sequence of activities can easily be shown.

Examples of Gantt charts

1. A project comprises the following activities:

Activity	Immediate Predecessors	Activity Time (days)
A	-	12
B	-	6
C	A	13
D	A, B	12
E	C, D	11
F	D	13
G	E, F	11

- Construct a Gantt chart which will provide an overview of the planned project.
- How soon could the project be completed?
- Which activities need to be completed on time in order to ensure that the project is completed as soon as possible?

2. A project has the following activity details:

Activity	Immediate Predecessors	Activity Time (weeks)
A	-	3
B	-	4
C	-	3
D	C	12
E	B	5
F	A	7
G	E, F	3

Draw a Gantt chart to represent the project; determine those activities comprising the critical path; and estimate the project duration

3. The following information is available on a management project:

Activity	Immediate Predecessors	Duration (Days)	Staff Required (per day)
A	-	3	6
B	-	5	3
C	B	2	4
D	A	1	4
E	A	6	5
F	D	3	6
G	D, E	3	3

At present you have nine staff available. Temporary staff can be hired at a rate of £100 per day.

- 1) Draw a Gantt Chart to show the shortest time it will take to complete the project.
- 2) If the project is to finish on time, how many temporary staff are required, and at what cost?

Network Analysis

Introduction to PERT and CPM

The two most common and widely used project management techniques that can be classified under the title of Network Analysis are Programme Evaluation and review Technique (PERT) and Critical Path Method (CPM). Both were developed in the 1950's to help managers schedule, monitor and control large and complex projects. CPM was first used in 1957 to assist in the development and building of chemical plants within the DuPont corporation. Independently developed, PERT was introduced in 1958 following research within the Special Projects Office of the US Navy. It was initially used to plan and control the Polaris missile programme which involved the coordination of thousands of contractors. The use of PERT in this case was reported to have cut eighteen months off the overall time to completion.

The PERT/CPM Procedure

There are six stages common to both PERT and CPM:

1. Define the project and specify all activities or tasks.
2. Develop the relationships amongst activities. Decide upon precedences.
3. Draw network to connect all activities.
4. Assign time and/or costs to each activity.
5. Calculate the longest time path through the network: this is the "critical path".
6. Use network to plan, monitor and control the project.

Finding the critical path (step 5) is a major in controlling a project. Activities on the critical path represent tasks which, if performed behind schedule, will delay the whole project. Managers can derive flexibility by identifying the non-critical activities and replanning, rescheduling and reallocating resources such as manpower and finances within identified boundaries.

PERT and CPM differ slightly in their terminology and in network construction. However their objectives are the same and, furthermore, their project analysis techniques are very similar. The

major difference is that PERT employs three time estimates for each activity. Probabilities are attached to each of these times which, in turn, is used for computing expected values and potential variations for activity times. CPM, on the other hand, assumes activity times are known and fixed, so only one time estimate is given and used for each activity. Given the similarities between PERT and CPM, their methods will be discussed together. The student will then be able to use either, deciding whether to employ variable (PERT) or fixed (CPM) time estimates within the network.

PERT and CPM can help to answer the following questions for projects with thousands of activities and events, both at the beginning of the project and once it is underway:

- When will the project be completed?
- What are the critical activities (i.e.: the tasks which, if delayed, will effect time for overall completion)?
- Which activities are non-critical and can run late without delaying project completion time?
- What is the probability of the project being completed by a specific date?
- At any particular time, is the project on schedule?
- At any particular time, is the money spent equal to, less than or greater than the budgeted amount?
- Are there enough resources left to complete the project on time?
- If the project is to be completed in a shorter time, what is the least cost means to accomplish this and what are the cost consequences?

Critical Path Analysis

The objective of critical path analysis is to determine times for the following:

- **ES = Earliest Start Time.** This is the earliest time an activity can be started, allowing for the fact that all preceding activities have been completed.
- **LS = Latest Start Time.** This is the latest time an activity can be started without delaying the start of following activities which would put the entire project behind schedule.
- **EF = Earliest Finish Time.** The earliest time an activity can be finished.
- **LF = Latest Finish Time.** The latest time that an activity can finish for the project to remain on schedule.
- **S = Activity Slack Time.** The amount of slippage in activity start or duration time which can be tolerated without delaying the project as a whole.

If ES and LS for any activity is known, then one can calculate values for the other three times as follows:

$$EF = ES + t$$

$$LF = LS + t$$

$$S = LS - ES \text{ or } S = LF - EF$$

Analysis of the project normally involves:

1. Determining the Critical Path. The critical path is the group of activities in the project that have a slack time of zero. This path of activities is critical because a delay in any activity along it would delay the project as a whole.
2. Calculating the total project completion time, T. This is done by adding the activity times of those activities on the critical path.

The steps in critical path analysis are as follows:

- a) Determine ES and EF values for all activities in the project: the Forward Pass through the network.
- b) Calculate LS and LF values for all activities by conducting a Backward Pass through the network.
- c) Identify the critical path which will be those activities with zero slack (i.e.: $ES=LS$ and $EF=LF$).
- d) Calculate total project completion time.

PERT and Activity Time Estimation

The major distinguishing difference between PERT and CPM is the use of three time estimates for each activity in the PERT technique, with CPM using only one time for each activity using CPM.

The three time estimates specified for each activity in PERT are:

- i) the optimistic time;
- ii) the most probable time; and
- iii) the pessimistic time.

The optimistic, most likely and pessimistic time estimates are used to calculate an expected activity completion time which, because of the skewed nature of the beta distribution, is marginally greater than the most likely time estimate. In addition, the three time estimates can be used to calculate the variance for each activity. The formulae used are as follows:

$$t = \frac{o+4m+p}{6}$$

$$v = \left(\frac{p-o}{6} \right)^2$$

Where:

o, m, p - optimistic, most likely, and pessimistic times

t - expected completion time for task

v - variance of task completion time

Knowing the details of a project, its network and values for its activity times (t) and their variances (v) a complete PERT analysis can be carried out. This includes the determination of the ES, EF, LS, LF and S for each activity as well as identifying the critical path, the project completion time (T) and the variance (V) for the entire project.

Normally when using PERT, the expected times (t) are calculated first from the three values of activity time estimates, and it is these values of t that are then used exactly as before in CPM. The variance values are calculated for the various activity times and the variance of the total project

completion time (i.e. the sum of the activity expected times of those activities on the critical path) is the sum of the variances of the activities lying on that critical path.

Probability Analysis

Once the expected completion time and variance (T and V) have been determined, the probability that a project will be completed by a specific date can be assessed. The assumption is usually made that the distribution of completion dates follows that of a normal distribution curve.

Consider the example where the expected completion time for a project (T) is 20 weeks and the project variance (V) is 100. What is the probability that the project will be finished on or before week 25?

Answer: 0.69

Worked Examples on Networks

1. A project has the following activities, precedence relationships, and activity durations:

Activity	Immediate Predecessors	Activity Duration (weeks)
A	-	3
B	-	4
C	-	3
D	C	12
E	B	5
F	A	7
G	E, F	3

- a) Draw a Gantt chart for the project.
- b) Construct a CPM network for the project.
- c) Identify those activities comprising the critical path.
- d) What is the project's estimated duration?
- e) Construct a table showing for each activity, its activity duration, earliest start time, latest start time, earliest finish time, latest finish time, and the activity slack.

Answers:

- c) C, D
- d) 15 weeks

2. A project designed to refurbish a hospital operating theatre consists of the following activities, with estimated times and precedence relationships shown. Using this information draw a network diagram, determine the expected time and variance for each activity, and estimate the probability of completing the project within sixty days.

Activity	Immediate Predecessors	Optimistic Time	Most Likely Time	Optimistic Time
A	-	5	6	7
B	-	10	13	28
C	A	1	2	15
D	B	8	9	16
E	B, C	25	36	41
F	D	6	9	18

3. An activity has these time estimates: optimistic time $o = 15$ weeks, most likely time $m = 20$ weeks, and pessimistic time $p = 22$ weeks.

- a) calculate the activity's expected time or duration t .
- b) calculate the activity's variance v .
- c) calculate the activity's standard deviation.

4. A project has the following activities, precedence relationships, and time estimates in weeks:

Activity	Immediate Predecessors	Optimistic Time	Most Likely Time	Optimistic Time
A	-	15	20	25
B	-	8	10	12
C	A	25	30	40
D	B	15	15	15
E	B	22	25	27
F	E	15	20	22
G	D	20	20	22

- Calculate the expected time or duration and the variance for each activity.
- Construct the network diagram
- Tabulate the values of ES,EF,LS,LF and slack for each activity
- Identify the critical path, and the project duration.
- What is the probability that the project will take longer than 57 weeks to complete?

5. The project detailed below has the both normal costs and "crash" costs shown. The crash time is the shortest possible activity time given that extra resources are allocated to that activity.

Activity	Immediate Predecessors	Normal Time	Normal Time Cost (£)	Crash Time	Crash Time Cost (£)
A	-	5	2 000	4	6 000
B	A	8	3 000	6	6 000
C	B	2	1 000	2	1 000
D	B	3	4 000	2	6 000
E	C	9	5 000	6	8 000
F	C, D	7	4 500	5	6 000
G	E, F	4	2 000	2	5 000

Assuming that the cost per day for shortening each activity is the difference between crash costs and normal costs, divided by the time saved, determine by how much each activity should be shortened so as to complete the project within twenty-six days and at the minimum extra cost.

UNIT-5

INTRODUCTION TO STRATEGIC MANAGEMENT

Corporate Planning: Corporate planning refers to the process of planning undertaken by top management to achieve their organization goals.

Two significant phases incorporate planning:

1. Environmental Scanning
2. Strategy formulation and implementation

Mission is the guiding force for all the activities here. The first step in the process of achievement of the mission is to break the mission in to objectives, strategies and programme have to be formulated and implemented to achieve the given objectives which would eventually lead to the fulfillment of mission.

WHAT IS VMOGSA?

VMOGSA (Vision, Mission, Objectives, goals, Strategies, and Action Plans) is a practical planning process used to help community groups define a vision and develop practical ways to enact change. VMOGSA helps your organization set and achieve short term goals while keeping sight of your long term vision. Implementing this planning process into your group's efforts supports developing a clear mission, building consensus, and grounding your group's dreams. This section explores how and when to implement VMOGSA into your organization's planning process.

One way to make that journey is through strategic planning, the process by which a group defines its own "VMOGSA;" that is, its **V**ision, **M**ission, **O**bjectives, goals, **S**trategies, and **A**ction Plans. VMOGSA is a practical planning process that can be used by any community organization or initiative. This comprehensive planning tool can help your organization by providing a blueprint for moving from dreams to actions to positive outcomes for your community.

In this section, we will give a general overview of the process, and touch briefly on each of the individual parts. In Examples, we'll show you how an initiative to prevent adolescent pregnancy used the VMOGSA process effectively. Then, in Tools, we offer you a possible agenda for a planning retreat, should your organization decide to use this process. Finally, the remaining sections in this chapter will walk you through the steps needed to fully develop each portion of the process.

WHY SHOULD YOUR ORGANIZATION USE VMOGSA?

Why should your organization use this planning process? There are many good reasons, including all of the following:

- The VMOGSA process grounds your dreams. It makes good ideas possible by laying out what needs to happen in order to achieve your vision.
- By creating this process in a group effort (taking care to involve both people affected by the problem and those with the abilities to change it), it allows your organization to build consensus around your focus and the necessary steps your organization should take.
- The process gives you an opportunity to develop your vision and mission together with those in the community who will be affected by what you do. That means that your work is much more likely to address the community's real needs and desires, rather than what you think they might be. It also means community ownership of the vision and mission, putting everyone on the same page and greatly increasing the chances that any effort will be successful.
- VMOGSA allows your organization to focus on your short-term goals while keeping sight of your long-term vision and mission.

WHEN SHOULD YOU USE VMOGSA?

So, when should you use this strategic planning process? Of course, it always makes sense for your organization to have the direction and order it gives you, but there are some times it makes particularly good sense to use this process. These times include:

- When you are starting a new organization.
- When your organization is starting a new initiative or large project, or is going to begin work in a new direction.
- When your group is moving into a new phase of an ongoing effort.
- When you are trying to invigorate an older initiative that has lost its focus or momentum.
- When you're applying for new funding or to a new funder. It's important under these circumstances to clarify your vision and mission so that any funding you seek supports what your organization actually stands for. Otherwise, you can wind up with strings attached to the money that require you to take a direction not in keeping with your organization's real purpose or philosophy.

Let's look briefly at each of the individual ingredients important in this process. Then, in the next few sections we'll look at each of these in a more in-depth manner, and explain how to go about developing each step of the planning process.

VISION (THE DREAM)

Your vision communicates what your organization believes are the ideal conditions for your community – how things would look if the issue important to you were perfectly addressed. This utopian dream is generally described by one or more phrases or vision statements, which are brief proclamations that convey the community's dreams for the future. By developing a vision statement, your organization makes the beliefs and governing principles of your organization clear to the greater community (as well as to your own staff, participants, and volunteers).

There are certain characteristics that most vision statements have in common. In general, vision statements should be:

- Understood and shared by members of the community
- Broad enough to encompass a variety of local perspectives
- Inspiring and uplifting to everyone involved in your effort
- Easy to communicate - for example, they should be short enough to fit on a T-shirt

Here are a few vision statements which meet the above criteria:

- Healthy children
- Safe streets, safe neighborhoods
- Every house a home
- Education for all
- Peace on earth

MISSION (THE WHAT AND WHY)

Mission:

Mission or purpose: This is also called overall objective or overall goal. The mission or purpose identifies the basic function or task of an enterprise or agency or of any part of it. Every kind of organized operation has, or at least should have if it is to be meaningful, purpose or mission.

Some writes distinguish between purpose and mission. While a business for example may have a social purpose of producing and distributing goods and services. It can accomplish this by fulfilling a mission of producing certain line of products.

Developing *mission statements* are the next step in the action planning process. An organization's mission statement describes *what* the group is going to do, and *why* it's going to do that. Mission statements are similar to vision statements, but they're more concrete, and they are definitely more "action-oriented" than vision statements. The mission might refer to a problem, such as an inadequate housing, or a goal, such as providing access to health care for everyone. And, while they don't go into a lot of detail, they start to hint - very broadly - at *how* your organization might go about fixing the problems it has noted. Some general guiding principles about mission statements are that they are:

- *Concise.* Although not as short a phrase as a vision statement, a mission statement should still get its point across in one sentence.
- *Outcome-oriented.* Mission statements explain the overarching outcomes your organization is working to achieve.
- *Inclusive.* While mission statements do make statements about your group's overarching goals, it's very important that they do so very broadly. Good mission statements are not limiting in the strategies or sectors of the community that may become involved in the project.

The following mission statements are examples that meet the above criteria.

- "To promote child health and development through a comprehensive family and community initiative."
- "To create a thriving African American community through development of jobs, education, housing, and cultural pride."
- "To develop a safe and healthy neighborhood through collaborative planning, community action, and policy advocacy."

While vision and mission statements themselves should be short, it often makes sense for an organization to include its deeply held beliefs or philosophy, which may in fact define both its work and the organization itself. One way to do this without sacrificing the directness of the vision and mission statements is to include guiding principles as an addition to the statements. These can lay out the beliefs of the organization while keeping its vision and mission statements short and to the point.

OBJECTIVES (HOW MUCH OF WHAT WILL BE ACCOMPLISHED BY WHEN)

Objectives: Objective are the ends towards which activities is aimed-they are results to be achieved. They represent not only the end point of planning but the end toward which point of planning but the end toward which organizing, staffing, leading and controlling are aimed. While enterprises objectives are basic plan of firm a department may also have its own objectives

Once an organization has developed its mission statement, its next step is to develop the specific objectives that are focused on achieving that mission. Objectives refer to specific measurable results for the initiative's broad goals. An organization's objectives generally lay out how much of what will be accomplished by when. For example, one of several objectives for a community initiative to promote care and caring for older adults might be: "By 2015 (by when), to increase by 20% (how much) those elders reporting that they are in daily contact with someone who cares about them (of what)."

There are three basic types of objectives. They are:

- *Behavioral objectives.* These objectives look at changing the behaviors of people (what they are doing and saying) and the products (or results) of their behaviors. For example, a neighborhood improvement group might develop an objective around having an increased amount of home repair taking place (the behavior) or of improved housing (the result).

- *Community-level outcome objectives.* These are related to behavioral outcome objectives, but are more focused more on a community level instead of an individual level. For example, the same group might suggest increasing the percentage of decent affordable housing in the community as a community-level outcome objective.
- *Process objectives.* These are the objectives that refer to the implementation of activities necessary to achieve other objectives. For example, the group might adopt a comprehensive plan for improving neighborhood housing.

It's important to understand that these different types of objectives aren't mutually exclusive. Most groups will develop objectives in all three categories. Examples of objectives include:

- By December 2010, to increase by 30% parent engagement (i.e., talking, playing, reading) with children under 2 years of age. (*Behavioral objective*)
- By 2012, to have made a 40% increase in youth graduating from high school. (*Community -level outcome objective*)
- By the year 2006, increase by 30% the percentage of families that own their home. (*Community-level outcome objective*)
- By December of this year, implement the volunteer training program for all volunteers. (*Process objective*)

Goal: It goals naturally contribute to the attainment of enterprises objectives but the two sets of goals may entirely different.

For example: The objective of a business might be to make a certain profit by producing a given line of home entertainment equipment, while the goal of the manufacture department might be to produce the required number of television sets of given design and quality at a given cost.

STRATEGIES (THE HOW)

Strategies: “Plan of Action”

1. General programs of action and development of resources to attain comprehensive objectives.
2. The program of objectives of an organization and their changes, resources used to attain these objectives.
3. The determination of basic long-term objectives of an enterprise and adoption of courses of action and allocation of resources necessary to achieve the goals.

Strategies explain how the initiative will reach its objectives. Generally, organizations will have a wide variety of strategies that include people from all of the different parts, or sectors, of the community. These strategies range from the very broad, which encompass people and resources from many different parts of the community, to the very specific, which aim at carefully defined areas.

Examples of broad strategies include:

- A child health program might use social marketing to promote adult involvement with children
- An adolescent pregnancy initiative might decide to increase access to contraceptives in the community
- An urban revitalization project might enhance the artistic life of the community by encouraging artists to perform in the area

Five types of specific strategies can help guide most interventions. They are:

- Providing information and enhancing skills (e.g., offer skills training in conflict management)
- Enhancing services and support (e.g., start a mentoring programs for high-risk youth)
- Modify access, barriers, and opportunities (such as offering scholarships to students who would be otherwise unable to attend college)

- Change the consequences of efforts (e.g., provide incentives for community members to volunteer)
- Modify policies (e.g., change business policies to allow parents and guardians and volunteers to spend more time with young children)

ACTION PLAN (WHAT CHANGE WILL HAPPEN; WHO WILL DO WHAT BY WHEN TO MAKE IT HAPPEN)

Finally, an organization's action plan describes in great detail exactly how strategies will be implemented to accomplish the objectives developed earlier in this process. The plan refers to: a) specific (community and systems) changes to be sought, and b) the specific action steps necessary to bring about changes in all of the relevant sectors, or parts, of the community.

The key aspects of the intervention or (community and systems) changes to be sought are outlined in the action plan. For example, in a program whose mission is to increase youth interest in politics, one of the strategies might be to teach students about the electoral system. Some of the action steps, then, might be to develop age-appropriate materials for students, to hold mock elections for candidates in local schools, and to include some teaching time in the curriculum.

Action steps are developed for each component of the intervention or (community and systems) changes to be sought. These include:

- Action step(s): What will happen
- Person(s) responsible: Who will do what
- Date to be completed: Timing of each action step
- Resources required: Resources and support (both what is needed and what's available)
- Barriers or resistance, and a plan to overcome them!
- Collaborators: Who else should know about this action

Your action plan will need to be tried and tested and revised, then tried and tested and revised again. You'll need to obtain feedback from community members, and add and subtract elements of your plan based on that feedback.

Policy: Policy a broad guideline set by the top management for the purpose of making decisions at different levels in the organization, once the corporate objectives are established policies can be formulated organization policy reflects the owner's attitude to different segments such a creditors the employees, customers and society at large.

Programmes: Programmes refer to the logical sequence of operations to be performed in a given project based on a set of goals, policies, procedures, rules and task assignments. They are used carry out a given course of action.

Purpose: A strategy is an operational tool to achieve the goals, and thus, the corporate mission. Strategies do no attempt to outline exactly how the enterprise is to accomplish its objective. A company may view downsizing in a competitive market to render cost effective services. Thus, strategy provides a frame work to guide thinking and action.

IN SUMMARY

Everyone has a dream. But the most successful individuals - and community organizations - take that dream and find a way to make it happen. VMOSA helps groups do just that. This strategic planning process helps community groups define their dream, set their goals, define ways to meet those goals, and finally, develop practical ways bring about needed changes.

In this section, you've gained a general understanding of the strategic planning process. If you believe your organization might benefit from using this process, we invite you to move on to the next sections of this chapter, which explain in some depth how to design and develop your own strategic plan.

Strategic Management Process: Strategic management is a process or series of steps. The basic steps of the strategic management process are

Identifying Corporate Mission: Identify what the organization wants to achieve to start with for the purpose of it is necessary that all concerned parties understand the overall purpose of the organization and the methods of attaining them. It is also desirable that they agree on the corporate policies of the organization.

Formulate strategic objectives: By preparing statements of mission, policy, strategy, and goals, the top management established the frame work within which its divisions or departments prepare their plans. It is essential that the members of the organization agree on these given strategic objectives. The strategic objectives thus formulated reinforce the commitment of the members of the organization to achieve the corporate goals.

Appraise internal and external environment: To evolve alternative strategies to achieve these evolve alternative strategies to achieve these goals, a detailed appraisal of both the internal and external environment is carried out. The appraisal of internal environment reveals the strengths and weakness of the firm. The appraisal of external environment reveals the opportunities and threats for the firm. It is popularly called as SWOT analysis capitalizes on internal strengths, make use of best opportunities and beware of the threats in the external environment.

Develop and evaluate alternative strategies: There could be some alternative strategies to pursue a given goals. If the goal is to expand the business, the following could be the three alternatives.

- Sold new products to the existing product line
- Finding new markets, a part from the present market territories.
- Manufacturing within the organization, the components, which were earlier procured from outside.

Similarly, if the goal is to attain stability, the alternative strategies could be to maintain the following.

- The existing range of products
- The existing markets
- The functions presently being carried out.

Select the best strategy: For the firm to be more successful, it is necessary to focus its strategies around its strengths and opportunities. It is a prerequisite that the numbers of the organization agree on the strategic plan. Such a plan, which has been generally agreed upon, is normally considered as the best strategy.

Establish strategic business units (SBUs): It is more strategic to define a business unit in terms of customer groups, needs and/or technology and set up the business unit accordingly. Most of companies define their businesses in term of products.

Fix target allot resources to each SBU: The development of SBUs based on appropriate finding the top level management knows that its portfolio has certain old, established relatively new, and brand new products.

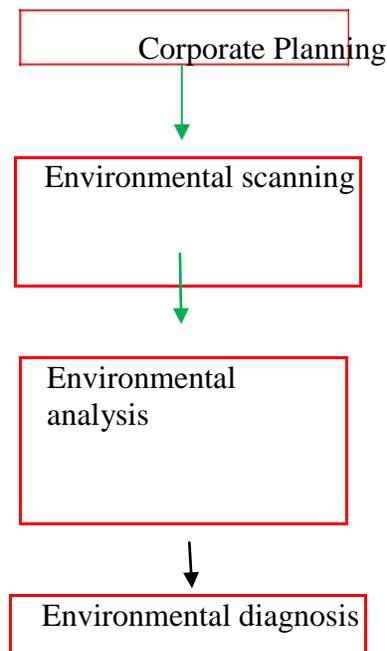
Resources should be allocated based on market growth rate and relative market share of SBUs. Here resources mean executive talent money and time.

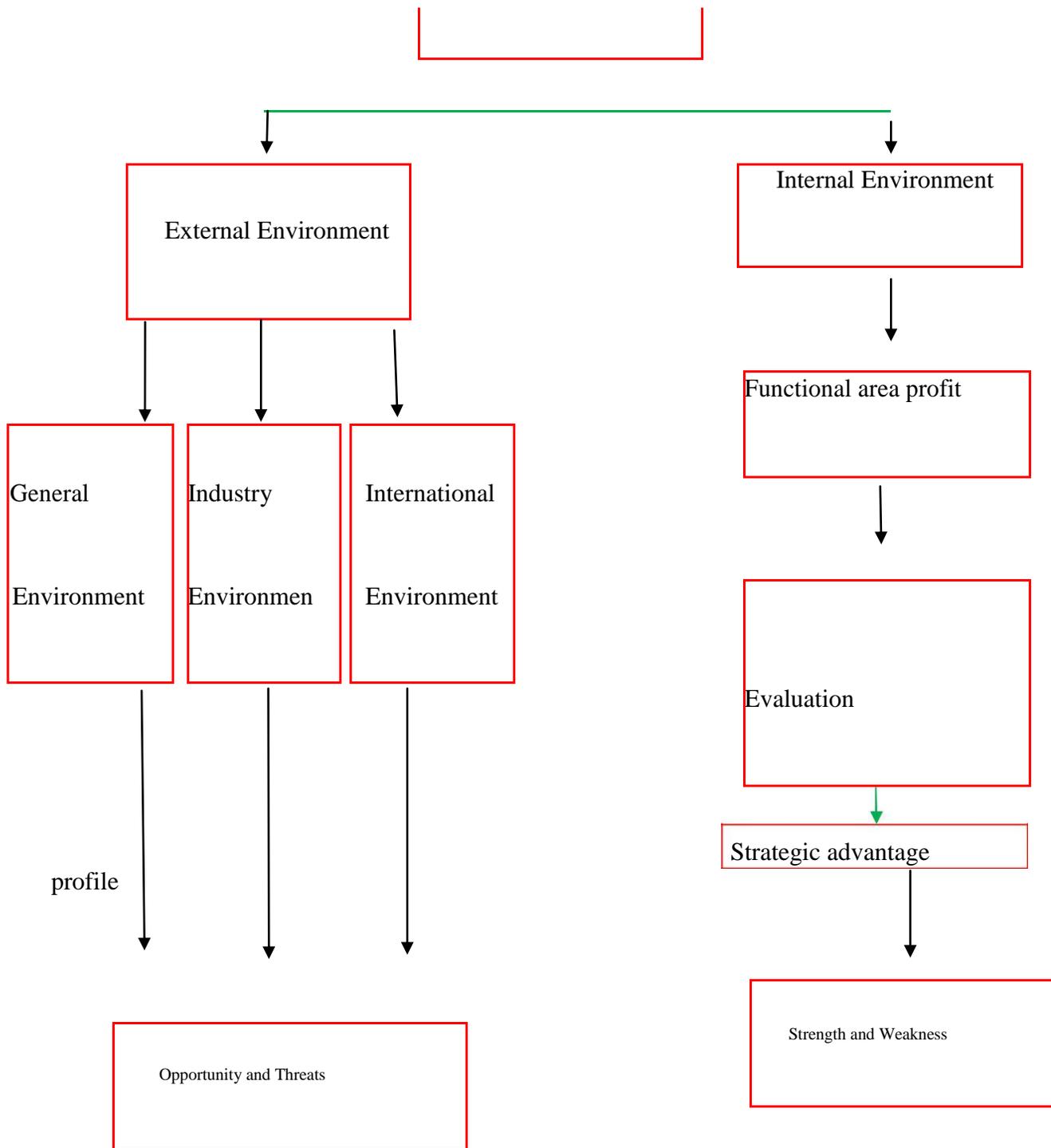
Developing operating plans: The operating plan explain how the long-term goals of the organization can be met, the corporate plans reveal how much the projected sales and revenue are where the top management finds a significance gap between the targeted sales and actual sales, it can either develop the existing business or acquire a new one to fill the gap.

Monitor performance: The results of the operating plans should be will monitored from time to time. In the case of poor performance, check up with the members of the team to find out their practical problems and sort these out. Also, it is essential to verify whether there are any gaps in formulating the operating/tactical plans.

Revise the operating plans, where necessary: It is necessary to rise the operational plans particularly when the firm does not perform as well as expected. The planes can be revised in terms of focus, resource or time frame.

Environment scanning process





Environmental Scanning: Environmental scanning is a vital part of the corporate planning process. Effective planners try to anticipate what is likely to happen or attempt to influence the environment in favourable directions. This requires long-term strategic vision and commitments to corporate planning.

Why environmental scanning:

The banks and business enterprises in the public sector are being disinvested by the government. The government policies keeping changing the current focus of the government of India has been an globalization, privatization, deregulation. As a results foreign goods are being dumped into the markets.

Computers have wiped out the market for typewriters and electronic type writers.

Info-tech industry, which was very strong for over decades, suddenly revealed downtrend.

The advent of television channels has almost zeroed down the market for VCR and significantly affected the flow of film viewer traffic.

Environmental analysis: Refers to the process of analyzing the environment, component-wise or sector-wise to provide a basis for further diagnosis. It interrelates the formation of objectives, generation of alternative strategies, and other related issues.

Environmental diagnosis: Comprises the managerial decisions based on the perceived opportunities and threats of the firm. In effect, it helps to determine the nature of the impending tasks to take advantage of opportunity or to effectively manage threat.

1. **General environment:** A firm is said to be more effective when its strategy caters to the needs effective when its strategy caters to the needs of the environment. The additional features added to the main product at times could provide a new life to the main product. The corporate units, which realize this, will survive in the long-run.

Thus, the major causes of growth, decline, and other large scale changes in firms are the factor in the external environment, not internal development.

- Socio-economic sector
- The technological sector
- The government sector

2. Industry environment: It is an important component of the overall environmental analysis as input for corporate planning. Industry refers to the group of firms carrying on similar activity. It has three sectors, customers, suppliers and competitors.

Customers: The strategist must identify and analyze the customers for the organization locates the potential customers and the emerging changes in their buying pattern. It is necessary to identify the profile of buyers in terms of their needs and preferences based on the basic demographic factors such as age, income size of household and consumption pattern. These factors create the primary demand for products or service and help to scan the geographical environment for potential market and customers.

Suppliers: Strategist also must determine the availability and costs of supply condition including raw materials, energy, prevailing technology, money and labour. The supplier can influence a firm and its strategy, particularly when the firm is outsourcing its logistic requirements.

Competition: The strategist moulds his strategy in the light of the competitor's strategy, the exit or entry of competitors to be analyzed and diagnosed.

3. International Environment: The strategy of globalization implies a great source of opportunities and also threats to business firms. Such firms, which an make use of the opportunities, would flourish and those, which cannot gear up, would demise.

Internal Environment analysis and diagnosis: Internal environmental analysis and diagnosis is a process of analyzing and diagnosing the firm's internal strengths and weaknesses. By identifying its strength and weaknesses, the firm can strategically exploit the available opportunities, overcome threats, and correct weaknesses placing itself at a competitive advantage.

Conducting internal analysis and diagnosis: Identify first the internal strength and weaknesses. The strength and weaknesses may include the following.

- Marketing factors
- research and development
- Engineering design and management
- Production management
- Managerial personnel
- Accounting and financial policies and procedures.

Profile of research and development:

- Financial resources (budget to conduct research, to develop new products and processes, improve existing processes and so on)
- Infrastructure (in terms of state-of-the-art technologies)
- Human resources (how many scientist and engineers are required, presently available, turnover of key personnel)
- Organizational system (system to monitor technological developments from time to time)

Strategy advantage profile: The ultimate result of such a detailed internal analysis to build a strategic advantage profile strategic advantage profile is a tool used to evaluate systematically the enterprises internal factors the competitive strengths or weaknesses for each internal area such as marketing, R &D and others

SWOT Analysis: SWOT analysis is defined as the rational and overall evaluation of a company's strength, weakness, opportunities, and threats which are likely to affect the strategic choice significantly.

External environment analysis (Opportunities and Threats): The external environment has a profound impact on the business operations irrespective of the nature and size of the business. The business has to monitor its key macro-environment forces and micro economic parties.

Opportunities: It necessary should identify what opportunities are available to it to focus upon. The latest technology, deregulated or free markets, liberalized rules and regulations and other may make a lot of difference for a business organization provided it can envision how to avail these visionary identify opportunities from treats.

Threats: Some development in the external environment represents threats. A threat is a challenge posed by an unfavorable trend or a development that results in the loss of sales or profit till a defensive marketing action is initiated. A few example of threat could be outlined as change in government policy such as liberalization privatization and globalization, changing technology changing value systems environmental constraints law and order.

Internal environment analysis (Strength and Weakness): It is necessary to analyze one's own strength and weakness periodically to sustain the degree of its competitive strength. Generally top management or an outside consultant reviews competencies pertaining to marketing, financial, manufacturing and organizational system and rates each factor as a major strength, minor strength, mental, factor, minor weakness, or major weakness.

Strength: It is not necessary that a business organization has to correct all its weakness nor that its propagate its strength. The big question is whether the business should limit itself to those opportunities, where its possesses the required strength or should it consider better opportunities where it might have to develop certain strength.

Weakness: Some times the company may not do well not because its departments lack the required motivation but because they do not work together as a team for example consider the case of an electronics company which employs engineers, sales and service staff for its operations. It is not adequate if they keep on doing their work. The organization becomes more effective only when they work as a team. It is therefore, critically important to build effective teams and assess the effectiveness of these teams. This is a part of the internal environmental audit. Progressive companies adopt this strategy.

<p style="text-align: center;"><u>STRENGTHS</u></p> <ol style="list-style-type: none"> 1. Value for money programme 2. Pool of trained faculty 3. Wide choice of offering 4. National network of well equipped training centre 	<p style="text-align: center;"><u>WEAKNESS:</u></p> <ol style="list-style-type: none"> 1. Not aggressive in selling 2. Course differentials not sharp 3. Counselor enthusiasm in adequate 4. Customers service not focused enough
<p style="text-align: center;"><u>OPPORTUNITIES:</u></p> <ol style="list-style-type: none"> 1. Growing demand for computer education 2. Computer library becoming a necessity 3. Growth of rich training needs 4. Need vfor customized training modules. 	<p style="text-align: center;"><u>THREATS:</u></p> <ol style="list-style-type: none"> 1. Rise in number of competitions 2. High rate of technological obsolescence 3. Commoditization of training under cutting of fees.

Strategy Formulation: This is often referred as strategic planning or long-range planning. This process is primarily analytical, not action-oriented. The strategy formulation process is concerned with developing a corporate mission, objectives, strategy and policy.

This process involves scanning external and internal environmental factors, analysis of the strategic factors and generation, evaluation, selection of the best alternative strategy appropriate to the analysis.

Henry Mint berg has pointed out that corporations objectives and strategies are strongly affected by top management's view of the world. This view determines the mode to be used in strategy formulation. These modes includes

Entrepreneurial mode: one powerful individual formulates Strategy.

The focus is on opportunities rather than on problems.

Strategy is guided by the founder's own vision of direction.

Adaptive Mode: This strategy formulation mode is characterized by reactive solutions to existing problems rather than a proactive search for new opportunities.

Planning Mode: Analysts assume main responsibility for strategy formulation.

Strategic planning includes both the practice search for new opportunities and the reactive solution of existing problems.

Thus, strategy formulation process involves environmental analysis organizational analysis, development of strategic alternatives and analysis and selecting the most appropriate strategy from the alternatives developed. The corporate level strategies include:

- Stability strategies Growth strategies
- Retrenchment strategies
- Combination strategy or port-folio restructuring

Implementation of strategies:

- Institutionalization of strategy
- Setting proper organizational climate
- Developing appropriate operating plans

- Developing appropriate organizational structures Periodic review of strategy

CONTEMPORARY MANAGEMENT PRACTICES

Management Information Systems: MIS refer to the process of covering the application of people technology and procedures to solve business problems. MIS distinct from regular information systems in that they are used to analyze other information systems applied in operational activities in the organization.

It is also commonly used to refer to the group information management methods tied to the automation or support of human decision making.

Ex: Decision support systems, expert systems earlier, when computers were newly launched, business computers were use for the practical business of computing the **Payroll** and keeping track of account payable and receivable. As applications were developed that provided managers with information about sales, inventories and other data that would help in managing the enterprise, the term “MIS” arose to describe there kind of applications.

Definition: It can be defined as “Research in the information systems field examines more than that the technological system, or just the social system, or even the two side by side, in addition, it investigates the phenomena that emerge when the two interact”.

End – use Computing: This term broadly meaning that there are no intermediary services for making use of computer, the end-user acquires the hardware and software and run their applications without the services of the specialist IS department

Factors for its growth:

Growth of Micro Computers

Dissatisfaction (delays, poor quality of centralized application systems built by the IT specialist.

Increase in computer literacy among end-users

Materials Requirement Planning (MRP): MRP is a software base production planning and inventory control system used to manage manufacturing processes.

Objectives:

- To ensure the availability of materials and products for production, delivery to customers.
- To maintain the lowest possible level of inventory
- To plan manufacturing activities, delivery schedules and purchasing activities.

Just – In – Time (JIT): When components arrive as and when required in a manufacturing operating by workers. It is called just-in-time.

Some we would at a stroke eliminate any inventory of parts, they would simply arrive just-in-time. Similarly we could produce finished goods just-in-time to be handed to a customer who wants them. So at conceptual extremes. JIT has no need for inventory or stock, either of raw materials or work in progress or finished goods.

Total Quality Management: It is term first coined by the U.S Naval air systems command to describer, its Japanese-style management approach to quality improvement. It is a management approach to long-term success through customer satisfaction.

In a TQM effort, all members of an organization participate in improving processes, products, services and the culture in which they work.

Six Sigma: Six sigma is a set of practices developed by Motorola to systematically improve processes by eliminating defects. A defect is defined as non-conformity of a product or service to its specifications.

Six Sigma refers to the ability of highly capable processes to produce output within specification. In particular processes that operate with Six Sigma quality produce at defect level below 3.4 defects per million opportunities.

The statistical representation of six sigma quantitatively how a process is performing. To achieve six sigma, a process must not produce more than 3.4 defects per million opportunities. A six sigma defect is defined as anything outside of customer specification. A six sigma opportunity is then the total quantity of chances for a defect.

Definition: Six Sigma at any organizations simply means a measure of quality that strives for near perfection. Six sigma is a disciplined, data-driven approach and methodology for eliminating defects in any process from manufacturing to transactional and from product to service.

Capability Maturing Model: Capability maturity Model (CMM) is a collection of instructions an organization can follow with the purpose to gain better control over its software development process.

The CMM ranks software development organizations in a hierarchy of five levels each with a progressively greater capability of producing quality software. Each level is described as a level of maturity. Those 5 levels are equipped with different number of instruction to follow.

Level – 1 - Initial : At maturity level-1 processes are usually ad hoc and the organization usually does not provide a stable environment

Level – 2 - Repeatable: At this maturity level-2, software development successes are repeatable. The organization may use some basic project management to track cost and schedule. -

Level – 3 - Defined: A maturity level-3, processes are well characterized and understood, and are described in standards procedure, tools, and methods.

Level – 4 - Managed: Using precise measurement, management can effectively control the software development effort. In particular, management can identify ways to adjust and adopt process to particular projects without measurable losses of quality or deviations from specifications.

Level – 5- Optimizing: This maturity level focuses on continually improving process performance through both incremental and innovative technological improvement.

Supply Chain Management: It is the process of planning, implementing and controlling the operations of the supply chain as efficiently as possible supply chain management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of consumption.

Enterprise Resource Planning (ERP): It integrate all data can processes of an organization into a unified system. A typical ERP system will use multiple components of computer software and hardware to achieve the integration 4 key ingredient of most ERP systems is the use of a unified database to store date.

ERP systems cover all basic functions of an organization, regardless of the organizations business, non-profit organization, non-governmental organization or government.

Performance Management:

Performance Management is covered with communication. This is done by creating a climate in which a continuing dialogue between managers and the members of their teams takes place to define expectations and share information on the organizations mission, values and objectives. This establishes mutual understanding of what is to be achieved and a framework for managing and developing people to ensure that it will be achieved

--- **By Armstrong & Murlis (1994).**

Performance Management is about managing the organization. It is a natural process of management, not a system or technique.

--- **By Fowler (1990).**

Business Process Outsourcing (BPO): BPO refers to a decision to sub-contract some or all non-core processes. The main motive for business process outsourcing is allow the company to invest more time, money and human resources into core activities and building strategies, which fuel company growth. The global market to day is highly competitive and ever-changing. A company must focus on improving productivity and yet, cut down costs. There, a lot of tasks that use up precious time, resources and energy, are being outsourced. BPOs or the units to which work is being outsourced, are flexible, quicker, cheaper and very efficient.

BPO is the contracting of specific business task, such as payroll to a tird-party service provider.

BPO is often divided into two categories

1. **Back Office Outsourcing:** This includes internal business functions such as billing or purchasing.
2. **Front Office Outsourcing:** This includes customer-related services such as marketing or technical support.

Business Process Re-engineering (BPR):

Definition: The fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality service and speed.

--- **By Hammer and Champy**

BPR is a management approach aiming at improvements by means of elevating efficiency and effectiveness of the processes that exist within and across organizations. They key to BPR is for organizations to look at their business processes form a “clean slate” perspective and determine how they can best construct these processes to improve how they conduct business.

Bench Marking: A process of searching for, identifying, and using ideas, techniques and improvement of other companies/situations in its own activities.

Definition: A systematic and ongoing process of improving performance by measuring a product, service or process against a partner that has mastered it.

1. In short – comparing methods against the best to identify changes.
2. A quality management tool that includes a set of practices aimed at improving product and service quality

Bench marking involves measuring the performance of the organization, team or individuals against the best practice for the industry, function or particular activity.

Balance scorecard: It is a management system that enables organizations to clarify their vision and strategy and translate them into action. It provides feedback around both the internal business processes and external outcomes in order to continuously improve strategic performance and result. When fully deployed, the balance scorecard transforms strategic planning from an academic exercise into the nerve center of an enterprise.

The balance scorecard suggests that we view the organization from four perspectives' and to develop metrics.

- The learning and growth perspective
- The business process perspective
- The customer perspective
- The financial perspective.

