

RIG Syllabus

II Year - II Semester

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MANAGEMENT SCIENCE

Course Objectives:

- *To familiarize with the process of management and to provide basic insight into select contemporary management practices
- *To provide conceptual knowledge on functional management and strategic management.

UNIT I

Introduction to Management: Concept –nature and importance of Management –Generic Functions of Management – Evaluation of Management thought- Theories of Motivation – Decision making process-Designing organization structure- Principles of organization – Organizational typology- International Management: Global Leadership and Organizational behavior Effectiveness(GLOBE) structure

UNIT II

Operations Management: Principles and Types of Management – Work study- Statistical Quality Control- Control charts (P-chart, R-chart, and C-chart) Simple problems- Material Management: Need for Inventory control- EOQ, ABC analysis (simple problems) and Types of ABC analysis (HML, SDE, VED, and FSN analysis).

UNIT III

Functional Management: Concept of HRM, HRD and PMIR- Functions of HR Manager- Wage payment plans(Simple Problems) – Job Evaluation and Merit Rating - Marketing Management- Functions of Marketing – Marketing strategies based on product Life Cycle, Channels of distributions. Operationlizing change through performance management.

UNIT IV

Project Management: (PERT/CPM): Development of Network – Difference between PERT and CPM Identifying Critical Path- Probability- Project Crashing (Simple Problems)

UNIT V

Strategic Management: Vision, Mission, Goals, Strategy – Elements of Corporate Planning Process – Environmental Scanning – SWOT analysis- Steps in Strategy Formulation and Implementation, Generic Strategy Alternatives. Global strategies, theories of Multinational Companies.

UNIT VI

Contemporary Management Practice: Basic concepts of MIS, MRP, Justin- Time(JIT) system, Total Quality Management(TQM), Six sigma and Capability Maturity Model(CMM) Levies, Supply Chain Management , Enterprise Resource Planning (ERP), Business Process outsourcing (BPO), Business process Re-engineering and Bench Marking, Balanced Score Card.

Course Outcome:

- *After completion of the Course the student will acquire the knowledge on management functions, global leadership and organizational behavior.
- *Will familiarize with the concepts of functional management project management and strategic management.

MANAGEMENT SCIENCE

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UNIT - I

Introduction to Mgt:

Mgt is the art of getting things done through and with People.

Mgt can be considered as a Social Process of Planning, organising, Co-ordinating, Commanding and Controlling for the purpose of achieving organisational goals, by using limited resources effectively and efficiently and by working with and through People.

→ Mgt is a Social Process of all functions
Planning,
organising,
Commanding,
Co-ordinating,
Controlling - Fayol.

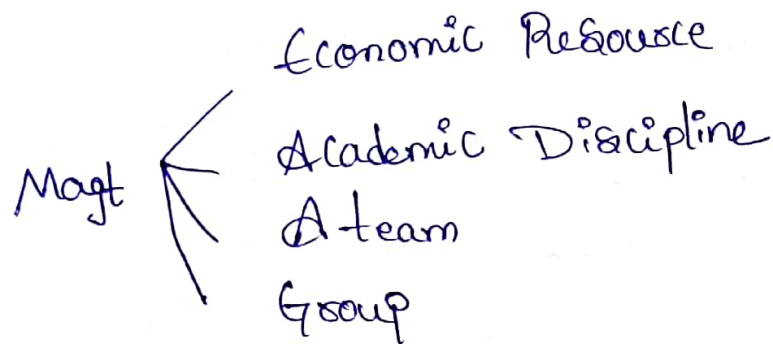
Definition:-

"Mgt is the art of 'knowing what you want to do' and then seeing that it is done in the best and cheapest way."

* Magt is a process, a science, as an art and

a profession

→ Magt is a resource like land, labour, Capital and organisation

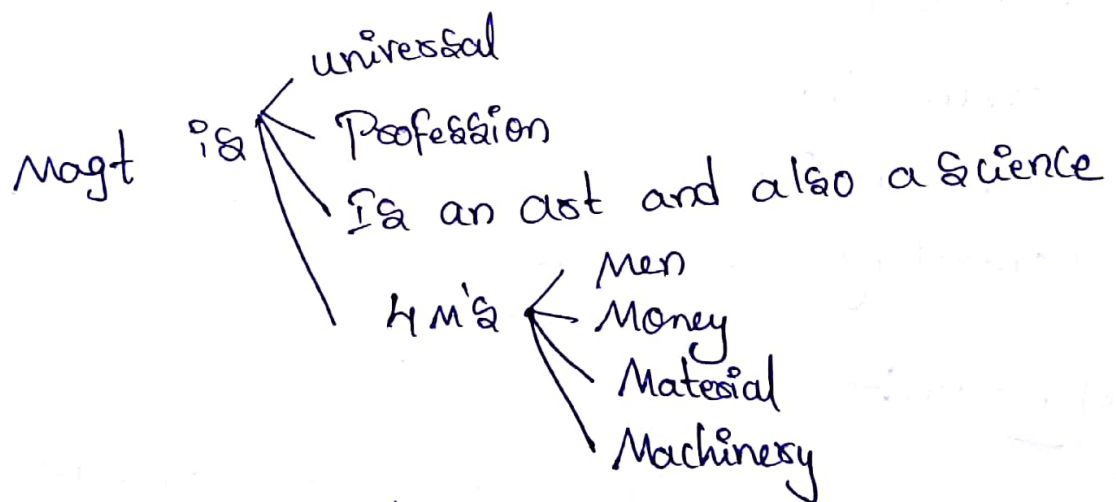


Nature and Features:

→ Magt is a Social Process

→ Magt also denotes a "body of people" involved in decision making

→



→ Magt is Complex

→ Magt is Situational in nature

→ Magt is Goal oriented

→ Magt is Science, art, Profession

Continuous Process

Importance / Significance

1. It facilitates the achievement of goals through limited resources.
2. It ensures smooth sailing in case of difficulties.
3. optimum utilisation of resources.
4. It ensures continuity in the organisation.
5. It ensures Economy and Efficiency.
6. Minimization of cost.
7. It focuses on group efforts.
8. Survival and Growth.
9. It is the key to the economic growth.
10. To achieve organisation goals.

Functions of Management:

The Process of Management Encompasses Certain Functions to be Performed in a logical Sequence.

while "Koontz"

Planning
organising
Staffing
Directing
Leading
Controlling

"Luther Gullick" coined a new term "POSDCORB"

→ Reporting
→ Budgeting

planning → organising → Staffing → Directing

coordinating

1. Planning: Planning is also referred to as the process of determining the best course of action to achieve the given goals.

To protect the organisation from such an uncertainty, plans should be more flexible to consider the contingencies.

2. Organising: The process of grouping the related activities and assigning them to a manager with authority to supervise it.

→ Organising shows how the tasks can be achieved with the given resources.

It also includes

- Staffing →
- Directing
- Leading
- Motivating
- Communicating
- Co-ordinating.

3. Directing: After filling the positions in the organisation.

→ with the right kind of people, the next task is to guide and enable them to achieve the common goals.

Staffing: Filling the positions in the organisation with the right people. Staffing

- Recruitment
- Training
- Placement & selection

(d) Controlling :-

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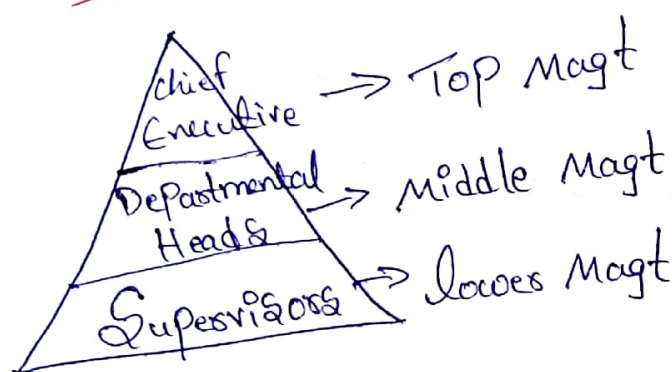
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(a) Measuring the actual performance of the Employee.

(b) Comparing it with the target

(c) Taking follow-up action i.e., corrective / remedial action.

Levels of Management and their functions:-



4. Evaluation of Management:-

Different Phases of its evaluation

1. Period of Management awakening

2. Scientific Mgmt Period

3. The human relations Period

4. Modern mgmt Period.

1. Period of mgmt awakening: Industrial Revolution which paved the way for large growth and diversification of Business Enterprises.

(a) Automation (muscle power is transferred to machines).

(c) The numbers of Commercial Establishments Expanded.

② Scientific Magt Period:

1. Henry Fayol - Father of modern magt (Top to bottom)
2. F.W. Taylor - Father of Scientific magt (Bottom-Top)

i. Henry Fayol - 14 Principles.

- | | |
|---|--------------------------------|
| 1. Division of work | 8. Centralization of Authority |
| 2. Authority | 9. Scalar Chain |
| 3. Discipline | 10. Orders |
| 4. Unity of Command | 11. Equity |
| 5. " " Dissection | 12. Stability of Tenure |
| 6. Sub-ordination of Individual Interest to Common Interest | 13. Initiative |
| 7. Remuneration | 14. Esprit de-corps. |

⑭ Principles of magt

- A principle refers to a fundamental truth.
- It establishes cause and effect relationship between two or more variable

→ They serve as a guide to thought and actions.

These Principles are desired:-

→ on the basis of observation and analysis

→ By conducting Experimental Studies.

① Henry Fayol (14) Principles.

1. Division of work:-

Specialization allows the individual to build up experience, and to continuously improve his skills. Thus he can be more productive.

2. Authority:- The right to issue commands, along with which must go the balanced responsibility for its function.

3. Discipline:- Employees must obey, but this is two sided

Employees will only obey orders

Managt play their part by providing good leadership.

Unity of Command: Each worker should have only one boss with no other conflicting lines of command.

5. Unity of Direction: The entire organization should be moving towards common objective.
(8)

People engaged in the same kind of activities must have the same objectives in a single plan. This is essential to ensure unity and coordination in the enterprise. Unity of command does not exist without unity of direction but does not necessarily flow from it.

6. Sub-ordination of Individual Interest: The interests of one person should not take priority over the interest of the organization as a whole.

7. Remuneration: Payment is an important motivator although by analyzing a number of possibilities.

8. Centralization: Lowering the importance of the Sub-ordinates role. Decentralization is Increasing the importance. The degree to which centralized or decentralized should be adopted depends on the specific org in which the manager is working.

9. Scalar chain:  A hierarchy is necessary for unity

of Direction. But lateral communication is also fundamental, as long as Supervisors know that such communication is taking place.

Scalar chain refers to the number of levels in the hierarchy from the ultimate authority to the lowest level in the organization.

Manag should take steps to encourage workers initiative which is defined as new or additional work activity for the sake of efficiency and co-ordination.

10. Orders:

as equally as possible. In running a business a combination of kindness and Justice is needed. Treating Employees well is important to achieve easily.

12. Stability of Tenure of personnel:

Employees work better if Job Security and Career progress are assured to them. An Insecure Tenure and a high rate of Employee turnover will affect the organization adversely.

13. Initiative:- Allowing all personnel to show their initiative in some way is a source of strength for the organization. Even though it may well involve a sacrifice of 'personal variety' on the part of many managers.

Magt must need real talent is needed to coordinate effort.

He further suggests that real talent is needed to coordinate effort, Encourage keenness, use each person's abilities and reward each one's merit without arousing possible jealousies and disturbing harmonious relations.

Magt should encourage harmony and general good feeling among employees.

Forecast and plan ↘

To Organise



To Command



To Coordinate

To Control. ↙

* Application of Fayol's Principles

→ Change and organization ; → Decisionmaking.

→ Skills can be used to improve the basic effectiveness of a manager

that mgmt can be seen as a variety of activities which can be listed and grouped.

2. F. W. Taylor: Scientific mgmt

"Systematic analysis of work" would find a solution to all the problems associated with enhancing the efficiency of the working conditions;

③ Human Relations Period (or) Behavioural Sciences Period.

Human relations Period is focussed on the human factor is dealing with Business and Production Issues.

1. George Elton Mayo: Hawthorne Experiments

2. Abraham Maslow: Hierarchy of needs

3. MC. Gregor: Theory X, Theory Y

4. Frederick Herzberg - Two Factor Theory

1. Hygiene Factors

2. Motivators

* Hawthorne Experiments:-

The workers were highly motivated more for the importance given to them. The reduction in light did not affect their work is being recognised by top mgmt.

The research team also examined other effects of change in the work environment such as rest periods, hot lunches and working hours, attitudes and analyse the social organisation among workers.

④ Modern Management Period:-

The management studies have tried to integrate the findings of scientific mgmt, principles of mgmt and human relations movements.

The modern mgmt period is characterised by dynamic business environment.

These factors which influence the role of the future managers.

→ Managing Environment $\leftarrow$ External
Internal

→ Developing Culture

→ Empowering Employees

→ Applying new Technology

→ Managing Change

→ Finding Competitive Advantage

→ Creating Excellence

Theories of Motivation:

Motivation $\xrightarrow{\text{leads to}}$ Performance

Motivation is defined as the desire to achieve a goal / a certain performance level, leading to goal-directed behaviour.

Ability + Environment + Motivators = Performance

Ability: Having the skills and knowledge required to perform the job is also important

Environmental $\left\{ \begin{array}{l} \text{having the resources} \\ \text{Information} \\ \text{Support one needs to perform} \end{array} \right.$

1. Abraham Maslow:-

"Need hierarchy of needs".

Most people are motivated by the desire to satisfy specific groups of needs.

Psychological
①

Safety
②

Affiliation
③

Esteem
④

→ MC. McGregor Theory X and Theory Y

Theory X: "Boss Knows Best"

1. Employees are inherently lazy.
2. They require constant guidance and support.
3. They would like to avoid responsibility.
4. They always seek security.
5. They do not show up any ambition.

Theory Y:

1. These Employees are capable of directing and controlling performance on their own.
2. They are much committed to the objectives of the organisation.

3. Higher rewards make these employees more committed to organisation.

4. Most of them are highly imaginative, creative in handling organisation issues.

6th Topic : Leadership Styles

* Meaning of Leaders:

A leader is one who inspires, motivates and leads people to accomplish organisational goals.

→ Mgt is doing things right, leadership is doing the right things.

→ leadership is all about influencing a group of people.

Characteristics:-

1. Take the challenges to grow.
2. Take calculated risks.
3. Adopt the leadership style that fits you and your personality.
4. Have courage at the time of controversies.
5. Accept their mistakes.
6. Communicate frequently.
7. Be approachable.
8. Understand the situation and the facts.

1. Trust
2. Collaboration: Group Effort
3. Confidence
4. Competence: Run for Competition
5. Competitive Spirit.

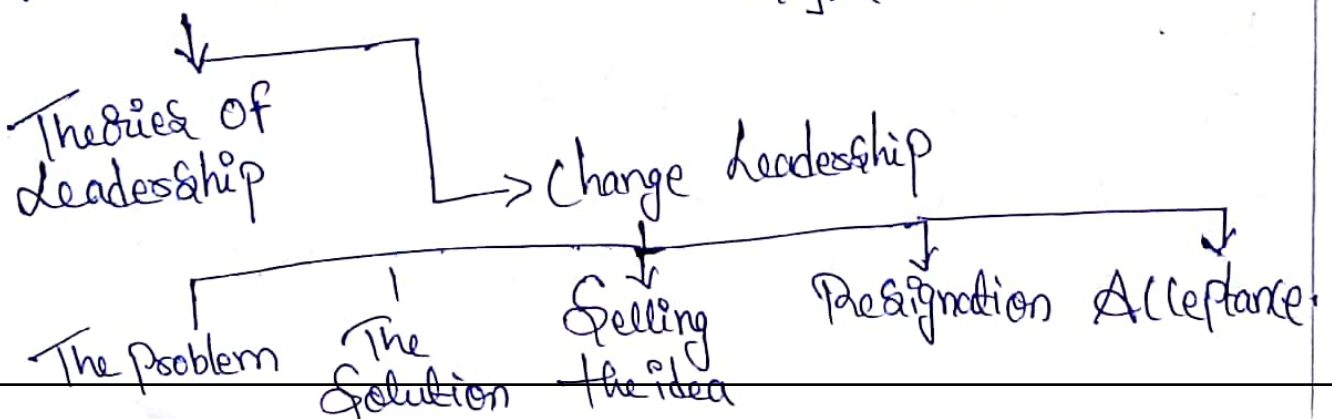
*Objective:-

- Followers
- Situation
- Apply the appropriate leadership style and techniques
- Leadership style is the approach for providing the right way to the team members, implementing planning strategies and motivating people by including all the members.

Factors affecting style

Leadership → Types of leadership styles

Autocratic
Democratic

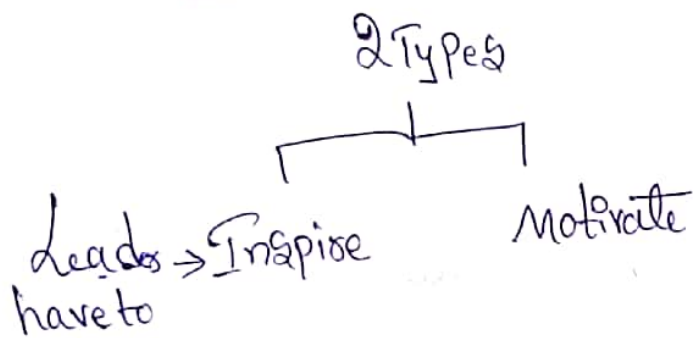


Leadership Styles

1. Positive Style
2. Negative Style : work hard Penalises .
3. Autocratic Style : The leaders have full power
4. Democratic Style : Participative Style
The followers are permitted to take decisions.
5. Free - rein Style : The leaders have no authority and responsibility followers themselves take decisions.
6. Transactional leadership
7. Transformational leadership
8. Bureaucratic.

1. Transactional Leadership: The Transactional usually involves the organisation paying team members in return for their effort and compliance on a short term task.

The leader has a right to "punish" team members if their work doesn't meet an appropriate standard.



Transformational leaders want to transform their teams and organisations while leaders who rely on charisma often focus on themselves and their own ambition and they may not want to change anything.

3. Autocratic Leadership;

Managers ← has the Power
Decision making Authority.
Motivation provided through Rewards and Punishments.

→ Leader makes decisions without reference to anyone else.

→ High degree of dependency on the leader.

1. When Quick decisions are needed.
2. No need for other inputs.
3. Team agreement is not necessary.
4. When high level of mgmt control is needed.

* Limitations:

- Employees cannot question decisions.
- Little opportunity to give suggestions.

4. Free Rein Leadership Style:

1. When the team is highly capable.
2. When team members are able to analyze the situation.
3. When close monitoring of a decision is not needed.
4. When there is full trust and confidence in the team members.

* Drawbacks:

1. Not suitable for less experienced employees.
2. Lack of motivation.
3. Poor productivity.

- Team agreement is needed
- Greater motivation and commitment.
- Knowledgeable and Skillful team members
- Keep employees informed
- Share decision making and Problem Solving responsibility.
- Help employees evaluate their own Performance.
- Recognise and encourage achievement.
- Encourage employees to share in decision making and Problem Solving.
- Workers feel ownership of the firm and its ideas.
- Improve the sharing of ideas and experiences within the Business.

* Drawback:

- It is a time consuming.

6. Bureaucratic Leadership:

- Manager manages "by the Book"
- Everything must be done according to procedure
- Performing routine tasks
- Safety or Security
- Tasks that require handling cash

7th topic :- Decision making Process

Decision making is a daily activity for any human being.

Identification of the purpose of the decision



Information Gathering



Principles for Judging the alternatives



Brainstorm and analyze the different choices



Evaluation of alternatives



Select the Best alternative



Execute the decision



Evaluate the results

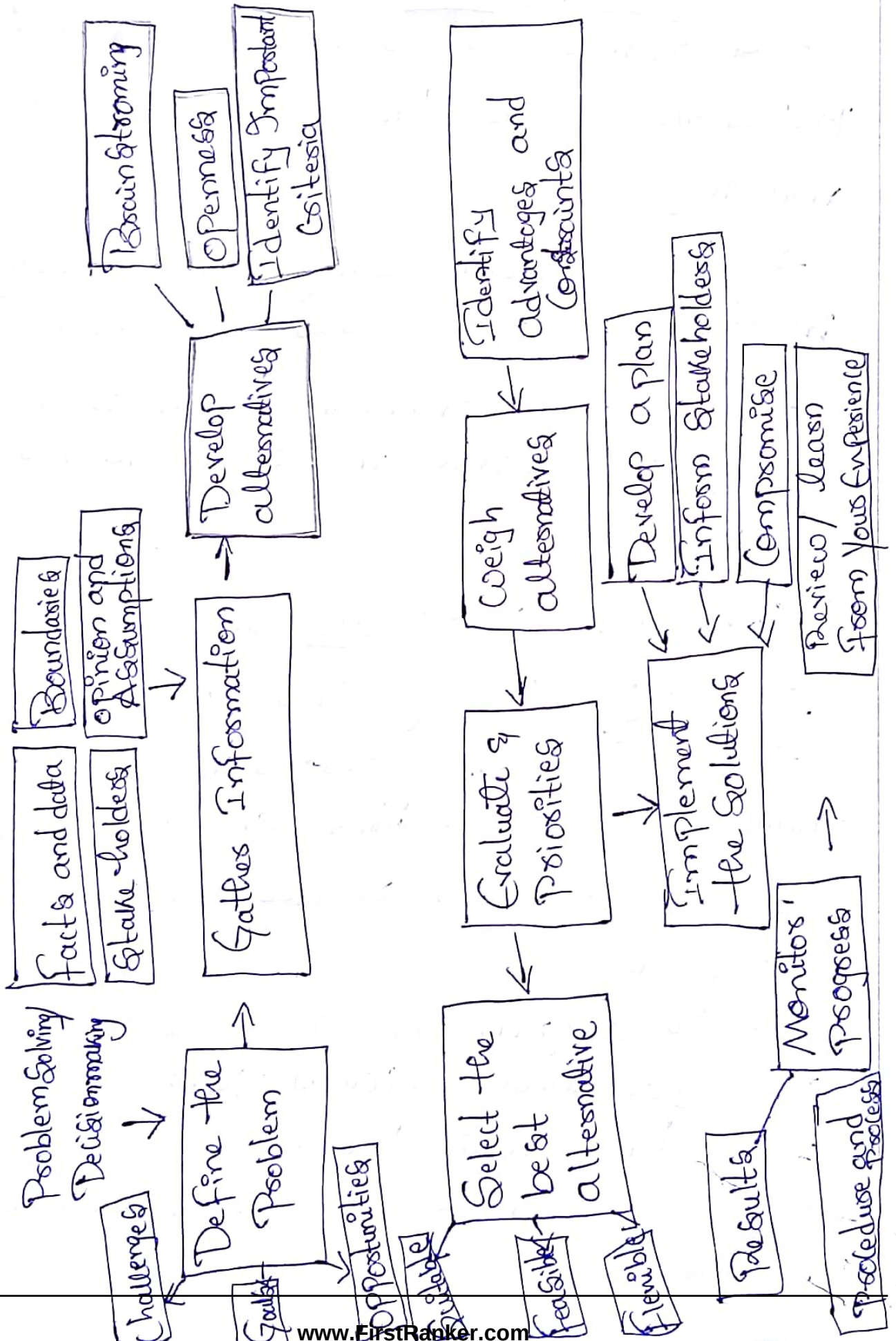
All managers continuously make decisions regarding all kinds of problems, issues opportunities, threats etc,

- Mgt is decision making
- All functions of mgt planning, organising, directing, staffing and controlling involve decision making.
- Judgments selected from two or more alternatives, it is final step of decision making.

Factors affecting decision making:

1. Experience and Knowledge.
2. Creative thinking.
3. Self Concept
4. Stress
5. Interpersonal Conflict
6. Time available money, energy.

Decision making process



Techniques

1. Group decision making:

→ A number of studies have shown that professional people do not function well under micro mgmt.

→ Group problem solving casts the manager in the role of facilitator and consultant.

→ Compared to individual decision making group can provide more input and better decision.

2. Nominal Group Techniques:

→ Silently generating ideas in written.

→ Round-robin presentation by group members of their ideas on a flipchart.

→ Discussing each recorded idea and evaluate.

3. Delphi :-

→ It is judgment on a particular topic are systematically gathered from participants who do not meet face to face.

→ useful when expert opinions are needed.

4. Brain Storming:

- The idea generating technique where in a group members meet and generate diverse ideas about the nature, cause, opinion or solution to a problem.
- One individual is assigned to record the ideas on a chalkboard.

5. Fish bone diagram:

The central problem is visualized as the head of the fish, with the skeleton divided into branches showing contributing causes of different parts of the problem.

Steps in problem:

Define the problem



Gather Information



Analyze the Information



Develop Solution



Make a Decision



Implement the Decision



Evaluate the Solution

Designing Organisation Structure:-

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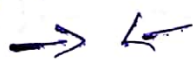
* Organisation Structure:-

The Pattern of Jobs and groups of Jobs in an organisation.

→ It is an Important Cause of Individual and Group Behaviours.

The Concept

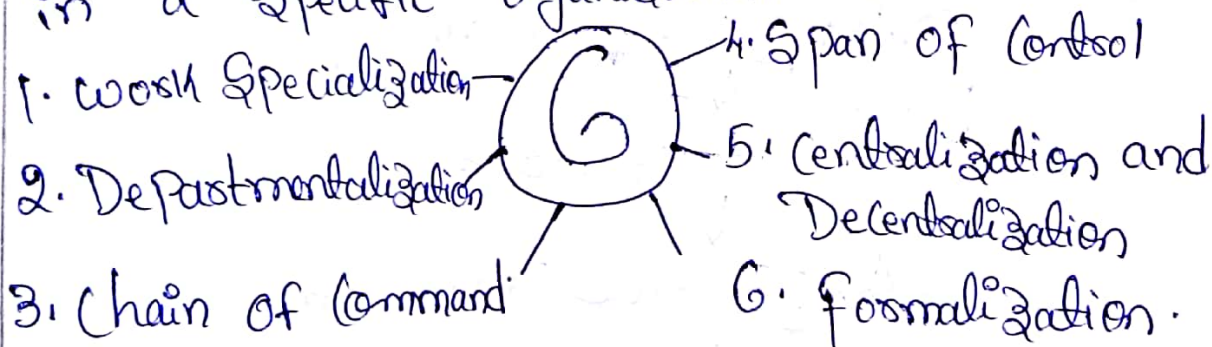
Structure as an influence on behaviours



Structure as a governing activity.

* Organisation Design:-

Mgmt decisions and actions that result in a specific Organisation Structure.



Importance

1. Divides work to be done into specific jobs and departments.
2. Assign tasks and Responsibilities associated with individual jobs.
3. Coordinates diverse organisational tasks.

4. Cluster Jobs into units
5. Establish relationships among individuals, Groups and departments.
6. Establishes formal lines of authority.

1. Work Specialisation:-

- The degree to which tasks in the organisation are divided into separate jobs with each step completed by a different person.
- Over specialisation can result in human diseconomies from boredom, fatigue, stress poor quality, increased absenteeism.

2. Departmentalization;

Functional

1. Grouping Jobs by Functions performed

2. Grouping Jobs by Product line

Geographical

3. Grouping Jobs on the basis of territories.

Process

1. Grouping Jobs on the basis of product.

2. Grouping Jobs by customer needs.

3. Chain of Command

The continuous line of authority that extends from upper levels of an organisation to the lowest levels of the organisation and classifies who reports to whom.

(3)

A. Authority: The rights inherent in a managerial position to tell people what to do and to expect them to do it.

B. Responsibility: The obligation to perform.

C. Unity of Command: The concept that a person should have one boss and should report only to that person.

(4) Span of Control: The number of employees who can be effectively and efficiently supervised by a manager.

(5) Centralization: The degree to which decision making is concentrated at upper levels in the organisation.

→ organisation in which top managers make all the decisions and lower level employees simply carry out those orders.

→ Definition of Authority: Every Position and

its associated authority must be defined in order to avoid confusion and overlapping of work.

→ Line of authority: Authority flowing from the top mgmt to the lower level of mgmt in an organization.

→ Sequence of instructions: line of authority from top to the bottom level of the org.

→ Responsibility: Employees must be responsible to their managers for the overall performance of the work allotted to them.

→ Authority and responsibility: The responsibility allotted to every Employee should go hand in hand with the corresponding authority.

→ One Boss

→ One head

→ Flexibility

→ Continuity Planning

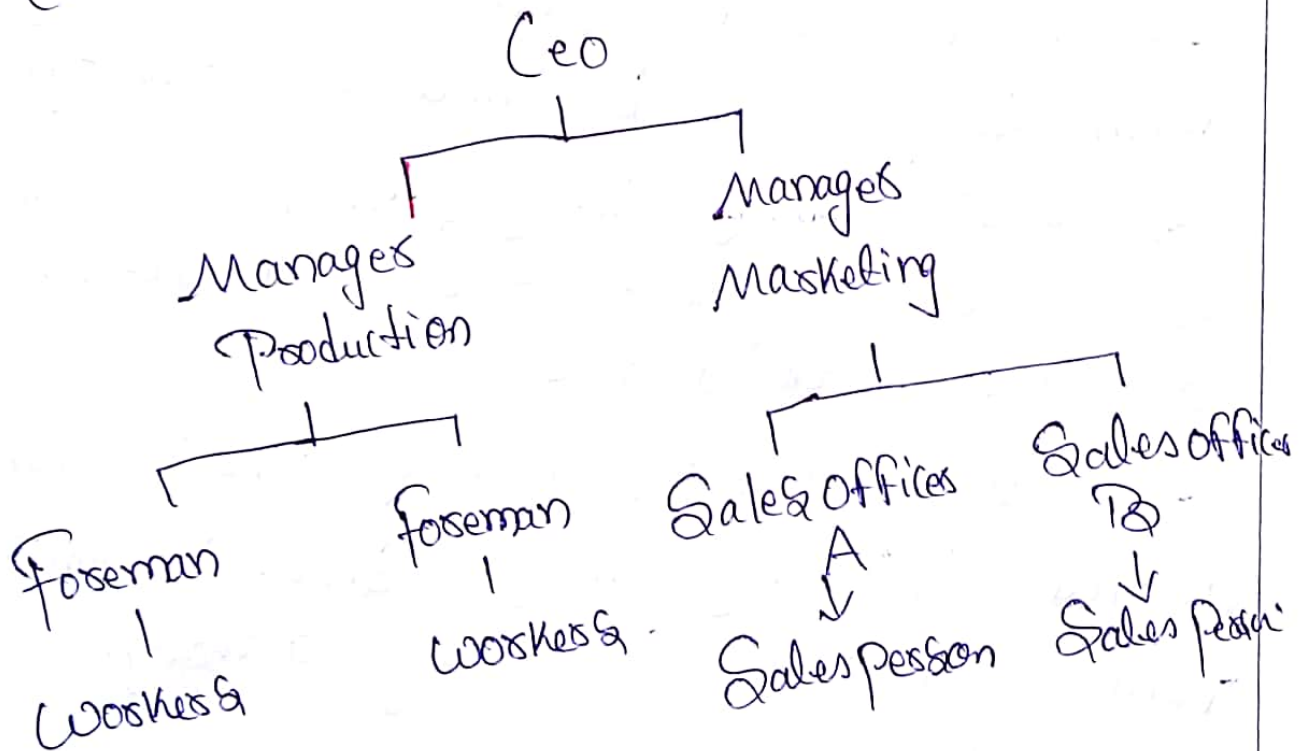
→ Right number of employees

→ Communication

1. Line Organisation
2. Functional "
3. Line and staff "
4. Project org
5. Committee org
6. Matrix org.

1. Line Organisation:

Large no. of people have to be controlled and discipline



→ Decentralization:

organisation in which decision making is pushed down to the managers who are closest to the action

(6) Formalization:

* Formal Structure: Formal Structure through departmentalization and work division, provides a framework for defining managerial authority, responsibility accounting.

- well defined jobs
- Definite authority/Responsibility
- Should not be flexible
- Channeled individual and group efforts.

* Informal Structure: Is generally social shifting lines of authority and accountability.

→ It also has its own channel of communication which may distribute information more broadly and rapidly than the formal.

- loosely organized
- flexible
- ill defined.

Principles of organization:-

Org is a group of persons working together for a common purpose.

→ organising is a continuous process and goes on throughout the lifetime of the enterprise.

Def: A system of co-operative activities of two or more persons is called organisation.

Principles of organisation:

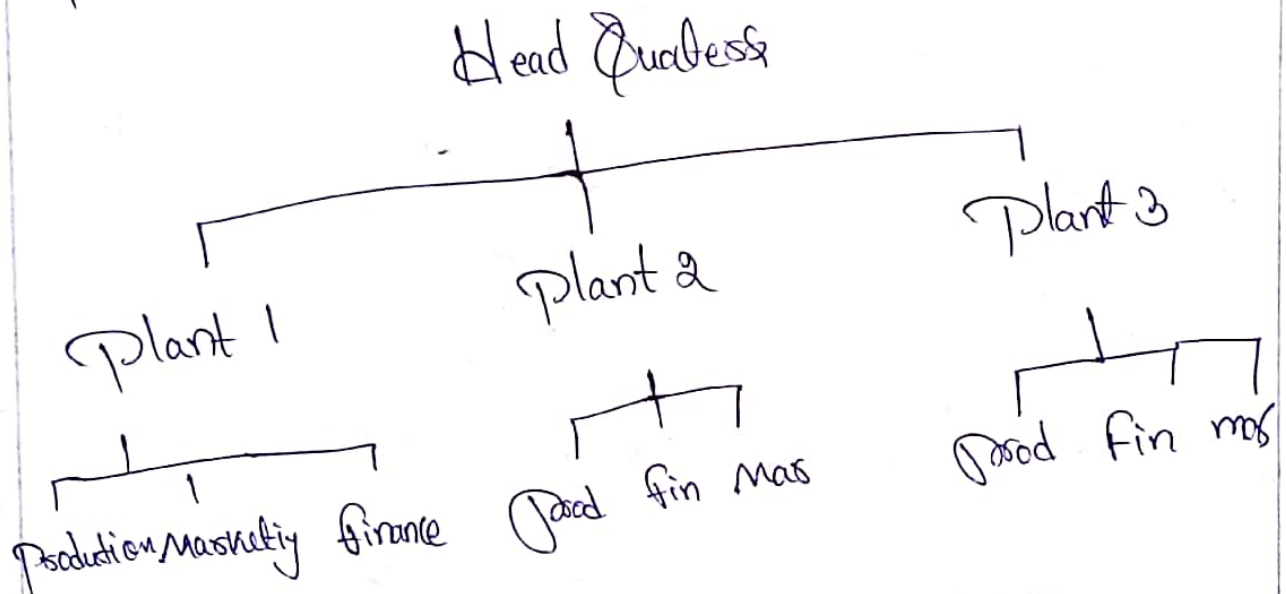
The work can be completed in time whenever a technique / a principle is adopted. So the success / failure of an organisation depends upon the principles to be followed in the organisation.

→ Alignment of objectives: Different sections in the organization should be aligned with the organizational goals, such that all members are aware of the aims of the org and are working toward the same end goal.

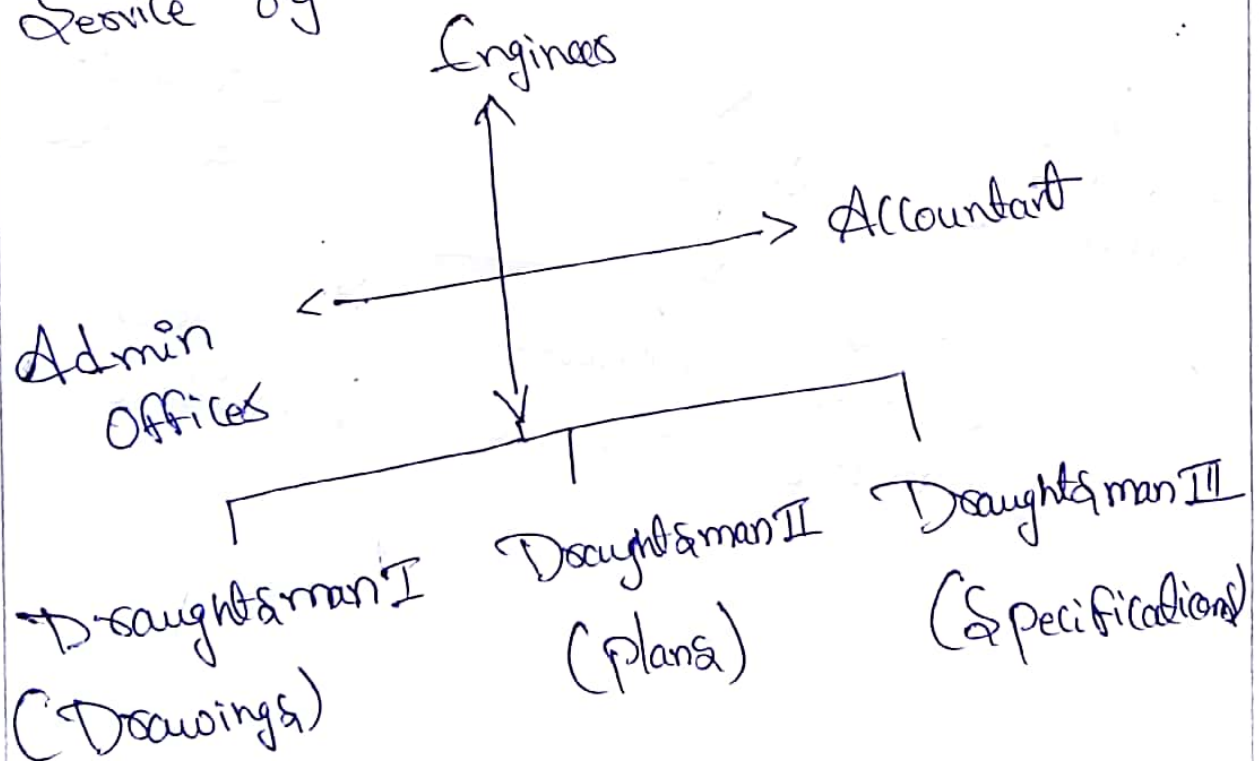
2. Distribution of work

3. Better coordination of tasks.

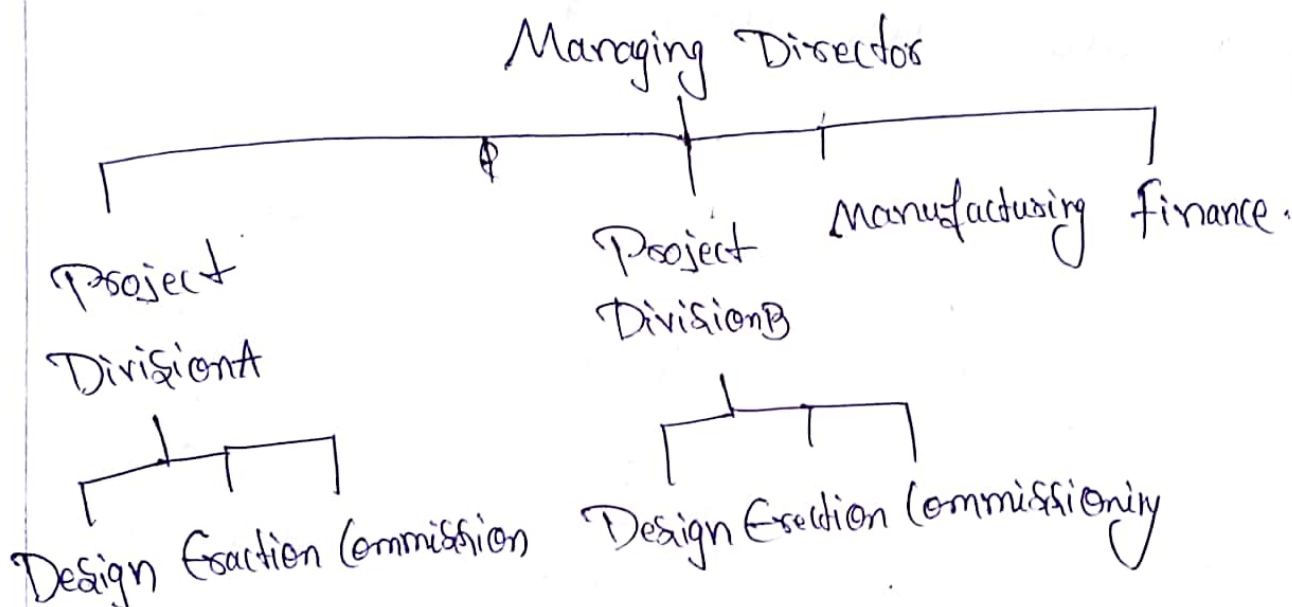
② Functional Org:
Authority is delegated to an individual department to control specified processes; Policies and activities undertaken by persons



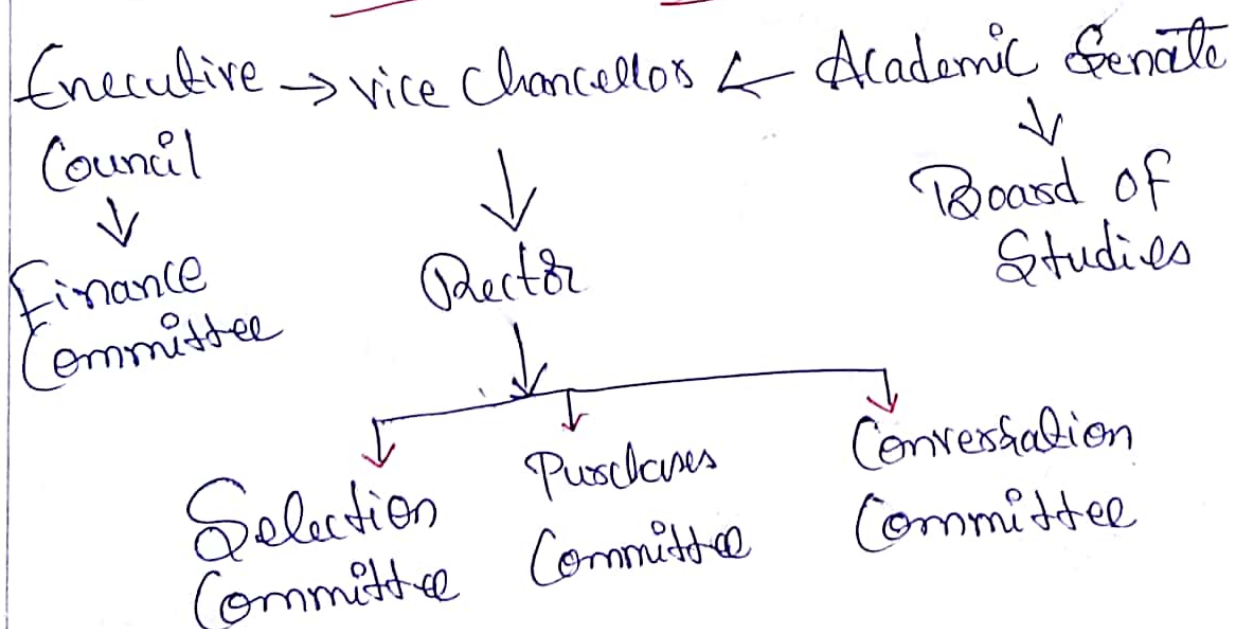
③ Line and Staff Relationship:
Service Org



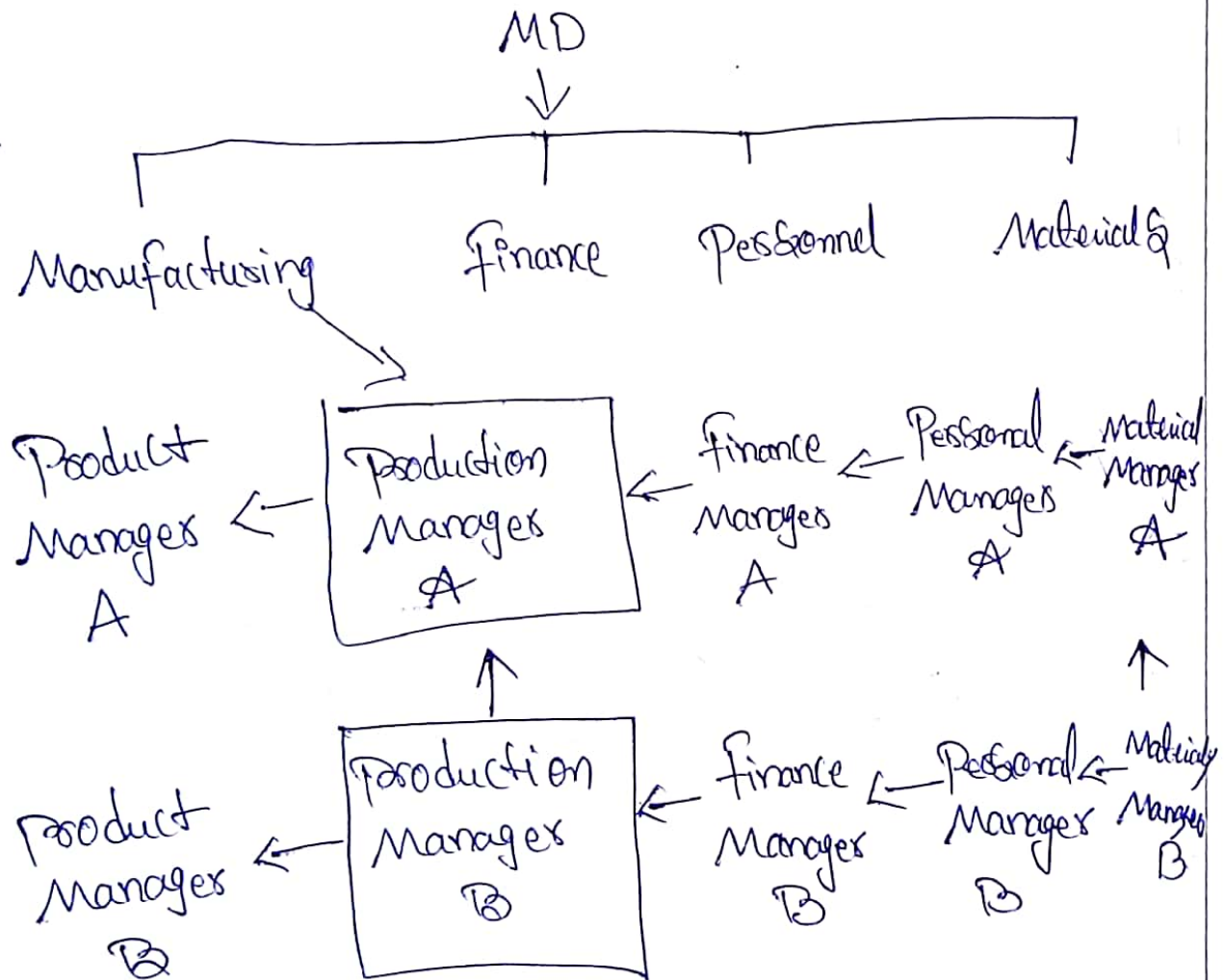
Project organisation:- In special case where common service like finance, Purchase etc., are organised at the functional level.



5. Committee organization:-



→ Matrix org: This is also called Project org. It is the combination of all relationships in the org in vertical, horizontal and diagonal.

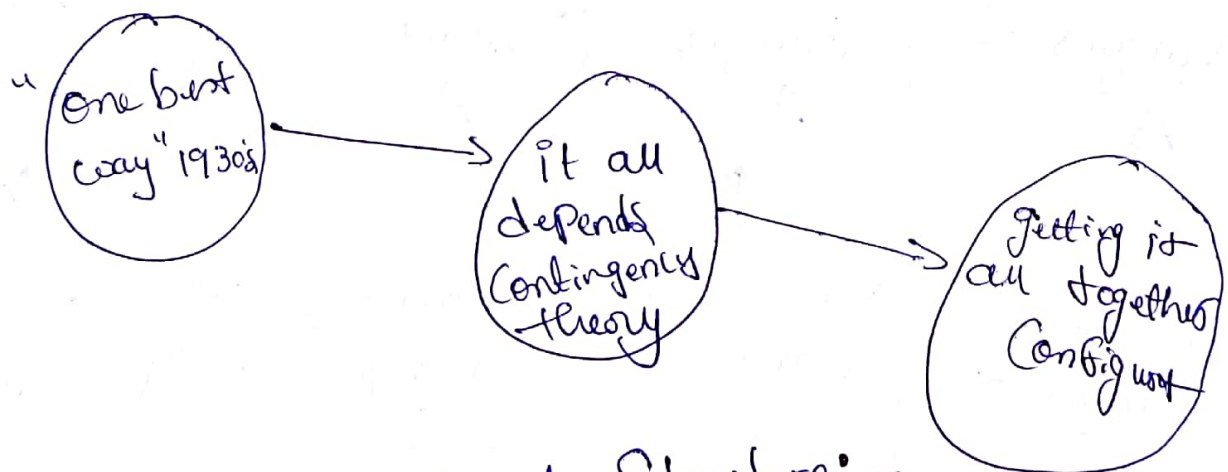


10th Topic : ORGANIZATIONAL TYPOLOGY

The Concept of Organizational Typology:

* Typology meaning: ವಿಭಿನ್ನ ವಿಧ
Classifying firms according to their strategy
Providing a more systematic analysis
of the relationship between the strategy
and executive compensation.

* Organisational Structure:-



* Five organisational Structure:-

- Simple Structure
- Machine Bureaucracy
- Professional Bureaucracy
- Divisionalized form
- ⇒ Adhocracy → ವಿಭಿನ್ನ ವಿಧ ವಿನ್ಯಾಸ

Ways to effect coordination:

→ Direct Supervision

One person gives direct orders to others.

→ Standardization of work processes

One person designs the general procedures of others to ensure that these are all coordinated.

→ Standardization of output:-

One person specifies the general outputs of the work of another.

→ Standardization of skills:-

A person is trained in a certain way so that he or she coordinates automatically with others.

→ Mutual adjustment:-

Two or more people communicate informally among themselves to coordinate their work.

5 Basic Parts:-

→ Operating Core:-

The basic work of producing the organization's products and services gets done.

→ Strategic Apex:-

The home of top management

→ Middle Line: Managers who stand in a direct relationship between the Strategic Apex and the Operating Core.

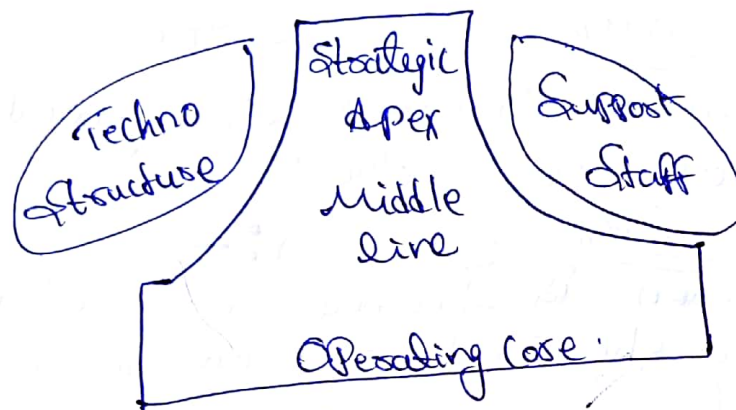
→ Techno Structure

The staff analysts who design by which work processes and outputs are standardized in the organization

in the organization

→ Support Staff:

The Specialists who provide support to the organization outside of its operating workflow.



The Five Basic Parts of the organization.

Design Parameters :-

- Job Specialization
- Behavior Formation
- Training and indoctrination
- unit grouping
- unit size
- Planning and Control Systems
- Liaison devices
- Vertical and horizontal decentralization.

Five types of decentralization :-

→ Vertical and horizontal centralization :-
All powers rests at the Strategic Apex.

→ limited horizontal decentralization :-
The Strategic apex shares some powers with the technostructure the standardize everybody else's work.

→ limited vertical decentralization :-
Managers of market based units are delegated the powers to control most of the decisions concerning their line units.

→ vertical and horizontal decentralization :-
Most of the powers rests in the operating core, at the bottom of the structure.

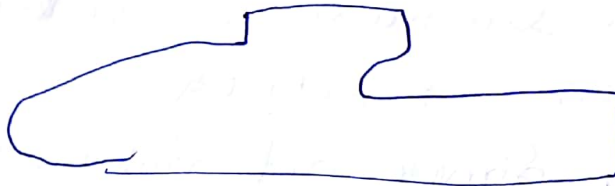
→ Selective vertical and horizontal decentralization :-
The powers over different decisions is dispersed widely in the organisation.

* The Contingency Factors

- Age and Size
- Technical System
- Environment
- Power Factors.

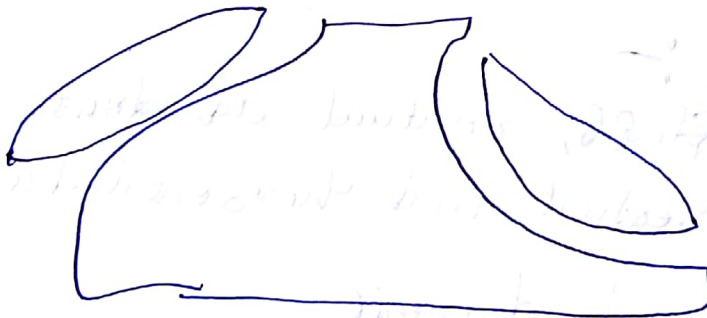
* Simple Structure :-

- Strategic Apex, direct Supervision,
- Vertical and horizontal Centralization
- Simple and dynamic, Sometimes hostile
- Entrepreneurial Firm



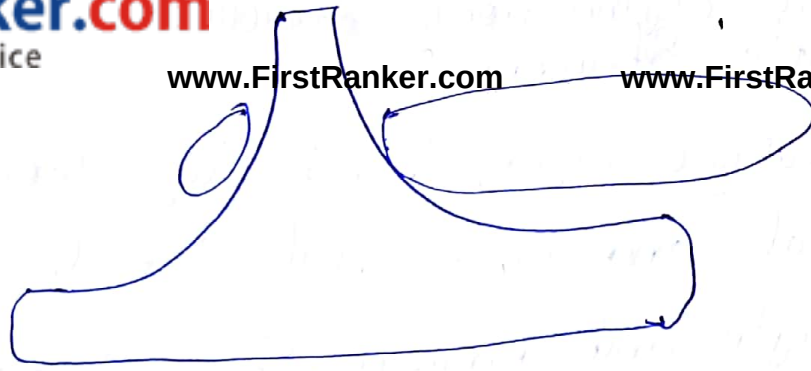
* Machine Bureaucracy :-

- Technostructure, Standardization of work Process, limited horizontal decentralization
- Simple and Stable
- Mass-Production Service firms with simple, repetitive works.



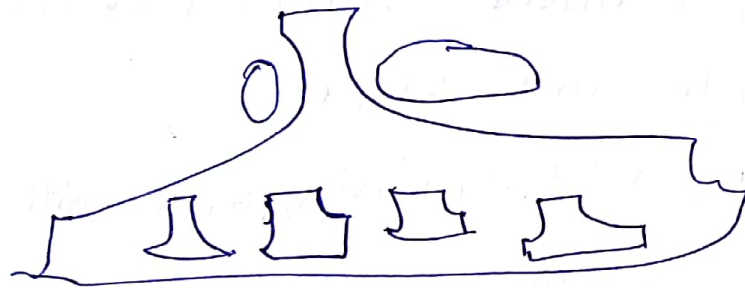
* Professional Bureaucracy :-

- Operating Core, Standardization of Skills, Vertical and horizontal decentralization
- Complex and Stable
- School Systems, Social work agencies, accounting firm



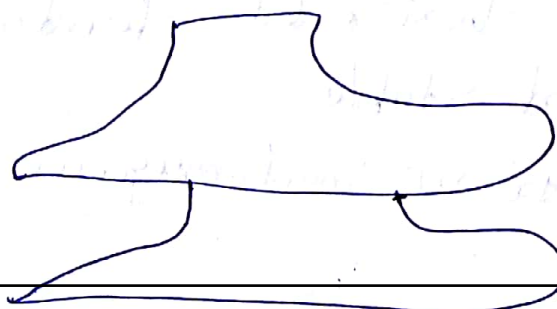
* Divisionalized Form :-

- middle line, limited vertical decentralization
- Standardization of outputs
- Relatively simple and stable; market diversity
- large corporations, Government



* Adhocracy :-

- Support Staff, mutual adjustment,
- Selective vertical and horizontal decentralization
- Complex and dynamic
- Consulting Firms, advertising agencies, Chemical Firms



GLOBE - Global leadership and Organizational Behaviour Effectiveness

GLOBE is a large-scale research programme which comprised a network of 170 social scientists and management scholars. The study is based on a survey of 17,000 managers from 3 industries (banking, food processing and telecommunications) across 62 cultures.

* The GLOBE researchers identified **(9)** Dimensions of culture:-

1. Uncertainty avoidance:- The extent to which a society tries to avoid the unpredictability of future events

Eg: by relying on rituals or bureaucratic practices.

2. Power Distance:- The degree to which members of a culture expect and accept power to be distributed unequally.

3. Collectivism I (Societal Collectivism): The degree to which organisational and societal institutional practices encourage collective distribution of resources and collective action.

4. Collectivism (సమూహకాలేక్షియం) : The degree to which individuals express loyalty and cohesiveness in their organisations or families.

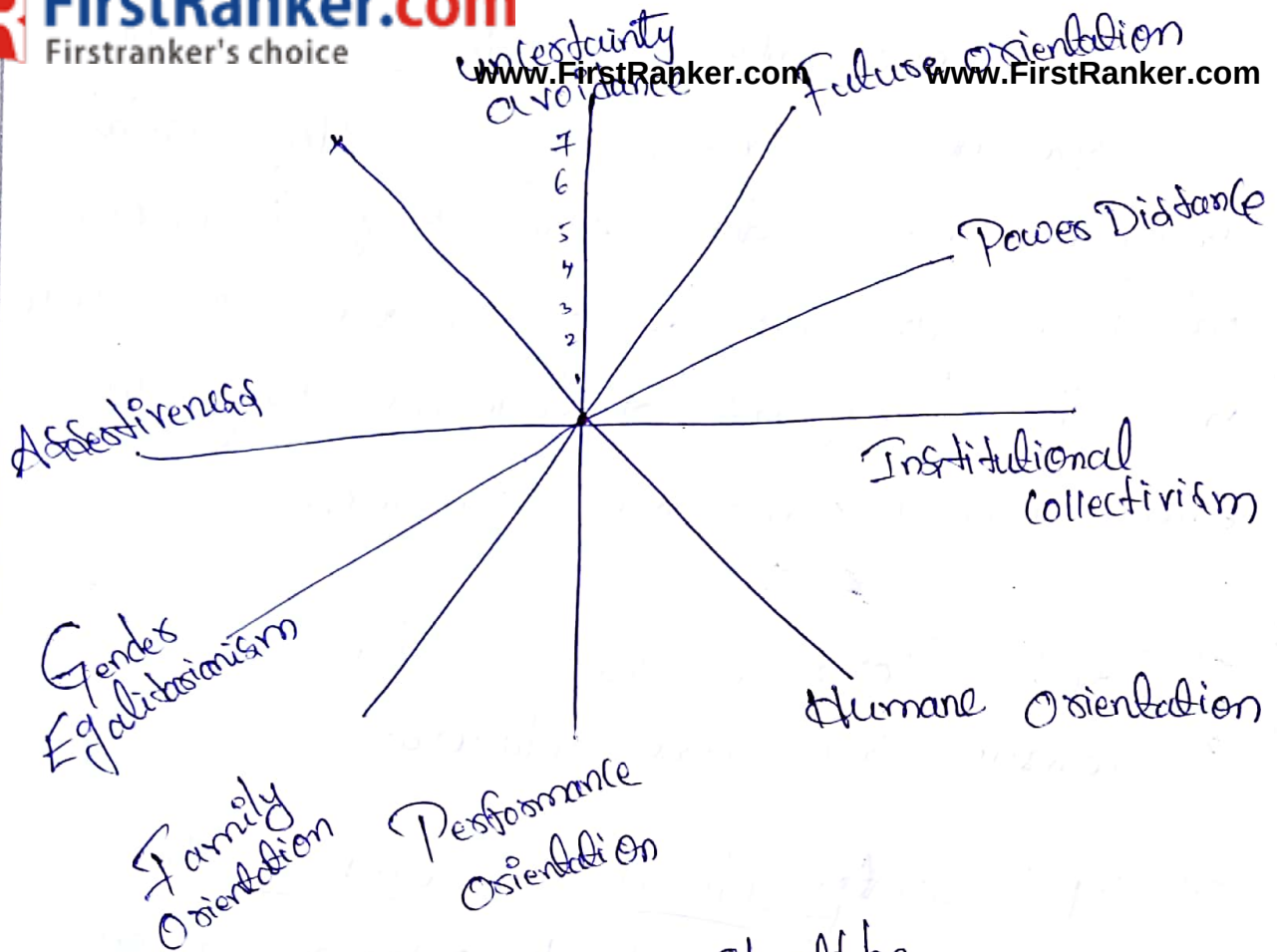
5. Gender Egalitarianism (సమనీతిత్వం) : The extent to which a society minimises gender role differences and discrimination.

6. Assertiveness (ఉద్వేగం వ్యక్తం) : The degree to which individuals are assertive, confrontational and aggressive in social relationships.

7. Future Orientation : The degree to which individuals engage in future-oriented behaviours such as delaying gratification, planning and investing in the future.

8. Performance Orientation : The extent to which a society encourages and rewards group members for performance improvement and excellence.

9. Humane Orientation (మనోహితం) :- The degree to which individuals encourage and reward individuals for being fair, altruistic, friendly, generous, caring or kind.



→ as is → Should be

The Purpose of the Project was to find out which leadership behaviours are universally accepted and which are culturally contingent. While there is some overlap between the Hofstede and GLOBE dimensions, the GLOBE Study goes beyond Hofstede's approach, assessing culture from two angles: cultural practices (culture "as is") and cultural values ("what should be").

First Volume within-country leadership literature, analysed, interview data, focus group discussions, and formal analyses of printed media to provide in-depth descriptions of leadership theory and leader behaviours in those 25 cultures.

I Step: GLOBE allowed to place 60 of the 62 countries into country clusters.

II Step: Country clusters and leader styles:

GLOBE next analyzed the responses 17,300 middle managers from 61 of the 62 countries to 112 leader characteristics, such as modest, decisive, autonomous and trustworthy.

* Leadership: An outstanding leader is a person in an organization or industry who is "Exceptionally skilled at motivating, influencing or enabling you, others or groups to contribute to the success of the organization or task."

The analysis generated 21 leadership Scales. Based on a 7-point scale and the "world mean" of each scale

Integrity (6.07)	Humane (4.78)
Inspirational (6.07)	Status conscious (4.34)
Visionary (6.02)	Conflict induces (3.97)
Performance-oriented (6.02)	Procedural (3.87)
Team-integrators (5.88)	Autonomous (3.85)
Decisive (5.80)	Face saves (2.92)
Administratively competent (5.76)	Non-participative (2.66)
Diplomatic (5.49)	Autocratic (2.65)
Collaborative team orientation (5.46)	Self-centered (2.17)
Self-sacrificial (5.0)	Malevolent (1.80)
Modesty (4.98)	

These 21 Leadership Scales were statistically and conceptually reduced to 6 Scales, resulting in 6 Leader Styles:

* The Performance-oriented Style (called "charismatic value-based" by GLOBE) stresses high standards, decisiveness and innovation; seeks to inspire people around a vision; creates a passion among them to perform; and does so by firmly holding on to core values.

* The Team-oriented Style: instills pride, loyalty and collaboration among organizational members; and highly values team cohesiveness



* The Participative Style encourages input from others in decision making and implementation, and emphasizes delegation and equality.

* The Humane Style stresses compassion and generosity; and it is patient, supportive and concerned with the well-being of others.

* The Autonomous Style is characterized by an independent, individualistic and self-centric approach to leadership.

* The Self-protective Style emphasizes procedural, status conscious, and 'face-saving' behaviors; and focuses on the safety and security of the individual and the group.

Characteristics

Universal Leaders Characteristics

Contribute to a Person Being Seen as an Outstanding Leader

Trustworthy

Just

Honest

Good sight

Plans ahead

Encouraging

Positive

Dynamic

Motivator

Confidence builder

Motivational

Decisive

Excellence-oriented

Dependable

Intelligent

Effective bargainer

Co-in problem solver

Administratively skilled

Communicative

Informal

Coordinators

Team builders

Inhibit a Person From Being Seen as an Outstanding Leader

Loner

Asocial

Indirect / Non-explicit

Non-cooperative

Irritable

Ego Centric

Truthless

Dictatorial

Culturally Contingent Leaders Characteristics

Anticipatory	Intuitive
Ambitious	Logical
Autonomous	Micro-Managers
Cautious	orderly
Class Conscious	Procedural
Compassionate	Provocateurs
Cunning	Risk takers
Domineering	Rules
Flirtatious	Self-effacing
Enthusiastic	Self-sacrificial
Evasive	Sensitive
Formal	Sincere
Habitual	Status-conscious
Independent	Subdued
Indirect	Unique
Individualistic	Willful
Intra-group Competitors	Woolly
Intra-group Conflict avoids	

That is, across all 61 countries in the GLOBE leadership study, people want their leaders to be trustworthy, just, honest, decisive and so forth. However, how these traits are expressed and enacted may still noticeably differ from society to society.

For eg. In U.S., he or she is expected to make quick and approximate decision

2. In France, being decisive tends to mean a more deliberate and precise approach to decision making.

* Culturally Contingent leaders: Characteristics such as ambitious, enthusiastic, formal, logical or risk takers are valued differently around the world.

* For eg: GLOBE 7 point scale to measure a Society's view

* Ranging from 1 to 7 - To being seen as an outstanding leader

2 to 6 - Risk takers.

* GLOBE SIGNIFICANCE:- These are a number of reasons for this assessment. GLOBE is the most comprehensive study to date that empirically researched the relationship between culture and leader behaviors in so many societies, with so many different quantitative and qualitative measures and methods, and in so many different organizations. It did so by engaging more than 170 collaborators from around the world who brought to the project an in-depth understanding of their own culture and its notion and practice of leadership.

* Conclusion:- we are in a position to make a major contribution to the organizational behavior and leadership literature. To date more than 90% of the organizational behavior literature reflects U.S.-based research and theory.

Note: Principles of Mgt Students have to write Henry Fayol's 14 Principles as discussed in the earlier topic.

TYPES OF MANAGEMENT (21):-

Mgt is doing things right. It's the discipline of planning, organizing, leading and controlling an organization.

Mgt has many faces. That is to say that managers have many styles and mgt has many types.

1. Strategic mgt :- SM necessitates a commitment to strategic planning, which represents an organization's ability to set both short and long term goals, then determining the decisions & actions that need to be taken to reach those goals.

2. Sales mgt :- Sales planning involves strategy, setting Profit based sales targets, Quotas, sales forecasting, demand mgt and the execution of a sales plan.

3. Marketing mgt :-

MM is defined as the process of overseeing and planning new product development, advertising, promotions and sales. It is based on thinking about the business in terms of customers.

4. Public Relation
PR defined as the practice of managing communication between an organization and its public.

5. Operations mgmt:- OM is the administration of business practice to create the highest level of efficiency possible within an organization. It is concerned with converting materials and labor into goods and services as efficiently as possible to maximize profit.

6. Supply Chain mgmt:- The profit of any SCM is the broad range of activities required to plan, control and execute a product's flow, from acquiring raw materials and production through distribution to the final customer, in the most streamlined and cost-effective way possible.

7. Procurement mgmt:- PM means buying things all goods and services needed for a company to stay sustainable. Manage Procurement well your business saves time and money.

8. Financial and Accounting mgmt:-

FM means planning, organizing, directing and controlling the financial activity of the enterprise. Decision making information to managers.

9. Human Resources mgmt:-

HRM It is defined as the process of managing employees in a company and it can involve hiring, firing, training and motivating employees.

10. Information Technology mgmt:

I.T are managed according to an organization's priorities and needs. Technologies to the creation, mgmt and use of knowledge.

11. R&D mgmt: It refers to the work a business conducts toward the innovation, introduction and improvement of its products and procedures.

12. Engineering mgmt: EM is the discipline where engineers combine mgmt skills with technical expertise to coordinate work in various technical fields such as product design, development and manufacture.

13. Program mgmt:

Process of managing multiple related projects at once.

14. Project mgmt: PM is the way a person organizes and manages resources that are necessary to complete a project. People that manage projects.

15. Risk mgmt: RM refers to the practice of identifying potential risks in advance, analyzing them and taking precautionary steps to reduce the risk.

16. Change mgmt: CM is the process, tools and techniques to manage the people side of change to achieve the required business outcome.

17. Quality mgmt: DM is focused on overseeing all activities and tasks needed to maintain a desired level of excellence. DM is focused not only on product and service quality.

18. Innovation mgmt: IM defined something new that brings benefits for an organization. Innovation mgmt grasp an opportunity and use it to create and introduce new ideas, processes or products.

19. Design mgmt: It is a field of inquiry that uses project mgmt, design, strategy and supply chain techniques to control a creative process, support a culture of creativity.

20. Facility mgmt:

The maintenance of an organization's building and equipment.

21. Knowledge mgmt:

Efficient handling of information and resources within a commercial organization

* Work Study :-

It is that body of knowledge concerned with the analysis of the work methods and the equipments used in performing a job, the design of an optimum work method and the standardisation of proposed work methods.

→ work study has contributed immensely to the search for better method, and the effective utilisation of this management tool has helped in the accomplishment of higher productivity.

→ work study is a magt tool to achieve higher productivity in any organisation whether manufacturing tangible products or offering services to its customers.

→ one of the most powerful tools to improving productivity is work study.

* Work Study is :-

The systematic examinations of the methods of carrying on activity

→ To improve effective use of resources

→ To setup standards of performance.

Work study also aims at the following:-

- Simplifying or modifying the methods of operations.
- Reduces unnecessary & excess work.
- Stops wasteful use of resources.
- Contributes to industrial safety by identifying hazardous work and developing safety methods.
- cuts down the time of perform a certain activity.

★ Some terminologies:-

- Total time in a job: The time taken by a work or a machine to carryout an operation to produce a given quantity of certain product.
- A work hour: The labor of one person for one hour.
- A machine hour: Running of the machine or plant for one hour.
- Basic work content: The basic irreducible minimum time theoretically required to produce one unit output.

Total time of
Operation under
Existing Condition



Total
Ineffective
Time

Basic work
Content
(minimise time required
to perform one output)

Basic Content
added by Poor
Product design

Utilisation work
Content added by
Inefficient method
of manufacture
+ Poor material handling
+ Poor Quality Stand

Basic work Content



Product Development



Proper material utilisation



Quality Control



Better layout and Process Planning



Material Handling



Product planning



Method Study to reduce Poor method



Inventory Control



Ensure longer life and no stoppage



Create Satisfactory working Environment



Training, Better working Conditions.

→ To analyze doing a job, systematically in order to develop a new and better method.

→ To measure the time required to do the job for a qualified worker

→ To increase the productivity the best possible use of human, machine and material resources to achieve the best quality product.

* Increased productivity and operational efficiency

* Reduced manufacturing costs

* Improved work place layout

* Better manpower planning and Capacity planning.

* Fair wages to employees.

* Improved work flow.

* Reduced material handling costs.

→ The systematic analysis and improved of manually controlled work situations.

That Body of Knowledge Concerned with the analysis of the methods and the equipment used in performing a job, the design of an optimum method and the standardisation of the proposed methods.

Industrial Engineering:-

Concerned with the design, improvement and installation of integrated system of men, materials and equipment to improve productivity.

Method Study:-

→ The systematic recording and critical examination of existing and proposed ways of doing work as a measure of developing and applying easier and more effective methods and reducing costs.

Motion Study:-

→ Detailed study of the manual and/or body motions used in a work task or at one work area often involving comparative analysis of right hand and left hand motion.

Time Study

A technique of work measurement used for determining accurately as possible from a limited no. of observation, the time necessary to carry out a given activity at a defined standard of performance.

A stop watch is used for the purpose of recording the actual time taken by the worker under observation to perform various elements of the work.

- Select
- Record
- Examine
- Develop
- Measure the work content
- Define the new method
- Install " " "
- Maintain " " "

Method Study

Work method analysis or method study is a scientific technique of observing, recording and critically examining the present method of performing a task or operation with the aim of improving the present method and developing a new and cheaper method.

Study of work processes, working conditions and equipments and tools to carry out the job.

→ Method Study may be understood as 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 costs.

* Objectives

- To study the existing proposed method of doing any job, operations.
- To develop an improved method to improve productivity.
- To reduce excessive material handling.
- To improve utilisation of resources.
- To eliminate wasteful and inefficient motions.
- To standardise work methods, working conditions, machinery, equipment and tools.

* Advantages

- work simplification
- Improved working method.
- Better product quality
- Improved work place layout.
- Improved equipment design.
- Better working conditions
- Better material handling

- Work flow
- Less Fatigue to the operations.
 - optimum utilisation of all resources
 - Higher Safety to work members.
 - Shorter Production cycle.
 - Higher Job Satisfaction
 - Reduced material Consumption and wastage.
 - Reduced manufacturing cost and higher

Production.

Factors Facilitating method Study:-

- High operating cost
- High wastage and scrap
- Excessive movement of materials and workmen
- Excessive production bottleneck.
- Excessive rejections and rework.
- Complaints about Quality.
- " " Poor working conditions.
- Increasing number of accidents.
- Excessive use of overtime.

SQC is the term used to describe the set of statistical tools used by Quality Professionals.

→ SQC was pioneered by Walter A. Shewart at Bell Laboratories in the early 1920's / Control Charts 1924.

SQC categories

1. Descriptive Statistics:- are used to describe Quality characteristics and relationships

* The mean - Measure of central tendency

* The Range - Diff between largest/smallest observations in a set of data

* Standard Deviation - Measures the amount of data dispersion around mean

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}}$$

2. Statistical Process Control:-

* Extend the use of descriptive statistics to monitor the Quality of the product and process

* Statistical Process Control help to determine the amount of variation.

* To make sure the process is in a state of control.

3. Variation in Quality:-

* Not two items are exactly alike.

* Some sort of variations in the two items is bound to be there. In fact it is an integral part of any manufacturing process.

* The difference in characteristics known as variation.

* This variation may be due to standard quality of raw material, carelessness on the part of operators, fault in machinery system etc.

* Types of variations:-

1. Variation due to chance causes:-

- Variation occurred due to chance
- This variation is not due to defect in machine, raw material or any other factors.
- Behave in "random manner"
- Negligible but inevitable.
- The process is said to be under the state of Statistical Control.

2. Variation due to assignable causes:-

Non random causes like

- Difference in Quality of raw material
- " " machines
- " " operators
- " " time

Variables: They are used to achieve and maintain an acceptable Quality level for a Process whose product can be subjected to Quantitative measurements such as diameters of a hole, length of a bolt, thickness of a pipe, Specific resistance of a wire.

Attributes: They are used to achieve and maintain an acceptable Quality level for a Process whose product cannot be subjected to Quantitative measurement but can be classified as "good" or "bad" as acceptable or not acceptable. For instance Surface finish of a table, colour & brightness of an article of an article is either acceptable or not acceptable.

Techniques of SQC

Process Control (by Control Chart device) Product Control (by Sampling inspection Plan)

Variables

Attributes

$\bar{X}$ -Chart

$\bar{R}$ -Chart

np-Chart

C-Chart

np-Chart

P-Chart

$\bar{X}$ -Chart :- Sample units are selected at random from the product of the process

$$CL = \bar{X}$$

$$UCL = \bar{X} + A_2 \bar{R}$$

$$LCL = \bar{X} - A_2 \bar{R}$$

P -Chart :- $CL = \bar{P}$

$$UCL = \bar{P} + D_4 \bar{P}$$

$$LCL = \bar{P} - D_3 \bar{P}$$

* Control charts for attributes :-

In inspection by variables, actual measurement of the dimension is done. However this is sometimes difficult as well as economical.

Inspection by attributes is just the other way of inspection. Actual measurement are not done, instead the no. of defectives are counted. The products are inspected the same way as by 'Go' and 'not Go'

- (i) No. of Defectives in a lot
- (ii) No. of mistakes on the part of a typist
- (iii) No. of spots in a discoloured wall.

Problem 1:-

A company bottles soft drinks. The bottle comes in only one flavour and only one size (16 ounces). The first daily samples of fill weights of 20 bottles are

Sample	$\bar{x}$	R	Given
1	16.05	0.20	$A_2 = 0.180$
2	16.04	0.25	$D_3 = 0.414$
3	15.98	0.62	$D_4 = 1.586$
4	15.91	0.71	
5	16.02	0.58	
6	16.09	0.37	
7	15.95	0.35	
8	16.06	0.21	
9	15.94	0.29	
10	15.97	0.46	
	<u>16.01</u>	<u>4.04</u>	

$$\bar{X} = \sum x/n = \frac{160.01}{10} = 16.001$$

$$\bar{R} = \sum R/n = \frac{4.04}{10} = 0.404$$

$$n = 20$$

$\bar{X}$ -Chart

$$UCL = \bar{X} + A_2 \bar{R}$$

$$= 16.001 + 0.180 (0.404)$$

$$= 16.07$$

$$LCL = \bar{X} - A_2 \bar{R}$$

$$= 16.001 - 0.180 (0.404)$$

$$= 15.928$$

$$UCL = D_4 \bar{R}$$

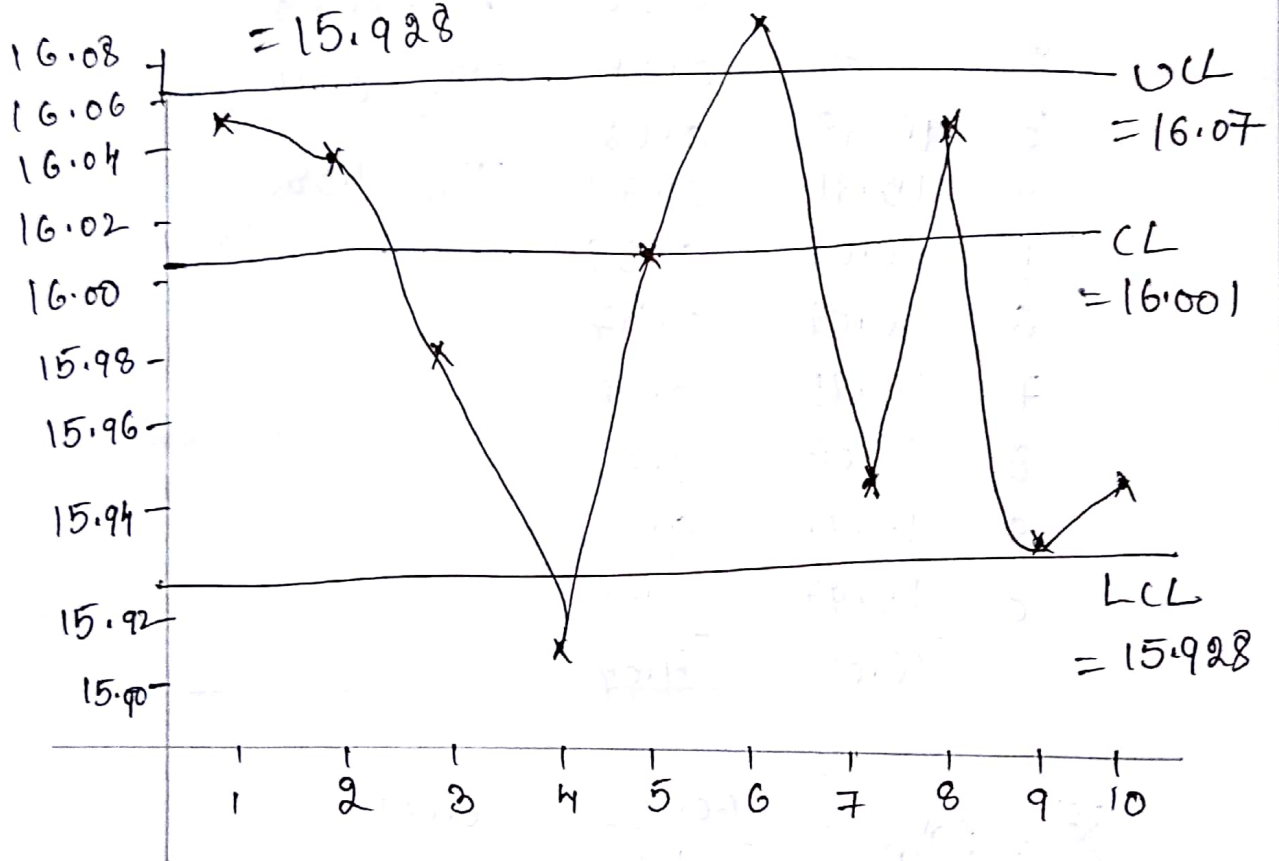
$$= 1.586 (0.404)$$

$$= 0.6407$$

$$LCL = D_3 \bar{R}$$

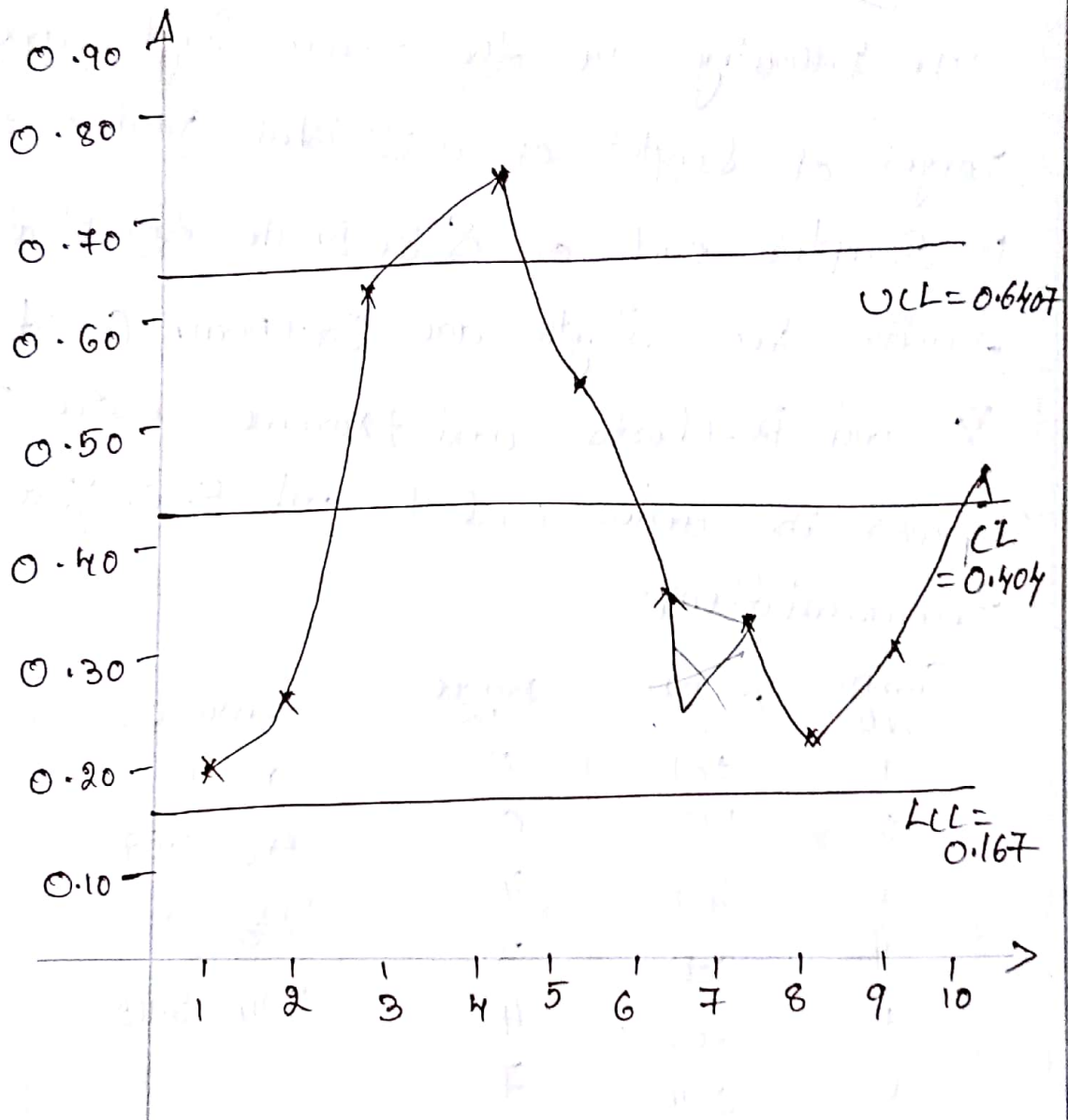
$$= 0.414 \times 0.404$$

$$= 0.167$$



$\bar{X}$ -Chart

Sample no 6, 4 are in out of control



Sample 4 is out of Control

Comment:

Since, only one point lie outside the UCL, these are changed to Control Production Process.

The following are the mean lengths and ranges of lengths of a finished product from 10 samples each of size 5. The specification limits for length are 200 ± 5 cm. Construct $\bar{X}$ and $\bar{R}$ -charts and examine whether the process is under control and state your recommendations.

Sample No	Mean $\bar{x}$	Range $\bar{r}$	Assume for
1	201	5	$n=5$
2	198	0	$A_2=0.577$
3	202	7	$D_3=0$
4	200	3	$D_4=2.115$
5	203	4	
6	204	7	
7	199	2	
8	196	8	
9	199	5	
10	201	6	
	<u>2003</u>	<u>47</u>	

$$CL = \bar{\bar{x}} = \sum \bar{x}_n = \frac{2003}{10} = 200.3$$

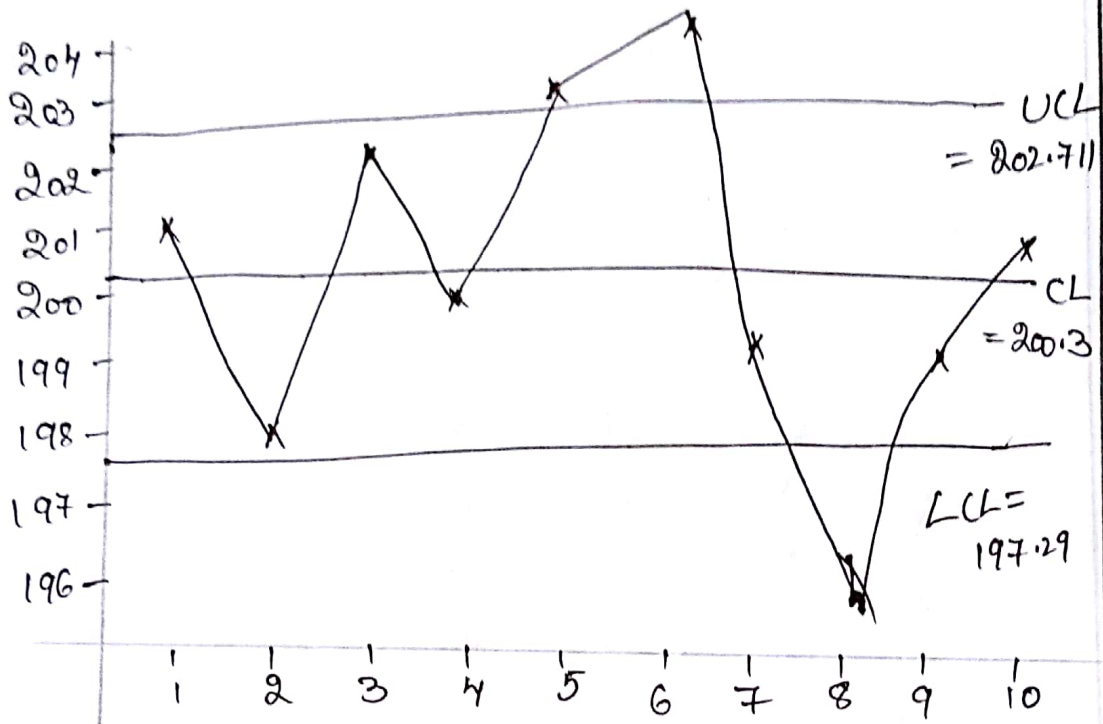
$$UCL = \bar{\bar{x}} + A_2 \bar{R}$$

$$= 200 + 0.577(4.7) = 202.711$$

$$LCL = \bar{\bar{x}} - A_2 \bar{R} = 200 - 0.577(4.7) = 197.29$$

$$UCL = D_4 \bar{R} = 2.115 \times 4.7 = 9.94$$

$$LCL = D_3 \bar{R} = 0 \times 4.7 = 0$$



Sample no. 5, 6, 8 are in Out of Control.

In a manufacturing unit, a sample of 5 sheets is taken every one hour. The data collected from the measurement of thickness of these sheets is tabulated below.

Sample No	Thickness in mm for 5 sheets						R	
	I	II	III	IV	V			
1	25	31	22	26	24	9		$A_2 = 0.58$
2	32	31	30	34	33	4		$D_3 = 0$
3	35	34	33	32	32	3		$D_4 = 2.115$
4	26	25	29	30	25	5		
5	33	34	30	29	33	5		
6	34	32	31	28	27	7		

Draw the Control Chart for mean and range and establish whether the process is under control.

$$A_2 = 0.58; D_3 = 0; D_4 = 2.115$$

Solution:

Thickness in mm for 5 sheets

Sample No	I	II	III	IV	V	$\bar{x}$	R
1	25	31	22	26	24	= 25.6	9
2	32	31	30	34	33	= 32	4
3	35	34	33	32	32	= 33.2	3
4	26	25	29	30	25	= 27	5
5	33	34	30	29	33	= 31.8	5
6	34	32	31	28	27	= 30.4	7
						$\Sigma \bar{x} = 180$	

$$\bar{X} = \frac{180}{6} = 30$$

$$\frac{180}{6} = 30$$

$$n = 5$$

$$UCL = \bar{X} + A_2 \bar{R}$$

$$= 30 + 0.58 (5.8)$$

$$= 33.19 \approx 33$$

$$LCL = \bar{X} - A_2 \bar{R}$$

$$= 30 - 0.58 (5.5)$$

$$= 26.81 \approx 27$$

$\bar{R}$ -Chart

$$CL = \bar{R} = \frac{9+4+8+5+6+7}{6} = 5.5$$

$$UCL = D_4 \bar{R}$$

$$= 2.115 \times 5.5$$

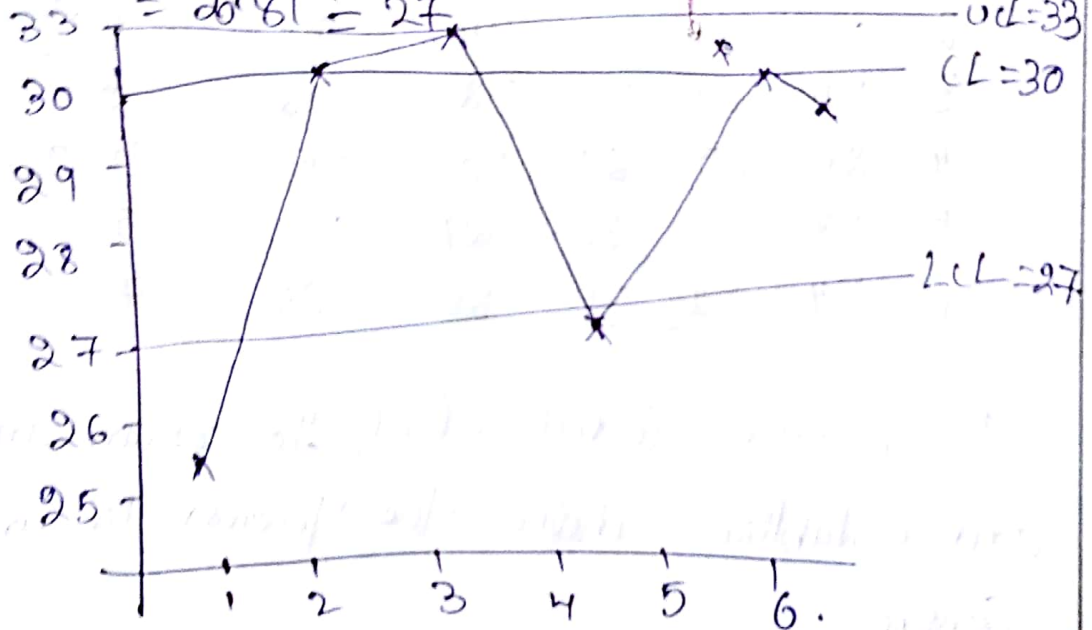
$$= 12$$

$$LCL = D_3 \bar{R}$$

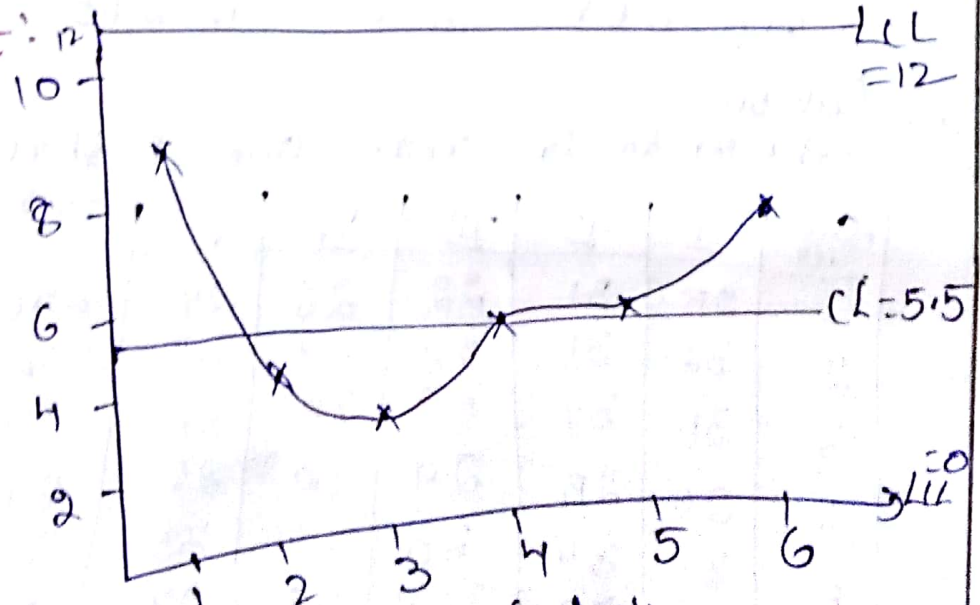
$$= 0 \times 5.5$$

$$= 0$$

$\bar{X}$ -Chart



$\bar{R}$ -Chart



All points are in control.

P-chart (fraction defective)

Let Samples (10 to 20) of size n be taken from the Production process randomly at different time intervals. If d is the no. of defectives in a Sample.

$$P = d/n = \frac{\text{no. of defectives in a sample}}{\text{Total no. of items in the sample}}$$

$$\sigma_P = \sqrt{\frac{\bar{P}(1-\bar{P})}{n}}$$

$$CL = \bar{P}$$

$$UCL = \bar{P} + 3\sigma_P$$

$$= \bar{P} + 3\sqrt{\frac{\bar{P}(1-\bar{P})}{n}}$$

$$LCL = \bar{P} - 3\sigma_P$$

$$= \bar{P} - 3\sqrt{\frac{\bar{P}(1-\bar{P})}{n}}$$

A nation wide mail order house decided to verify the accuracy of its clerical work in completing invoices. Subgroups of 200 are taken each day for 30 consecutive days for inspection. A defective is defined as an invoice containing at least one of a no. of possible errors. The no. of defectives found in each of these 30 groups are as follows:

2	4	3	5	9	5	9	1	4	8
8	12	5	8	7	4	4	7	9	9
5	4	5	6	6	3	10	6	2	6

Construct a Control Chart of the data and comment on the state of control.

Here

Sample Size per day (n) = 200

Percentage defect = $\frac{\text{no. of defects found every day}}{\text{no. of pieces inspected every day}}$

We will work on the Percentage defective

For all

Sample no

1

2

3

1	2	$2/200 = 0.01$
2	4	$4/200 = 0.02$
3	3	$3/200 = 0.015$
4	5	$5/200 = 0.025$
5	9	$9/200 = 0.045$
6	5	$5/200 = 0.025$
7	9	$9/200 = 0.045$
8	1	$1/200 = 0.005$
9	4	$4/200 = 0.02$
10	8	$8/200 = 0.04$
11	8	$8/200 = 0.04$
12	12	$12/200 = 0.06$
13	5	$5/200 = 0.025$
14	8	$8/200 = 0.04$
15	7	$7/200 = 0.035$
16	4	$4/200 = 0.02$
17	4	$4/200 = 0.02$
18	7	$7/200 = 0.035$
19	9	$9/200 = 0.045$
20	9	$9/200 = 0.045$
21	5	$5/200 = 0.025$
22	4	$4/200 = 0.02$
23	5	$5/200 = 0.025$
24	6	$6/200 = 0.03$
25	6	$6/200 = 0.03$
26	3	$3/200 = 0.015$
27	10	$10/200 = 0.05$

29

2

$$2/200 = 0.01$$

30

6

$$6/200 = 0.03$$

180

$$0.01 + 0.02 + 0.015 + 0.025 + 0.045 + 0.025 + 0.045 + 0.005 + 0.02 + 0.04 + 0.04 + 0.06 + 0.025 + 0.04 + 0.035 + 0.02 + 0.02 + 0.035 + 0.045 + 0.045 + 0.025 + 0.02 + 0.025 + 0.03 + 0.03 + 0.015 + 0.05 + 0.03 + 0.01 + 0.03$$

$$= 0.88/30 = 0.029$$

Average % defective ($\bar{p}$) = $\frac{\text{Total no. of defectives found}}{\text{Total no. of pieces inspected}}$

$$= \frac{180}{(30 \times 200)} = \frac{180}{6000} = 0.03$$

$$CL = \bar{p} = 0.029$$

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

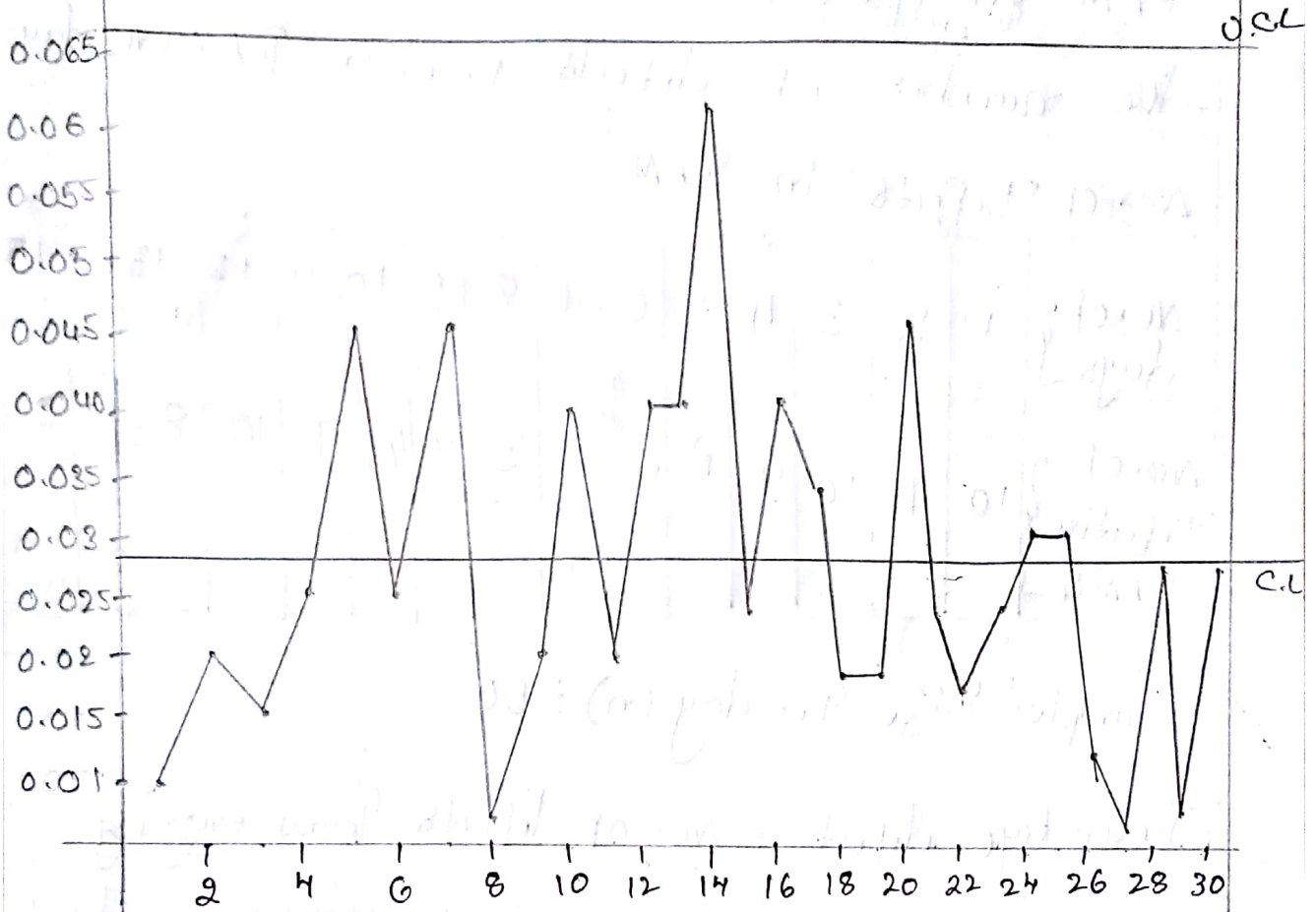
$$= 0.0293 + 3\sqrt{\frac{0.0293(1-0.0293)}{200}}$$

$$= 0.0293 + 3 \times 0.0119$$

$$= 0.0651$$

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

$$= 0.0293 - 3 \times 0.0119 = -0.0064 \approx 0$$



A Company deals in the manufacturing of RAM for laptops on mass production basis and the number of defects found in RAM everyday

No. of Defects in RAM

No. of Days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No. of Defective RAM's	10	9	10	9	5	6	2	3	9	4	9	10	8	9	10

Sample Size Per day (n) = 50

Percentage defect = $\frac{\text{No. of defects found everyday}}{\text{No. of pieces inspected every day}}$

We will work on the Percentage defective for all the weeks

Sample	No. of defects	% defectives
1	10	$10/50 = 0.20$
2	9	$9/50 = 0.18$
3	10	$10/50 = 0.20$
4	9	$9/50 = 0.18$
5	5	$5/50 = 0.10$
6	6	$6/50 = 0.12$
7	2	$2/50 = 0.04$
8	3	$3/50 = 0.06$
9	9	$9/50 = 0.18$
10	4	$4/50 = 0.08$

Sample	no. of defects	% of defectives
11	10	$\frac{10}{50} = 0.20$
12	10	$\frac{10}{50} = 0.20$
13	8	$\frac{8}{50} = 0.16$
14	9	$\frac{9}{50} = 0.18$
15	10	$\frac{10}{50} = 0.20$

2.28

$$\bar{p} = \frac{2.28}{15} = 0.152$$

(or)

$$\begin{aligned} \text{Average \% defective } (\bar{p}) &= \frac{\text{Total no. of defectives found}}{\text{Total no. of Pieces inspected}} \\ &= \frac{113}{(15 \times 50)} = 0.151 \end{aligned}$$

$$CL = 0.151$$

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

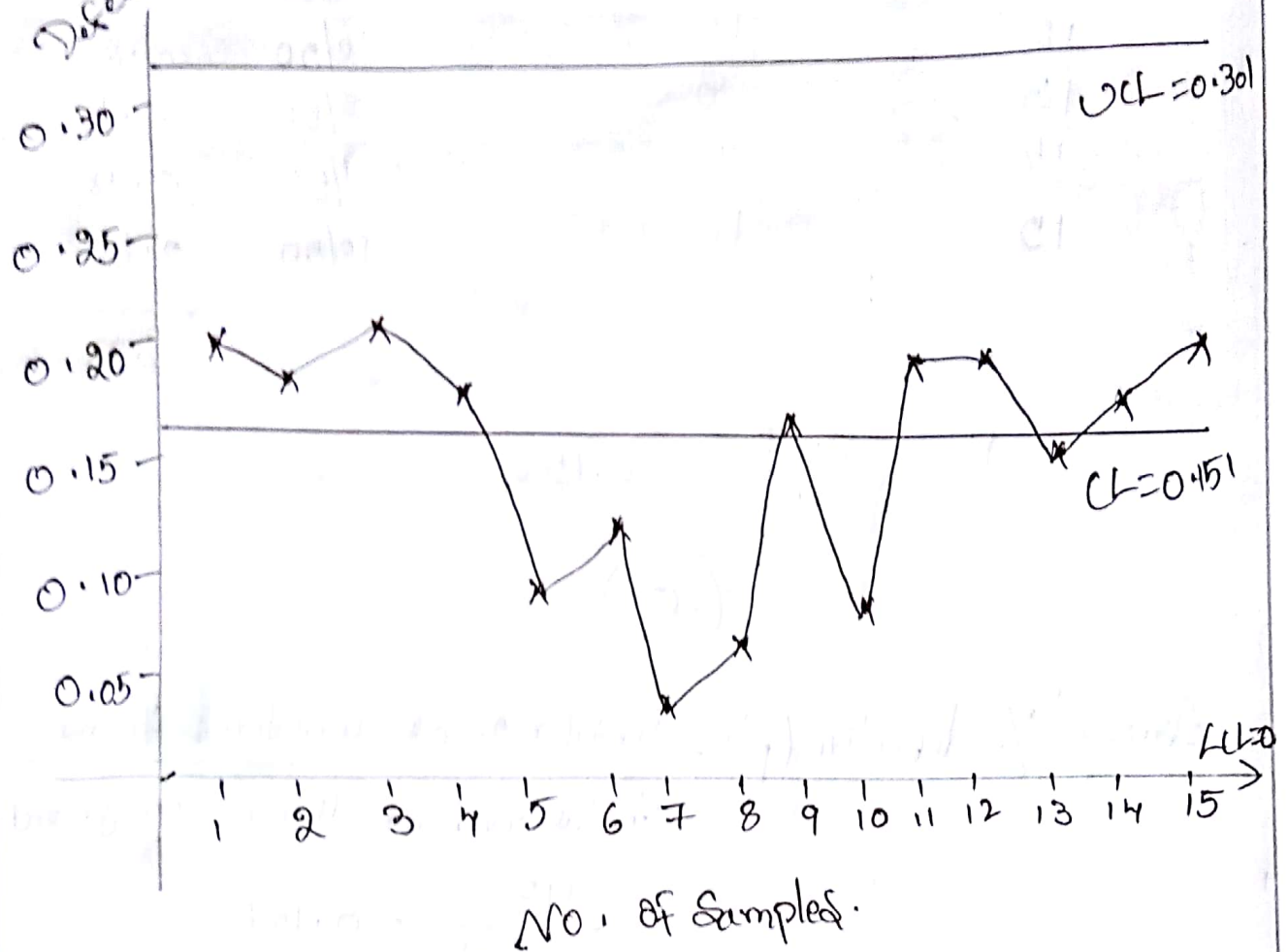
$$= 0.151 + 3 \sqrt{\frac{0.151(1-0.151)}{50}}$$

$$= 0.301$$

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

$$= 0.151 - 3 \sqrt{\frac{0.151(1-0.151)}{50}}$$

$$= -0.001 \approx 0 \text{ approximately}$$



10th day, the Sample is slightly below the UCL which indicates a high percentage defect. This is due to the Convertible Cause on the manufacturing process due to trial off from the Scouting department or the disparity in Sample Size. Control Limits are the best possible means to detect if there is any kind of Convertible Cause present in the process of production.

From the following data, construct a fraction defective chart:

Group no	1	2	3	4	5	6	7	8	9	10	
Sample size	32	32	50	50	32	80	50	50	32	32	= 440
No. of Defectives	2	3	3	2	1	4	2	0	2	1	
Fraction (b/a)	$\frac{2}{32}$	$\frac{3}{32}$	$\frac{3}{50}$	$\frac{2}{50}$	$\frac{1}{32}$	$\frac{4}{80}$	$\frac{2}{50}$	$\frac{0}{50}$	$\frac{2}{32}$	$\frac{1}{32}$	
	0.0625	0.09375	0.06	0.04	0.03125	0.05	0.04	0.00	0.0625	0.03125	$\Sigma P = 0.4712$

$$P = \frac{\text{No. of defectives (b)}}{\text{Sample Size (a)}}$$

$$\bar{P} = \Sigma P / n = \frac{0.4712}{10} = 0.047$$

n = Average Sample Size

$$= \frac{\text{Total Sample Size}}{\text{No. of Samples}} = \frac{440}{10} = 44$$

$$CL = \bar{P} = 0.047$$

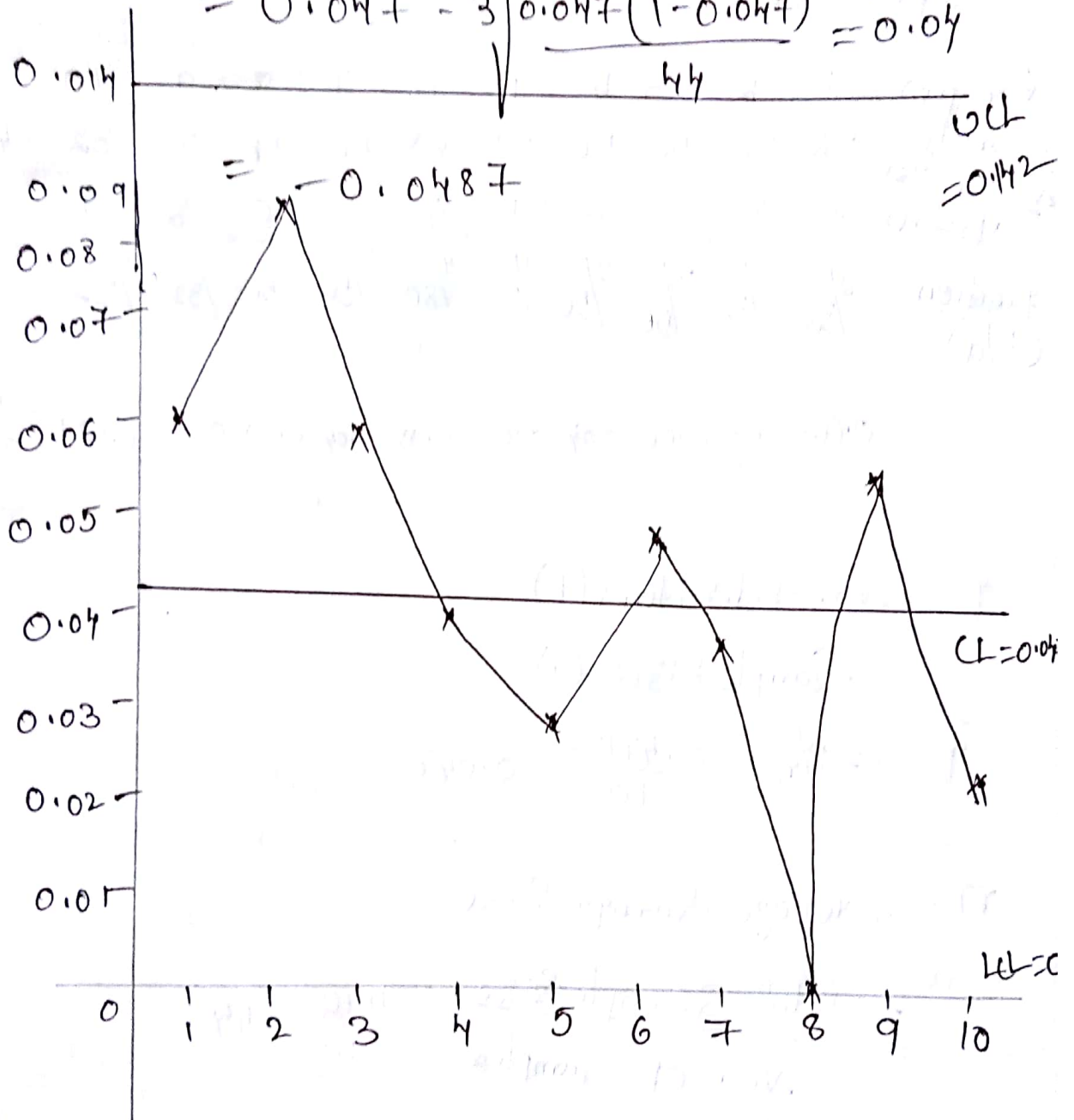
$$UCL = \bar{P} + 3 \sqrt{\frac{\bar{P}(1-\bar{P})}{n}}$$

$$= 0.047 + 3 \sqrt{\frac{0.047(1-0.047)}{44}}$$

$$= 0.1427$$

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

$$= 0.047 - 3 \sqrt{\frac{0.047(1-0.047)}{44}} = 0.04$$



All points are within control

When the production process involves complex assembly of a large no. of components such as in the manufacture of an aircraft, an automobile, a T.V., a computer, clothes etc., knowledge of the no. of defects per unit is useful in maintaining a satisfactory level of Quality.

$$GC = \sqrt{\bar{c}}$$

$$\bar{c} = \frac{\text{Total no. of defects in all the samples}}{\text{Total no. of samples inspected}}$$

$$CL = \bar{c}$$

$$UCL = \bar{c} + 3GC$$

$$= \bar{c} + 3\sqrt{\bar{c}}$$

$$LL = \bar{c} - 3GC$$

$$= \bar{c} - 3\sqrt{\bar{c}}$$

Problem 1:

The cloth of a particular manufacturer was inspected 100 sq. meters is considered as a unit. The defects in each unit were recorded and are given below. Is the production process under Statistical Control?

100 sq. m. cloth length No	1	2	3	4	5	6	7	8	9	10
No. of defects in each sample	2	3	1	4	4	0	2	1	4	2

Total no. of defects = 23

$$CL = \bar{c} = \Sigma c/n = 23/10 = 2.3$$

$$UCL = \bar{c} + 3\sqrt{\bar{c}} = 2.3 + 3\sqrt{2.3}$$

$$= 2.3 + 3(1.51)$$

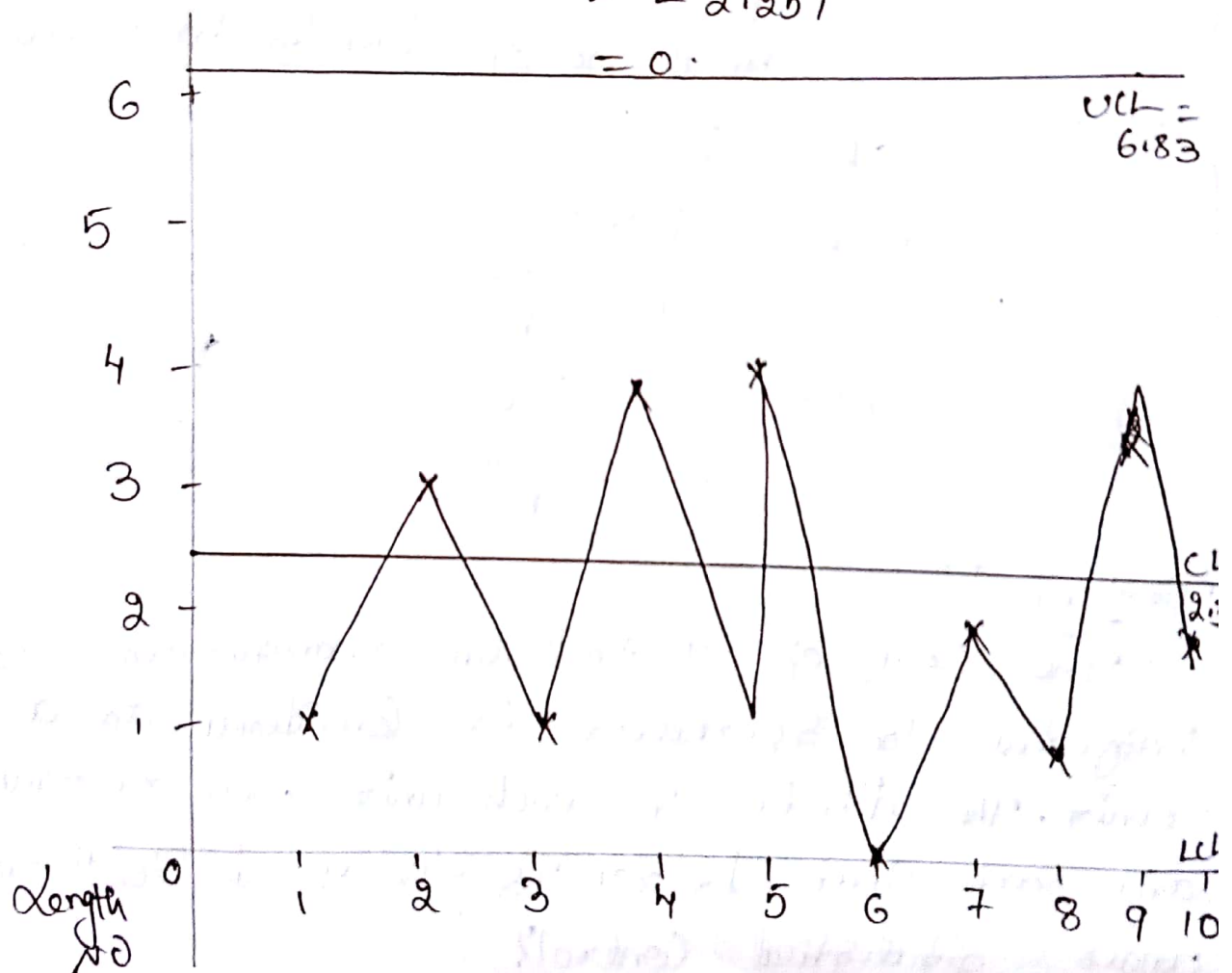
$$= 6.83$$

$$LCL = \bar{c} - 3\sqrt{\bar{c}} = 2.3 - 3\sqrt{2.3}$$

$$= 2.3 - 3(1.51)$$

$$= -2.251$$

$$= 0$$



Conclusion:

All points are in with the control.

Problems
C-chart problem

Problem 2:

The following table gives the number of defects missing at aircraft final inspection. Prepare appropriate control chart

S.No	1	2	3	4	5	6	7	8	9	10
Airplane No	A	B	C	D	E	F	G	H	I	J
No. of Missing Parts	8	16	14	19	11	15	8	11	21	12

S.No	11	12	13	14	15	16	17	18	19	20
Airplane No	K	L	M	N	O	P	Q	R	S	T
No. of Missing Parts	23	16	9	25	15	9	9	14	11	9

S.No	21	22	23	24	25
Airplane No	U	V	W	X	Y
No. of Missing Parts	10	22	7	28	9
					Total 351

Answers:

C-chart FormulaC-chart → Defects

Eg: Manufacture of an aircraft, an automobile, Tr.

$$CL = \bar{C}$$

$$= \frac{\text{Total no. of defects in all the samples}}{\text{Total no. of samples inspected}}$$

$$UCL = \bar{C} + 3\sqrt{\bar{C}}$$

$$LCL = \bar{C} - 3\sqrt{\bar{C}}$$

$$\bar{C} = \frac{8 + 16 + 14 + 19 + 11 + 15 + 8 + 11 + 81 + 13 + 23 + 16 + 9 + 25 + 15 + 9 + 9 + 14 + 11 + 9 + 10 + 22 + 7 + 28 + 9}{25}$$

$$= \frac{351}{25} = 14.04 \text{ missing shells / air plane}$$

Upper Control Limit

$$\bar{C} + 3\sqrt{\bar{C}}$$

$$= 14 + 3\sqrt{14}$$

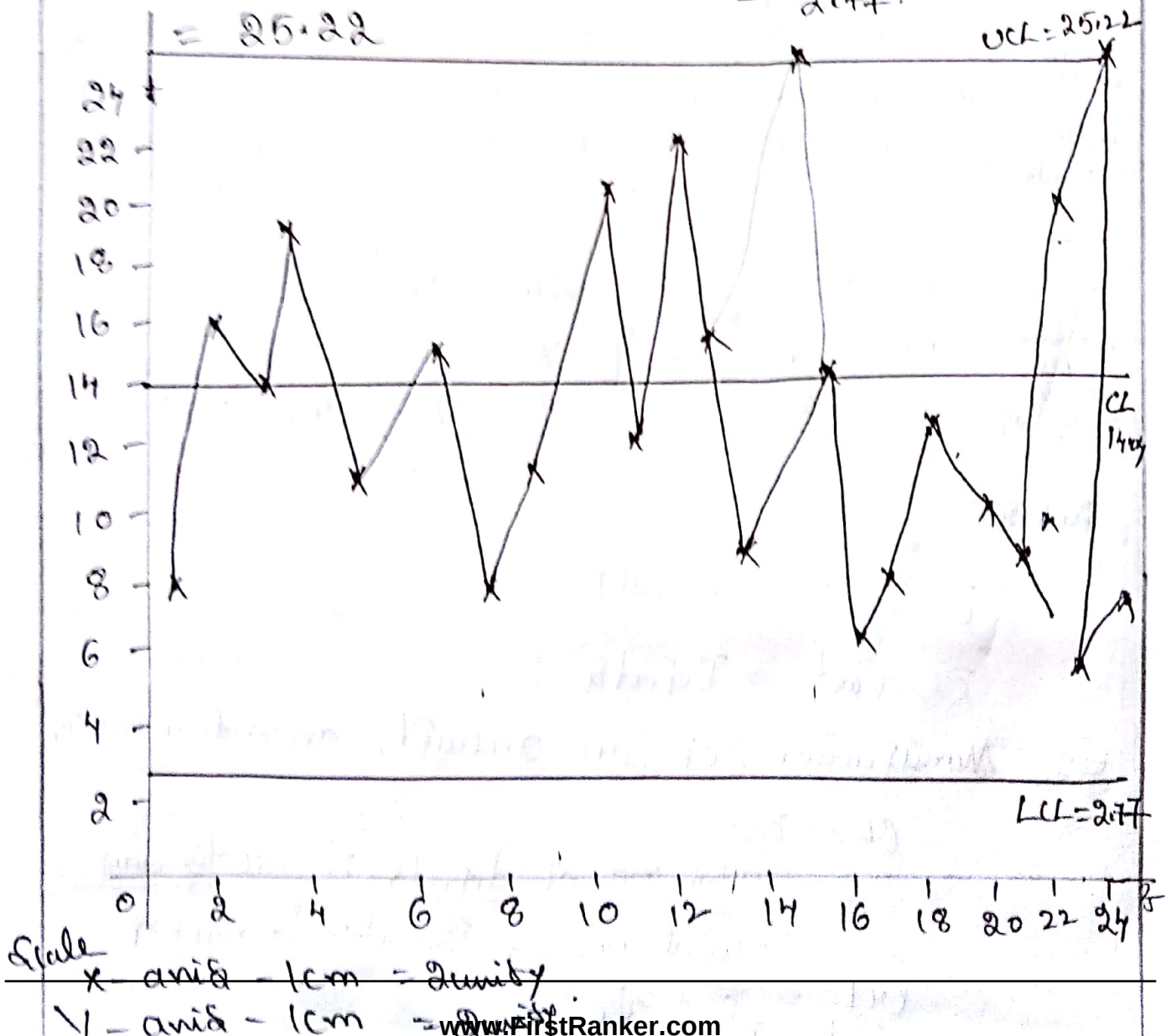
$$= 25.22$$

Lower Control Limit

$$\bar{C} - 3\sqrt{\bar{C}}$$

$$= 14 - 3\sqrt{14}$$

$$= 2.77$$



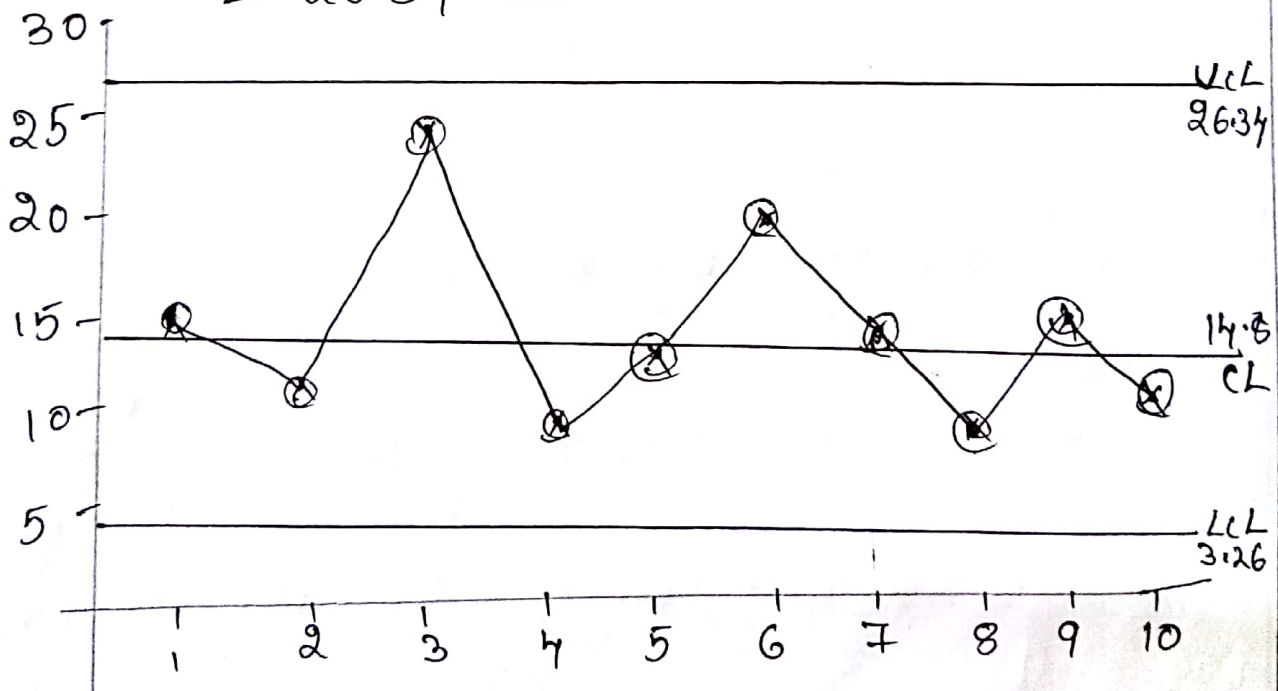
The following table gives the no. of defects in a casting used for making Crank case of a diesel engine.

Casting NO	1	2	3	4	5	6	7	8	9	10
No. of Defects	15	11	25	10	12	20	15	10	17	13

$$\bar{c} = \frac{\text{Total no. of defects}}{\text{Total no. of Samples}} = \frac{148}{10} = 14.8$$

$$\begin{aligned} UCL &= \bar{c} + 3\sqrt{\bar{c}} \\ &= 14.8 + 3\sqrt{14.8} \\ &= 26.34 \end{aligned}$$

$$\begin{aligned} LCL &= \bar{c} - 3\sqrt{\bar{c}} \\ &= 14.8 - 3\sqrt{14.8} \\ &= 3.26 \end{aligned}$$



Note: All the points are within control limits. The Quality of Casting is considered to be under control.

Let samples of size n be taken from the production process randomly at different intervals of time. If d is the no. of defectives in the sample and p is the fraction defective in the sample.

$$\bar{np} = \frac{\text{Total no. of defectives of all samples}}{\text{No. of samples inspected}}$$

$$\sigma_{np} = n \sqrt{\frac{\bar{p}(1-\bar{p})}{n}}$$

The Control limits for the np-chart are

$$CL = \bar{np}$$

$$UCL = \bar{np} + 3\sigma_{np}$$

$$= \bar{np} + 3\sqrt{\bar{np}(1-\bar{p})}$$

$$LCL = \bar{np} - 3\sigma_{np}$$

$$= \bar{np} - 3\sqrt{\bar{np}(1-\bar{p})}$$

Problem 1:-

In a blade manufacturing factory 1,000 blades are examined daily. Following information shows no. of defectives blades obtained there to. Draw the np chart and give your findings

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No. of Defective Blades	9	10	12	8	7	15	10	12	10	8	7	13	14	15	16
	$\frac{9}{1000}$	$\frac{10}{1000}$	$\frac{12}{1000}$	$\frac{8}{1000}$	$\frac{7}{1000}$	$\frac{15}{1000}$	$\frac{10}{1000}$	$\frac{12}{1000}$	$\frac{10}{1000}$	$\frac{8}{1000}$	$\frac{7}{1000}$	$\frac{13}{1000}$	$\frac{14}{1000}$	$\frac{15}{1000}$	$\frac{16}{1000}$
$\bar{p}$	0.009	0.01	0.012	0.008	0.007	0.015	0.01	0.012	0.01	0.008	0.007	0.013	0.014	0.015	0.016

Sol:- $n=1,000$

$k=15$

$$\bar{p} = \frac{\text{Total no. of defective items in all samples inspected}}{\text{No. of items in sample}}$$

$$CL = \bar{np} = \frac{\text{Total no. of defectives of all samples}}{\text{No. of samples inspected}}$$

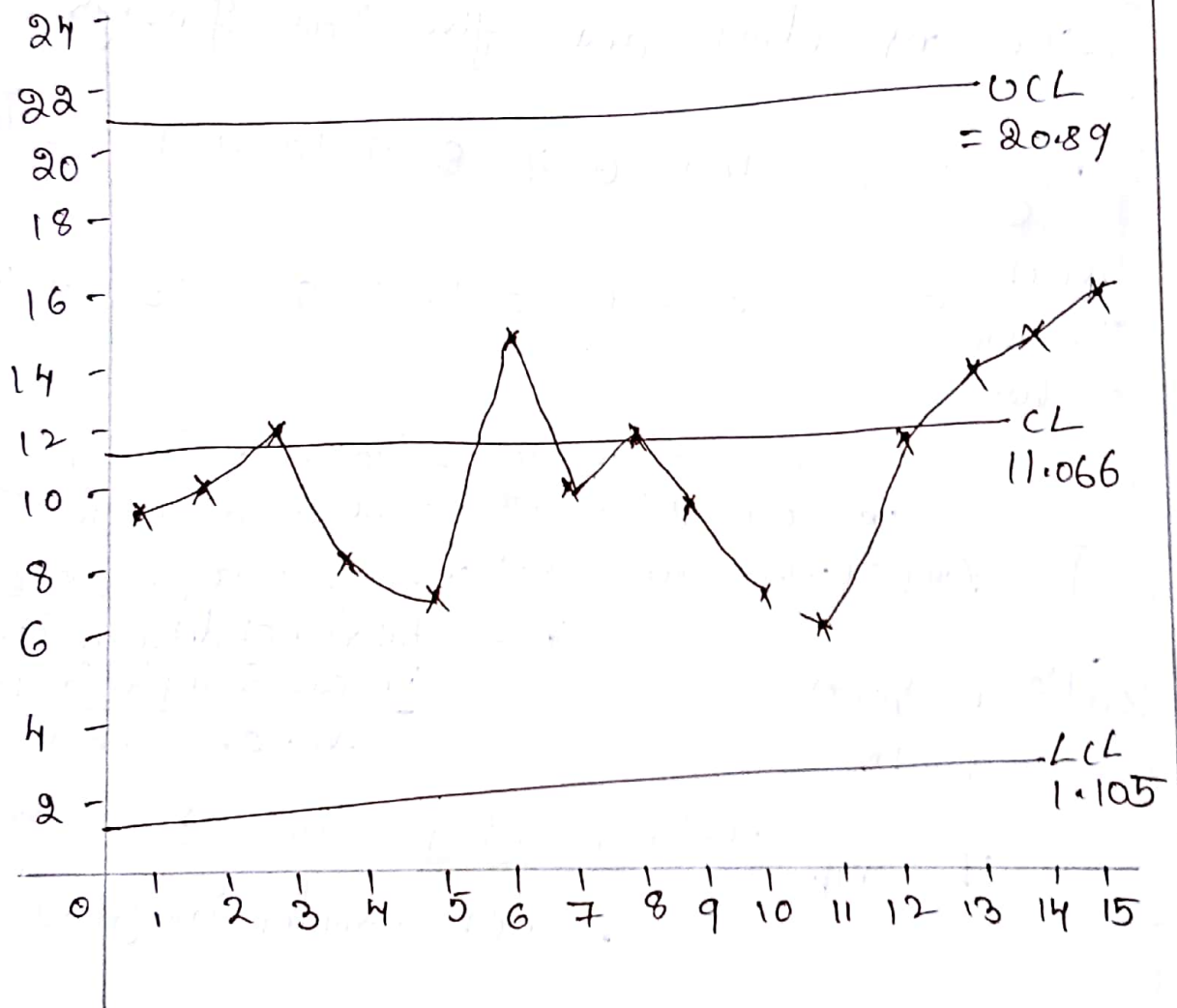
$$\bar{np} = \frac{9+10+12+8+7+15+10+12+10+8+7+13+14+15+16}{15}$$

$$= \frac{166}{15} = 11.066$$

$$UCL = \bar{np} + 3\sqrt{\bar{np}(1-\bar{p})}$$

$$= 11 + 3\sqrt{11(1-0.011)} = 20.89$$

$$\begin{aligned} LCL &= \bar{np} - 3\sqrt{\bar{np}(1-p)} \\ &= 11 - 3\sqrt{11(1-0.011)} \\ &= 1.105 \end{aligned}$$



Since, all the 15 points lie within the Control limits.

NP chart

Problem 2:- Neha Industries want to set up a Control chart for the no. of defective units for 150 toasters production line. Twenty-five random samples of 400 units each inspected and the no. of defective units in each sample were noted as follows.

Sample no	1	2	3	4	5	6	7	8	9
No. of Defective	17	26	22	24	30	35	15	19	23
	$\frac{17}{400} = 0.04$	0.065	0.055	0.06	0.075	0.087	0.037	0.047	0.057
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
	0.045	0.037	0.052	0.04	0.047	0.047	0.02	0.02	0.057
	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	0.032	0.05	0.035	0.0425	$= 0.1595$				

Sol:-

$$n = 400 \quad k = 25$$

$$\frac{17 + 26 + 22 + 24 + 30 + 35 + 15 + 19 + 23 + 18 + 15 + 21 + 16 + 19 + 19 + 8 + 8 + 23 + 20 + 18 + 18 + 18 + 20 + 14 + 17}{25 \times 400}$$

$$= \frac{478}{25 \times 400} = 19.42 = 0.0478 \approx 0.05$$

$$\bar{np} = 400 \times 0.005 = 20$$

$$\bar{np} = \frac{478}{25} = 19.42$$

$$UCL = \bar{np} + 3\sqrt{\bar{np}(1-\bar{p})}$$

$$\begin{aligned} &= 19.12 + 3\sqrt{19.12} \\ &= 20 + 3\sqrt{20(1-0.005)} \\ &= 33.1 \end{aligned}$$

$$LCL = \bar{np} - 3\sqrt{\bar{np}(1-\bar{p})}$$

$$\begin{aligned} &= 20 - 13.08 \\ &= 6.2 \end{aligned}$$

Need for Inventory Control.

Inventory Control is also important to maintain the right balance of stock in your warehouses. -- Too much inventory can trigger profit losses -- whether a product expires, gets damaged, or goes out of season. Key to proper inventory control is a deeper understanding of customer demand for your products.

Introduction:

* The term inventory means the value or amount of materials or resource on hand. It includes raw-material, work-in-progress, finished goods and stores, spares.

* Inventory Control is the process by which inventory is measured and regulated according to predetermined norms such as economic lot size for order or production, safety stock, minimum level, maximum level, order level etc.

* Inventory Control pertains primarily to the administration of established policies, systems and procedures in order to reduce the inventory cost.

Objectives of Inventory Control

1. To meet unforeseen future demand due to variation in forecast figures and actual figures.
2. To average out demand fluctuations due to seasonal or cyclic variations.
3. To meet the customer requirement timely, effectively, efficiently, smoothly and satisfactorily.
4. To smoothen the production process.
5. To facilitate intermittent production of several products on the same facility.
6. To gain economy of production or purchase in lots.
7. To reduce loss due to changes in prices of inventory items.
8. To meet the time lag for transportation of goods.
9. To meet the technological constraints of production / process.
10. To balance various costs of inventory such as order cost or setup cost and inventory carrying cost.
11. To balance the stock out cost / opportunity cost due to loss of sales against the costs of inventory.

12. To minimise losses due to deterioration, obsolescence, damage, pilferage etc.

13. To Stabilize employment and improve labour relations by inventory of human resources and machine efforts.

Factors affecting Inventory Control:-

- * Type of Product
- * Type of manufacture
- * Volume of Production

Benefits of Inventory Control:-

- * Adequate Supply of materials.
- * Minimizes inventory costs.
- * Facilitates Purchasing economies.
- * Eliminates duplication in ordering.
- * Better utilization of available stocks.
- * Provides a check against the loss of materials.
- * Facilitates cost accounting activities.
- * Enables management in cost comparison.
- * Locates and disposes inactive and obsolete stock items.
- * Consistent and reliable basis for financial statements.

* Nature of Inventory :-

* Dependent Demand :- Demand for one product is linked with demand for another product, such as components, subassemblies etc.,

* Independent Demand :- Demand for a product / service occurs independently of demand for any other for any other product or service, such as finished product, service parts, lubricants, cutting oil, greases, preservatives etc.,

* The dependency is vertical if the demand for one product is derived from the demand for another product

Eg: Demand for engine block is derived from demand for cars.

* The dependency is horizontal if the demand for one item is not directly related, but related in another manner.

Eg: Demand for C.I. ingots horizontally depend on automobile product of company.

* Only independent demand items need forecasting because that of dependent items

Can be desired from de-desired from demand for independent items.

* Accounting for Inventory :-

→ Inventory value account for varying proportions of raw materials, work in process parts, components or finished products.

→ In continuous production / mass production inventory for raw materials and finished product is high and that of WIP parts is less.

→ In batch production / Job shop production inventory for raw material and finished products is less and WIP inventory is high.

Distribution of Inventory account :-

	Raw materials	WIP Inventory	Finished goods at factory	Finished goods at distribution
Capital goods	60%	20%	20%	00%
Garment Industry	30%	55%	5%	10%
Consumer product	5%	10%	30%	55%

Types of Inventory costs

- * Ordering (purchasing) costs
- * Inventory carrying (holding) costs
- * Out of Stock / Shortage costs.
- * Other costs

1. Ordering costs :- OC are the expenses incurred to create and process an order to a supplier. These costs are included in the determination of the economic order quantity for an inventory item.

Eg:- ordering costs are: - - - cost to prepare a purchase order cost of the labor required to inspect goods when they are received.

2. Inventory carrying costs :- The cost of holding goods in stock. Expressed usually as a percentage of the inventory value and includes cost of capital, warehousing, depreciation, insurance, taxation, obsolescence and shrinkage also called inventory cost.

Cost of Inventory refers to the total cost of holding Inventory. This includes warehousing costs such as rent, utilities and Salaries, financial costs such as opportunity cost, and inventory costs related to perishability, shrinkage and Insurance.

3. Out of Stock / Shortage Costs :-

Goods available (or unavailable) for immediate sale in a shop.

Stock out costs. Economic consequences of not being able to meet an internal or external demand from the current inventory. Such costs consist of internal costs (delays, labor time wastage, lost of production etc.) and external costs (loss of profit from lost sales, and loss of future profit due to loss of goodwill). (Breakdown, lost sales, Back ordering)

4. Other costs :- In accounting, costs are the monetary value of expenditures for supplies, services, labor, products, equipment and other items purchased for use by a business.

* Capacity Costs

→ over time Payments

→ Lay off's & idle time

* Machine Setup

* Start-up Scrap generated from getting a production run started

→ over stocking costs

INVENTORY MODELS:-

EOQ (Economic Order Quantity)

Economic order Quantity is the quantity

which minimises total cost

Storage cost is one of the oldest classical Production Scheduling model.

When you order inventory, you don't want too little or too much

↑
Stockout

↑
Spoilage
Storage

Total cost = Purchase cost + ordering cost
+ Carrying cost

$T_c = \text{Purchase cost} + \text{ordering cost} + \text{Carrying cost}$
Balance these costs find optimal order size.

Eg: Family Restaurant

Kinda want Chocolate milk optimal order

optimal order = Q^*

Order cost = R

Carrying cost = H

Annual units demanded = D one unit for year

$$Q^* = \sqrt{\frac{2RD}{H}}$$

Eg: $D = 200$

$R = \$50$

$H = \$2$

$Q^* = ?$

$$Q^* = \sqrt{\frac{2 \cdot 50 \cdot 200}{2}}$$

$Q^* = 100$

What is EOQ?

Economic order Quantity is one of the techniques of inventory control which minimises total holding and ordering costs for the year.

EOQ is the technique which solves the problem of the materials manager.

Insert Definition of EOQ:-

"EOQ is essentially an accounting formula that determines at which the combination of order, costs and inventory carrying cost are the least. The result is the most cost effective quantity to order. In Purchasing this is known as order quantity, in manufacturing it is known as the production lot size.

→ Quantity of materials which can be purchased at minimum costs.

→ It is the size of the lot to be purchased which is economically viable.

→ The framework used to determine this order quantity is also known as Wilson EOQ model or Wilson formula.

→ In determining EOQ, it is assumed that cost of managing inventory is made up solely of 2 parts i.e.,

(a) Ordering costs / Buying costs

(b) Carrying costs / Holding costs

* Costs which are associated with the Purchasing or ordering of materials.

* These costs include:

- (a) Costs of staff posted for ordering of goods.
- (b) Expenses incurred on transportation of goods purchased.
- (c) Inspection costs of incoming materials.
- (d) Cost of Stationery, typing, postage, telephone charges, etc.

* Carrying Costs:-

→ Costs for holding the inventories.

→ These costs include:

- (a) The cost of Capital invested in inventories.
- (b) Cost of Storage which could have been used for other purposes.
- (c) The loss of materials due to deterioration and obsolescence.
- (d) Insurance costs.
- (e) Cost of Spoilage in handling of materials.

Assumptions of EOQ Model:-

- * The ordering cost is constant.
- * The rate of demand is known, and spread evenly throughout the year.
- * The lead time is fixed.
- * The purchase price of the item is constant i.e., no discount is available.
- * The replenishment is made instantaneously the whole batch is delivered at once.

EOQ Formula:-

$$EOQ = \sqrt{\frac{2(\text{Annual usage in units})(\text{order cost})}{(\text{Annual carrying cost per unit})}}$$

Example:

- U = Annual usage 2000
- A = Acquisition cost per order \$50
- I = Inventory carrying rate 25%
- C = Item cost \$8

$$EOQ = \sqrt{\frac{2 \times 2000 \times 50}{0.25 \times 8}} = 316$$

Quantity is annual demand for the product is 5,000 unit. The ordering cost is 30/- Per order and holding cost is 6/- Per unit Per annual.

Sol: Given D

$$EOQ = \sqrt{\frac{2 \times 5000 \times 30}{6}}$$

$$= 224 \text{ or } 225 \text{ units}$$

Ex:3:- In our Production we need 5,000 kg Per Year. ordering cost is 13/- Per order Holding cost Per kg of salt is 0.1

What is Economic Quantity Per one order and how many times within a Year should we place our orders for this material?

① No. of orders	② ordered Qty	③ Avg Stock	④ order costs	⑤ Holding Cost	⑥ Total Costs
1	5,000	2,500	$5000 \times \frac{1}{2} \times 13$	250	$2,500 \times 0.1$
2	2,500	1,250	$2500 \times \frac{1}{2} \times 13$	125	$1,250 \times 0.1$
3	1667	833	$1667 \times \frac{1}{2} \times 13$	83	833×0.1
4	1250	625	$1250 \times \frac{1}{2} \times 13$	63	625×0.1
5	1,000	500	$1000 \times \frac{1}{2} \times 13$	50	500×0.1
6	833	417	$833 \times \frac{1}{2} \times 13$	42	417×0.1
7	714	357	$714 \times \frac{1}{2} \times 13$	36	357×0.1
8	625	313	$625 \times \frac{1}{2} \times 13$	31	313×0.1
9	556	278	$556 \times \frac{1}{2} \times 13$	28	278×0.1
10	500	250	$500 \times \frac{1}{2} \times 13$	25	250×0.1

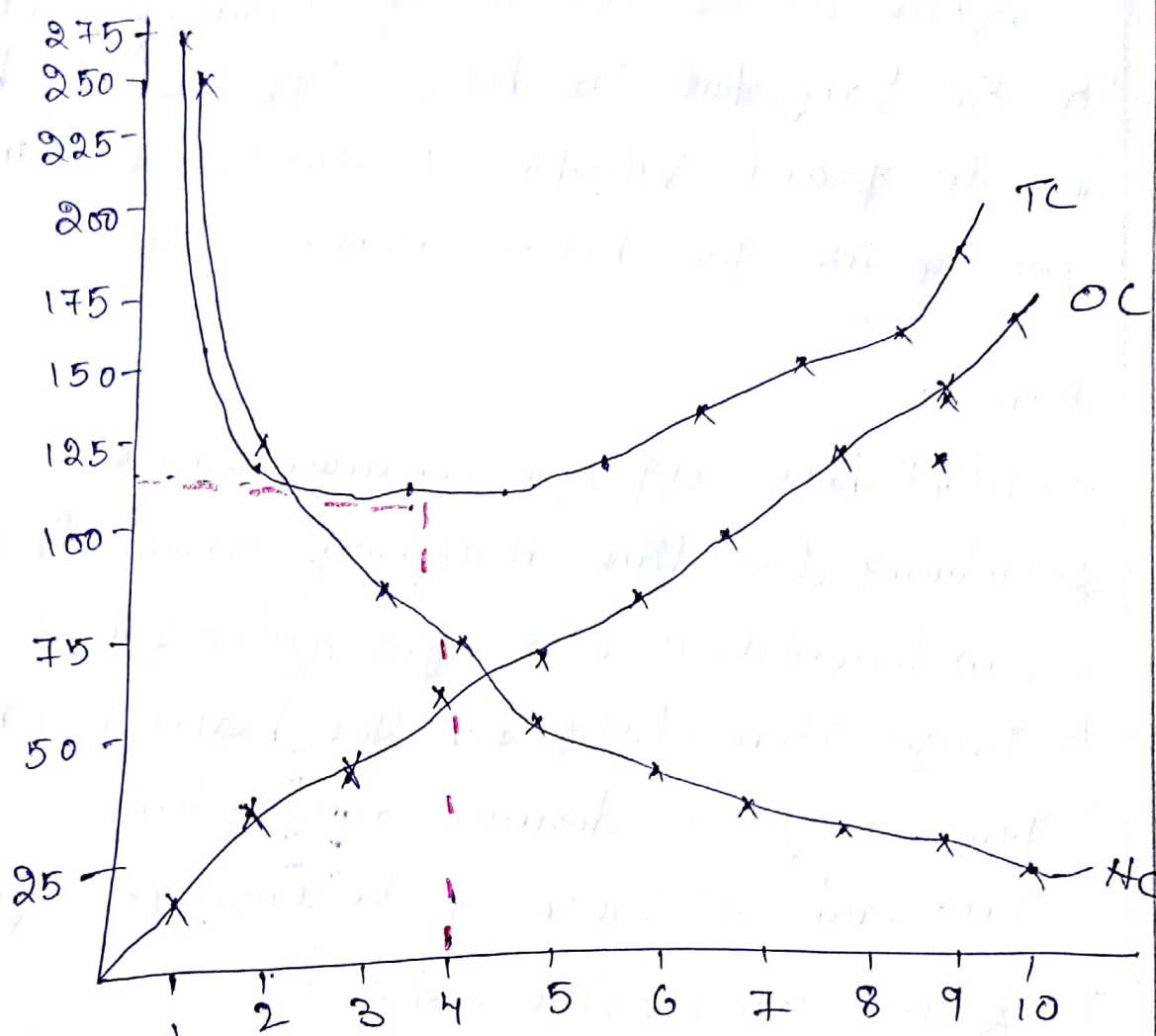
$$\text{Average stock} = \frac{(\text{Start Qty} + \text{End Qty})}{2}$$

$$= \frac{(\text{ordered Qty} + 0)}{2}$$

Cost of orders = no. of orders within a year $\times$ Cost per order

Holding cost = avg stock $\times$ Cost of warehousing per unit

Total cost = Cost of orders + Holding cost.



This is developed by Wilson-1913

EOQ is a old method

SIT " " Modern method.

When running a business, it is important for managers to practice a Inventory analysis is defined as the process of comprehending the certain products.

Some of the reasons why Inventory analysis is so important is below steps need to be done to protect valuable assets. Inventory analysis Your policies for better inventory control.

Benefits

1. Establishing a proper warehouse layout.
2. Reducing lead time in acquiring sellable items.
3. Implementation of proper authorization.
4. Proper item classification for better cost mgmt.
5. Proper mgmt of dormant inventory items.
6. Improved utilization of the company's capital
7. Better and positive cash flow.
8. Future Identification of possible opportunities or losses.

These are many methods of Inventory analysis an Inventory mgmt methods 5

1. ABC analysis

3. VED

5. SDE

2. FSN

"

4. HML

ABC analysis:- Pareto principle

* ABC Plan is based upon Segregation of materials for Selection Control.

* It measures the money value, i.e., Cost Significance of each material item in relation to total cost and material value.

* The Study of each item of Stock in terms of its usage, leadtime, technical or other problems and its relative money value in the total investment in inventories.

* Critical i.e., high value items deserve very close attention, and low value items need to be devoted minimum expense and effort in the task of Controlling inventories.

CLASSIFICATION:-

Items are classified according to the usage.

Item A:- 20% of the items

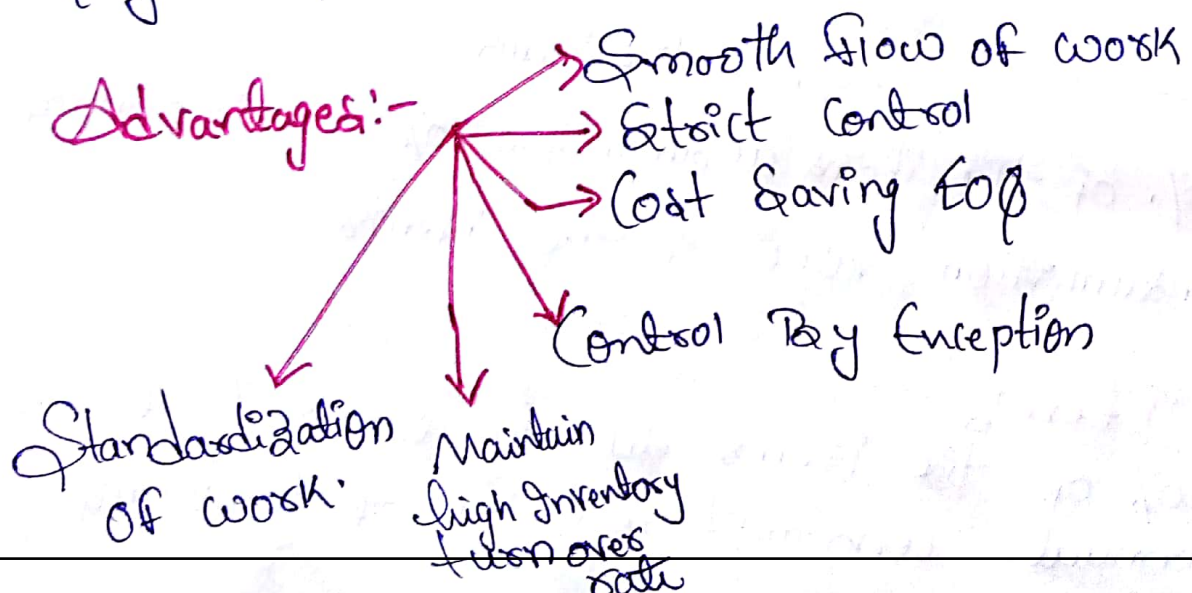
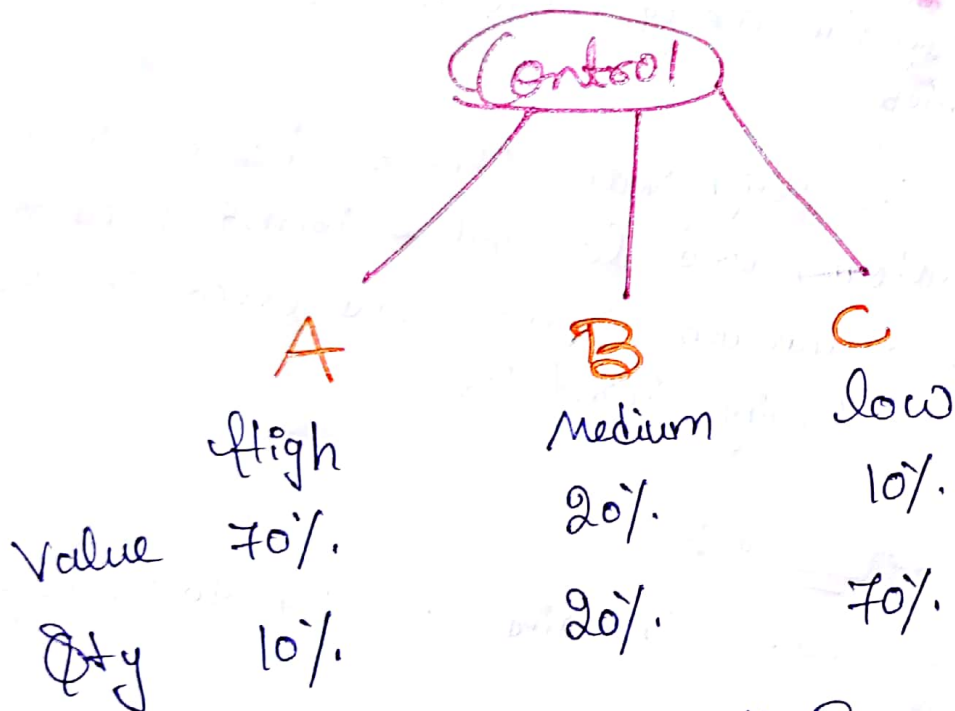
20% of the items accounts for 70% of the annual Consumption value of the items

Item B:-

30% of the items accounts for 25% of the annual Consumption value of the items

50% of the items accounts for 5% of the annual consumption value of the items

ABC class	No. of items	Total amount required
A	20%	60%
B	20%	20%
C	60%	20%
Total	100%	100%



* ABC analysis is a business tool used for Segmenting inventory

* Not all parts are created equal and not all parts require the same mgmt attention

* ABC analysis helps identify those parts that need the most attention.

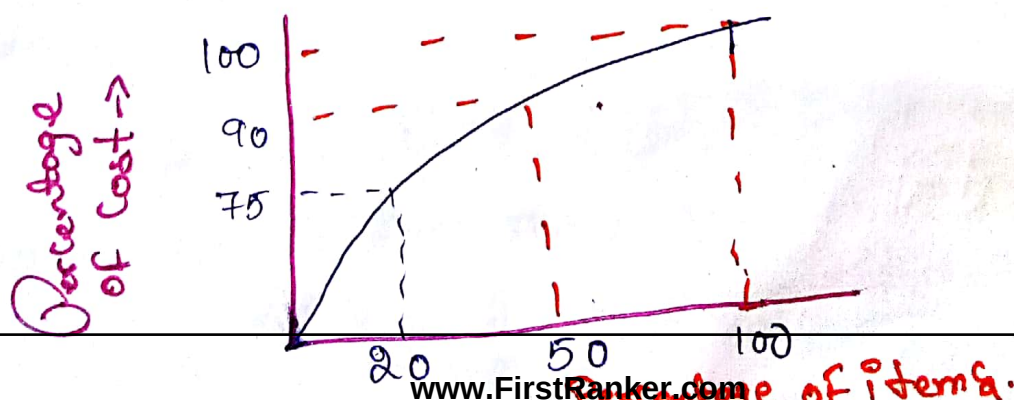
* It can also be used as a tool for determining what policies and methods are used for other related activities such as Procurement

What are the ABC's?

A items:- High Cost - requires most mgmt attention

B items:- Medium Cost - requires some mgmt attention

C items:- Low Cost - requires least mgmt attention.



1. Proper Standardization and Codification of Inventory items needed.

2. Considers only money value of items & neglects the importance of items for the Production process or assembly or functioning

3. Periodic review becomes difficult if only ABC analysis is relied.

4. When other important factors make it obligatory to concentrate on "C" items more, the purpose of ABC analysis is defeated.

Types of ABC Analysis:-

- ① FSN → Issue from stores
- ② VED → Criticality of item (loss of production)
- ③ HML → unit price (not consumption)
- ④ SDE → Procurement Difficulties.

What is FSN analysis?

(once a month) F = Fast moving - Items that are frequently issued
 (once a month) S = Slow moving - Items that are issued / used less for certain period.
 (motionless) N = Not moving
 (2 years)
 ↓
 Items that are not issued / used for more than 1 year.

* It is an Inventory mgmt technique, where we classify inventory items into F/S/N items and try to give more attention to F items. we try to dispose off N items (not moving) so that we are able to manage inventory properly.

* Help establishing most suitable stores layout by locating all the fast moving items near the dispensing window to reduce the handling efforts.

This is an analysis whose classification is dependent on the user's. According to the relative importance of certain items to other items.

- V - vital** - Inventory that consistently needs to be kept in stock
 Shortage cannot be tolerated
- E - Essential** - Keeping a minimum stock of this inventory is enough.
 Shortage can be tolerated for a short period
- D - Desirable** - Operations can run with or without this, optional.
 Shortage will not adversely affect, but may be using more resources. These must be strictly scrutinized.

	V	E	D		Item	Cost
A	AV	AE	AD	Category 1	10	70%
B	BV	BE	BD	Category 2	20	20%
C	CV	CE	CD	Category 3	70	10%

- Category 1 :- Needs close monitoring and control
- " 2 :- Moderate control
- " 3 :- No need for control.

* HML Analysis

HML analysis classifies inventory based on how much a product cost.

High cost (H) : Item whose unit value is very high.

Medium cost (M) : Item whose unit value is of medium value

Low cost (L) : Item whose unit value is low.

EBGs may be necessary to find out the means for prolonging the life of high value parts through secondhanding and repairs.

* Objectives:-

1. Determine the frequency of stock verification
2. To keep control over the consumption at the department level.
3. To evolve buying policy, to control purchase
4. To delegate the authority to different buyers.

This analysis classifies inventory based on how easily available an item inventory is classified:

S - Scarce - imported, frequently in short supply because of various reasons.

D - Difficult - difficult to obtain in quantity or quality.

E - Easy - easily available.

* Conclusion For 5 methods:-

If you have time you may test out all of these methods of inventory. There are certain businesses that work better with one type of method perfect for you and your company.

Topic 1: Concept of Human Resource Mgt

* Human Resource Mgt means mgt of people at work. HRM is the process which binds people with organizations and helps both people and organization to achieve each other's goal. Various policies, processes and practices are designed to help both employees and organization to achieve their goal.

* Definition:- HRM is also a function of mgt, concerned with hiring, motivating and maintaining people in an organisation.

It focuses on people in the organisation.

→ What is Management?

* It is the art of getting work done through other people.

→ What is HR?

Human Resources is the set of individuals who make up the workforce of an organisation, business sector or economy. Other terms sometimes used include "man power", "talent", "labour", or simply "people".

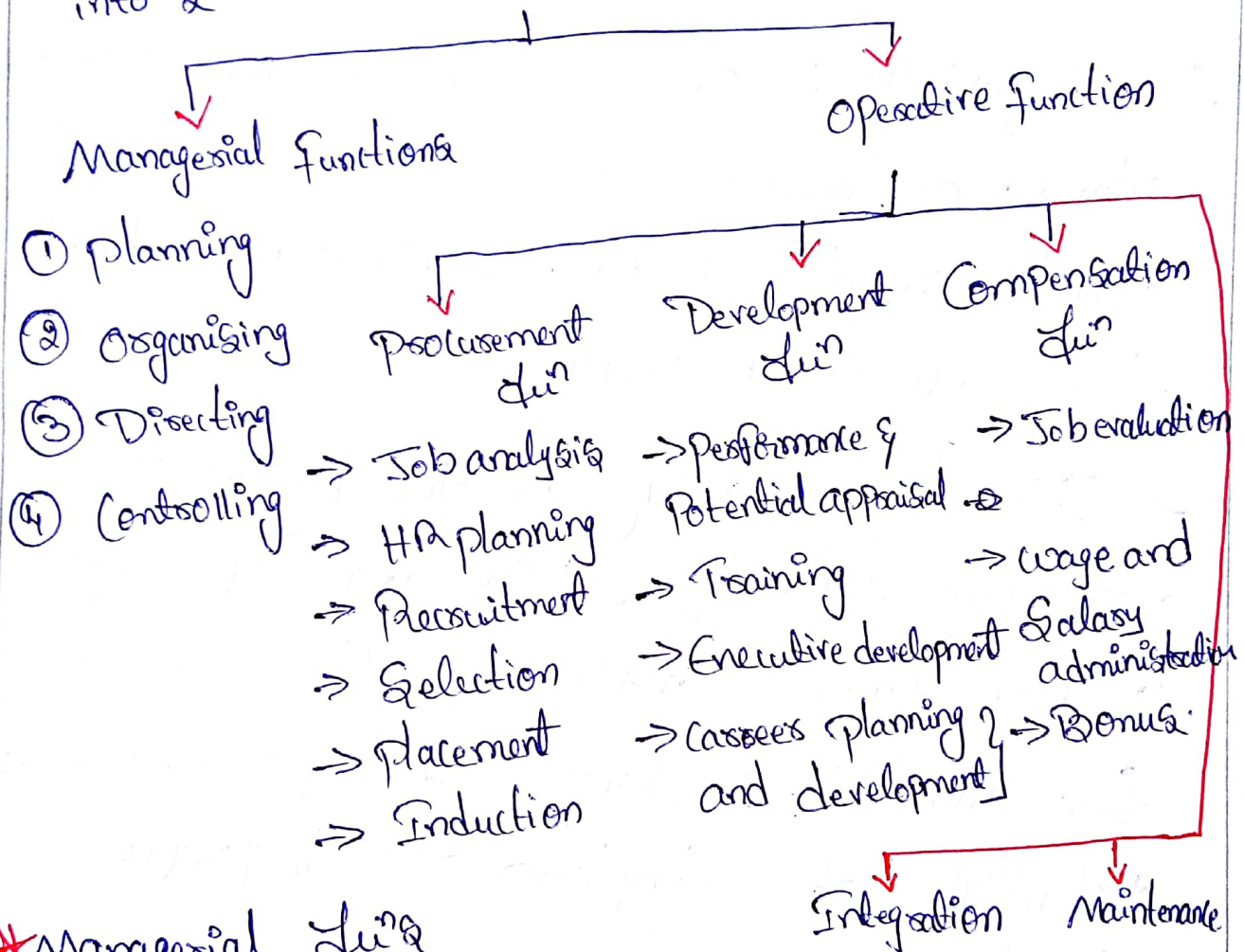
→ HRM is a branch of mgmt that deals with people at work, it is concerned with the human dimensions of mgmt of the organization. As organization consists of people, therefore acquiring them, developing their skills, providing them motivation in order to attain higher goal and ensuring that the level of commitment is maintained are the important activities.

→ Human Resources help in transforming the lifeless factors of production into useful products.

→ They are capable of enlargement i.e. capable of producing an output that is greater than the sum of inputs. Once they get inspired, even ordinary people can deliver extraordinary results.

→ They can help an organization achieve results quickly, efficiently and effectively.

*Functions of Human Resource Management:-
HRM is the mgmt of people at work.
Mgmt of human resources consists of several inter-related functions. These functions are classified into 2



→ Planning :- It is a future course of action
This involves

- Why an action
- What action
- How to take action
- When

Planning includes

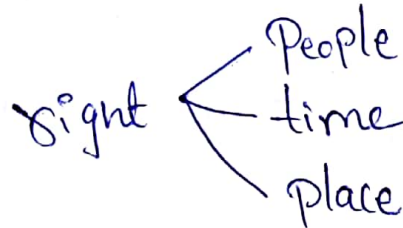
Specific objectives
projects and programmes
Setting Policies
Strategies
Setting rules and Budgets

→ Organising :- In order to Implement the Plans. Organisation is a framework through which mgmt directs, controls and coordinate the efforts of People.

→ Directing :- Directing is the process of motivating, activating, leading and Supervising People. Managers influences the actions of Sub-ordinates. A Manager can tap the maximum Potential of Employees through proper direction.

→ Controlling :- Controlling implies checking, Verifying and regulating to ensure that everything occurs in conformity with the Plans adopted and the Instructions Issued.

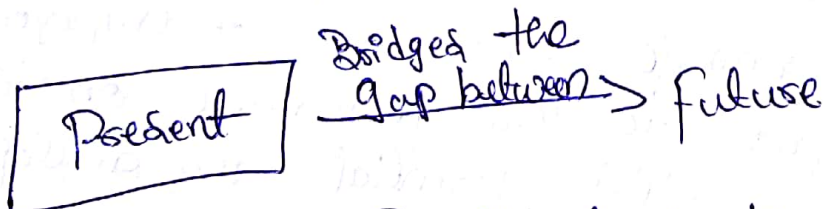
Operative Functions: Operative functions are also known as Service functions. These functions are performed



(a) Procurement functions: This is concerned with selecting and employing the right kind and proper number of people required.

I Job analysis: The process of studying in detail the operations and responsibilities involved in a job. Job descriptions and Job Specifications are prepared with the help of information provided by Job analysis.

II HR planning: Estimating the present and future manpower requirements of the organisation.



III Recruitment: Recruitment is the process of searching for prospective employees and stimulating them to apply for jobs in the organisation.

Selection, It implies Judging the Suitability of different Candidates for Jobs in the Organisation and Choosing the most appropriate People.

V Placement: Placement is the process of assigning a specific Job to each one of the Selected Candidates.

vi Induction or orientation: The process of receiving and welcoming an Employee when he first joins a Company and giving him the basic Information he needs to settle down quickly and happily and start work.

(2) Development Function: HR Development is the Process of Improving the Knowledge, Skills, aptitudes and values of Employees. So that they can perform the present and future Jobs more Effectively.

I Performance and Potential appraisal: It implies systematic Evaluation of Employees with respect to their performance on the Job and their Potential for development.

II Training: Employees learn Knowledge, Skills and attitudes.

III Executive development:- Developing managerial talent through appropriate programmes

IV Careers planning and development:- Careers Plans so as to fulfil the careers aspirations of people. It involves mobility of personnel through promotions and transfers.

③ Compensation function:- Providing fair remuneration to employees.

I Job Evaluation:- Job Evaluation is a systematic and orderly process of determining the worth of a job in relation to other jobs.

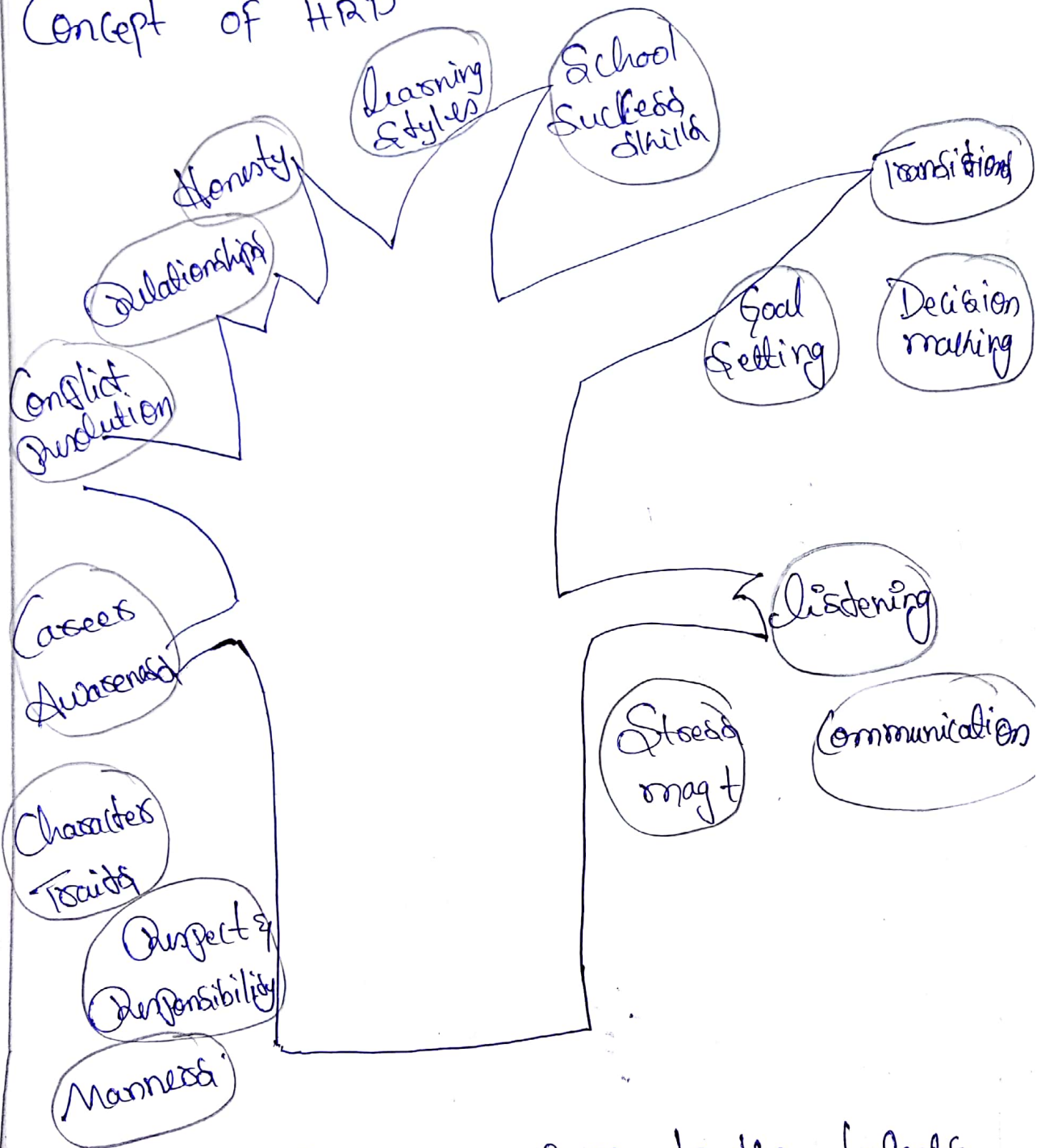
II Wage and Salary administration:
Compensation includes direct cash payments, indirect payments in the form of employee benefits and incentives to motivate employees to strive for higher level of productivity.

III Bonus:- It involves payment of bonus as well as other incentives.

④ Integration function:- Reconciling the goals of the organisation. Integration involves motivating employees through various financial and non financial.

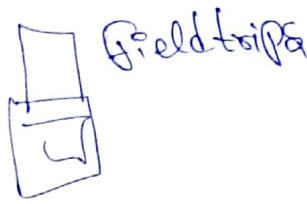
Def: HRD is equipping people with relevant skills to have a healthy and satisfying life."

Concept of HRD

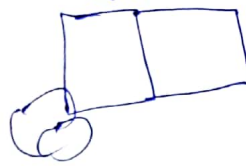


Human Resource refers to the talents and energies of people that are available to an organisation as potential contributors to the creation and realization of the org's mission vision values and goals.

* Human Resource Development :-



Field trips

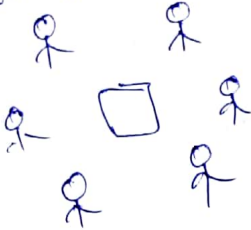


Book clubs at work



Employee mentoring

Group Training Sessions



Development refers to a process of active learning from Experience leading to systematic and purposeful development of whole body, person, mind and spirit.

* Introduction :-

HRD is development processes where it focuses on improving the existing capabilities of employees and helping them to acquire new capabilities required for the achievement of organizational and individual goals.

HRD is the integrated use of training, organization, and career development efforts to improve individual, group and organizational effectiveness.

HRD develops the key competencies that enable individuals in organizations to perform current and future jobs through planned learning activities.

It is the process of increasing the capabilities of HR through development. It is a process of adding values to individuals, teams, organization as human system.

* Definition :-

A Set of systematic and planned activities designed by an organisation to provide its members with the necessary skills to meet current and future job demands.

* HRD as the process of increasing the knowledge, skills and capabilities of all the people in the country.

* Objectives:-

- Develop human resource of the company continuously for better performance to meet objectives.
- Provide opportunity for development of different level of employees.
- Suitable needs based training programs.
- Prepare newly inducted staff to perform their work with high level of competency and excellence.

→ Meet Social obligations of industry to
Contribute towards the excellence of technical
and mgmt education.

→ Promote a culture of Creativity, Innovation,
human development, respect and dignity.

→ Achieve Excellence in every aspect of
working life.

→ Create Conducive training to their Character

Building

* HRD Functions.

→ Providing Skill input to apprentices and
trainees

→ Identifying training needs and imparting
training.

→ outside deputation for competency enhancement

→ Competency mapping

→ Organisational development activities.

→ Conducting sessions and workshops.

→ Training and development.

* The Need for HRD:

→ Business and Economics Changed.

→ Technological Changes.

→ Organisational Change.

→ Social, legal and other changes.

- Implementing a new policy
- Implementing a strategy
- Effecting organisational change.
- Changing an organisation's culture.
- Meeting changes in the external environment.
- Solving particular problems.

* Sub Systems of HRD :-

1. Performance Appraisal
2. Potential "
3. Careers planning and Development.
4. Counselling
5. Feedback
6. Training and Development : Improving Skills & Knowledge
7. Organizational Development
8. Rewards
9. Employees welfare
10. Quality of work life
11. Development - Preparing for future responsibilities, while increasing the capacity to perform a current job.
 - Mgt Training
 - Supervisor Development

* Challenges for HRD :-

- Changing workforce demographics
- Competing in global Economy.
- Eliminating the Skills gap.
- Need for life long learning.
- Need for organizational learning
- Technological changes.
- Greater Employee Retention and Commitment.

* Summary

- HRD is too important to be left to amateurs.
- HRD should be a revenue producer not a revenue user.
- HRD should be a central part of company.

Personnel Management and Industrial Relations (PMIR)

Personnel mgmt is a process of managing people enabling them to contribute their best for the attainment of organisational goals.

A personnel manager is primarily concerned with taking care of the human relationships in the organization.

The role of Personnel managers broadened with every change in the Industrial economy all over the world.

Personnel mgmt function was supplemented with Industrial relations function.

Industrial relations refers to the relations between the employees and the mgmt.

In small organisations, the Personnel manager looks after both Personnel and Industrial relations function. Where the number of employees is large, as in the case of Public Sector units, it is customary to have a separate manager for Industrial relations func.

Definition:

Flippo defines:-

"Personnel mgmt as the planning, organising, directing and controlling of the Procurement, development, compensation, integration and maintenance of People (that is employees) for the Purpose of Contributing to the Organisation Goals."

This definition identified clearly the Functions of Personnel managers.

It focused on the management of human resources and their administrative separately.

Following objectives are:

- Formulating a personnel programme, which is determine in advance (planning)
- Designing the Structure of relationships among Jobs (organising)
- Getting the employees to willfully accept the responsibilities (directing)
- Regulating the activities in accordance with the Personnel plan [controlling]

→ Obtaining proper kind and size of personnel necessary to achieve the corporate goals [Procurement]

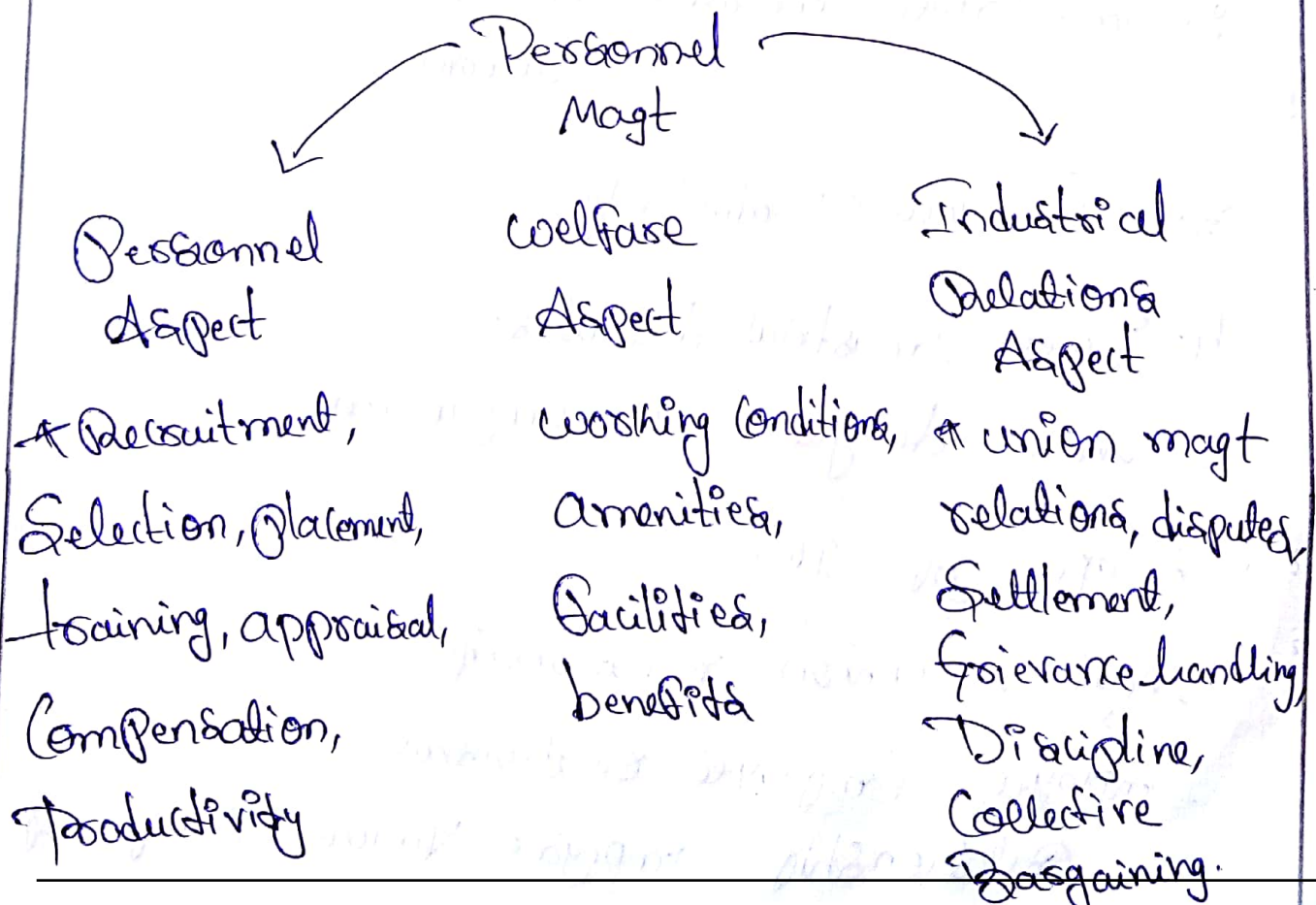
→ Enhancing the skills of employees by training and development [Development]

→ Designing a Salary Package which is fair, adequate and equitable [Compensation]

→ Creating an environment integrating individual interests and organisational interests [Integration]

→ Sustaining and Improving the working conditions through administration of health, safety and welfare

3 Dimensions of Personnel Mgt.



The Quality of the relations that exist between the managers and employees in an organisation.

IRA is used to cover such aspects of Industrial life as trade unionism, collective bargaining, workers' participation in mgt, discipline and Industrial disputes.

Benefits:

1. Attract best staff
2. Good staff morale → low absenteeism and labour turnover
3. Increased productivity
4. Fewer Industrial disputes.
5. More delegation and empowerment.

* Scope of IRA:

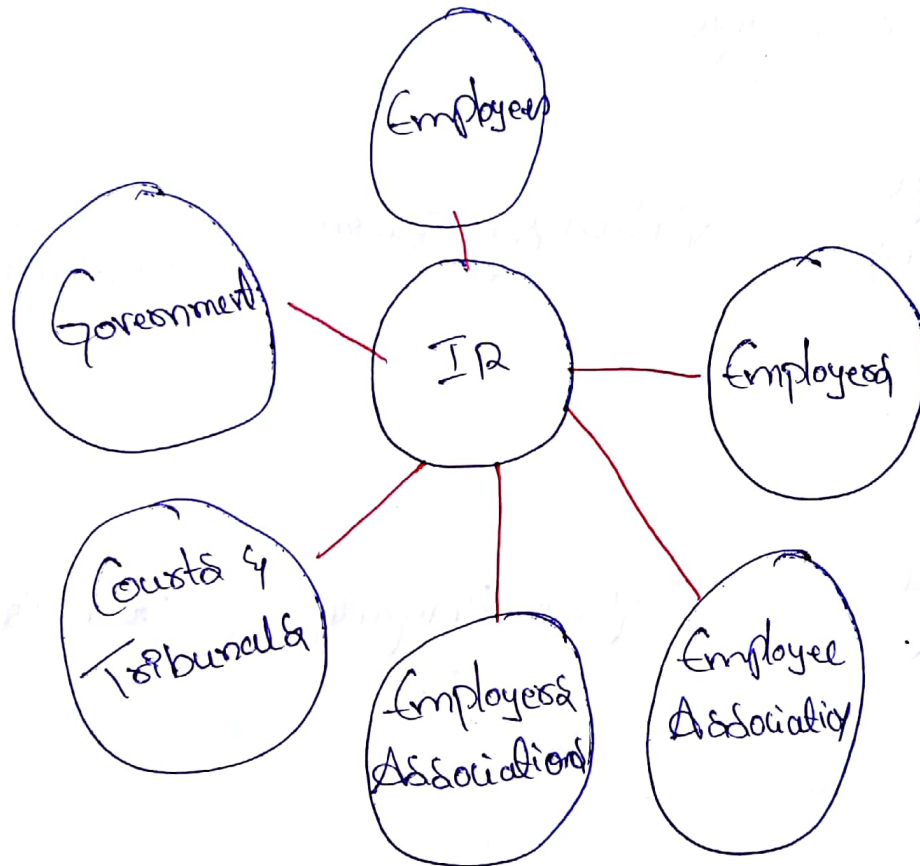
Mgt - union relationship

Employer - Employee relationship

Relationship amongst various groups of

Effect of extraneous factors like State, Socio-political, economic factor on workplace relationship.

Parties to Industrial Relations.



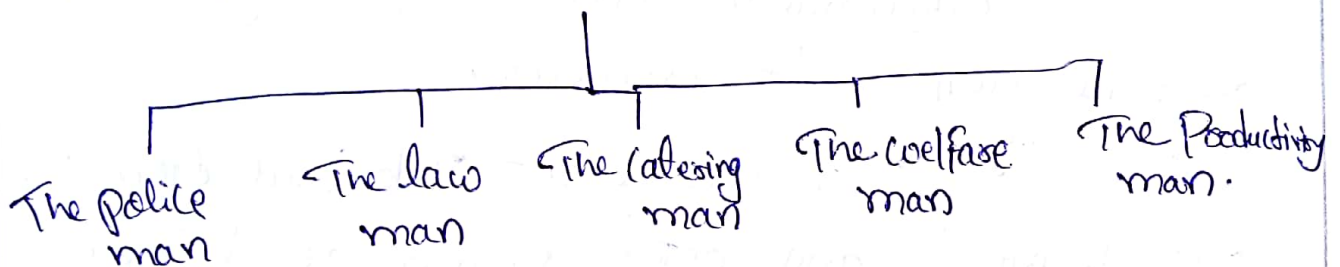
Objectives of IR

- To enhance economic status of workers
- To avoid Industrial Conflicts and their consequences
- To extend and maintain Industrial democracy.
- To regulate production by minimizing conflict.
- To provide an opportunity to the workers to have a say in management decision making.

5. Maintenance Function: It is concerned with protecting and promoting the physical and mental health of employees.

TOPIC-4
*Basic Functions of Human Resource Manager:-

The position of a human resource manager has changed significantly. He is treated as a philosopher and specialised practitioner.



* The Police man:- HR manager was used as a watchdog to enforce prescribed regulations.

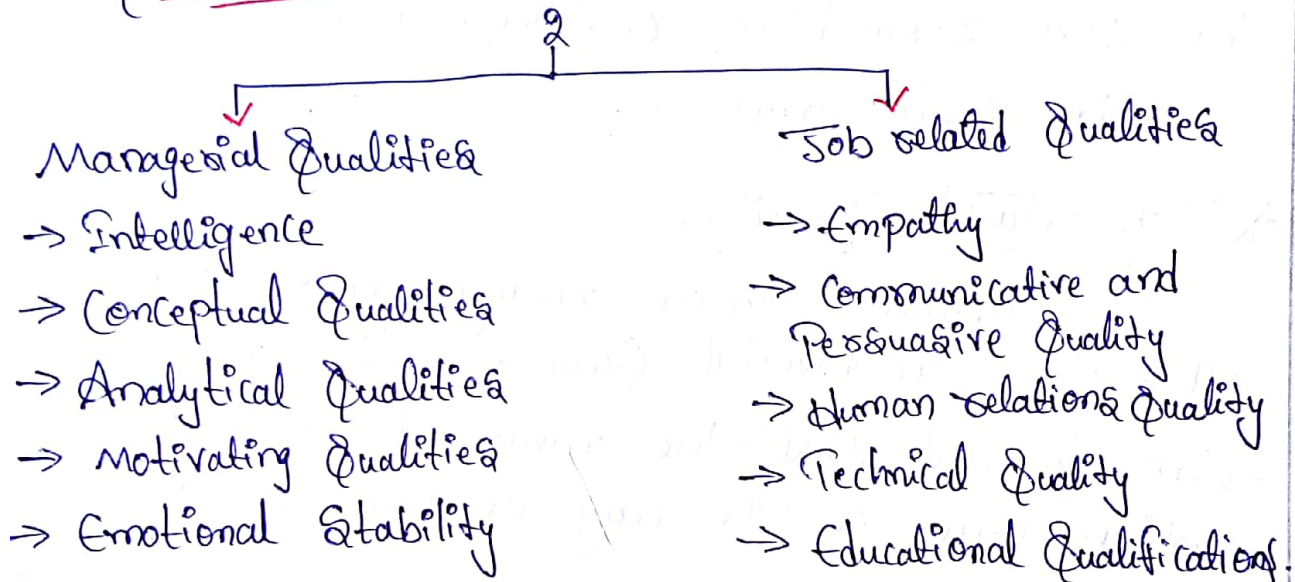
* The lawman:- with the establishment of welfare state, laws and regulations were enacted to protect and promote the interests of employees.

* The catering man:- Some enlightened employers began to provide welfare facilities like canteen, coaches etc.

* The welfare man:- welfare officers had to be appointed in specific factories. He is expected to handle aspects like recruitment, welfare aspect and industrial relations.

The Productivity man:- HR Manager is considered an expert in human relations. He is expected to improve productivity by fulfilling the economic, social and psychological needs of employees.

Qualities:-



1. Intelligence:- Managers required higher level of Intelligence and prepare himself to react accordingly.

2. Conceptual Qualities:- The ability to see the whole picture, to recognise significant elements in a situation and to understand the relationship among these elements.

3. Analytical Qualities:- Analytical Qualities are required so as to size up quickly and accurately the situation presented in terms of the core problems and issues involved.

④ Motivating Qualities:- Not only a manager should be self motivated, but he should have qualities to motivate his subordinates.

⑤ Emotional Stability:- A manager should have high level of emotional ability. He should be free from bias, consistency in action and refrain from anger.

* Job related Qualities:-

Human resource manager must possess all those managerial qualities which will help him to understand the nature of the problems which come in the way of his job performance.

1. Empathy:- Empathy relates to observing the things.

2. Communicative and Persuasive Quality:-

HR Manager must have qualities of communication. HR manager should have quality to communicate skillfully for persuasive, informative and stimulating purposes.

3. Human Relations Quality:-

HR manager has to deal with people inside and outside the organisation, he must understand their nature and way of behaving.

4. Technical Quality:- HR manager should have technical knowledge of the disciplines relevant for mgmt of human resources.

5. Educational Qualifications:- HR manager needs well-educated and experienced.

Roles of HR-managers:-

- As a Specialist
- As an Information Source
- As a Change Agent
- As a Controller
- As a housekeeper
- As a fire fighters.

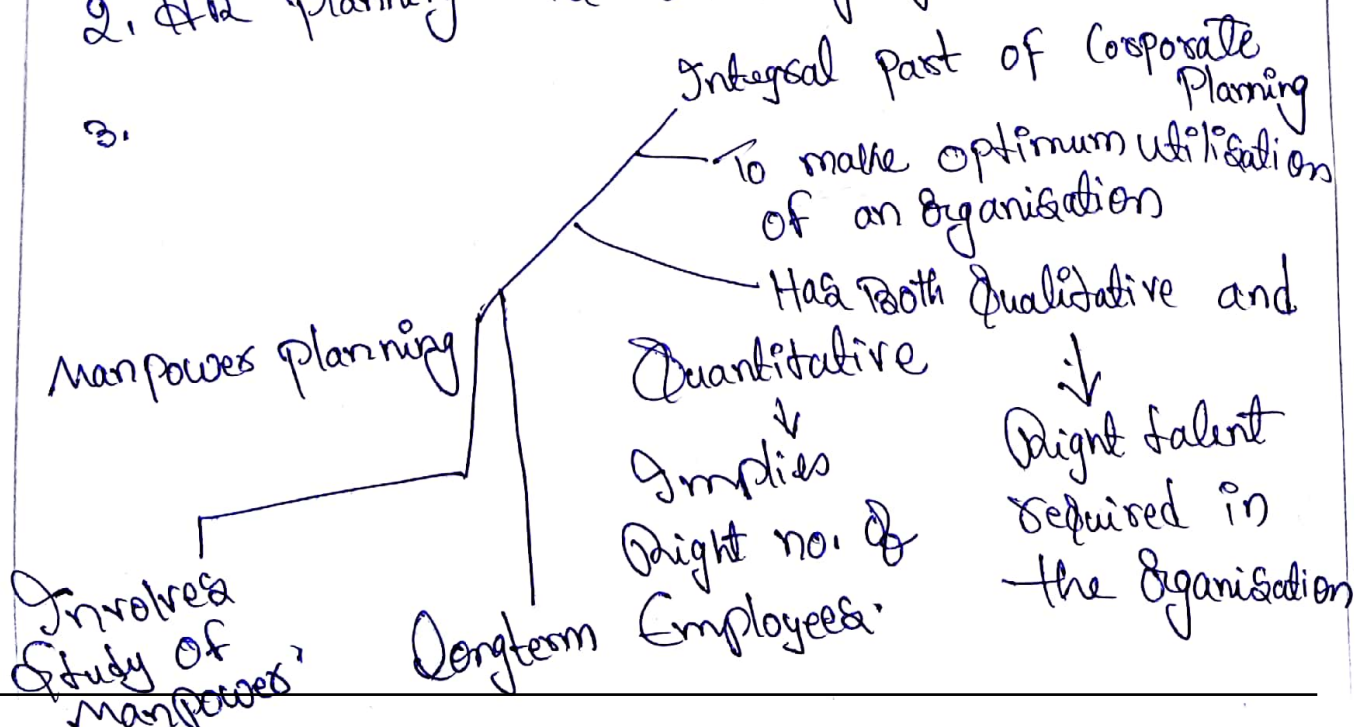
E.W. Seligson viewed human resource planning as "a process by which an organisation should move from its current manpower position to its desired manpower position. Through planning Mgt strives to have the right number and right kind of people, at the right places, at the right time, doing things which result in both the organisation and the individual receiving maximum long-run benefit".

Characteristics :-

1. HR planning is forward looking. It involves forecasts of the manpower needs in a future time period.

2. HR planning is an on-going.

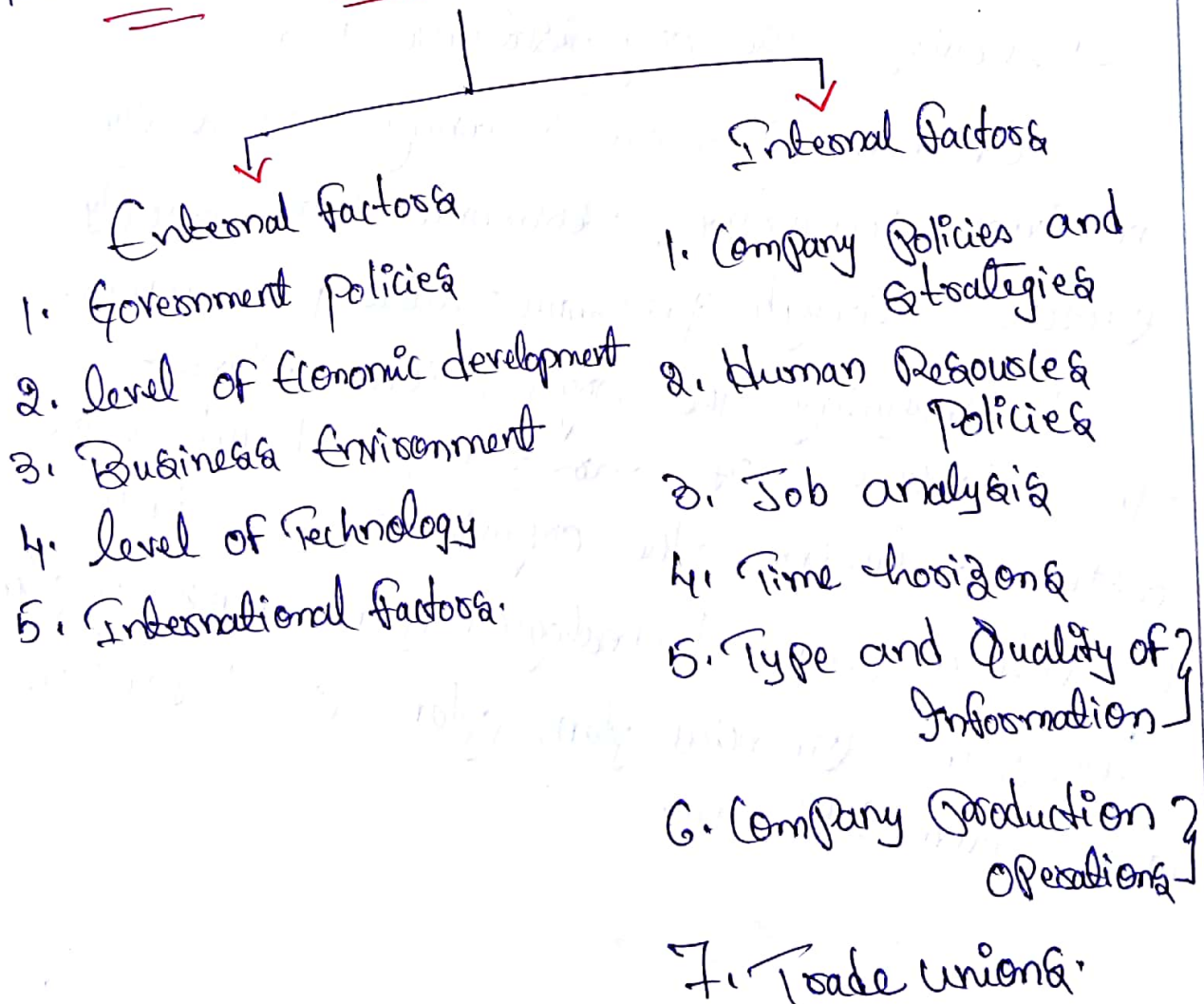
3.



Objectives:- HR planning major objectives which may vary from one organisation to the other.

- To ensure optimum utilisation of human resources.
- To reduce imbalance in the distribution and allocation of manpower.
- Organisation is well equipped with the required quantity and quality of manpower.
- To provide a basis for mgt development programmes.

Factors affecting HR planning:-



The planning process is influenced by overall organisational objectives and the environment of business.

1. Analysing organisational plans.
2. Forecasting demand for human resources.
3. Forecasting supply of human resources.
4. Estimating manpower gaps.
5. Action planning for redeployment, recruitment, development etc.
6. Modify the organisational plans.

Human Resource Planning essentially involves forecasting, personnel needs, supply factors through personnel related programmes.

1. Analysing the organisational plans:-
The process of HR planning should start with analysing the organisation plan into Production plan, technological plan, marketing plan, Sales plan, financial plan, plans for expansion and diversification.

Spec of Wage Payment Plans:

All wage system must satisfy the basic need of the Employee for food, shelter, clothing and reasonable compensation for their efforts.

1. Time Based wage System

2. Piece " " "

→ All other wage systems are combination of these 2 methods of wage systems.

1. Time Based Wage System:

→ wages are calculated on the basis of time worked irrespective of the quality of work done.

→ Thus, the wages are calculated by multiplying the time spent by predetermined rate of wages.

$$\text{Wage} = \text{Time Spent} \times \text{Rate Per unit of time} \\ = T \times R$$

Where T = Time spent in hours

R = Rate Per hour.

* Advantages:

1. Simple System and Economical.
2. It gives workers a sense of security as they know that they will be compensated for time spent within the organization irrespective of efficiency.
3. Minimize material wastages as the work is not done in hurry.
4. This system works best on artistic jobs where quality of output is of prime consideration.
5. workers can easily understand the calculation of their wages.

* Disadvantages:-

1. It requires continuous supervision.
2. As the workers are not in hurry to work, production can suffer.
3. Under this process the workers generally adopt the policy of go slow.
4. This system has no positive inducement for workers so that they could enhance their efficiency.

efficient and inefficient workers. As wages are paid in terms of time spent, it decreases the morale of efficient ones.

II Piece Rate System:

Under this system, the wages are paid to a worker on the basis of output produced by him without considering the time taken in performing the work.

$$\rightarrow \text{Wages} = N \times R$$

Where N = no. of units produced.

R = Rate per unit.

$\rightarrow$ The earning of workers depends on the speed of the work and his own individual skills and efficiency.

* Advantages:-

$\rightarrow$ Works as an inducement for workers to produce more.

$\rightarrow$ Here reward is related to efforts.

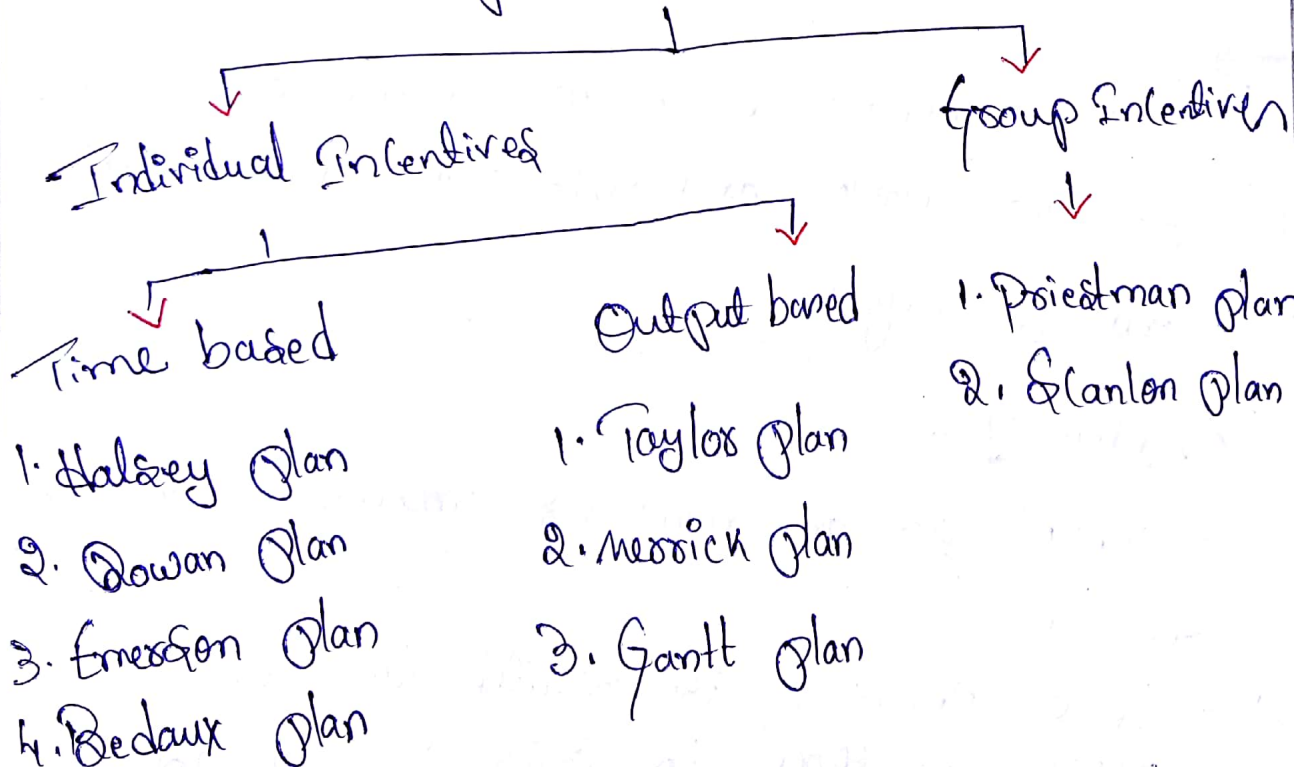
$\rightarrow$ This method is fair to all as inefficient workers are penalized and

Disadvantages:-

- In an effort to produce more and earn more workers may exert themselves to fatigue.
- workers feel insecure in this system because they will lose wages for the period of absence.
- This system requires an up-to-date records of output produce by each workers which increase the clerical work.

Types of Incentive Wage Plans

Wage Incentive Plans



1. Individual Incentive Wage Plans & Personal Incentive wage

These plans motivate the individuals to produce more. Such plans may be based on time or production.

(a) Time Based Individual Incentive Wage Plans

(i) Halsey Premium Plan:-

* It is a simple combination of the ~~to~~ time-Speed basis of Payment.

→ The worker gets his wages for the time he works.

→ For the calculation of premium, a standard time is fixed for each job on the basis of past performance. If the worker finishes the job before this standard fixed time, he gets bonus for the time saved by him.

Eg: Rate of bonus is 30% to 50% of the wage payable for the time saved.

→ Suppose a worker gets his wages @ 60/- per hour.

He finished his work in 15 hours for standard time fixed is 20 hours.

→ Thus he saves 5 hours. He will get a total wage of 1050/-.

→ Wage for 15 hours @ 60/- = $15 \times 60 = 900/-$

Wages for 5 hours (the time saved) @ 50% of the usual hourly rate = $(5 \times 60 \times 50) / 100 = 150/-$

→ So total earning for him = $900 + 150 = 1050$.

→ He will get 1050/- and will also earn something more by utilizing the time saved i.e., 5 hours.

(b) The Rowan Premium Plan:-

→ It is a modification in the Halsey's Plan

→ The Premium is calculated on a Percentage of wages for the time worked and not for the time saved.

→ This gives more bonus to the workers.

It is calculated by the following formula:

→ Total wage = $\text{Time Taken} \times \text{Time Rate} + \frac{\text{Time Saved}}{\text{Standard Time}} \times \text{Time Taken} \times \text{Time Rate}$

$$\text{Total wage} = (15 \times 60) + \left[(15 \times 20) \times 15 \times 60 \right] = 900 + (0.25 \times 15 \times 60)$$

$$= 900 + 225$$

$$= 1125$$

→ Thus, if the workers finished the job in 15 hours for standard time of 20 hours and the hourly rate of wage is 60/-, a worker will get a total 1125/-

① Emerson's Efficiency Bonus plan:

→ under this plan every worker is guaranteed his day wages irrespective of his performance.

→ A standard output is fixed, and it represents 100% efficiency.

→ According to the plan upto 66 2/3% the guaranteed time wages are paid to the workers, after this they are paid bonus at stated ratio of the time wages.

→ Emerson used 32 empirical bonus percentages for efficiency beyond 66 2/3% i.e., 67% (approx). Under this plan, the bonus starts from 0.01% above 67% efficiency and increased

to 20% at maximum efficiency. After this point the bonus is 20% above the basic wages plus 1% for each 1% increase in efficiency.

In a manufacturing concern the daily wages guaranteed for workers is 2/-. The standard output for the month is 2000 articles representing 100% efficiency. The rate of wages is paid without bonus to those workers who show up to 66 2/3% efficiency.

* Beyond this bonus is payable on a Graded Scale:

Calculate the total earnings of A, B, C, and D who have worked 26 days in a month. A's output, 1000 articles, B's output 1800 articles, C's output 2000 articles and D's output 2400 articles

Efficiency	Bonus
90%	10%
100%	20%

1%. Further rise in Efficiency.

Sol:-

Standard output 2000 articles p.m. representing 100% efficiency

Name	Output articles	Efficiency	% of Bonus on wages	Wages for 26 days @ 5/-	Bonus	Total Earning
A	1000	50%	Nil	130	Nil	130
B	1800	90%	10%	130	13	143
C	2000	100%	20%	130	26	156
D	2400	120%	40%	130	52	182

(d) Bedaux Points Premium Plan:-

→ under this plan, Standard time is divided into Standard minutes.

→ Each minute of Standard time is called Bedaux Point or B's.

→ B's are indicated on each job ticket.

→ Time wages are paid until 100% Efficiency is reached.

→ Bonus is paid on the basis of no. of Bedaux Points saved.

→ Bonus at 75% of wages of Bedaux Saved
is paid to the worker and 25% is paid to the Foreman.

Thus the Standard hours would consist of 600 B's, or a Standard day of 8 hours, 480 B's.

Eg: Suppose a worker earns 600 B's in a day; if the rate per point is 1/-, his total earnings would be:

$$(480 \times 1) + (3/4) \times (600 - 480) \times 1$$

$$= 480 + 90$$

$$= 570$$

1.2 Output Based Individual Incentive wage plans.

(a) Taylor's differential Piece Rate plan :-

→ under this plan, a standard task is established by the technique of time and motion study and two piece rates are setup for each job.

→ A high Piece rate is allowed to those who can make equal to higher than the Standard Performance; and for others who cannot reach the Standard, a lower Piece rate exists.

→ This method penalize the slow and lazy workers and pays incentive to efficient workers.

Eg: A standard output of 200 units is fixed in an 8 hours time. A rate of 45% is paid if the output is 200 or more units and 35% if production is less than 200 units. Worker A has produced 240 units and B produced 180 units.

The wages to be paid to worker, A will be Rs. 108 i.e., (240×0.45) and that to B will be Rs. 63 i.e., (180×0.35) .

② Merrick's Multiple Piece Rate Plan

→ It is an improvement over Taylor's Differential Plan

→ 3 piece rates for a job is fixed.

→ None of these 3 piece rates are fixed below the normal level.

→ These 3 rates are applied in the manner given below:

Rates Bonus Incentive

1. Up to 83 1/3% Normal Rate
2. Above 83 1/3% to 100% 110% of Normal Rate
3. Above 110% 120% of Normal Rate

Example:

→ Case 1 → output = 80 units

$$\text{Efficiency} = (80/100) \times 100 = 80\%$$

Earnings: As the efficiency is less than 83%, only the base pie-rate applies: $80 \times 10 = 800/-$

→ Case 2 → output = 90 units

$$\text{Efficiency} = (90/100) \times 100 = 90\%$$

Earnings: As the efficiency is 83% but less than 100%, 110% the base pie-rate applies
 $(90 \times 110 / 100) \times 10 = 990/-$

(3) ^(Ans) output = 110 units

$$\text{Efficiency} = (110 \times 100 / 100) = 110\%$$

Earnings: As the efficiency exceeds 100%, 120% of the base piece-rate applies:

$$110 \times (120 / 100) \times 10 = 1320/-$$

① The Gantt plan

→ It's an associate of Taylor, derived this Scheme on the basis of Taylor's plan.

→ Fixed time rates are guaranteed

→ Output Standards and Time Standards are established for the performance of each Job.

→ Workers completing the Standard Job within the Standard time or a shorter time receive wages for the Standard time plus a bonus.

→ The bonus is a percentage, varying from 20 to 50, of the wage for the Standard time.

→ When a worker fails to turn out the required quantity of products, he simply gets his time rate without any Bonus

② Group Incentive wage plan:

Group incentive bonus schemes are introduced where it is difficult to measure the performance of one worker is affected by the performance of other workers.

→ under this scheme, bonus is made payable to all the workers on a collective basis. This bonus is promised by mgmt in advance of the commencement of work for securing an effective teamwork. In all cases, a fixed standard of performance is established and the bonus is given for the results shown over the standard performance.

* Group incentive wage plan is most suitable in the following cases:

→ where it is not possible to measure the performance of each individual worker.

→ where the no. of workers making a group is not very large.

→ where the workers making a group, possess the same or equal skills and abilities.

→ where the finished product is the result of collective efforts of a group.

Types of Group Incentive Wage Plan:-

(a) Roebuck Plan:

- It was proposed by Roebuck in 1917.
- It is applied to workers who work in groups.
- It provides for payment of group bonus in addition to the ordinary time rate to the individual workers.
- Thus if during a year, an enterprise is able to reach the predetermined standard output & exceed the previous year's output, workers are paid increased wages in the same ratio in which output has increased.

Eg: If in 1990, the output per worker hour was 10 units and in 1991, it rose to 11 units per worker-hour, the wages in 1991 would be 10% higher than those in 1990.

* Advantage:

It brings about team-spirit among the workers of a group. If the group as a whole works well, this is bound to add to overall output of the enterprise and in that case all the workers would stand to benefit.

Disadvantage:

It may be insufficient to motivate individual workers, particularly those who possess greater skills and experience.

(b) W & Landon Plan:

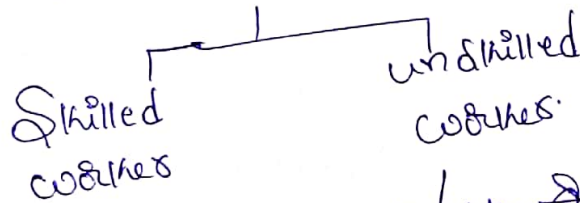
- This plan is the most popular for saving the gains from increase in productivity.
- It provides for payment of 10% participating bonus for every 10% increase in productivity.
- The benefit is extended to all employees except the members of top mgmt.
- Under the plan, workers are not paid the entire amount of bonus earned by them in any month.
- One half of the first 15% of such bonus is set apart for the creation of a reserve fund.
- This fund is used to neutralize the effects of any fluctuations in labor costs.

Job Evaluation

A Job Evaluation is a systematic way of determining the value/worth of a job in relation to other jobs in an organization. It tries to make a systematic comparison between jobs to assess their relative worth for the purpose of establishing a rational pay structure.

To study the relative worth of different jobs in an organisation.

Job Evaluation based on



~~I~~ Non analytical methods / Non Quantitative methods

- Job Evaluation is the process of determining the worth of one job in relation to that of the other jobs in a company
- Is a process of determining the relative worth of a job.
- An effort to determine the relative value of every job in an organization
- A practical technique to judge the size one job relative to others.

Definition:

Studying / analyzing the value, importance, and necessity of a particular job.

Key Factors

- Volume of Responsibilities
- Output / deliverables
- General
- Decision makers / Followers
- Emerging needs of the Company.

Objectives

- To gather data and information relating to JD, Job Specification and employee Specification of various jobs in an organization
- To compare the duties, responsibilities and demand of a job with that of other jobs.
- To determine the hierarchy / rank based on jobs in an organization.
- To ensure equal wages are fixed to the job of equal worth or value.
- To minimize wage discrimination based on Sex, age, Caste, region, religion etc.

Principles & Job Evaluation

- Date the job but not the employee.
 - Elements / tasks selected should be easily understood defined clearly and properly selected.
 - Employee concerned and Supervisors should be educated and convinced about the program.
 - Supervisors should be encouraged to participate in rating the jobs.
 - Encourage Employee cooperation to participate in the rating program.
 - Consensus with the Supervisors and Employees on rating.
 - Should be a collective effort, chance for equal representation from all departments.
- ### Procedures in Job Evaluation:
- ~~the~~ takes the lead in this exercise with approval from the management.
 - Analyse and prepare Job description.
 - Select and prepare a JE Plan
 - Classify Job
 - Install / roll out the program.
 - Maintain / upgrade the program.

Non-Quantitative method

* Ranking method:

Simple ranking method

Jobs and the employees who perform those jobs are ranked from highest to lowest depending on their quality and value to the organization.

Ranking the key jobs:

→ The evaluator has to identify the key or representative jobs at the 1st stage, rank the key jobs at the 2nd stage, identify and rank all other jobs at the 3rd stage.

→ Paired Comparison: The evaluator ranks each job in turn against all other jobs to be appraised, so that a series of paired ranking is produced.

→ Single Factor ranking method: The single most important task to be performed in a job is identified and compared with the single most important task to be performed in other jobs.

Job Classification

- The Job Classification method uses job classes or Job groups to provide more customization in the evaluation.
- This method also uses scales to measure performance rather than comparing and ranking employees.

Quantitative method:

Point method

- This method is analytical and Quantitative because the component of the job is assigned a numerical value.
- Aspects or Parts of the job such as education and experience required to perform the job are assessed and a points value awarded.
- The higher the educational requirements of the job the higher the points scored.
- The Point method is usually seen as the most reliable and valid evaluation methods such as the Job ranking method.
- Job responsibilities in the light of 3 major factors
 - Know-how
 - Problem Solving
 - Accountability

Advantages of Job Evaluation

1. Reduction in inequalities in Salary Structure;

The main objective of job evaluation is to have external and internal consistency in Salary Structure so that inequalities in Salaries are reduced.

2. Specialization: An attempt is made to define a job and thereby fix Salaries for it.

3. Helps in Selection of Employees: The Job Evaluation information can be helpful at the time of Selection of Candidates. The factors that are determined for Job Evaluation can be taken into account while selecting the employees.

4. Harmonious relationship between employees and managers.

5. Standardization: The process of determining the Salary differentials for different jobs become standardized through Job Evaluation.

6. Relevance of new jobs.

Merit Rating

Merit Rating is a systematic and orderly approach to assess the relative worth of an employee working in an organisation in terms of his job performance, integrity, leadership, intelligence, behaviour etc.

Objectives

1. Merit rating provides a record of the worth of employees; they therefore can be put on the most appropriate jobs depending upon their capabilities.
2. Merit rating unfolds the limitations of an employee and thus helps in employee improvement.
3. Merit rating decides a basis for:
 - (a) wage increase
 - (b) promotion
 - (c) special assignments
 - (d) Training
 - (e) Transfers
 - (f) Discharge.

Methods of Merit Rating:

1. Rating Scale method:

Merit factors to rate the employees.

- | | |
|------------------------|-------------------------------|
| (ii) Quantity & output | (viii) Efforts and initiative |
| (iii) Intelligence | (ix) Cooperation |
| (iv) Job knowledge | (x) Judgment |
| (v) Leadership | (xi) Character |
| (vi) Integrity | (xii) Health and appearance |

(b) Divide each factor into three or five grades like Excellent, very good, Good, Fair and unsatisfactory.

2. Checklist method:

The method employs a list of questions and several statements which are concerned with the employee performance on various aspects of the job and which are considered important for evaluating the merit of an employee for that job.

* Advantages:

- (i) It is a good method of merit rating.

* Disadvantages:

→ It is time consuming and very difficult to construct statements and prepare appropriate questions.

3. Employee Comparison method.

The method compares a worker on a job with all other workers on the same job, in pairs.

Advantages

1. Merit rating develops the ability of a rater.
2. Meritorious employees are encouraged.
3. Employee - Employee relations improve.
4. Merit rating is a systematic method to rate the employees.
5. It involves lesser calculations as compared to other incentive schemes.

Disadvantages

1. The tendency of the rater to rate an employee consistently low, average or high in all jobs, simply basing upon the general impression formed by him about the employee.
2. Merit rating does not reward employees immediately for their performance.
3. A rater, if he does not make enough personal contacts with each employee cannot rate them correctly.

Marketing Management ⁷ ²⁹ meaning and Importance

Meaning:

Marketing mngt facilitates the activities and Functions which are involved in the distribution of Goods and Services.

Philip Kotler: "Marketing mngt is the analysis, Planning, implementation and Control of programmes designed to bring about desired exchanges with target markets for the purpose of achieving Organisational objectives".

Marketing Mngt is concerned with the chalking out of a definite Programme, after careful analysis and forecasting of the market situations and the ultimate execution of these plans to achieve the objectives of the Organisation.

Importance of MM:

Marketing mngt has gained importance to meet increasing competition and the need for improved methods of distribution to reduce cost and to increase profits.

2. Introduction of new products in the market.
3. Increasing the production of existing products.
4. Reducing cost of sales and distribution.
5. Export market.
6. Development in the means of communication and modes of transportation within and outside the country.

Major Functions of MM

- ① Selling - Transfers ownership of products to the buyer.
 ↳ Earning Profit
 ↳ Personal Selling, advertising, Publicity and Sales Promotion
- ② Buying and Assembling - It deals with what to buy, of what quality, how much from whom, when & where.
- ③ Transportation: Products are moved from one place to another eg: railroads, trucks, waterways.
- ④ Storage: protects the finished products from deterioration and helps in carrying over surplus for future consumption.
- ⑤ Standardization and Grading: Setting standards like color, shape, appearance, material, size, quality.
- ⑥ Financing: To meet the financial requirements of sources → Owned Capital, bank loan, advance, Trade Credit.
- ⑦ Risk Taking: Loss due to some unforeseen situation.
- ⑧ Market Information: Depends timely and correct market information.
- ⑨ Assembling: Component parts and to fit them together to make a product.

② Demand forecasting Demand for human resources

Demand forecasting is the process of estimating the future quantity and quality of people required.

Managerial judgement:- Experienced managers estimate the managers requirements for their respective departments on the basis of their knowledge of expected future load and employee

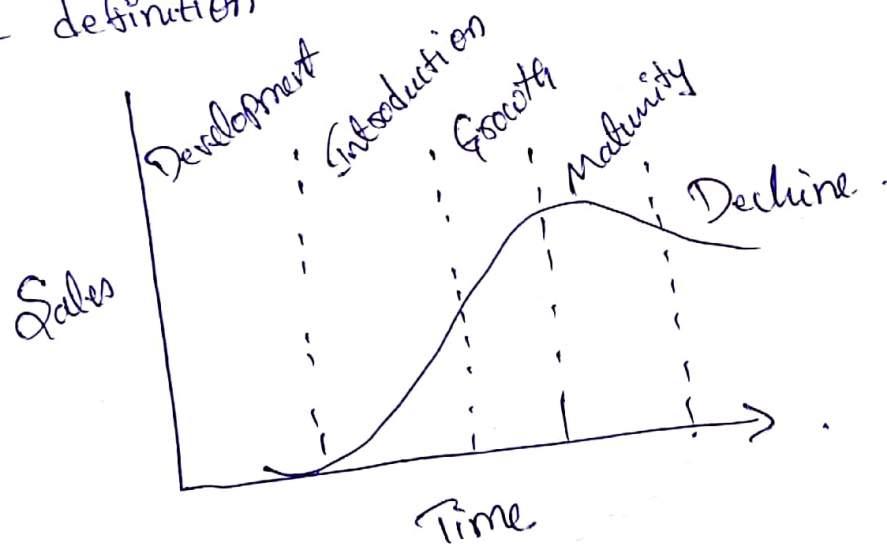
Product Life Cycle

→ Product life cycle shows the stages that products go through from development to withdrawal from the market.

→ A product is the item offered for sale. A product can be a service for an item.

→ The price that can be charged depends on the market, the quality, the marketing and the segment that is targeted.

The definition



→ Not all products follow this cycle:

- Fads
- Styles
- Fashions.

→ The product life cycle concept can be applied to a:

- Product class
- Product form
- Brand.

The Product life cycle (PLC) is used to map the life span of a product.

→ They are generally four stages in the life of a product.

→ These four stages are,

→ Introduction Stage

→ Growth "

→ Maturity "

→ Decline "

Importance :-

- New Product Entrants
- Establishing Preference
- Competing in a crowded market
- Maintaining Awareness.
- Backing off and starting over

Introduction Stage:- ②

- Product - offers a basic product
- Price - use cost-plus basis to set
- Distribution - Build selective distribution
- Advertising - Build awareness among early adopters and dealers/sellers.
- Sales promotion - Heavy expenditures to create trial.

① Introduction Stage

- The Introduction stage of the product life cycle is where a new product is launched into a market.
- Begins when the company develops a new product idea
- Sales are zero
- Investment costs are high
- Profits are negative

* Growth Stage:-

→ In the growth stage of the product lifecycle, the market has accepted the product and sales begin to increase

→ Low Sales

→ High Cost Per Customer acquired

→ Negative Profits

→ Innovators are targeted

→ Little Competition

* Product - Offer product Extensions, Service, Warranty

* Price - Penetration Pricing

* Distribution - Build Intensive distribution

* Advertising - Build awareness and interest in the mass market

* Sales Promotion - Reduce expenditures to take advantage of consumer demand.

* Maturity Stage:-

→ In the maturity stage of the product life cycle, sales will reach their peak

→ Sales Peak

→ Low Cost Per Customer



→ High Profits

→ Middle majority are targeted.

→ Competition begins to decline.

* Product - Diversify brand and models.

* Price - Set to match or beat competition

* Distribution - Build more intensive distribution

* Advertising - Stress brand differences and benefits

* Sales Promotion - Increase to encourage brand switching

A Declining Stage:-

In the declining stage at a saturation point

→ Decline profits

→ low cost per cash

→ Decline Sales



* Product - Phase out weak items

* Price - Cut price

* Distribution - Use selective distribution: phase out unprofitable outlets.

* Advertising - Reduce to level needed to retain hard core loyalists

* Sales Promotion - Reduce to minimal level.

Channels of Distribution.

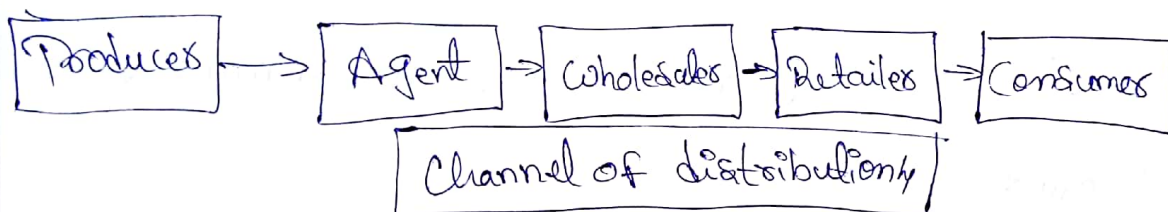
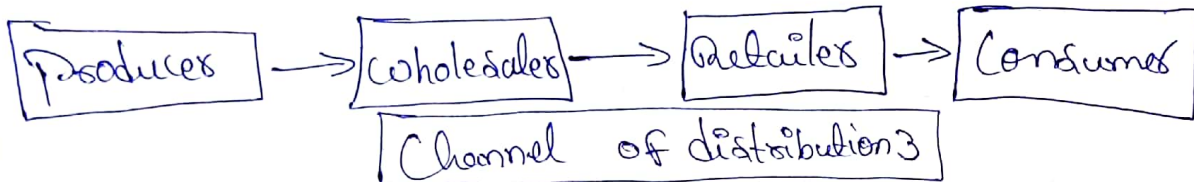
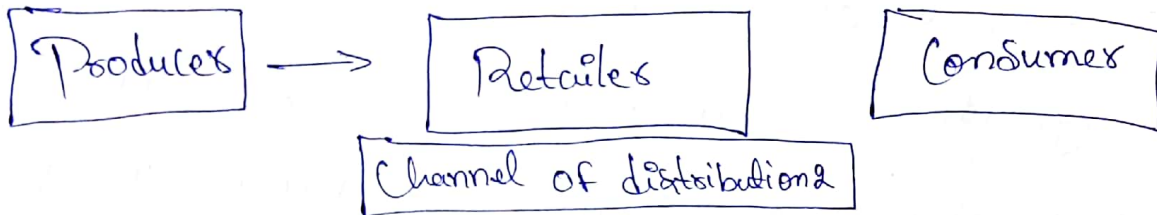
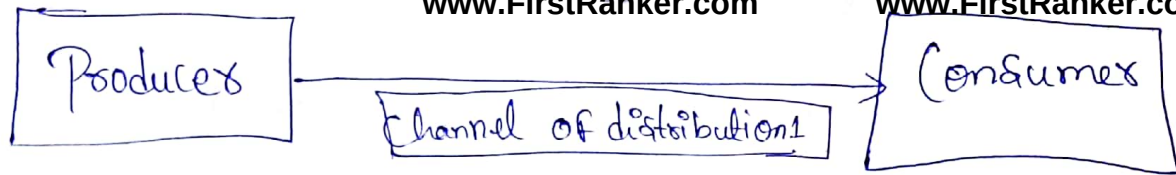
A distribution channel is a chain of business & intermediaries through which a good or service passes until it reaches the end consumer. It can include wholesalers, retailers, distributors and even the internet itself.

- Business-to-business distribution
- Business to customer distribution.
- Direct distribution: The product or service leaves the producer and goes directly to the customer with no middlemen involved.

Eg: Car wash, Barber

- Indirect Distribution: It occurs when there are middlemen or intermediaries within the distribution channel.

Good example: The number of intermediaries within the channel, the higher the price is likely to be to the final customer.



* Functions of channels of Distribution:

1. Helpful in price determination: Because they are direct touch with consumers. They can estimate the paying capacity of the consumers.

2. To Manage finance: As the manufacturers have limited financial resources. Middlemen help manufacturers in making adequate financial resources available.

3. To make the distribution process easy.

4. Promotional Activities: Wholesalers advertise the sales goods. Retailers help in increasing the sales.

6. Matching of Demand and Supply:

^u "The goal of marketing is the matching of Segments of demand and Supply." Middlemen play the game of matching demand and Supply.

7. Other Functions:-

- (a) To Stabilize the Prices.
- (b) To help in Forecasting the demand for a Product.
- (c) To help in marketing Research.
- (d) To help in Production activities.

Operationalize Change Through Performance Mgmt.

→ Rate of Change:-

"When the rate of change outside exceeds the rate of change inside, the end is insight".

* Forces for change:-

Knowledge Economy



Virtual Organizations



Mergers & acquisitions



Electronic Commerce



Digital Convergence



Privatizations



* Two Sides of Change:-

Technical Side of Change



Human Side of Change



Principles of Change:

1. Change is a process that can be enabled, not managed.
2. Change process must linked to business and Performance goals.
3. Building Capacity for Change is an evolutionary process.
4. " " " " " is a Strategic imperative
5. Effective Change process require a systematic view of the organization.
6. The Change process involves both organizational and Personal transitions.
7. Behavioral change is a function of Perceived need and occurs at the emotional, not the intellectual level.

5 Activities Contributing to Effective Change mgmt

1. Motivating Change
2. Creating vision of change
3. Developing Political Support.
4. Managing the transition of change.
5. Sustaining Momentum.



We often ask if employees are ready to change. we sometimes assume that employees may feel uneasy when a goal or procedure alters.

I'd ask the question: If an employee is ready for change?

We know continuous operational improvement is absolutely essential in the food manufacturing industry. And continuous improvement translates to constant change.

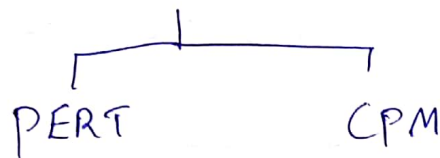
Today's managers need to consult with the people most directly involved in the problem to get the most specific and most applicable information - the employees.

But managers are frequently reluctant to open up this dialogue with employees. Managers have to fight against feeling defensive once a process currently in place is no longer adequate. To have an effective continuous improvement process, managers can't just be open to criticism; they need to genuinely seek out

39
This means creating an environment, a culture, where employees are taught and then expected to be critical thinkers and effective, yet respectful communicators.

Creating a culture that encourages employees to be critical thinkers and provide constructive suggestions starts from the top down. Managers have to enthusiastically and authentically cultivate this behaviour on a consistent basis.

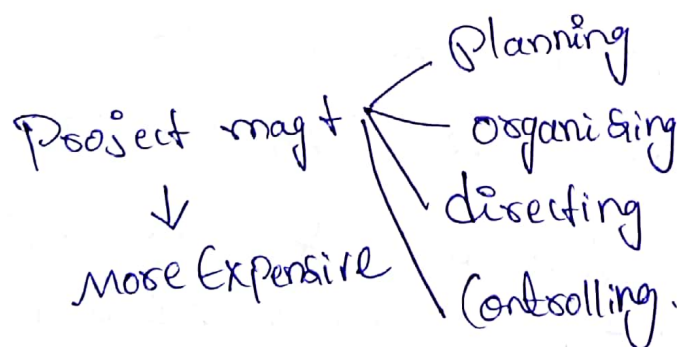
Once employees understand that their recommendations of changes in operations can make their jobs easier or faster, they will jump on board.



Project magt:

It is fast growing and exciting profession. They are required in many places like Publishing House, university, agriculture, social work etc. Project is initial to achieve a mission. A project is completed as soon as the mission is fulfilled. The project lives between these two cut off points and this time span is known as project life cycle.

Project magt "a combination of human and non human resources pooled together in a temporary way to achieve a specific purpose."



* Gantt charts:

It is a pictorial representation showing the various jobs to be done, and the time and the money they involved in dealing with complex projects.

- (a) The layout and Sequence of a Complex Project is Presented as a logical Picture. The activities and events that are vital to the entire project are identified.
- (b) A basis for ascertaining the working out times, costs and resources involved in the project is provided.
- (c) They act as a focus point for action and coordination.
- (d) A vital contribution to the planning and especially the control of complex project is achieved.

* What do you mean by Network Analysis?

Network: To estimate the time and resources required for the completion of a project.

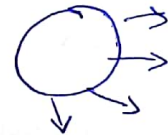
→ The estimate of time for each event are associated with uncertainties.

→ Network provide optimum solution to minimize the utilities of resources.

(a) Merge Event: More than one activity join an event is called Merge



(b) Burst Event: More than one activity leaves an event such event is Burst



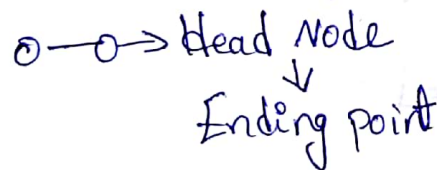
(c) Merge and Burst: May be merge and burst event at the same time



Network

- Each activity represents one arrow
- Every starting node and ending node
- Nodes are numbered (1, 2, 3) are identified an action uniquely.

→ Tail node (Starting point)



→ Arrow should be kept straight

→ Tail node should be lower than the head node (End point)

→ Between any pair of nodes there should be one and one action

It was developed by US Navy's Polaris missile programme in its planning and scheduling. This technique has proved to be useful for all jobs which have an element of uncertainty in the matter of Estimation of duration as in the case with new types of project.

PERT is concerned with estimating the time for different stages in such a programme or project and find out what the critical path is i.e., which consumes the maximum resources.

PERT provides the framework with which a project can be described, scheduled and then controlled.

The project Specification is the description of a project so that all interested parties know what is planned and what the outcome should be. The project is scheduled by the project costs, benefits and risks associated with it.

→ To complete the project 95%.

Eg: Palavasam Project

Optimistic - minimum
 Pessimistic - Maximum
 Most likely - Average.

Activity

Event - Nodes

Starting time - Head

Ending time - Tail

Eg: Building

- Precedor activity: Roofing activity, basement, walls, pillars.
- Successor activity: After
- Dummy activity: Time and Cost (Incomplete activity)
- Pair of Events.

* CPM: Critical path method

The time required to complete an activity can be predicted accurately.

→ Already Complete Event Project

Eg: Building activity.

→ Time is an Important factor, CPM involves trade-off between the cost and time.

Introduction:

Network Scheduling is a technique used for planning and scheduling large projects in the fields of construction, maintenance, fabrication, Purchasing, Computer systems, installation, Research and development designs etc. The technique is a method of minimizing trouble spots such as production bottlenecks, delays and interruptions, by determining critical factors and coordinating various parts of overall job.

These are 2 basic planning and control techniques that utilize a network to complete a pre-determined project or schedule.

1. Program Evaluation and Review Technique (PERT)
2. Critical Path method (CPM)

Several variations of these have also been developed, one such important variation being the Review Analysis of Multiple Projects (RAMP) which is useful for guiding the 'activities' of several projects at one time.

BASIC COMPONENTS

A network is a graphic representation of a project's operations and is composed of activities and events that must be completed to reach the end objective of a project, showing the planning sequence of their accomplishments, their dependence and inter-relationships. The basic components of a network are:

Activity: An activity is a task, or item of work to be done, that consumes time, effort, money or other resources. It lies between 2 events, called the preceding and succeeding ones. An activity is represented by an arrow with its head indicating the sequence in which the events are to occur.

Event: An event represents the start (beginning) or completion (end) of some activity and as such it consumes no time. It has no time duration and does not consume any resources. It is also known as a node. An event is not complete until all the activities showing into it are completed. An event is generally represented on the network by a circle, rectangle, hexagon or some other geometric shape.

Activities are identified by the numbers of their starting (tail or initial) event and ending (head, or terminal) event. An arrow (i, j) extended between two events; the tail event i represents the start of the activity and the head event j , represents the completion of the activity as shown below:



The activities can be further classified into the following 3 categories:

1. Predecessor activity: An activity which must be completed before one or more other activities start is known as predecessor activity.

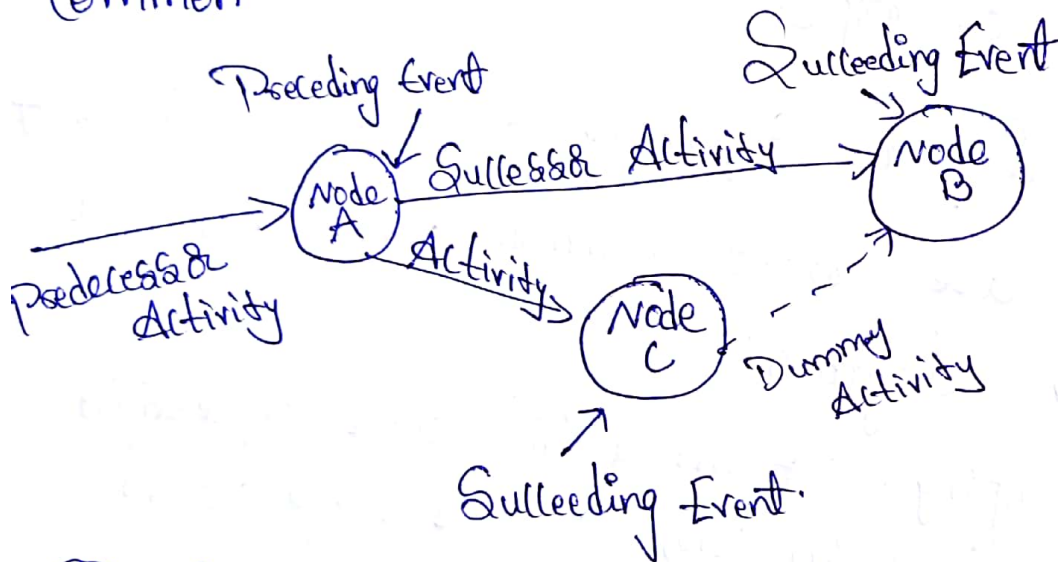
2. Successor activity: An activity which starts immediately after one or more of other activities are completed is known as successor activity.

3. Dummy activity: An activity which does not consume either any resource and time is known as dummy activity. A dummy activity is depicted by dotted line in the network diagram.

Dummy Activity in the network is added only to represent the given precedence relationship among activities of the project and is needed when

(a) Two or more parallel activities in a project have same head and tail events,

(b) Two or more activities have some (but not all) of their immediate predecessor activities common.



③ Logical Sequencing

All the projects consist of certain activities that can begin only after certain others are completed. In fact, the entire project may be considered as a series of activities which may begin only after another activity or activities are completed. In a network schedule the types of relationships are

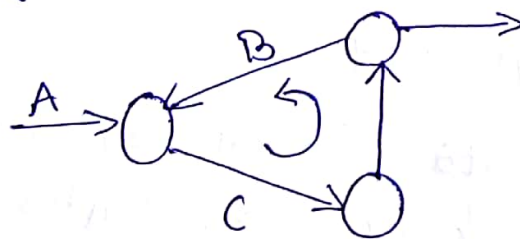
Inequalities:

For eg: $A < B$ will indicate that the activity A must be completed before the start of the activity B.

For eg: A project of laying a pipeline consists of the activities: trenching, laying pipe, and welding of pipe.

In logical Sequencing, following two types of errors are most common while drawing a network diagram:

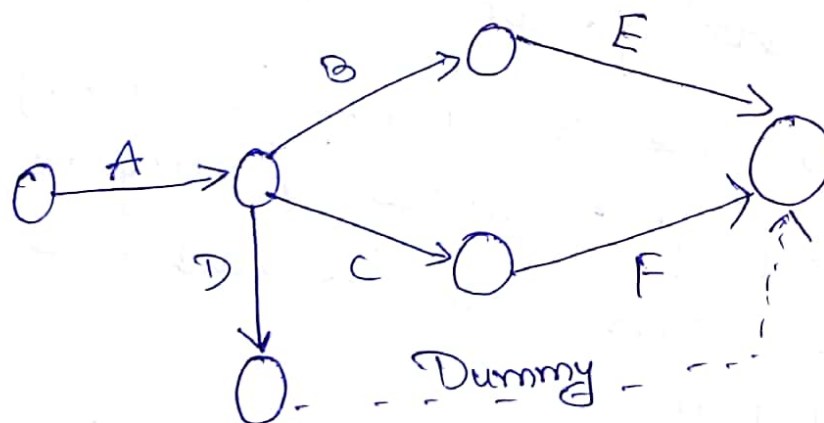
1. Looping: If an activity were represented as going back in time, a closed loop would occur



A closed loop would produce an endless cycle. Computer programmes without a built-in routine detection or identification of the cycle. This situation can be avoided by checking the precedence relationship the activities

by numbering them in a logical order. Thus one property of a correctly constructed network diagram is that it is "non-cyclic".

2. Dangling: No activity should end without being joined to the end event. If it is not so, a dummy activity is introduced in order to maintain the continuity of the system. Such end-events other than the end of the project as a whole are called dangling events.



Dangling

In the above network, activity D leads to dangling. A dummy activity is therefore introduced to avoid this dangling.

⑦ Rules of NETWORK CONSTRUCTION

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1. Each activity is represented by one and only one arrow.
2. Each activity must be identified by its starting and end node which implies that
 - (i) two activities should not be identified by the same completion events and
 - (ii) activities must be represented either by their symbols or by the corresponding ordered pairs of starting - completion events.
3. Nodes are numbered to identify an activity uniquely. Tail node (starting point) should be lower than the head node (end point) of an activity.
4. Between any pair of nodes, there should be one and only one activity; however more than one activity may emanate from and terminate to a node.
5. Arrows should be kept straight and not curved or bent.

between activities must follow the following Rules:

- (i) An event cannot occur until all the incoming activities into it have been completed.
- (ii) An activity cannot start unless all the preceding activities on which it depends, have been completed.
- (iii) Dummy activities should only be introduced if absolutely necessary.

Numbering the Events:

After the network is drawn in a logical sequence, every event is assigned a number. The number sequence must be such so as to reflect the flow of the network. In event numbering, the following rules should be observed:

- (a) Event numbers should be unique.
- (b) Event numbering should be carried out on a sequential basis from left to right.
- (c) The initial event which has all outgoing arrows with no incoming arrow is numbered 0 or 1.

- (d) The head of an arrow should always bear a number higher than the one assigned the tail of the arrow.

⑤ Critical Path Analysis:

The objective of critical path analysis is to estimate the total project duration and to assign starting and finishing times to all activities involved in the project. This helps in checking actual progress against the scheduled duration of the project. To achieve this objective, we carry out the special computations that produce the following information:

(a) Total duration needed for the completion of the project

(b) Categorization of the activities of the project as being critical or non-critical.

An activity in a network diagram is said to be critical, if the delay in its start will further delay the project completion time. A non-critical activity allows some scheduling slack, so that the start time of the activity may be advanced or delayed within limits without affecting the completion date of the entire project. The following terms shall be used in critical path calculations:

E_i = Earliest occurrence time of event i

L_j = latest occurrence time of event j

The critical path calculations are done in the following two ways:

- (a) Forward pass calculations
- (b) Backward " " "

(a) Forward Pass Calculations: we start from the initial node 1 (event 1) with starting time of the project as zero, proceed through the network visiting nodes in an increasing order of node numbers and end at the final node of the network. At each node, we calculate earliest start and finish times for each activity by considering E_i as the earliest occurrence of node i .

~~Step~~

Step 1: Set $E_1 = 0$, $i = 1$ (initial node)

Step 2: Set the earliest start time for each activity that begins at node i as

$E_{S_{ij}} = E_i$ for all activities (i, j) that start at node i .

Step 3: Compute the earliest finish time of each activity that begins at node i by adding the earliest start time of the activity to the duration of the activity. Thus

$$EF_{ij} = ES_{ij} + t_{ij} = E_i + t_{ij}$$

Step 4: move on to next node, say node j ($j > i$) and compute the earliest occurrence for node j

$$E_j = \max_i \{EF_{ij}\} = \max_i \{E_i + t_{ij}\}$$

for all immediate predecessors activities.

Step 5: If $j = n$ (final node), then the earliest finish time for the project is given by

$$E_n = \max \{EF_{ij}\} = \max \{E_{n-1} + t_{ij}\}.$$

Backward Pass calculations: we start from the final (last) node (event) n of the network, proceed through the network visiting nodes in the decreasing order of node numbers and end at the initial node 1. At each node, we calculate the least finish and start times for each activity by considering L_j as the latest occurrence of node j . The method may be summarized below:

Step 1: $L_n = E_n$; for $j = n$

Step 2: Set the latest finish time of each activity that ends at node j as

$$LF_{ij} = L_j$$

Step 3: Compute the latest occurrence times of all activities ending at j by subtracting the duration of each activity from the latest finish time of the activity. Thus

$$LS_{ij} = LF_{ij} - t_{ij} = L_j - t_{ij}$$

Step 4: Proceed backward to the node in the sequence, that decrease j by 1. Also compute the latest occurrence time of node i ($i < j$) using

$$L_i = \min_j \{ LS_{ij} \} = \min_j \{ L_j - t_{ij} \}.$$

Step 5: If $j=1$ (initial node), then

$$L_1 = \min \{ LS_{ij} \} = \min \{ L_a - t_{ij} \}$$

Based on the above calculations, an activity (i, j) will be critical if it satisfies the following conditions:

- (i) $E_i = L_i$ and $E_j = L_j$
- (ii) $E_j - E_i = L_j - L_i = t_{ij}$

An activity that does not satisfy the above conditions is termed as non-critical.

Critical path: The critical activities of a network that constitute an uninterrupted path which spans the entire network from start to finish is known as critical path.

Both PERT and CPM are Managerial techniques for Planning and Control of large Complex projects. Both are techniques to network analysis where in a network is prepared analyse interrelationships between different activities of a project. However, there are general differences between the two techniques:

1. CPM is used for repetitive tasks like planning the construction of a house. On the other hand PERT is used for non-repetitive tasks like planning the assembly of the space platform.

2. PERT is a probabilistic model with uncertainty in activity duration. Multiple time estimates are made to calculate the probability of completing the project within scheduled time. On the contrary, CPM is a deterministic model with well known activity (single) times based upon past experience. It, therefore, does not deal with uncertainty in project duration.

3. PERT is said to be event-oriented as the results of analysis are expressed in terms of events or distinct points in time indicating of progress.

On the other hand, activity oriented as the results of calculations are considered in terms of activities or generations of the project.

4. PERT is applied mainly for planning and scheduling research programmes. On the other hand CPM is employed in construction and business problems.

5. PERT incorporates statistical analysis and thereby enables the determination of probabilities concerning the time by which each activity and the entire project would be completed. On the other hand, CPM does not incorporate statistical analysis in determining the estimates because time is precise and known.

6. PERT serves a useful control device as it assists the management in controlling a project by calling attention through constant review to such delays in activities which might lead to a delay in the project completion date. But it is difficult to use CPM as a controlling device for the simple reason that one must repeat the entire evaluation of the project each time the changes are introduced into the network.

Strategic Mgt

defined as a bundle

of decisions and acts which a manager undertakes and which decides the result of the firm's performance.

The manager must have a thorough knowledge and analysis of the general and competitive organizational environment so as to take right decisions. They should conduct a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats), i.e., they should make best possible utilization of Strengths, minimize the organizational weaknesses, make use of arising opportunities from the business environment and shouldn't ignore the threats.

Strategic Mgt is all about identification and description of the strategies that managers can carry so as to achieve better performance and competitive advantage for their organization.

Strategic Mgt can be explained

• Long range planning

• In Time frame

• Top Mgt responsibility

• Decisions are taken in complex conditions.

The Planning Process.

- * Strategic thinking
- * Strategic decision-making
- * Strategic approach.

Strategic thinking:

→ revolves around 3 basic questions:

- * Where are we now?
 - * Where do we want to go?
 - * How will we get there?
- } managers at all companies face these three central questions in thinking strategically.

Strategic Decision-making

→ Strategic decisions - deals with long run future of entire org.

→ Tactical decisions - are specific plans detailing how a strategy is to be implemented.

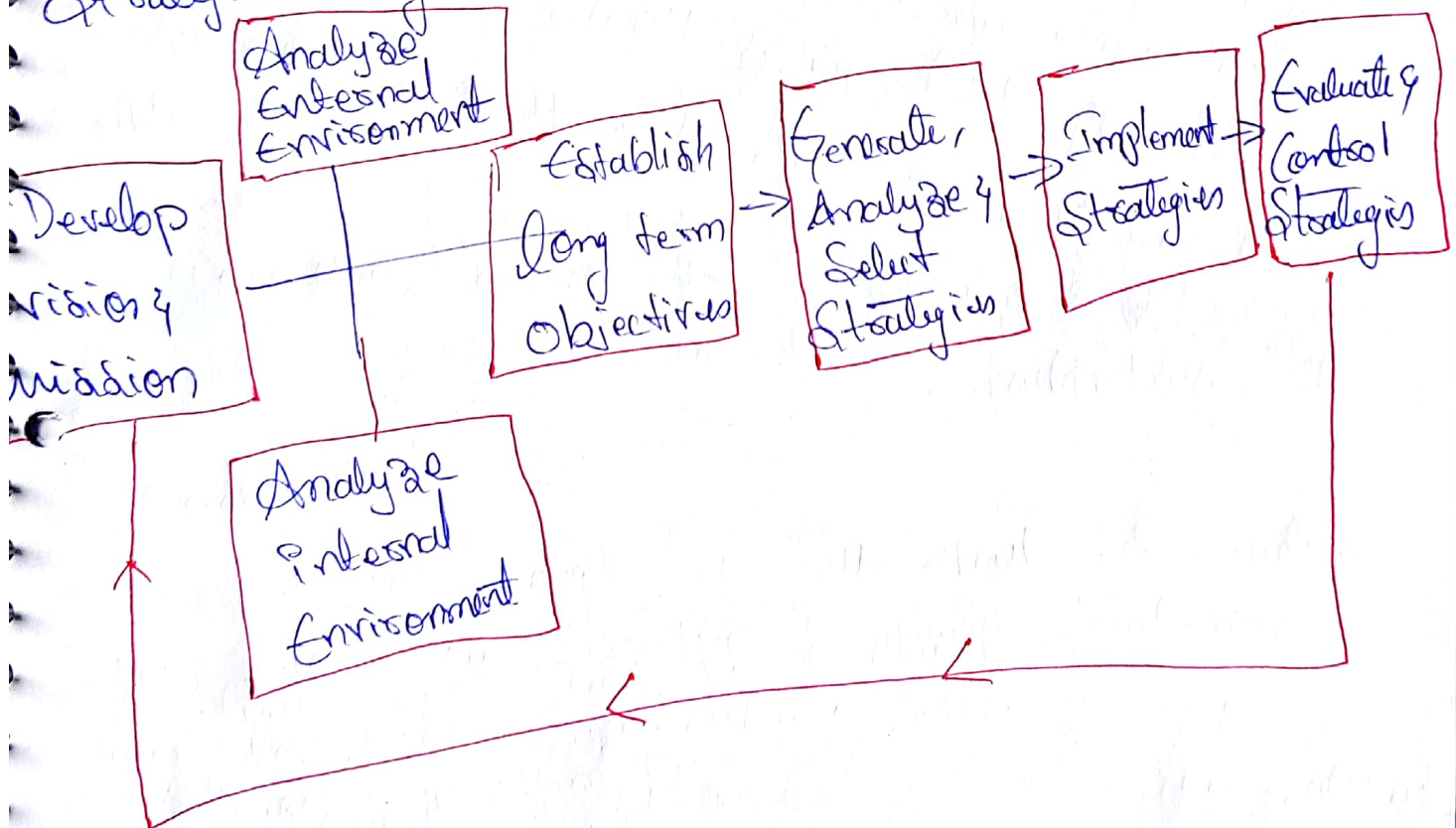
→ Operational decisions - are focused on day-to-day, real time activities of an org.

Strategic Approach

- Oriented towards future.
- External emphasis.
- Assuring a good fit between the environment & the org.

1. Long term Dissection
2. Recognizes Change
3. Oriented towards future.
4. External Emphasis
5. Major impact on the Org.
6. Concerned with the Scope & the Org
7. Affect Operational Decisions.
8. Competitive Advantage.

Strategic mgmt model



Strategic Managt

- Has Support of Organization's Executive Offices
- Is user friendly
- Is Participatory, not left to planners.
- Is flexible.
- Leads to resources decisions
- Engages and motivates all staff.
- Is broad and continuous, not static and stale.
- Is proactive
- Not a Quick fix
- Part of Quality mgmt
- Payoffs increase over time

Strategic mgmt model:

- Scanning
 - where are we now?
- Strategy Formulation
 - where do we want to be?
- Strategy Implementation
 - How do we get there?
- Measurement / Performance
 - How do we measure our progress?

→ Strategy Formulation

→ where do we want to be?

Goals

· vision

· mission

· values

Objectives

→ vision: vision without action is a daydream.
action without vision is a night mare.

* Not optional

* Stretch - 20+ years

* 8-10 words in length

* Future state

* Brief and memorable

* Inspiring and challenging

* Descriptive of the Ideal

A vision represents an animating dream about the future of the firm

Definition:

"A challenging and imaginative picture of the future state and objectives of an org, significant going beyond its current environment and competitive position".

→ It must be easily communicable

- " " " graphic
- " " " directional
- " " " feasible
- " " " focused
- " " " flexible.

Advantages

- Good vision fosters long term thinking
- It creates a common identity and a shared sense of purpose.
- It is inspiring and exhilarating.
- It fosters risk taking and experimentation
- A good vision is competitive, original and unique
- It makes sense in the market place.
- A good vision represents integrity. It is truly genuine and can be used for the benefit of people.



Disney Land - To be the happiest place on earth.
Canon - Beat Xerox ; Motorola - Total customer satisfaction.

Mission Statement

Your **MISSION** is what you intend to become & accomplish. It should be challenging but achievable. A well written mission statement demonstrates that you understand your business, you have defined your unique focus, and can articulate your objectives concisely to yourself and others.

How to write mission statement?

A mission statement should be short, concise, clear, vivid and inspiring. The most effective way to write a mission statement is to avoid jargon, complicated words & concepts - remember you are writing this for the public, not just employees of the company.

A company mission statement should be included in documents such as Business plans and staff handbooks. A mission statement can be described as a code between a company slogan.

Eg: Bank of America, Walmart, Microsoft

↓
To Build Strong Community

↓
Diversity Program

↓
People & business
throughout the world
realize full potential

Thomas Edison dreamed of a lamp that could be operated by electricity, began where he stood to put this dream into action, and despite more than 10,000 failures, he stood by that dream until he made it a physical reality. Practical dreamers do not quit.

Goal:-

Goal Setting at the core of the Strategic management process is the creation of goals, a mission statement, values and organizational objectives. Organizational goals, the mission statement, values and objectives guide the org in its pursuit of strategic opportunities.

Goal Setting begin after the Strategic Planning is complete and aligns with the organization's mission and vision statements. Keep your goals on your personal and business radar screens at all times and follow through on the steps required to make them happen.

You Can begin Goal Setting

- Mission Statement
- vision "
- Fiscal Year priorities
- Strategies
- Monthly monitoring and managing meeting.

Keep the Goal process simple and enjoyable, and set "SMART" goals - Simple, measurable, achievable, results oriented, time sensitive.

- Do not set goals that are "too easy".
- It is best to Challenge employees, expect them to Challenge themselves, with attainable goals that require considerable effort.

Consider the following Categories of goals:

- Financial
- Customer Service
- Employee based
- Internal business process
- Image
- Reputation
- Sales and marketing

* Ten Organizational Roadblocks

1. Lack of clear cut responsibility around the goals
2. " " " Teaching System
3. " " " an accountability System
4. " " " Commitment
5. Ineffective Communication
6. Lack of time & resources
7. Too many goals are financially driven
8. Goals aren't tied to a longer-term vision.

* Organizational Goal-Setting Style

- we set goals annually, review them monthly, communicate them frequently and revise plans based on progress
- we meet most of our goals.
- we apply the SMART test whenever we set goals.
- Not all of our goals are financially driven.
- we connect our goals and action plans to an accountability System, and we follow through with rewards and consequences.

Personal Goal-Setting Style

- I Set goals, write them down, review them regularly and complete them on time.
- My goals are on my Personal "radar" at all times.

Corporate Planning Pooled:-

A Plan is a Statement of intended means to accomplish a goal.

"Corporate Planning is a systematic approach to clarifying corporate objectives, strategic decision making and checking progress toward objectives."

A Corporate Plan is a set of instructions to managers of an organization describing what role each department is expected to fulfill in the achievement of organizational objectives."

4 basic Principles

1. Primary of Planning: This deals with the importance of Planning for its central role in linking all the other managerial functions.

2. Universality of Planning: This brings out the idea that planning is a function and responsibility of every manager, Supervisor and Foreman in an org.

Contribution to objectives plans are made to achieve. Some ends and without planning, we cannot achieve goals and objectives of an organization.

Efficiency & Planning: Least costly and more beneficial

Planning is a Process of

Setting objectives

↳ Determining what should be done to accomplish them

↳ Implementing the plan

↳ Monitoring and evaluating the results

Types of Plan in business:

5 Steps Involved Corporate Planning:

1. Determination of corporate objective
2. Preparation of Forecast
3. Calculating the Gap
4. Identification of Constraints
5. Designing the Strategy.

What is Environmental Scanning?

→ The process of collecting, analyzing and distributing information for tactical and strategic purposes

Purposes

Purpose of an environmental scan:

1. To provide strategic intelligence by evaluating potentially significant environmental changes

→ Conveys both current environmental status and how it is changing → trends

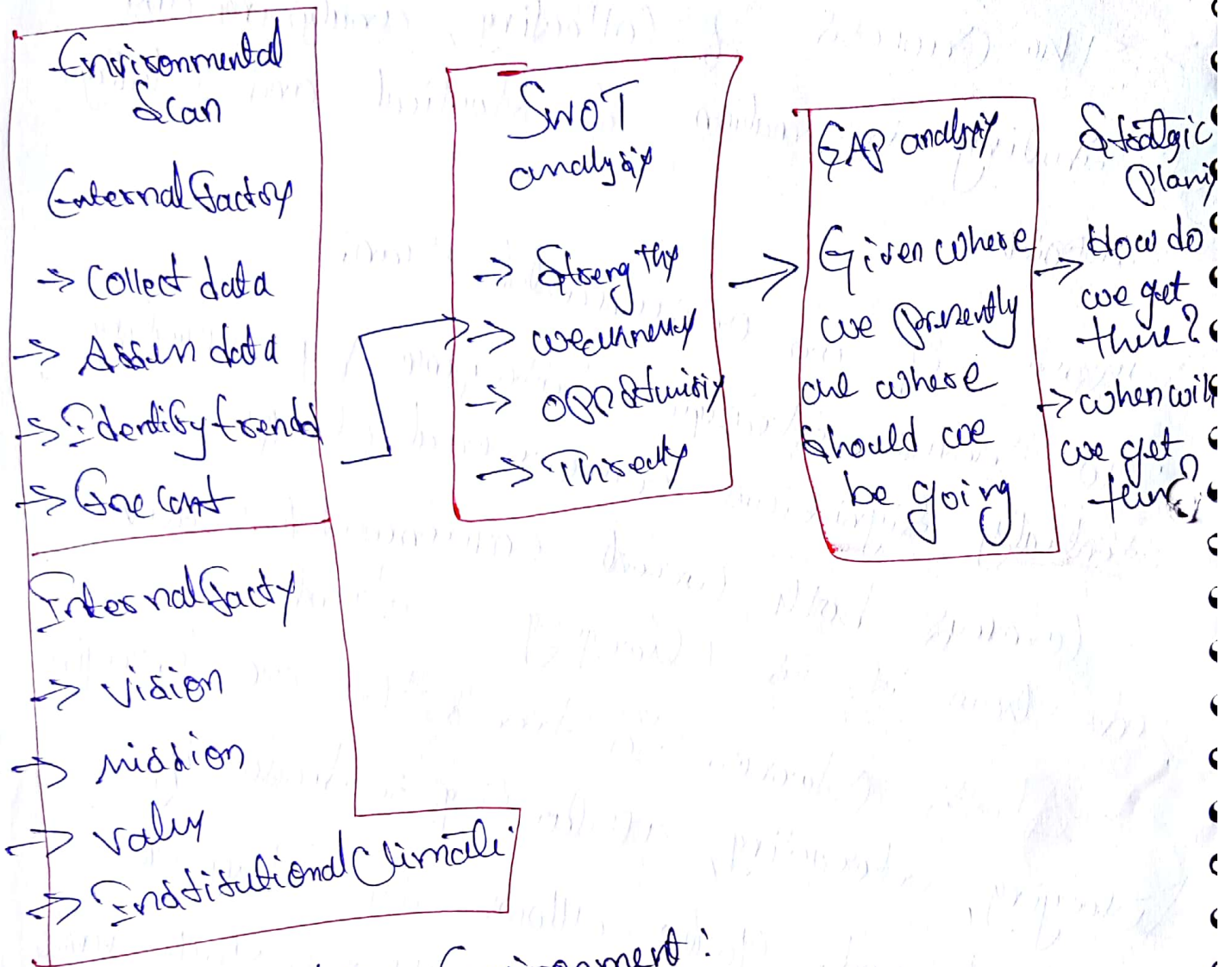
→ Alerts planners to trends that are converging, diverging, intersecting, accelerating or decelerating

→ Ideal end-goal: allows for adaptive planning before these trends occur or fully develop

Other Characteristics:-

→ often referred only to the environment that is internal to the organization

→ Good strategic planning requires information on internal organizational factors, so whenever possible include these also.



Demographic Environment:

- Age
- Gender
- Marital Status
- Birth rate
- Religion
- Source of livelihood and Income
- Lifestyle & Interests.

1. Determination & Corporate Objective

Private Companies give more emphasis on Profit earning ratio on investment, So, Corporate Planning is complicated when the planners are to think how much will satisfy the owners

2. Preparation & Forecast:

Financial Expert, the Forecasting involves a

4 Stage ~~and~~ Procedure. A thorough study of the Company's Past Performance guides Forecasting.

4 Components Profit - Selling Prices, Variable costs, Fixed costs and volume.

3. Calculating the Gap:- The gap between

the Company's Profit target and Forecast is the

3rd Step in Corporate Planning.

4. Identification & Constraints:

To define its relationship with the employees

Customers, Suppliers, Competitors and govt officials, it is necessary and important to know the Constraints ahead.

5. Designing the Strategy:

After the profit gap is known, the last step to be taken by the corporate planners is to design the strategy that can help the company to succeed in closing the gap.

8 Main Steps in Corporate Strategic Planning to achieve your 89 goals.

1. The CEO needs to lead the strategy work.
2. Build your own model.
3. Involve your stakeholders including the customers.
4. Advance the corporate vision
5. Exploit new technology
6. Create the right delivery system
7. Communicate.

SWOT analysis :-

A technique that enables a group or individual to move from everyday problems and traditional strategies to a fresh perspective.

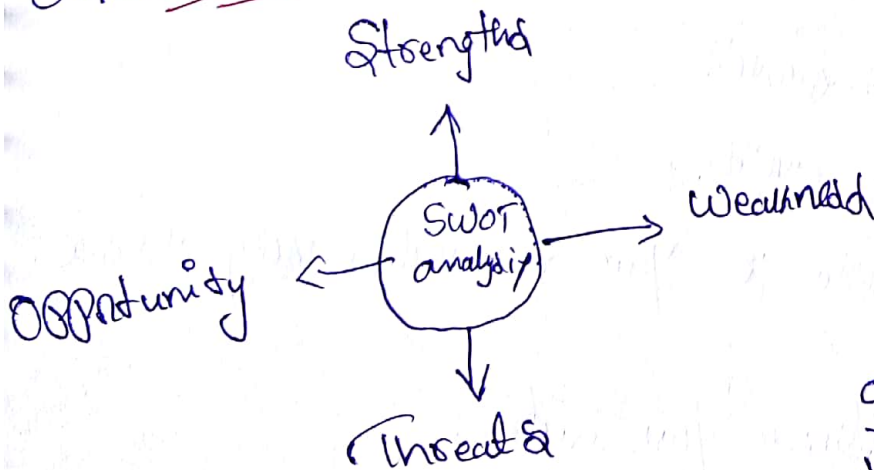
→ SWOT analysis looks at your strengths and weaknesses, and the opportunities and threats your business faces.

→ The SWOT analysis framework is a very important and useful tool to use in marketing mgmt and other business applications.

→ As a basic tool its mastery is a fundamental requirement for the marketer, entrepreneurs or business person.

→ A clear understanding of SWOT is required for business majors.

What is SWOT analysis?



→ planning tool used to understand SWOT

→ used as framework for organizing and using data & information gained from situation

S } — Internal Environment
W }
O } — External "
T }

Strengths

1. Characteristics of the business or a team that give it an advantage over others in the industry.

2. Positive tangible and

2. (a) What advantages does your organization have?

(b) What do you do better than anyone else?

(c) " " People in your market see as your strengths?

Answers:

→ we are able to respond very quickly as we have no red tape, no need for higher mgmt approval.

→ we are our lead consultant has a strong reputation in the market.

→ we can change direction & quickly if we find that our marketing is not working.

Weaknesses

→ what could you improve?

→ what should you avoid?

→ what are people in your market likely to see as weaknesses?

→ what factors lose you sales?

Weakness

- Our Company has little market presence.
- we have a small staff, with a shallow skill base in many areas
- we are vulnerable to vital staff being sick or leaving
- Our cash flow will be unreliable in the early stages.

Opportunities

- what good opportunities can you spot?
- what interesting trends are you aware of?
- changes in technology and markets on both a broad and narrow scale.
- changes in govt policy related to your field.
- changes in social patterns, population profiles, lifestyle changes.

Answers

- our business sector is expanding, with many future opportunities for success.
- local govt wants to encourage local businesses.
- our competitors may be slow to adopt new technologies.

Threats

- What obstacles do you face?
- What are your competitors doing?
- Are Quality Standards or Specifications for your job, Products or Services Changing?
- Is Changing Technology threatening your position?
- Do you have bad debt?
- Could any of your weaknesses seriously threaten your business?

Answers

- Developments in technology may change this market beyond our ability to adapt.
- A small change in the focus of a large competition might wipe out any market position we achieve.

1. To help decision makers share and compare ideas.
2. To bring a clearer common purpose and understanding of factors for success.

3. To organize the important factors linked to success and failure in the business world.
4. To provide linearity to the decision making process allowing complex ideas to be presented systematically.

Who needs SWOT analysis?

- ② → when the team has not met its targets
- Customer service can be better
- Launching a new business unit to pursue a new business
- New team leader is appointed business unit

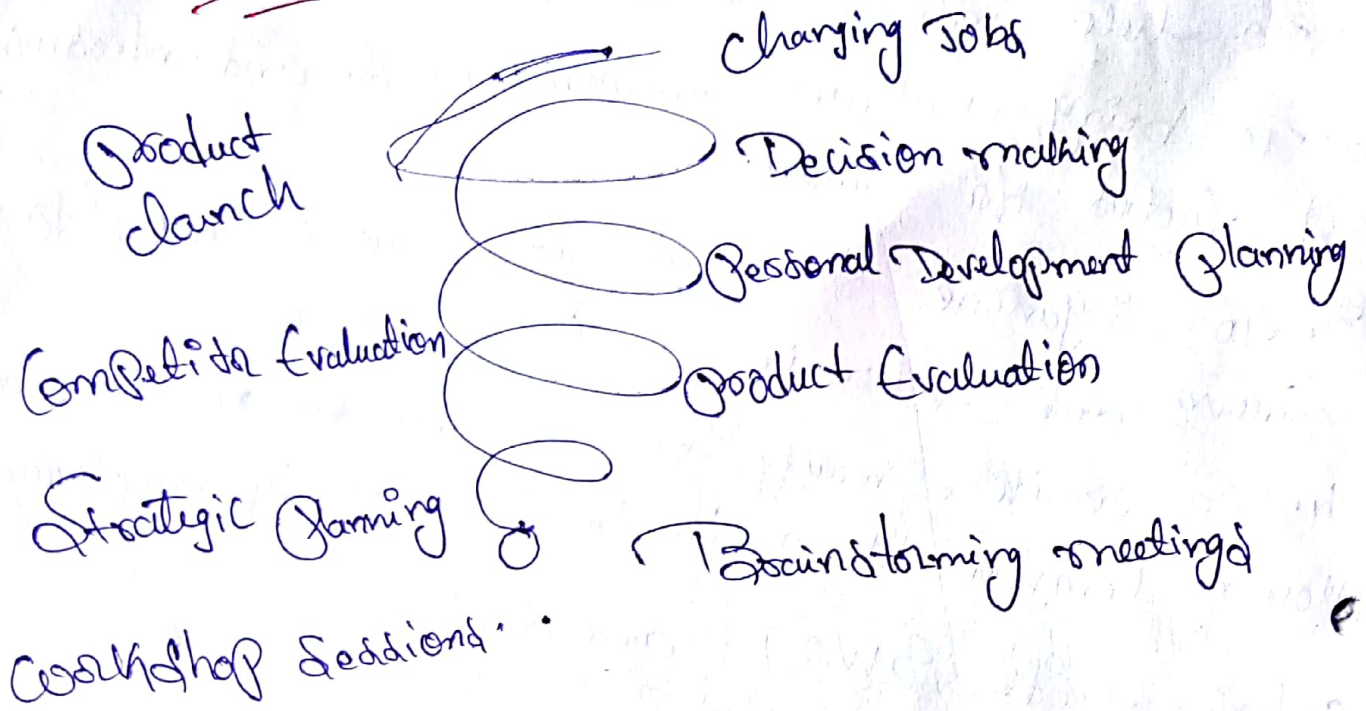
Job holder →

- ① → when supervisor has issues with work output
- Assigned to a new job
- New financial year - fresh targets
- Job holder seeks to improve performance on the job

Company →

- when revenue, cost & expense targets are not being achieved
- Market share is declining
- Industry conditions are unfavourable
- Launching a new business venture

Who needs SWOT analysis?

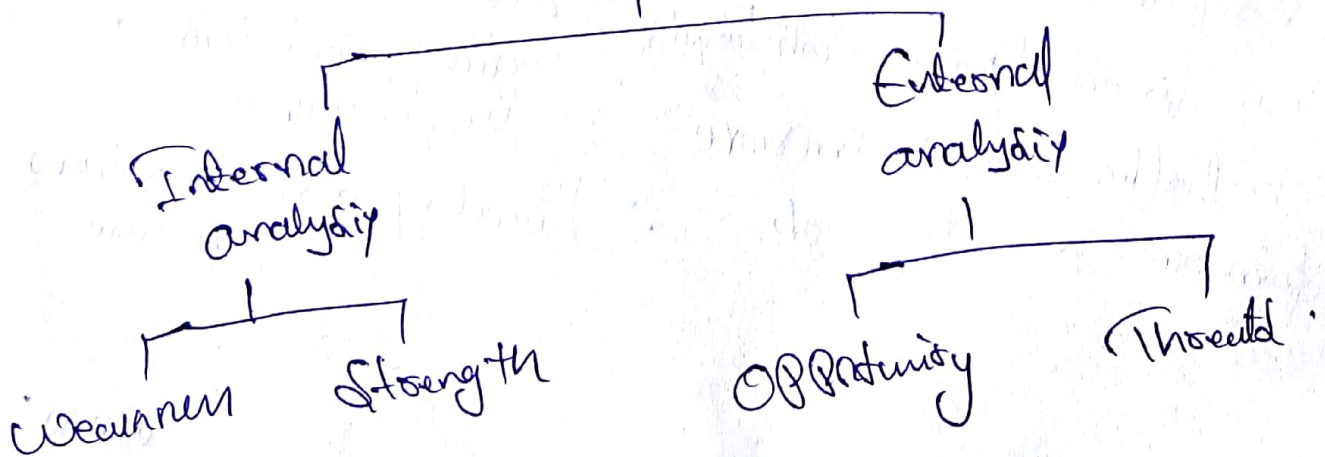


How to Conduct SWOT analysis?

1. Analyse Internal & External Environment → 2. Perform SWOT analysis & Document → Prepare action plans.

1. Analyse Internal & External Environment

Situation analysis



2. Design SWOT analysis & Document

6- Carry your Findings forward at suitable time interval

5- list Strengths, Weaknesses, Opportunities & Threats

4- Evaluate listed ideas against objectives - with the lists compiled, sort and group facts and ideas in relation to the objectives

3- Allocate research & information gathering tasks - Background Preparation can be carried out in parallel stages. Information

2- Create a workshop environment - Encourage an atmosphere conducive to the free flow of information

1- Establish the objectives - Purpose of conducting a SWOT may be wide/narrow, general/specific

3. Prepared action Plan

1. Things that must be addressed immediately

2. Things that can be handled now.

3. Things that should be researched further

4. Things that should be planned for the future.

Do's

1. Be analytical and specific
2. Record all thoughts and ideas
3. Be selective in the final evaluation }
4. Choose the right people for the exercise }
5. Choose a suitable SWOT leader
6. Think out of the box
7. Be open to change.

Don'ts

1. Try to disguise weakness
2. Merely list errors and mistakes
3. Lose sight of external influences and trends.
4. Allow the SWOT to become a blame laying exercise
5. Ignore the outcome at later stages of the planning process

MATERIAL REQUIREMENT PLANNING (MRP) Topic: 2

MRP calculates and maintains an optimum manufacturing plan based on master production Schedules, Sales forecasts, inventory status, open orders and bills of material. If properly implemented, it will reduce cash flow and increase profitability. MRP will provide you with the ability to be Pro-active rather than Re-active in the management of your inventory levels and material flow.

Material related costs reduced by reducing the number of Suppliers a company deals with and developing contracts through Creative Supplier networking, eliminating the need to count individual parts, reducing order scheduling, eliminating expediting, simplifying receiving systems, eliminating receiving inspection, eliminating most unpacking, eliminating the stocking of inventory and eliminating excess material spoilage.

Implementing or improving material Requirements Planning can provide the following benefits to your company:

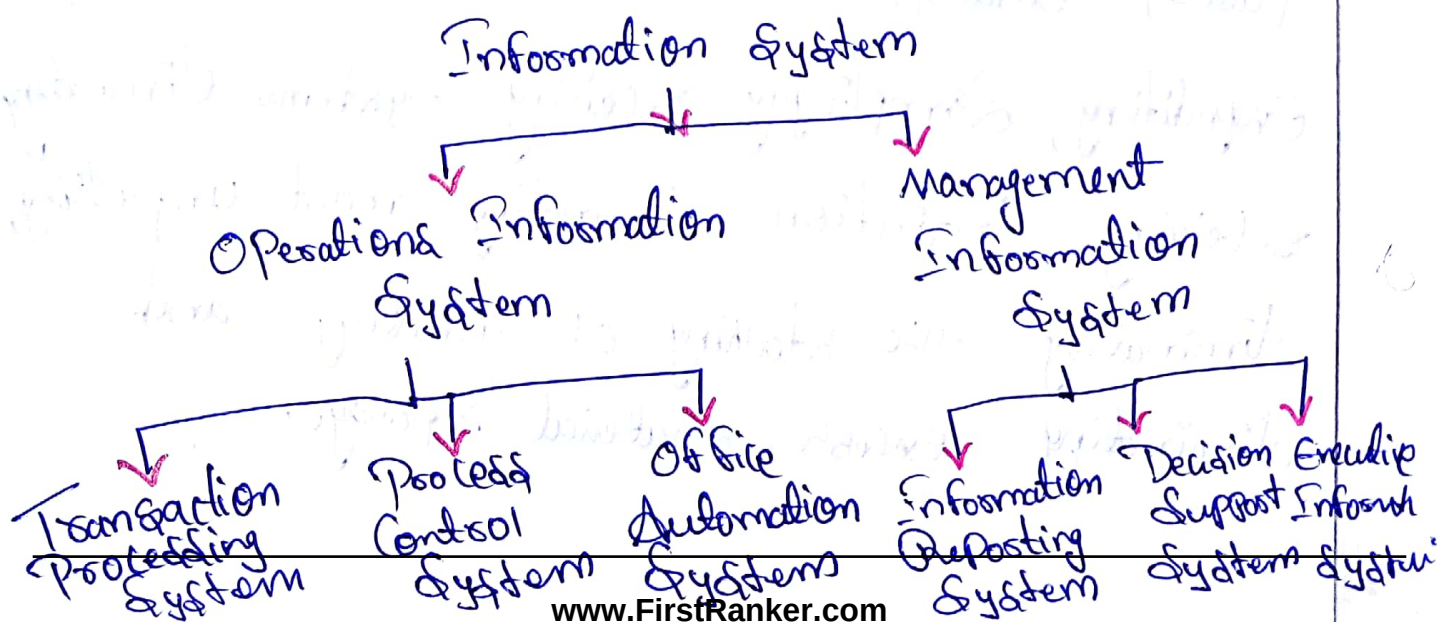
- Reduced overtime
- " Inventory level
- " Component Service
- Improved productivity
- Simplified and accurate Scheduling.
- Reduced purchasing cost and Manufacturing cost
- Improve Production Schedules
- High Production Quality.
- Improved Communication
- Reduction in Excess inventory.
- Improved Supply Schedules
- Improved Calculation of Material Requirements
- Improved Competitive Position.

MRP will plan production so that the right materials are at the right place at the right time. MRP determines the latest possible time to produce goods, buy materials and add manufacturing value. Proper material Requirements planning can keep cash in the firm and still fulfill at production demands. It is the single most powerful tool.

Planning, Purchase Mgt and Production Control. MRP is easy to operate and adds dramatically to profits.

The main function of material requirement planning is to guarantee material availability, that is used to produce the requirement quantities on time both for internal purposes and for sales and distribution. This process involves the monitoring of stocks and in particular, the automatic creation of procurement proposals for purchasing and production. In doing so, MRP tries to strike the best balance possible between

- optimising the service level
- minimising costs and capital locking.



★ Definition:

An inventory strategy companies employ to increase efficiency and decrease waste by receiving goods only as they are needed in the production process, thereby reducing inventory costs.

This method requires that producers are able to accurately forecast demand.

Just - In - Time Manufacturing:

JIT is a philosophy of continuous improvement in which non-value-adding activities are identified and removed for the purposes of

- Reducing cost
- Improving Quality
- Improving Performance
- Improving Delivery
- Adding Flexibility
- Increase innovativeness.

JIT is not about information. JIT eliminates waste by providing the environment to perfect and simplify the processes.

JIT is a collection of techniques used to improve operations. It can also be

be a new Production System that is used to produce goods and services.

The American Production and Inventory Control Society (APICS) has the following definition of JIT.

"A philosophy of Manufacturing based on planned elimination of all waste and Continuous improvement of Productivity.

It encompasses the Successful execution of all manufacturing activities required to produce a final product from design engineering to delivery and including all stages of Conversion from raw material onward. The Primary elements include having only the required inventory when needed; to Improve Quality to Zero defects; to reduce lead time by reducing Setup times, Queue lengths and lot sizes; to incrementally revise the operation themselves and to accomplish these things at minimum cost".

When the JIT principles are implemented Significant Competitive advantages are realized

Parts of an organisation. order taking,
Purchasing, operations, distribution, Sales,
accounting design etc.



MPP is used to provide materials Planning and the final assembly Schedule. Kanbans [5] are used to control internal Production flow.

Elimination of waste:

JIT usually identifies Seven prominent types of wastes to be eliminated.

- waste from overproduction
- Transportation waste.
- waste from product defects.
- waste of waiting / idle time
- Inventory waste
- waste of motion.

MANAGEMENT:

Q What is TQM?

TQM is the integration of all functions and processes within an organisation in order to achieve continuous improvement of the Quality of goods and services. The goal is Customer Satisfaction.

TQM is an approach to improving the effectiveness and flexibilities of business as a whole. It is essentially a way of organising and involving the whole organisation every department, every activity and every single person at every level. TQM ensures that the Management adopts a strategic overview of the Quality and focuses on Prevention rather than inspection.

Q Benefits of TQM:

- Improved Quality
- Employees Participation
- Team work
- Working Relationships

* Employees Satisfaction

* Productivity

* Communication

* Profitability

* Market Share.

* Elements of TQM:

* Be customer focused

It requires the Company to check customers attitudes regularly and includes the idea of internal customers as well as external ones

* Do it right the first time.

This means avoiding rework i.e., cutting the amount of defective work.

* Constantly Improve

Continuous improvement allows the Company gradually to get better.

* Quality is an attitude.

Every one has to be committed to Quality. That means Changing the attitude of the entire workforce and altering

the way the company operates.

* Telling Staff what is going on:-

This involves improved communication.

Typically, it includes team briefing.

* Objectives of TQM:

* Meeting the customer's requirements is the primary objective and the key to organisational survival and growth.

* The second objective of TQM is continuous improvement of quality. The management should stimulate the employees in becoming increasingly competent and creative.

* Third, TQM aims at developing the relationship of openness and trust among the employees at all levels in the organisation.

SIX SIGMA

Six Sigma Introduction

Six Sigma is an approach to data-driven management that seeks to improve Quality by measuring how many defects there are in a process and systematically eliminating them until there are as close to zero defects as possible.

In 1984, a Motorola engineer named Bill Smith developed the Six Sigma mgmt System to reduce the variations in Motorola's electronic manufacturing processes that were causing product defects. Since then, the strategies, tools and cultural norms that support the mgmt System have been adopted by companies in a wide variety of industries and the meaning of the word "defect" has broadened to include any deficiency that prevents a company from meeting its customer needs.

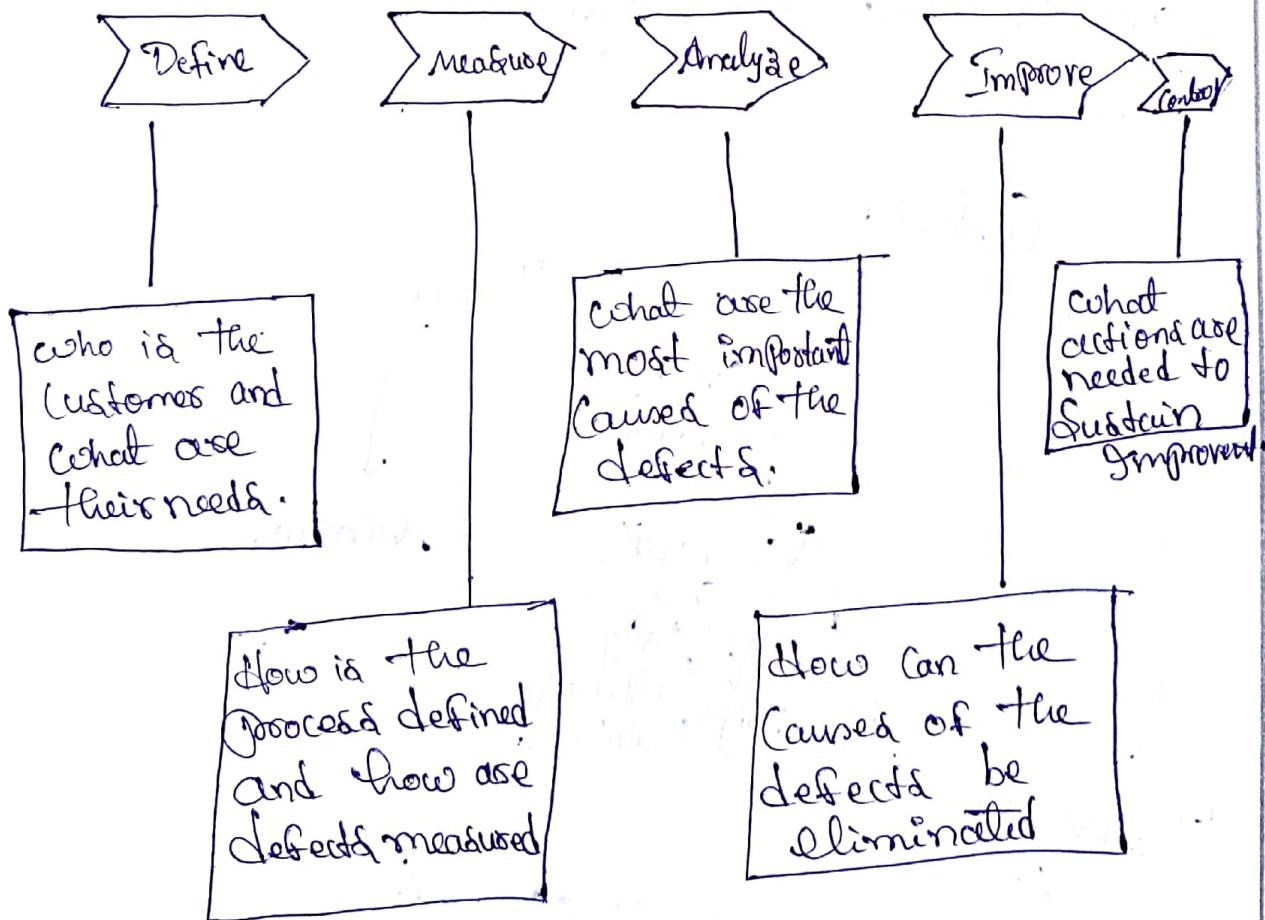
Definition:

Quality management Program developed by Motorola in the 1980's.

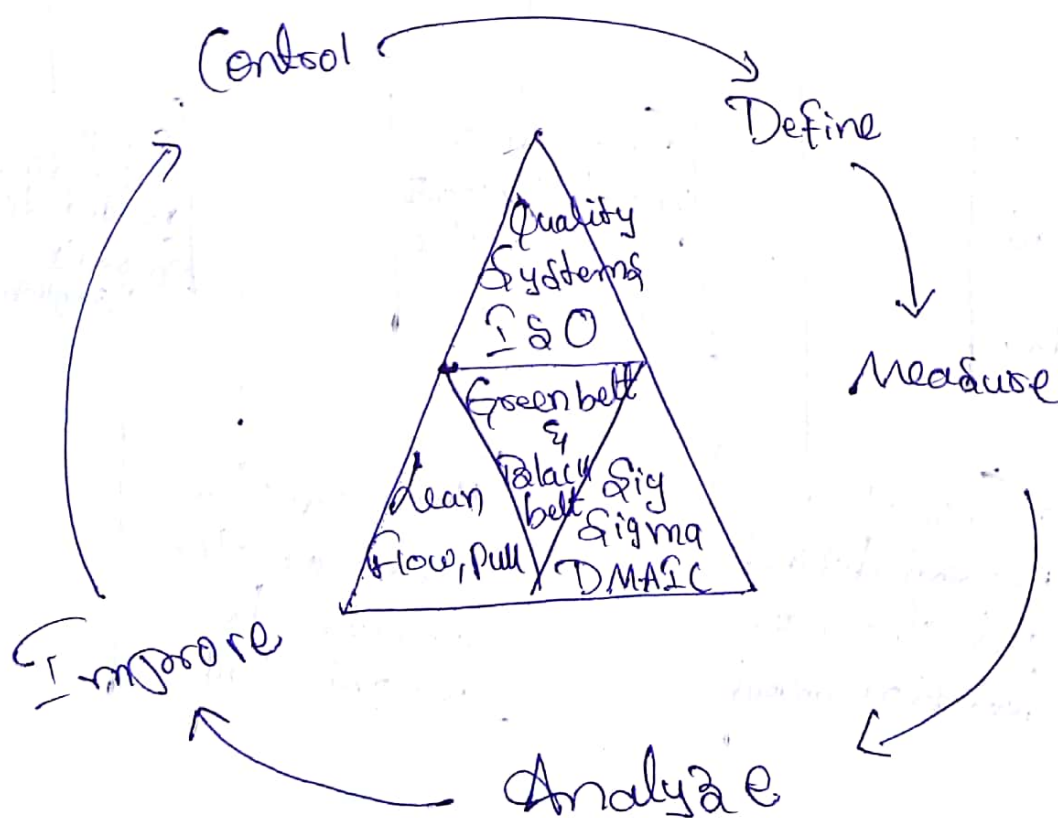
Management Philosophy focused on business process improvements to:

- * Eliminate waste, rework and mistakes.
- * Increase Customer Satisfaction
- * Increase Profitability and Competitiveness

Phases of Six Sigma:



A Quality Control program developed in 1986 by Motorola. Initially, it emphasized cycle-time improvement and reducing manufacturing defects to a level of no more than 3.4 per million. Since then, Six Sigma has evolved into a more general business management philosophy focused on meeting customer requirements, improving customer retention and improving and sustaining business products and services. Six Sigma is applicable to all industries.



Creating break through improvements by
Managing variations and reducing defects in
Processes across the enterprise.

→ Six Sigma is a Greek symbol represented
by " σ "

→ There are two Six Sigma Processes

1. Six Sigma DMAIC

2. Six Sigma DMADV

1. Six Sigma DMAIC:

* Define the System, the voice of the customer
and their requirements, and the project goals,
Specifically

* Measure key aspects of the current process
and collect relevant data.

* Analyze the data to investigate and verify
cause and effect relationships. Determine what
the relationships are and attempt to ensure
that all factors have been considered. Select
root cause of the defect under investigation.

* Improve or optimize the current process
based upon data analysis using techniques
such as design of experiments, poka-yoke
or mistake proofing and standard work

to Create a new Future State Process.

Set up pilot runs to establish process Capability.

* Control the Future State process to ensure that any deviations from the target are corrected before they result in defects. Implement control systems such as Statistical Process Control, Production boards, visual work places, and continuously monitor the process.

* 2. Six Sigma DMADV:-

The DMADV project methodology, known as DFSS (Design for Six Sigma) features five phases.

* Define design goals that are consistent with customer demands and the enterprise strategy.

* Measure and identify CTQ's (Characteristic that are critical to Quality), Measure product Capabilities, Production process Capability and Measure risks.

* Analyze to develop and design alternative

Suited for analysis in the previous step.

* Verify the design, Set up pilot runs, implement the production process and hand it over to the process owner.

Features of Six Sigma:

1. Six Sigma's aim is to eliminate waste and inefficiency, thereby increasing customer satisfaction by delivering what the customer is expecting.

2. Six Sigma follows a structured methodology and has defined roles for the participants.

3. Six Sigma is a data driven methodology and requires accurate data collection for the process being analyzed.

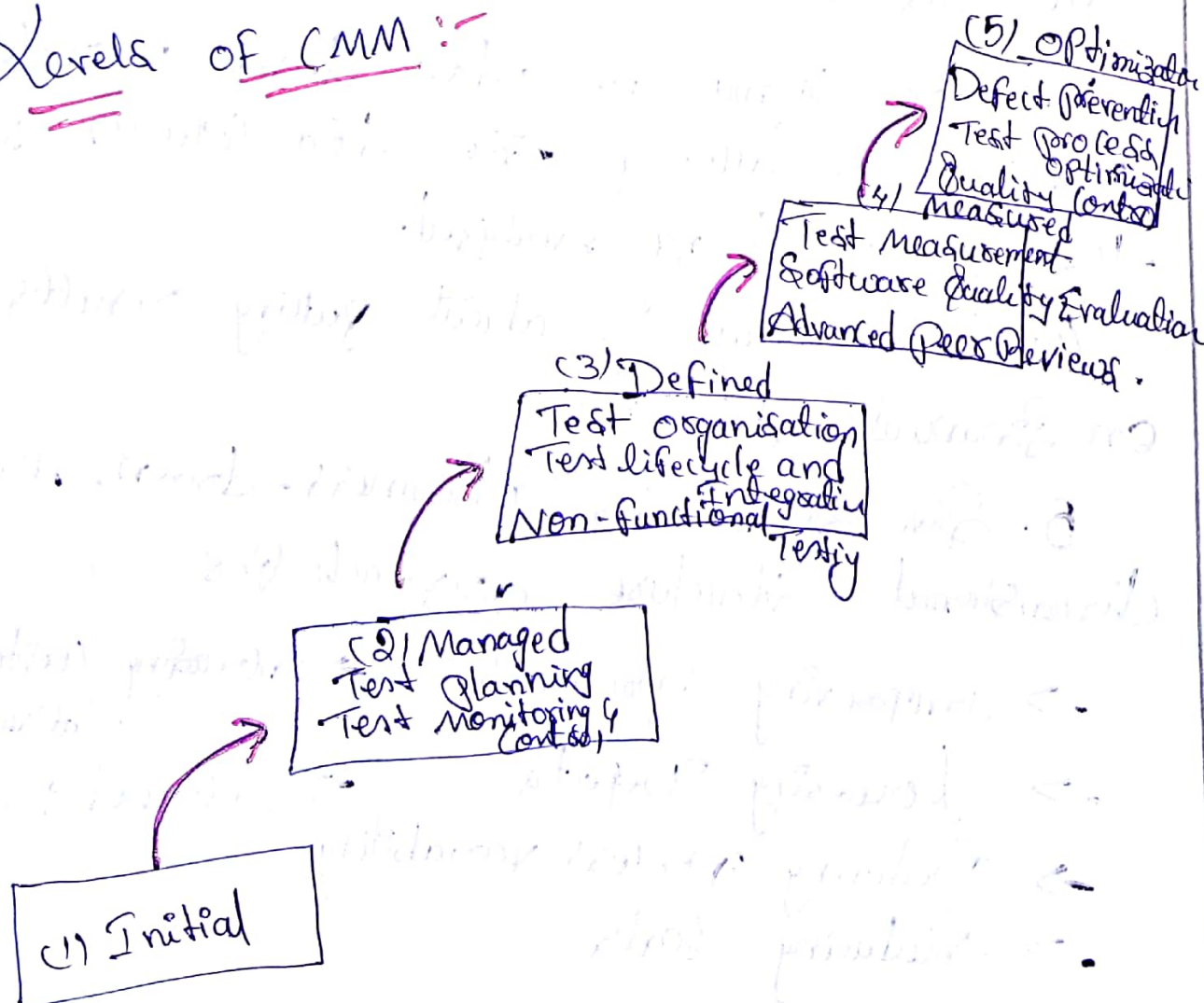
4. Six Sigma is about putting results on financial statements.

5. Six Sigma is a business-driven, multi-dimensional structure approach for

- Improving processes
- Increasing customer satisfaction
- Lowering Defects
- Increased profits
- Reducing process variability
- Reducing costs

Capability Maturity model is a benchmark for measuring the maturity of an organisation's Software process. It is a methodology used to develop and refine an organisation's Software development process. CMM specifies an increasing series of levels of a software development organization. The higher the level, the better the software development process, hence reaching each level is an expensive and time consuming process.

Levels of CMM :-



* Level One: Initial

The Software Process is characterized as inconsistent, and occasionally even chaotic. Defined Processes and Standard Practices that exist are abandoned during a crisis. Success of the organization majorly depends on an individual effort, talent and heroics. The heroes eventually move on to others. Organizations taking their wealth of knowledge

* Level two: Repeatable:- This level of Software development organization has a basic and consistent project management processes to track cost, schedule, and functionality. The process is in place to repeat the earlier successes on projects with similar applications. Program management is a key characteristic of a level two organization.

* Level three: Defined:- The Software Process for both management and engineering activities are documented, standardized, and integrated into a standard Software Process for the entire organization and all projects across the organization. Use an approved, tailored version of the organization's

testing and maintaining the application.

→ Level Four: Managed

Management can effectively control the software development effort using precise measurements. At this level, organization set a Quantitative Quality goal for both Software Process and Software Maintenance. At this maturity level, the Performance of Processes is controlled using Statistical and other Quantitative techniques, and is Quantitatively Predictable.

→ Level Five: Optimizing

The key characteristic of this level is focusing on continually improving process performance through both incremental and innovative technological improvements. At this level, changes to the process are to improve the process performance and at the same time maintaining statistical probability to achieve the established Quantitative process improvement objectives.

SUPPLY

CHAIN MANAGEMENT

Topic : 7

→ All activities associated with the flow and transformation of goods from raw materials to end users.

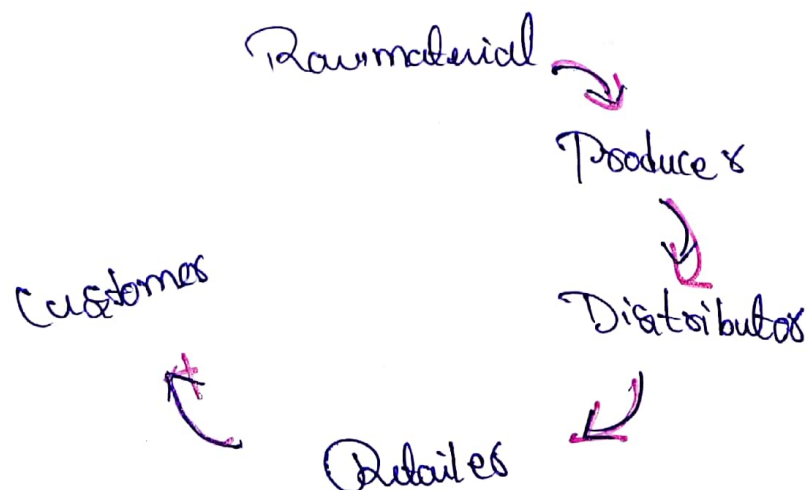
→ The term Supply Chain refers to the entire network of companies that work together to design, produce, deliver, and service products.

→ A network of facilities including:

→ Material flow from suppliers and their "upstream" suppliers at all levels,

→ Transformation of materials into semi finished and finished products (internal process)

→ Distribution of products to customers and their "downstream" customers at all levels.

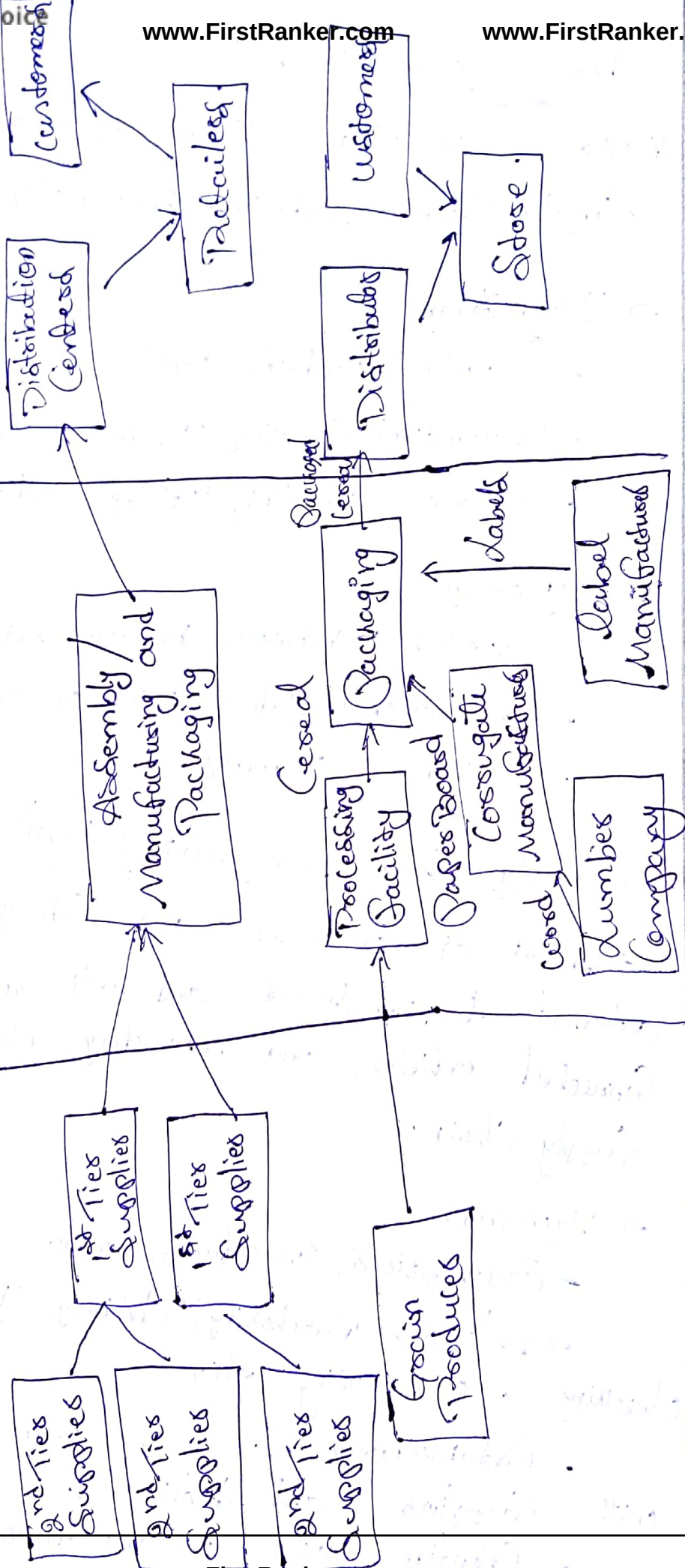


Example of Supply Chain

Downstream

Internal

Upstream



Three flows

* These are three kinds of flows in a Supply Chain: Material, Information, Capital.

→ Downstream

- Material: Products, Parts
- Information: Capacity, Delivery Schedules
- Finance: Invoices, Pricing, Credit terms

→ Upstream

- Material: Returns, Repairs, After-Sales Service
- Information: Orders, Point-of-Sale Data
- Finance: Payments

* Supply chain Management (SCM)

→ A set of processes and sub-processes which attempt to implement and optimize the functions connected entities, and interacting elements of a Supply Chain.

→ Involves:

- Organizations, Procedures, People.

→ Activities: Purchasing, Delivery, Packaging, Checking, Warehousing etc.

- Establishment of long-term relationships with Suppliers and distributors.

- Effective flow of information through the Supply Chain.

Key Business Areas

- Enterprise Performance
- Customer Service
- Order mgmt
- Demand Planning
- Warehouse distribution
- Partnerships
- Supplier (Supply base mgmt)

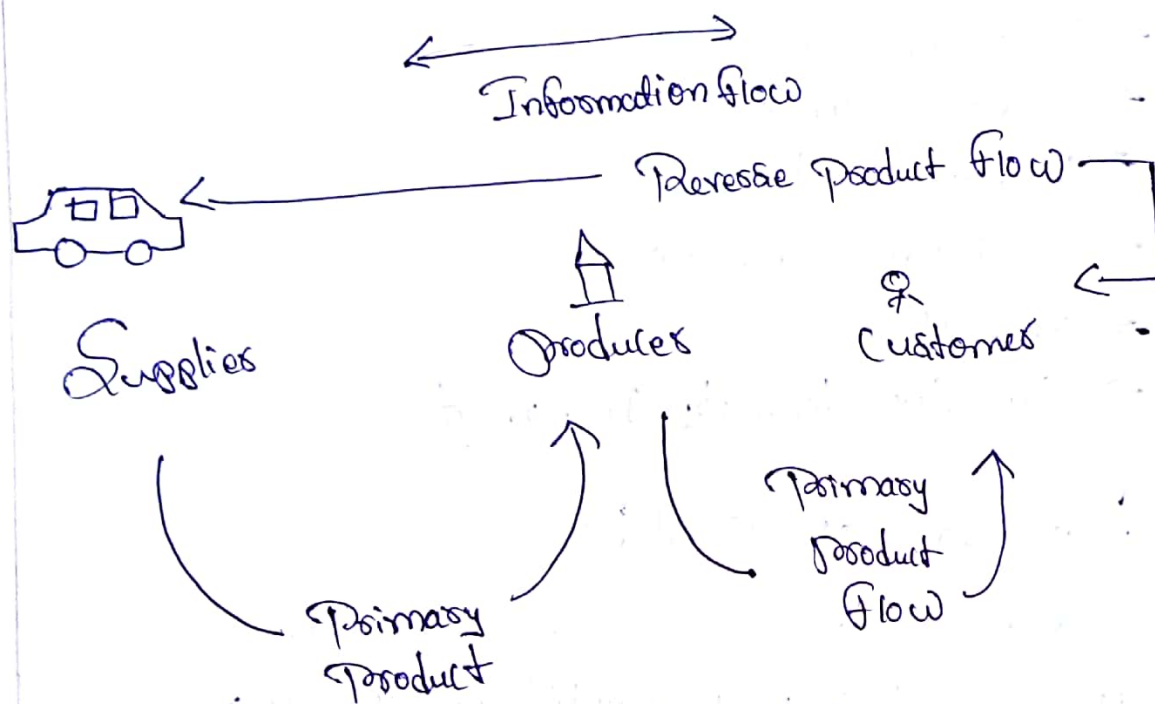
★ Benefits of SCM :-

- Reduce uncertainty along the chain
- Proper inventory levels in the chain
- Minimize delays
- Eliminated rush activities
- Provide good customer service

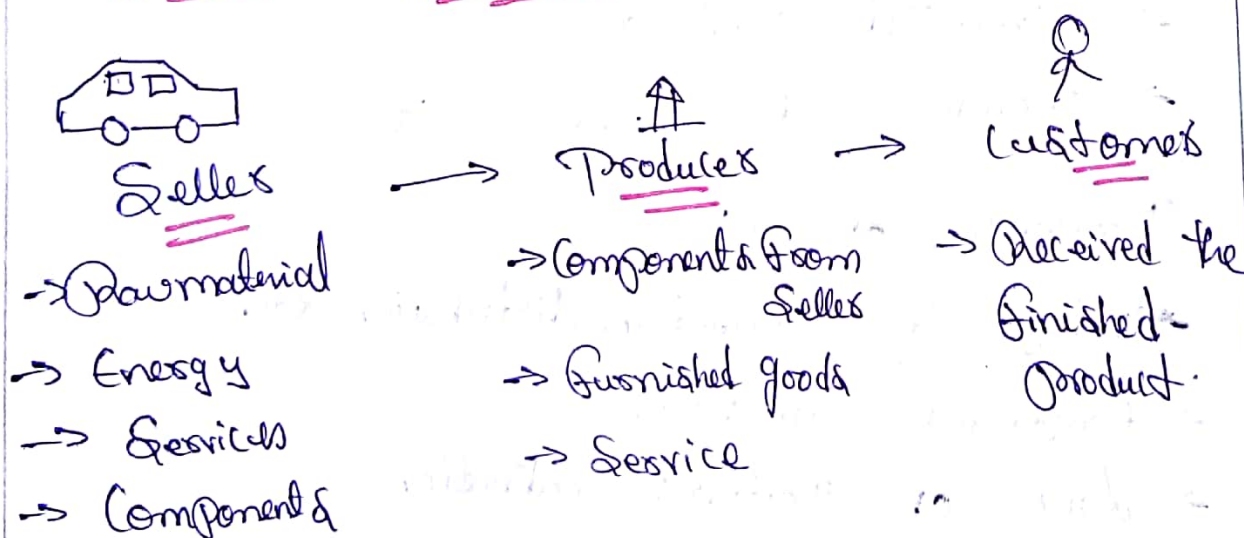
Problems of SC:

- Delays in Production, distribution etc.
- Expensive Inventories
- Lack of Partner's Coordination
- Uncertainties in deliveries
- Poor demand Forecast
- Interference with Production
- Poor Quality.

Basic Supply Chain for a product



A Basic Supply Chain :-



Strategies

Reactive
→ Fulfill demand from local partners

Stable
→ Execution
→ Efficiencies
→ Cost Performance

Efficient Proactive
→ Focused Efficiency and Cost mgmt.

Flows in Supply chain :-

- Information flow
- Invoices
 - Sales literature
 - Specifications
 - Receipts
 - orders
 - Rules and Regulations

Primary Product flow

- Materials
- Components
- Supplies
- Services
- Finished Products.

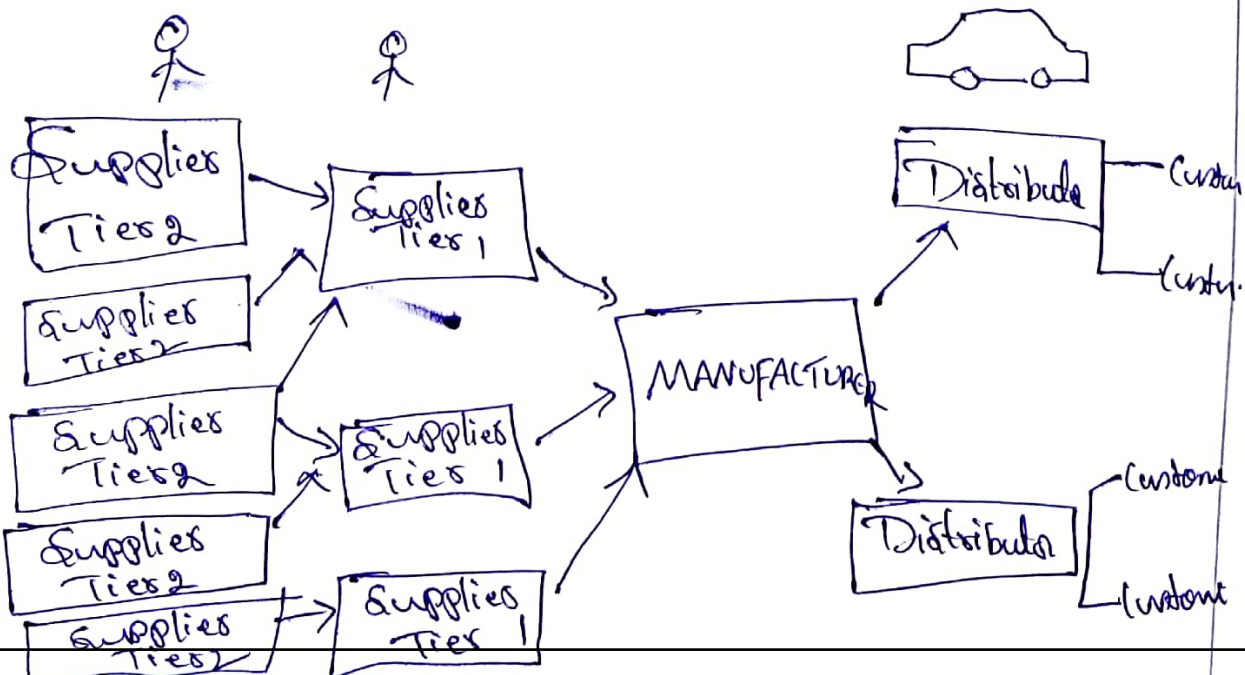
Primary Cash flow

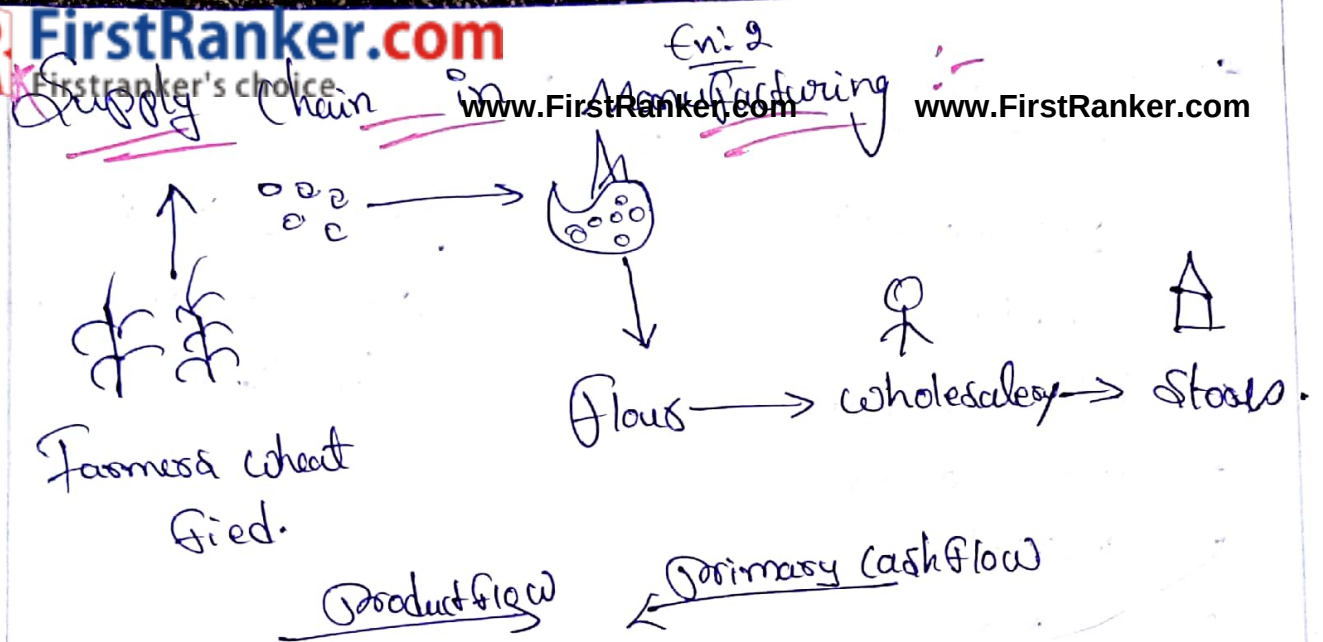
Payments of products
Suppliers

Reverse Product flow

- Returns for Repair
- Replacements
- Recycling
- Disposals.

Supply chain in Manufacturing :-





→ Supply Chain Services

ERP - Enterprise Resource Planning

* ERP is a business process management software that allows an organization to use a system of integrated applications to manage the business and automate many back office functions related to technology, services and human resources.

* ERP software typically integrates all parts of an operation - including product planning, development, manufacturing, sales and marketing - in a single database, application and user interface.

* ERP is an Enterprise Application

* ERP software is considered to be a type of Enterprise Application, that is software designed to be used by larger businesses and often requires dedicated teams to customize and analyze the data and to handle upgrades and deployment.

In contrast, small business ERP applications are lightweight business management software solutions, often customized for a specific business industry or vertical.

ERP Software Modules Explained

ERP Software typically consists of multiple Enterprise Software modules that are individually purchased, based on what best meets the specific needs and technical capabilities of the organization. Each ERP module is focused on one area of business processes, such as product development or marketing.

Some of the most common ERP modules include those for product planning, material purchasing, inventory control, distribution, accounting, marketing, finance and HR. A business will typically use a combination of different modules to manage back-office activities and tasks including the following:

- * Distribution Process mgmt
- * Supply Chain mgmt
- * Services Knowledge base
- * Configure Prices
- * Improve accuracy of financial data
- * Facilitate better project planning
- * Automate the Employee life-cycle
- * Standardize Critical Business Procedures

- * Assess business needs
- * Accounting and Financial Applications
- * Lower Purchasing Costs.
- * Manage human resources and Payroll.

As the ERP methodology has become more popular, Software applications have emerged to help business managers implement ERP into other business activities and may incorporate modules for CRM and business intelligence, presenting it as a single unified package.

→ The basic goal of using an ERP System is to provide one central repository for all information that is shared by all the various ERP facts to improve the flow of data across the organization.

Enterprise ERP Trends

The ERP field can be slow to change, but the last couple of years have unleashed new technology trends which are fundamentally shifting the entire area. The following new and continuing computing trends have an

Software:

* Mobile ERP:

Executives and employees want real-time access to information, regardless of where they are. It is expected that businesses will embrace mobile ERP for the reports, dashboards and to conduct key business processes.

* Cloud ERP:

The cloud has been advancing steadily into the enterprise for some time, but many ERP users have been reluctant to place data in the cloud. Those reservations have gradually been evaporating, however, as the advantages of the cloud become apparent.

* Social ERP:

There has been much hype around social media and how important - or not - it is to add to ERP systems. Certainly, vendors have been quick to seize the initiative, adding social media packages to their ERP systems with much fanfare. But some wonder if there is really much gain to be had by integrating social media with ERP.

* Two-tier ERP

Enterprise once attempted to build an all-encompassing ERP System to take care of every aspect of organizational Systems. But some expensive failures have gradually brought about a change in strategy adopting two tiers of ERP.

* ERP vendors

Depending on your organization's size and needs there are a number of ERP Software vendors to choose from in the large enterprise, mid-market and small business ERP market.

Topic 9: Business Process Outsourcing

BPO is a business practice in which one organization hires another company to perform a task (i.e., process) that the hiring organization requires for its own business to successfully operate.

→ BPO is one of the fastest growing segments of the I.T.

→ BPO is a subset of outsourcing that involves the contracting of the operations and responsibilities of specific business functions such as payroll, customer service, accounting, data recording and more to third party service providers.

* Why does a company outsource?

→ Not all companies, especially the smaller ones, have the cost expertise needed to manage a complex network of the activity they need.
Eg: Banks don't have expertise to manage a complex network of ATMs.

→ outsourcing enables an enterprise to concentrate its time and efforts on its key function.

→ Companies need not invest money in creating and maintaining system non core activities.

* Benefits :-

- Reduce or control operating costs
- Higher level of service for the same or lower costs
- Focus on your core business and let the operational details be managed by an external expert.
- Gain access to world-class capabilities.
- Increased efficiency
- Reduced labor costs.
- Predictability of costs.
- Secure resource not available internally
- Utilization of common applications

* BPO categories :- (2)

1. Back office outsourcing:- which includes internal business functions such as billing or purchasing
2. Front office outsourcing : which includes customer related services such as marketing or tech support

* Key terms of BPO:-

1. Offshore - BPO that is contracted outside a company's own country

→ Onshore :- Bpo that is contracted to the company's own country.

→ Nearshore :- Bpo that is contracted to a company's neighboring country.

Different types of Bpo Services



* BPO Services

1. Customer Support Services
2. Technical " "
3. Telemarketing Services
4. Employee I.T help-Desk
5. Insurance processing
6. Data Entry Services / Data Processing Services
7. Book keeping and Accounting Services
8. Internet / online / web research
9. Medical Transcription
10. Animation

* BPO Industry Segment

Everyone industry is into outsourcing:

- | | |
|--------------|--------------------------|
| → Banks | → manufacturing |
| → Insurance | → Health Care and Pharma |
| → Asset mgmt | → IT |
| → Airlines | → Telecom |
| | → Governments |

* Advantages:-

1. Productivity Improvements
2. Cost Savings
3. Improved HR
4. Focus on Core Business Competency
5. Improve Service level

- Pre Engineered Business Process
- Access to world class capabilities
- Higher level of Service with lower cost.

Disadvantages:-

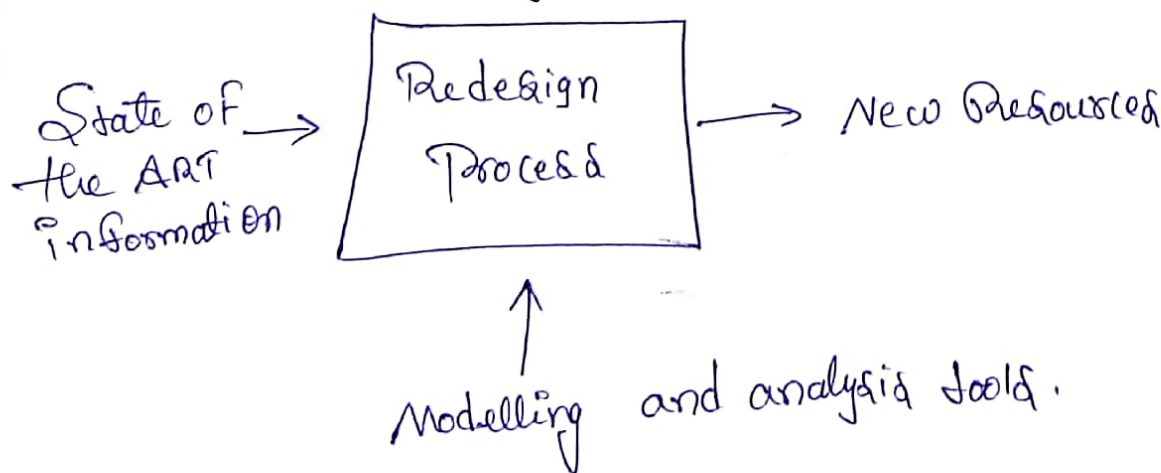
- Knowledge Disappeared and is transferred to the outsourcing Partner
- Poor Quality Control
- Restoring operations is complicated
- Lack of loyal Employees
- Reduction in Strategic alignment
- Political and religious instability.

RE-ENGINEERING

Systematic Studying over and reinventing the way a firm, or a business process, gets its work done.

Re-engineering "Fundamental rethinking and radical redesign of business process to achieve dramatic improvements in critical measures of performance such as Cost, Service and Speed".

Business Strategies
BPA Goals
↓



Benefits of Re-engineering:

* The rewards of re-engineering are many including:

1. Empowering Employees
2. Eliminating waste, unnecessary management overhead and obsolete or inefficient processes.

3. Producing often significant reductions in cost and cycle times
4. Enabling revolutionary improvements in many business processes as measured by quality and customer service.
5. Helping top organisations stay on top and low achievers to become effective competitors
6. Systematic starting over and reengineering the way a firm or a business process, gets its work done.

Benchmarking :-

Benchmarking is the process of identifying "best practice" in relation to both products (including) and the process by which those products are created and delivered. The search for "best practice" can take place both inside a particular industry and also in other industries.

The objective of benchmarking is to understand and evaluate the current position of a business or organisation in relation to "best practice" and to identify areas and means of performance improvement.

Definition :-

A measurement of the quality of an organisation's policies, products, programs, strategies etc., and their comparison with standard measurements (or) similar measurements of its peers.

Objectives :-

1. To determine what and where improvements are called for

2) To Analyze how other organisations achieve their high performance levels

3) To use this information to improve performance.

Bench marking is the process of measuring products, services and processes against those of organisations known to be leaders in one or more aspects of their operations.

Benchmarking provides necessary insights to help you understand how your organisation compares with similar organisations, even if they are in a different business or have a different group of customers.

Additionally, Benchmarking can help you identify areas systems (or) processes for improvement either incremental improvements (or) dramatic improvements.

Benchmarking has been classified into two distinct categories:

* Technical Benchmarking:- Performed by design staff to ascertain the capabilities of products or services, especially in

leading competitors.

For eg. on a scale of one to four, four being best, how do designers rank the properties of your organisation products (or) services? If you cannot obtain hard data, the design efforts may be insufficient, and products or services may be inadequate to be competitive.

* Competitive Benchmarking:

Compares how well (or) poorly an organisation is doing with respect to the leading competition, especially with respect to critically important attribute functions (or) values associated with the organisation's products (or) services.

For eg:- on a scale of one to four, four being best, how do customers rank your organisation's products (or) services compared to those of the leading competition? If you cannot obtain hard data, marketing efforts may be misdirected and design efforts misguided.

The Benchmarking Process:
Benchmarking involves outward (outside a particular business, organisation, industry, region or country) to examine how others achieve their performance levels and to understand the process they use. In this way benchmarking exercise are applied appropriately they facilitate improved performance in critical functions within an organisation or in key areas of the business environment.

Applications of Benchmarking 4 Key Steps:

- 1) Understand in detail existing business processes.
- 2) Analyse the business processes of others.
- 3) Compare own business performance with that of others analysed.
- 4) Implement the steps necessary to close the performance.

Definition:

A Performance metric used in Strategic management to identify and improve various internal functions and their resulting external outcomes. The balanced Score Card attempts to measure and provide feedback to organisations in order to assist in implementing strategies and objectives.

Balanced Score Card:

This management technique isolates
(4) Separate areas that need to be analysed

- (1) Learning and Growth
- (2) Business Processes
- (3) Customers
- (4) Finance.

Data Collection is crucial to providing Quantitative results, which are interpreted by managers and executives and used to make better long term decisions.

A Balanced Scorecard defines what management means by "Performance" and measures whether management is achieving desired results. The Balance Scorecard

into a Comprehensive Set of Objectives and Performance measures that can be Quantified and appraised. These measures typically include the following categories of Performance.

- * Financial Performance (Revenues, earnings, Return on Capital Cash flow)
- * Customer value Performance (Market Share, Customer Satisfaction measures, Customer Loyalty)
- * Internal business Process Performance (Productivity ratio, Quality measures, timelines)
- * Innovation Performance (Percent of revenue from products, Employee Suggestions, rate of improvement)
- * Employee Performance (Morale, Knowledge, Turnover, Best demonstrated practices)

UNIT-VI Topic: I MANAGEMENT INFORMATION SYSTEM (MIS)

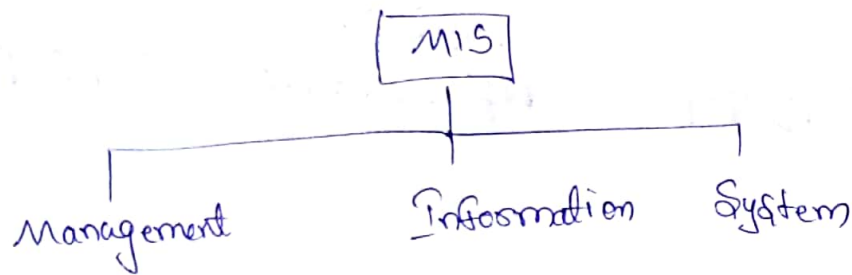
A Management Information System (MIS) is a computerized database of financial information organized and programmed in such a way that it produces regular reports on operations for every level of management in a company. It is usually also possible to obtain special reports from the system easily.

What is MIS?

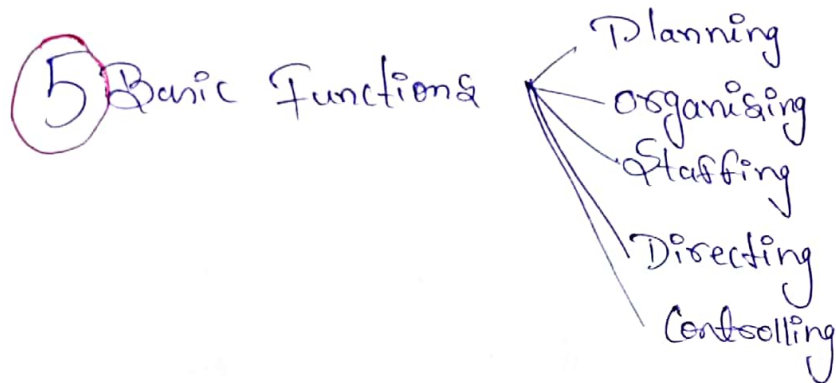
- (OR)
1. Right Information
 2. To the right person
 3. At the right place
 4. At the right time
 5. " " right form, cost

MIS is a computer based information system which is basically concerned with processing data into information which is then communicated to the various departments in an organization to support the operations, the report and the decision making function in the organization.

Definition: MIS broadly refers to a computer based system that provides managers with the tools to organize, evaluate and efficiently manage departments within an organization.



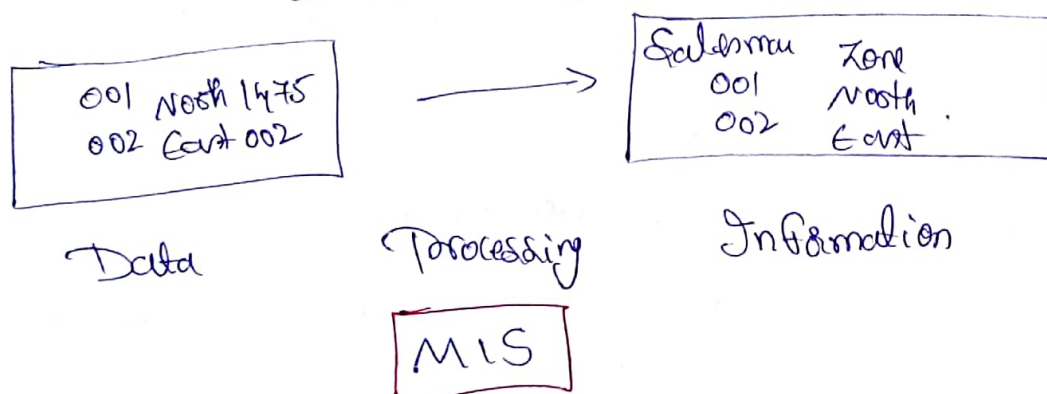
Managt: Is the effective utilisation of human and material resources to achieve the enterprise objective



* Information: MIS, means the processed data that helps the managt in planning, controlling and operations.

* Data means unstructured raw facts, observations or unevaluated messages in isolation. Data involves facts and figures. Information on the other hand is like a finished product.

DATA vs Information



System: A system is a orderly grouping of interdependent components linked together according to a plan to achieve a specific objective.

* Human body is a system composed of various parts, which are working together towards a common objective, that is to live

* Information System:- An information system is an organized combination of people, hardware, software, communications network, and data resources that collect, transform and disseminate in an organization

* Components of Information System

- | | |
|--------------|------------|
| * Input | * Software |
| * Processors | * Data |
| * Output | * Network |
| * People | |
| * Hardware | |

* A Management Information System is!

- An integrated user-machine system
- For providing information
- To support the operations, mgmt, analysis and decision-making functions
- In an organization

The System

- Computer Hardware and Software
- Manual Procedures
- Models for analysis, planning, control and decision-making
- A database

* Why MIS?

- Managers makes decisions all the time.
- There is an overload of information.
- All information is not useful.
- Anything which helps managers improve his decision-making will obviously lead to better results.
- MIS is a system, where data is the input, which is processed to provide output in the form of information reports, summaries etc., which aid the manager's decision making process.

* Characteristics of a MIS:-

1. Provides reports with fixed and standard formats
Hard copy and Soft copy reports
2. Uses internal data stored in the computer system
3. End users can develop custom reports
4. Requires formal requests from users.

Types of MIS:-

1. Executive Support Systems:- Designed to help Senior Mgt make Strategic decisions. ESS typically involve lots of data analysis and modeling tools to help Strategic decision making
2. Decision Support Systems: Specifically designed to help Mgt make decisions in situations where there is uncertainty about the possible outcomes of those decisions.
3. Knowledge Mgt Systems:- To help businesses create and share information. These are typically used in a business where employees create new knowledge and expertise - which can then be shared by other people in the organization to create further commercial opportunities
4. Transaction processing Systems:- Designed to process routine transactions efficiently and accurately. Managers often use these systems to deal with such tasks as Payroll, customer billing and Payments to Suppliers.

5. Office Automation Systems That help to improve the productivity of employees who need to process data and information. wide range of software systems that exist to improve the productivity of employees working in an office or systems that allow employees to work from home

* How MIS is useful in companies?

1. Planning and Control
2. MIS minimized information overload
3. MIS encourages Decentralization:-
↳ Authority can monitor at lower levels
4. Cost.
5. MIS brings Coordination

* Impact of the MIS:-

1. With a good MIS support, the mgmt of marketing, finance, production and personnel becomes more efficient.
2. MIS calls for a systemization of the business operations.
3. MIS improves the administration of the business by bringing a discipline in operations as everybody is required to follow and use systems & procedures.

Operations.

5. Setting goals & objectives, it helps indirectly to pull the entire organisation in one direction towards the corporate goals.

* Benefits of MIS:-

1. Data can easily be accessed and analyzed without time consuming manipulation and processing.
2. Decisions can be made more quickly and with confidence that the data are both time-relevant and accurate.
3. Integrated information can be also kept in categories that are meaningful to profitable operation.
4. Significant cost benefits, time savings, productivity gains and process re-engineering opportunities are associated with the use of data warehouse for information processing.

* Conclusion:- MIS, the information can be used as a strategic weapon to counter the threats to business, make businesses more competitive and bring about the organizational transformation through integration. MIS provides support to managers as they work to achieve corporate goals and enables managers to compare results to established company goals and identify problem areas and opportunities for improvement.