# CONSTRUCTION MANAGEMENT AND ENTREPRENEURSHIP

# Management and Construction Management

- **Management** (or **managing**) is the administration of an organization, whether it is a business, a not-for-profit organization, or government body. Management includes the activities of setting the strategy of an organization and coordinating the efforts of its employees (or of volunteers) to accomplish its objectives through the application of available resources, such as financial, natural, technological, and human resources. The term "management" may also refer to those people who manage an organization.
- Definition of management is given by different authors from various business fields which is as follows-

# Author

"Management is the art of getting things done through others and with formally organised groups."

**Harold koontz**

# Author

"Management is the art of knowing what you want to do and then seeing that they do it in the best and the cheapest manner."

**F.W. Taylor**

# Author

"Management is a distinct process consisting of planning, organising, actuating and controlling; utilising in each both science and arts, and followed in order to accomplish pre-determined objective."

**George R.Terry**

# Author

"Management is a multipurpose organ that manage a business and manages managers and manages workers and work."

**Peter Drucker**

# Author

"Management is to forecast, to plan, to organize, to command, to coordinate and control activities of others."

**Henri Fayol**

# Author

"Management is the art of getting things done through people."

**M.P. Follett**

# Author

"Good management, or scientific management, achieves a social objective with the best use of human and material energy and time, and with satisfaction for the participants and the public."

**Mary Cushing Nile**

# Author

"Management is defined as the process by which a cooperative group directs action towards common goals."

Joseph Massie

# Author

"Management is a social and technical process which utilizes, resources, influences, human action and facilitates changes in order to accomplish organizational goals."

**Theo Haimann & William Scott**

# Conclusion

Management simply means a specific process of planning, organizing, staffing directing and controlling the efforts of the people who are engaged in activities in business organization in order to attain predetermined objective of such organizations.

# Characteristics of Management

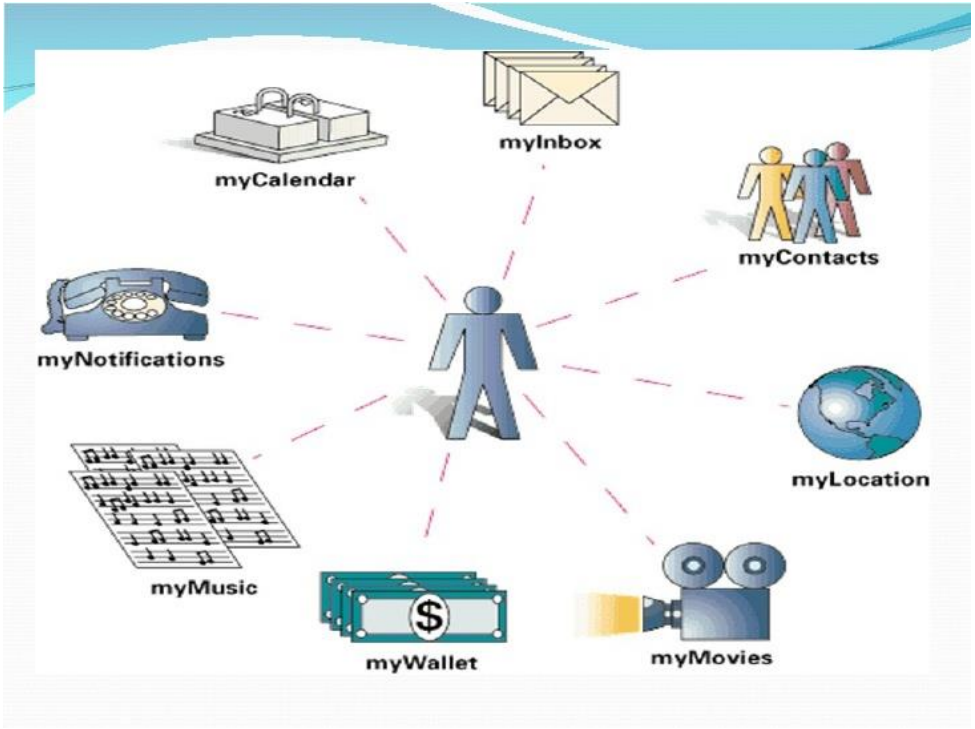
- Management is goal oriented process
- Management is Pervasive (General, Common, Universal)
- Management is Multidimensional
- Management is a continuous process
- Management is a group activity
- Management is a dynamic function
- Management is an Intangible
- Management is a composite process
- Balancing effectiveness and efficiency

# Management is goal oriented process

- Management always aims at achieving the organisational objectives.
- The functions and activities of manager lead to the achievement of organisational objectives.
- Example - if the objective of a company is to sell 1000 computers then manager will plan the course of action.

# Management is Pervasive (General, Common, Universal)

- Management is a universal phenomenon.
- The use of management is not restricted to business firms only it is applicable in profit-making, non-profit-making, business or non-business organisations; even a hospital, school, club and house has to be managed properly.
- Concept of management is used in the whole world whether it is USA, UK or India



# Management is Multidimensional

- Management does not mean one single activity but it includes three main activities:

1. Management of work:

a) Management activities aim at achieving goals or tasks to be accomplished.

b) Work to be accomplished in a school is providing education, in hospital is to treat patient, in industry to manufacture some product.

2. Management of people

People refer to Human resources and Human resources are the most important assets of an organisation.

3. Management of operations

Operations refer to activities of production cycle such as buying inputs, converting them into semi-finished goods, finished goods


WHAT IS DIVISION OF WORK?
Division
Division


REQUIREMENTS
PLANNING
RECOURCES
OVERSEEING
DESIGNING
COST
EFFICIENT
Operations
Management
INPUT
OUTPUT
CONTROL
PRODUCTION
STRATEGY
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# Management is a continuous process

- Management is a continuous or never ending function.
- All the functions of management are performed continuously, for example planning, organising, staffing, directing and controlling are performed by all the managers all the time

# Management is a group activity

Management is concerned with the group activity rather than an individual's performance.

The efforts are measured in terms of groups to achieve predetermined goal or objectives.

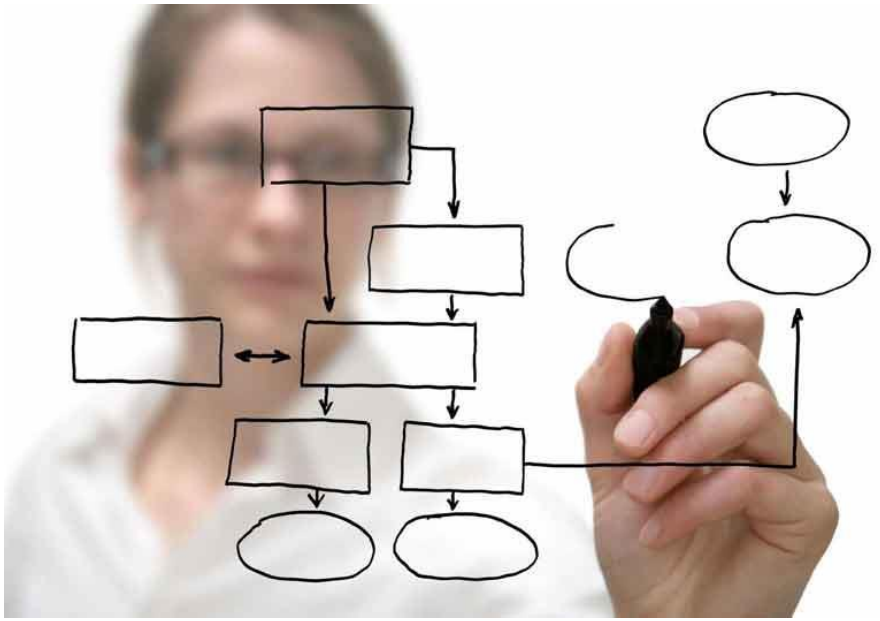
To accomplish the objectives of an organization every individual from the organization needs to work in the team

# Management is a dynamic function

- Management has to make changes in goal, objectives and other activities according to changes taking place in the environment.
- The external environment such as social, economical, technical and political environment has great influence over the management.

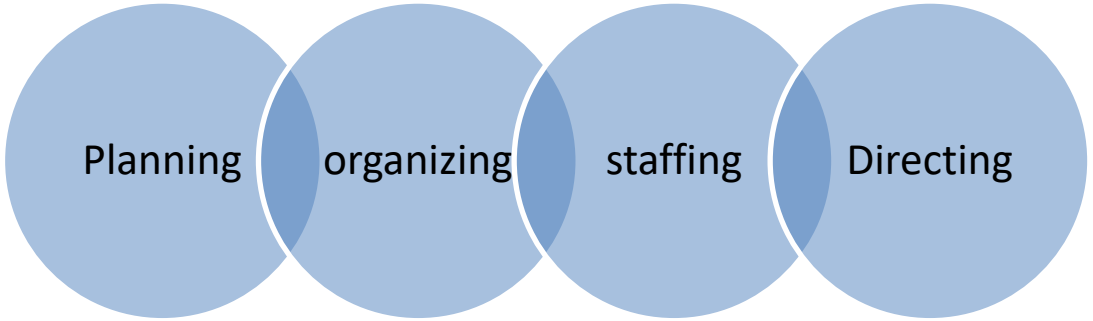
# Management is an Intangible

- Management function cannot be physically seen but its presence can be felt.
- The presence of management can be felt by seeing the orderliness and coordination in the working environment.
- It is easier to feel the presence of mismanagement as it leads to chaos and confusion in the organisation.



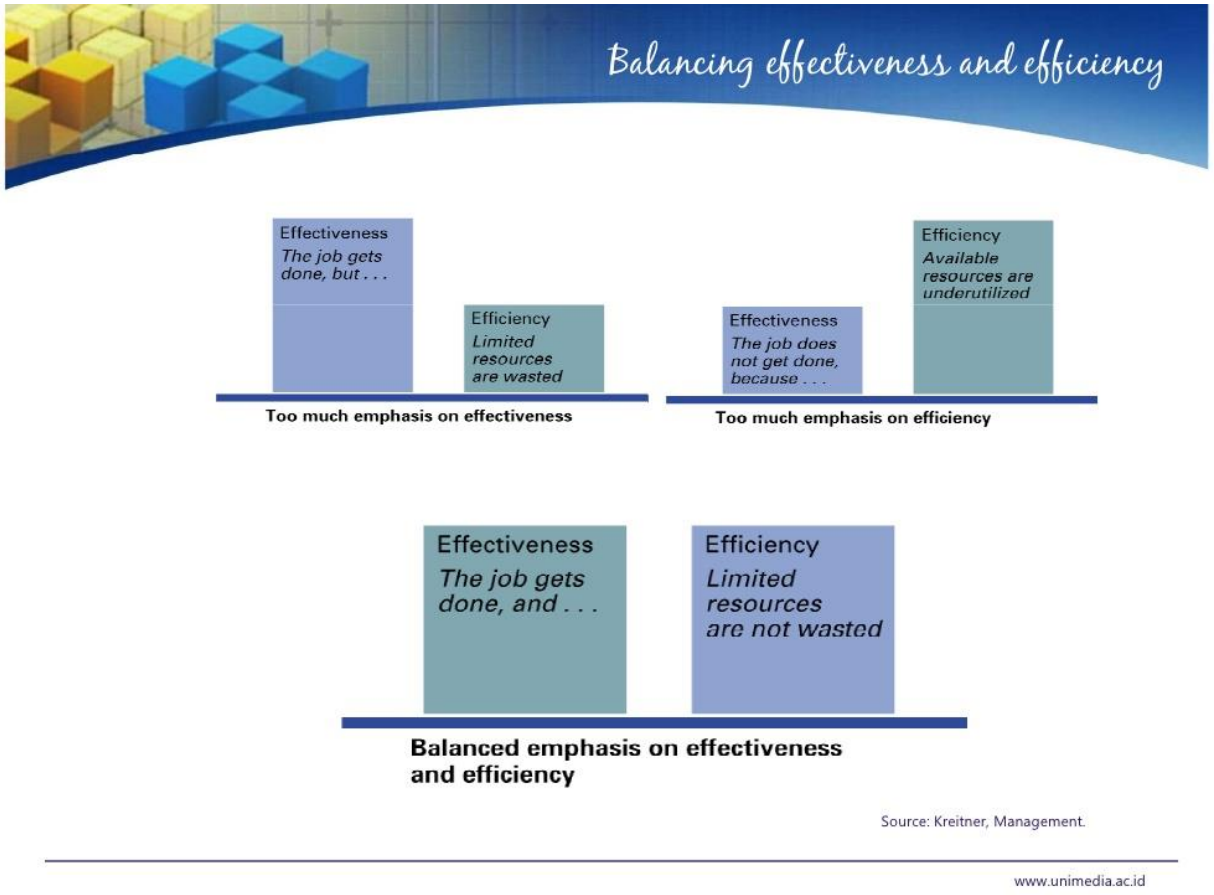
# Management is a Composite process

- Management consists of series of functions which must be performed in a proper sequence. These functions are not independent of each other.
- It is difficult to control the activities of employees without knowing the plan



# Balancing effectiveness and efficiency

- Effectiveness means achieving targets and objectives on time. Efficiency refers to optimum or best utilization of resources.



# Functions of Management

- Today creativity in solving business problem is a primary challenge faced by organizations and managers.
- The principles of management are guidelines.
- The principles of management have been categorized into the five major functions i.e.

# Functions


Planning
Organizing
Staffing
Directing
Controlling
Management functions

# 1. Planning

- Defining Organization Vision & Mission
- Setting Goals & Objectives Strategizing
- Plan of Action to Achieve Goals
- Planning as a process typically involves the following steps:

1. Selection of goals for the organization.

2. Establishment of goals for each of the organization’s sub-units.

3. Establishment of programs for achieving goals in a systematic manner.


Determine situation
Evaluate goals
Assess risk
Create plan
Implement plan
Review and revise plan
Planning Process

# 2. Organizing

- Management cycle is to be organized
- Organize the people and other resources necessary to carry out the work plan
- Process of arranging and distributing the planned work, authority and resources
- Organizing involves the following steps:

1. Creating the structure of organization
2. Making organizational design decision.
3. Making job design decision

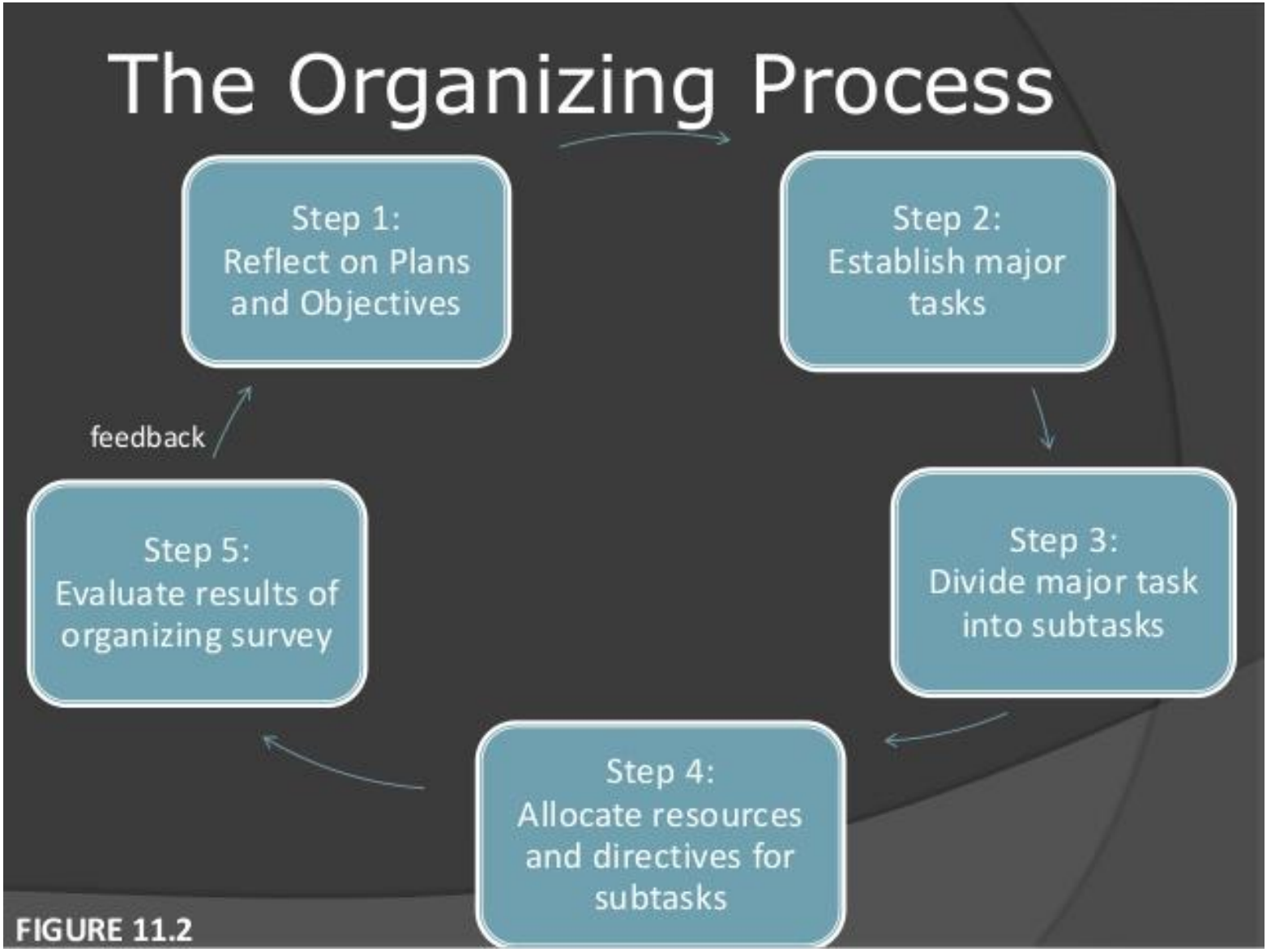

The Organizing Process
Step 1:
Reflect on Plans and Objectives
Step 2:
Establish major tasks
Step 3:
Divide major task into subtasks
Step 4:
Allocate resources and directives for subtasks
Step 5:
Evaluate results of organizing survey
feedback

FIGURE 11.2

# 3. Staffing

- Main purpose of staffing is to put right people on right job.
- Staffing is - “Marginal function of staffing involves manning the organizational structure through proper and effective selection, appraisal and development of personal to fill the roles designed the structure”.
- This involves,

1. Man power planning
2. Recruitment, selection and placement
3. Training and development
4. Remuneration
5. Promotion and transfer

# Staffing Procedure:
## Induction and Operation


**Induction**

- The employee is informed about the his duties, responsibilities, and responsibilities.

**Orientation**

- Socialization process

# 4. Directing/Leading

- Leadership is to create harmony among individual efforts to collectively work towards organizational goals.
- Leading entails directing, influencing and motivating employees to perform essential tasks.
- Leading involves following elements

Supervision

Motivation

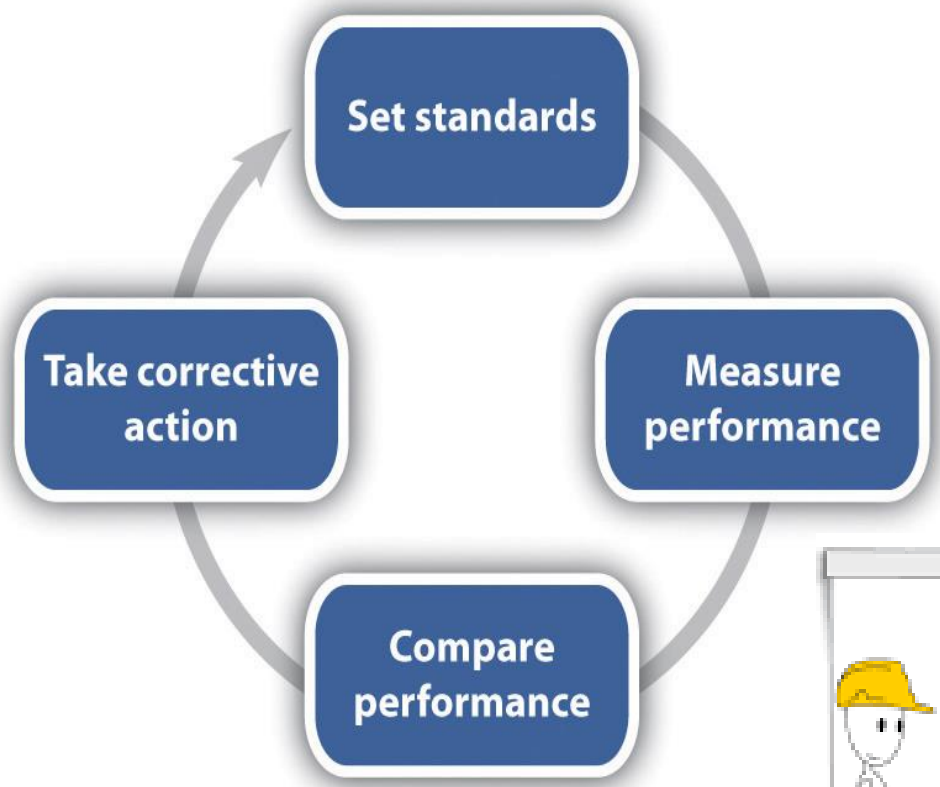
Leadership

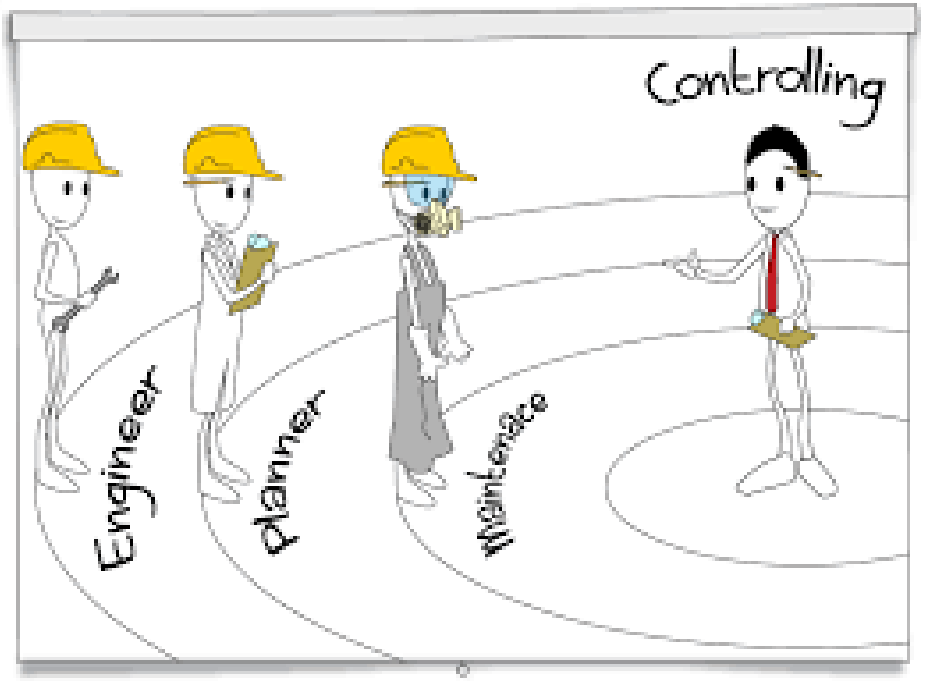
communication

# 5. Controlling

- Controlling involves measuring performance against goals and plans and helping correct deviations from standards.
- Controlling involves following steps

1. Establishment of standard
2. Measure of actual performance
3. Compare actual performance with standards
4. Corrective actions


Set standards
Measure performance
Compare performance
Take corrective action


Controlling
Engineer
planner
Maintenace

# IMPORTANCE OF PLANNING

- **Planning minimizes risk and uncertainty:** By providing a more rational, fact based procedure for making decisions-planning allows the management to minimize the risk and uncertainty. It helps in coping with changing environment. It is like stepping out with an umbrella during rainy season.

- **Orientation of activities towards success:** Although planning does not guarantee success, its seen that companies which work to a plan, usually outperform the non-planners and their own past results have become better. In a planning process actions are not random but are well thought out in advance.

# Continue…

- **Focus on attention on the targeted goal:** Proper planning ensures that organizations goals and objectives are never set aside. It constantly reminds the manager to focus his attention towards the intended and preset goal.

- **Monitoring of activities for proper control:** In planning-setting of goals and development of activities to accomplish the goals is established. The goals and plans become the benchmarks to which performance accomplishment is related and measured.

# PURPOSE OF PLANNING PROCESS

- Identification of common objectives and goals, keeping in mind vision and mission of the organization.
- Establishing communication channels, systems and methods in an organization.
- Coordination between different functional groups within the organization, consultant, market and end users.
- Defining authority and responsibilities within the organization structure.

# Continue…

- Planning process identifies and determine the activities to be performed, in a sequential manner and shall always focus on time and cost optimization along with effectiveness of product delivery
- Through proper planning it would be easy to exercise control measures / corrective steps so that performance of the individuals and the organization commensurate with one other

# Why Do Managers Plan?

- Purposes of Planning
  - Provides direction
  - Reduces uncertainty
  - Minimizes waste and redundancy
  - Sets the standards for controlling

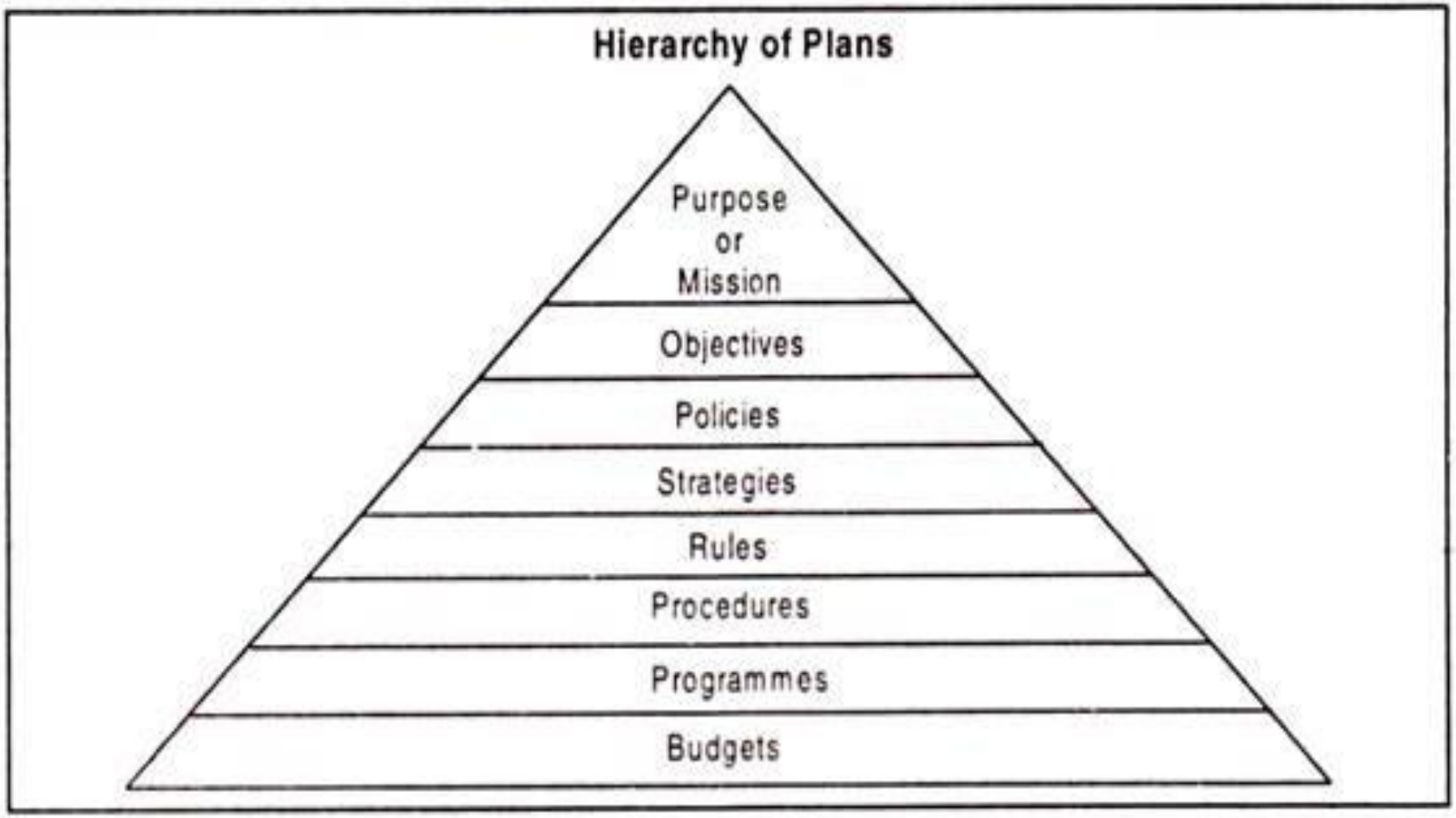
- Benefits of planning
  - Goal Focus
  - Minimize Uncertainty
  - Improve efficiency
  - Facilitates to Control
  - Innovation and Creativity
  - Better Coordination
  - Ensures Commitment
  - Aid to Business Success
  - Brings Systematization

REDUNDANCY<===> अतिरिक्तता

# Types of plans

- Plans are arranged in a hierarchy within the organization. At the top of this hierarchy stands goals and objectives.
- Objectives are the broad ends of the organization which are achieved by means of strategies. Strategies are in turn carried out by means of two other major groups of plans. They are Single use plans and Stand-alone plans.

# Schematic Plan



- Classification based on the scope and degree of details

1)Strategic planning

2)Tactical planning

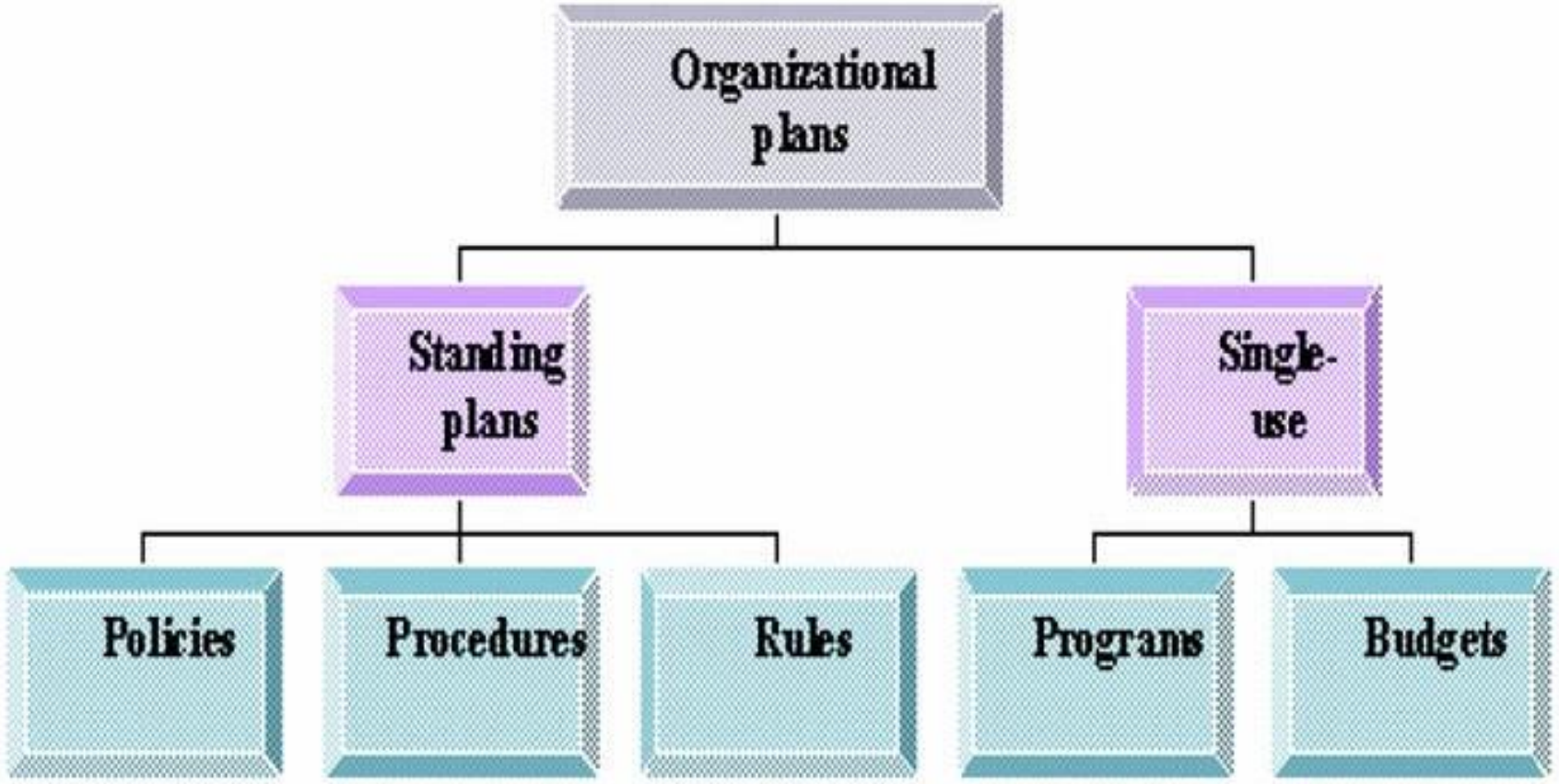
3)Operational planning

| Nature | Strategic Planning | Tactical Planning | Operational Planning |
|---|---|---|---|
| Management level at which planning is done | Top level | Intermediate level | Lower or supervisory level |
| Duration of plan | Long term | Short to medium term | Short term |
| Coverage of the plan | Whole organization | Functional areas like marketing, manufacturing, etc. | Departments, teams and individuals |
| Scope of guide lines | Broad, directional and general | Neither too general nor too specific | Narrow and specific |
| Plan flexibility or adaptability | Low | Medium | High |
| Primary purpose of planning | Goals and objectives formulation | Developing procedures for goal formulation | Goal implementation and controlling |
| Managerial functions involved | Planning and forecasting | Planning, organizing and controlling | Controlling |
| Assumptions about the future | Unpredictable and highly uncertain | Moderately predictable and reasonably certain | Predictable and certain |
| Intended outcome of the plan | Infinite and indefinite | Finite and measurable | Finite and measurable |
| Decision making | Centralized | Decentralized | Decentralized |

# Classification based on Time Horizon

1. Short-term plans
2. Intermediate plans
3. Long term plans

# Classification based on Frequency of use



# Standing Plan

- A standing plan is used for activities that occur regularly over a period of time. It is designed to ensure that internal operations of an organization run smoothly. Such a plan greatly enhances efficiency in routine decision-making.
- It is usually developed once but is modified from time to time to meet business needs as required.
- Standing plans include **policies, procedures, methods and rules.**

- **Policies :-**They are guides to managerial action and decisions in implementation of strategy. There are policies for all levels and departments in the organization ranging from major company policies to minor policies.
- **Procedures :-** Procedures are routine steps on how to carry out activities. They detail the exact manner in which any work is to be performed.
- **Methods** :-It deals with a task comprising one step of a procedure and specifies how this step is to be performed. The method may vary from task to task.
- **Rules :-**Rules are specific statements that inform what is to be done. They do not allow for any flexibility or discretion.

# Single-use Plan

- A single-use plan is developed for a one-time event or project. Such a course of action is not likely to be repeated in future, i.e., they are for non-recurring situations.
- The duration of this plan may depend upon the type of the project. It may span a week or a month. A project may sometimes be of only one day, such as, organizing an event or a seminar or conference.
- These plans include **budgets** and **programmes**

- **Programmes :-**Programmes will include the entire set of activities as well as the organization’s policies and how it will contribute to the overall business plan.
- **Budget** :-It is a statement of expenses, revenue and income for a specified period. It is a plan which quantifies future facts and figures. For example, a sales budget may forecast the sales of different products in each area for a particular month.

# Classification based on Specificity

1. Specific plans
2. Directional plans
3. Contingency planning
4. Scenario planning

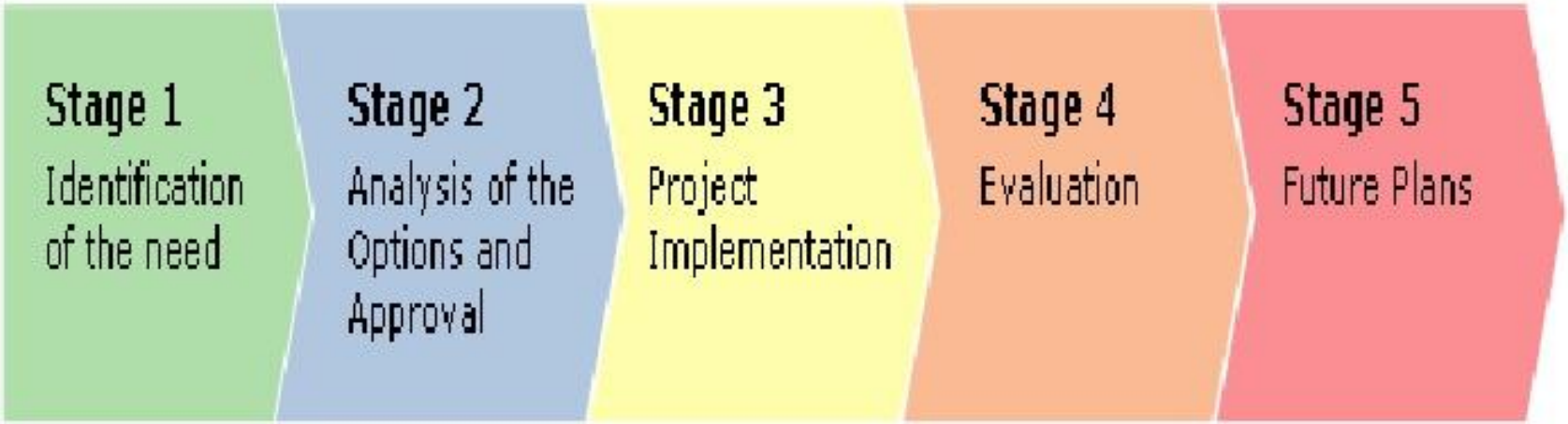
# CONSTRUCTION PROJECT FORMULATION

- A project is a temporary endeavor undertaken to create a unique product, service or result. Temporary nature of project shall mean there is a definite beginning and a definite end.
- In any construction project the two basic ingredients needed are.

  Material resources and

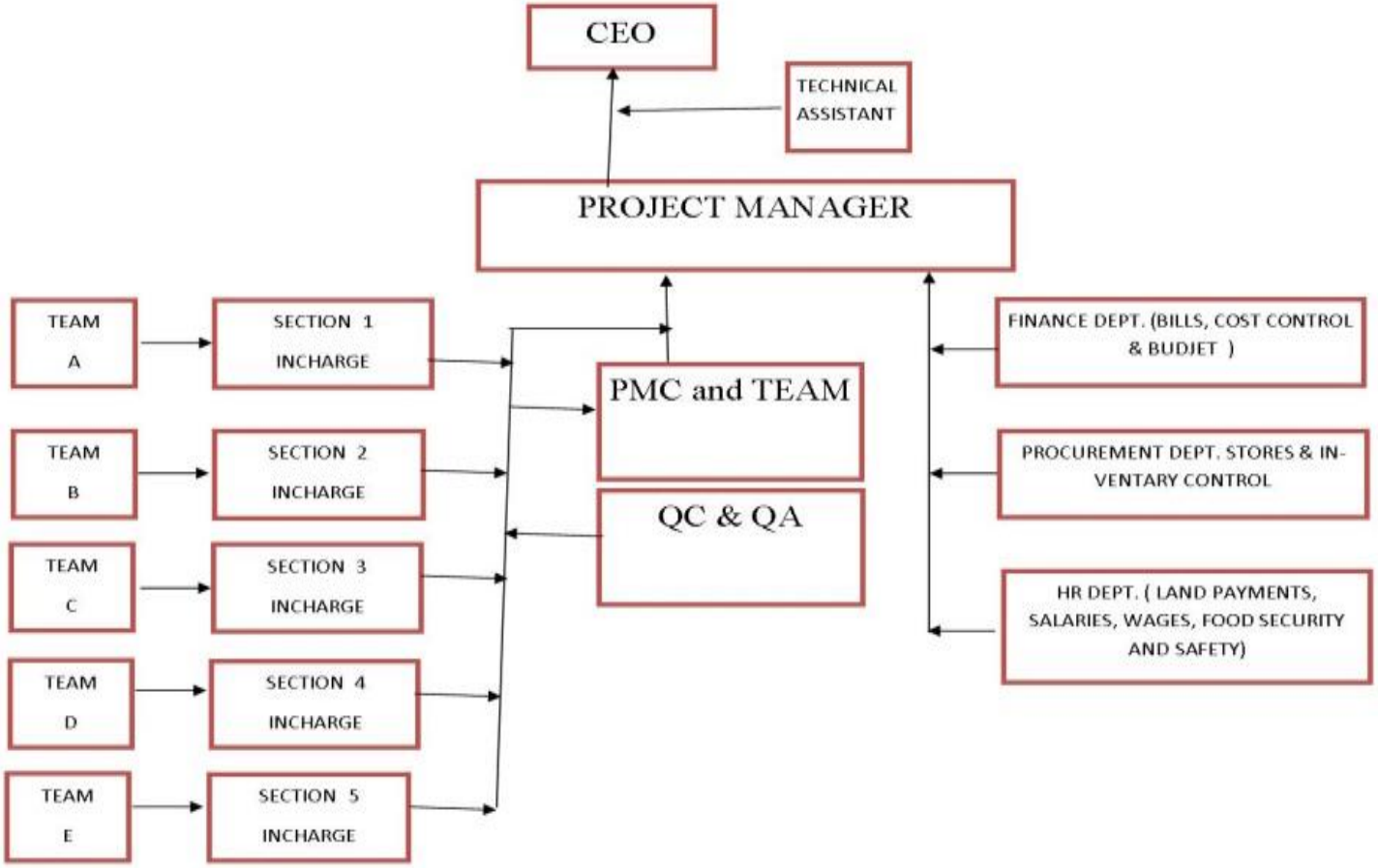
  Man power resources

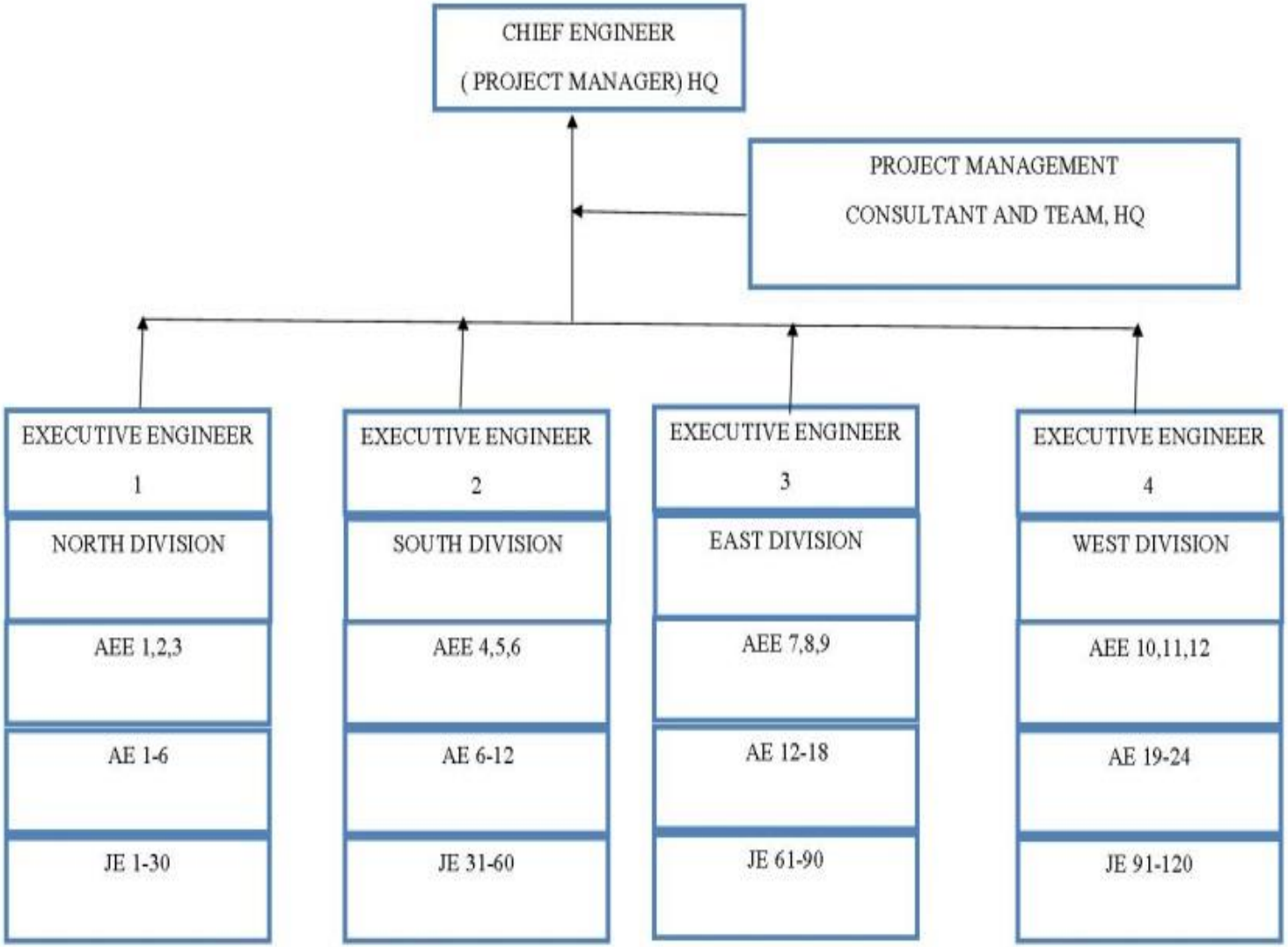
# Five stages of project life cycle



# Introduction to Construction Management

# PROJECT ORGANIZATION




CHIEF ENGINEER
( PROJECT MANAGER) HQ
PROJECT MANAGEMENT
CONSULTANT AND TEAM, HQ
EXECUTIVE ENGINEER
1
NORTH DIVISION
AEE 1,2,3
AE 1-6
JE 1-30
EXECUTIVE ENGINEER
2
SOUTH DIVISION
AEE 4,5,6
AE 6-12
JE 31-60
EXECUTIVE ENGINEER
3
EAST DIVISION
AEE 7,8,9
AE 12-18
JE 61-90
EXECUTIVE ENGINEER
4
WEST DIVISION
AEE 10,11,12
AE 19-24
JE 91-120

- In a project organization chart normally details such as where the project manager and his team is positioned, to whom he reports and what is his communication channel.
- Role of project management consultant (PMC) and how PMC coordinates, How the support function department (such as HR, finance, stores and procurement group etc.) function and what is their reporting structure etc. given.

# FUNCTION OF THE MANAGEMENT IN CONSTRUCTION WORK

- Quality shall be essence of works
- There shall be no cost overruns
- There shall be no time overruns
- Deviations from the agreed specifications shall be minimum
- Social wellbeing of the surrounding public shall be the prime objective
- There shall be minimum or no damage to the environment on account of construction works

# FUNCTION OF THE MANAGEMENT

- Construction management is motivating men to optimally use
- Materials
- Machines
- Methods
- Money

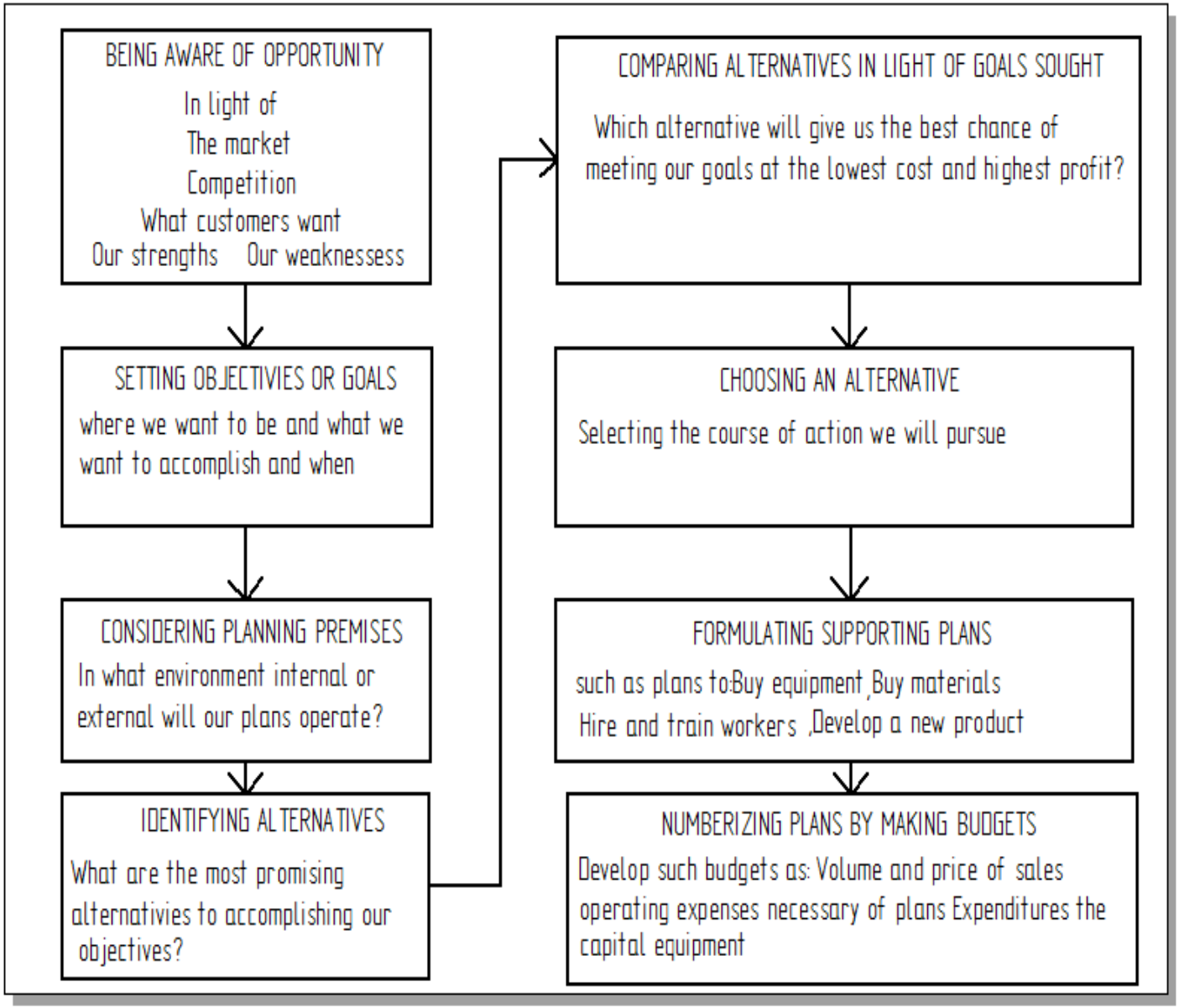
for achieving effectiveness and efficiency of construction works

Construction management essentially aims at DEVELOPMENT OF PEOPLE AND NOT AT DIRECTION OF EVENTS. The success of construction works depends upon TEAM SPIRIT and cohesive working of all team members. [Team means = Together each one achieve more].

# STYLES FOR MANAGING CONSTRUCTION PROJECTS

- Do-it-yourself style
- Owner shall do some essential jobs and outsource some non-essential type, support functions
- Owner does part job and outsource majority of jobs
- Engage a consultant / specialist for job execution / quality control
- Turn – key contracts for construction

# Steps in Planning



# Construction Planning and Scheduling

- Planning allows project teams to address 5 critical factors that determine success & failure of project - Quality, cost, schedule, performance and supportability.
- Planning a project properly will help ensure that the project runs smoothly, without any delays.
- Managers, engineers, quantity surveyors and site managers now need to be able to read and interpret programmes as much as construction drawings.
- The schedule in usually in the form of Gantt chart, Milestone chart.

- **The different types of project planning methods are**

Programmes of work
stock systems
Critical path analyses
lead times
schedules
GANTT charts.

- **Benefits of planning work**
- No delays in work completion
- Workforce on task at all times
- Organising material deliveries
- Organising the workforce

- **Advantages and disadvantages of planning**

**Advantages**

- Simple to follow
- Good visual communication method
- Task durations can be compared easily

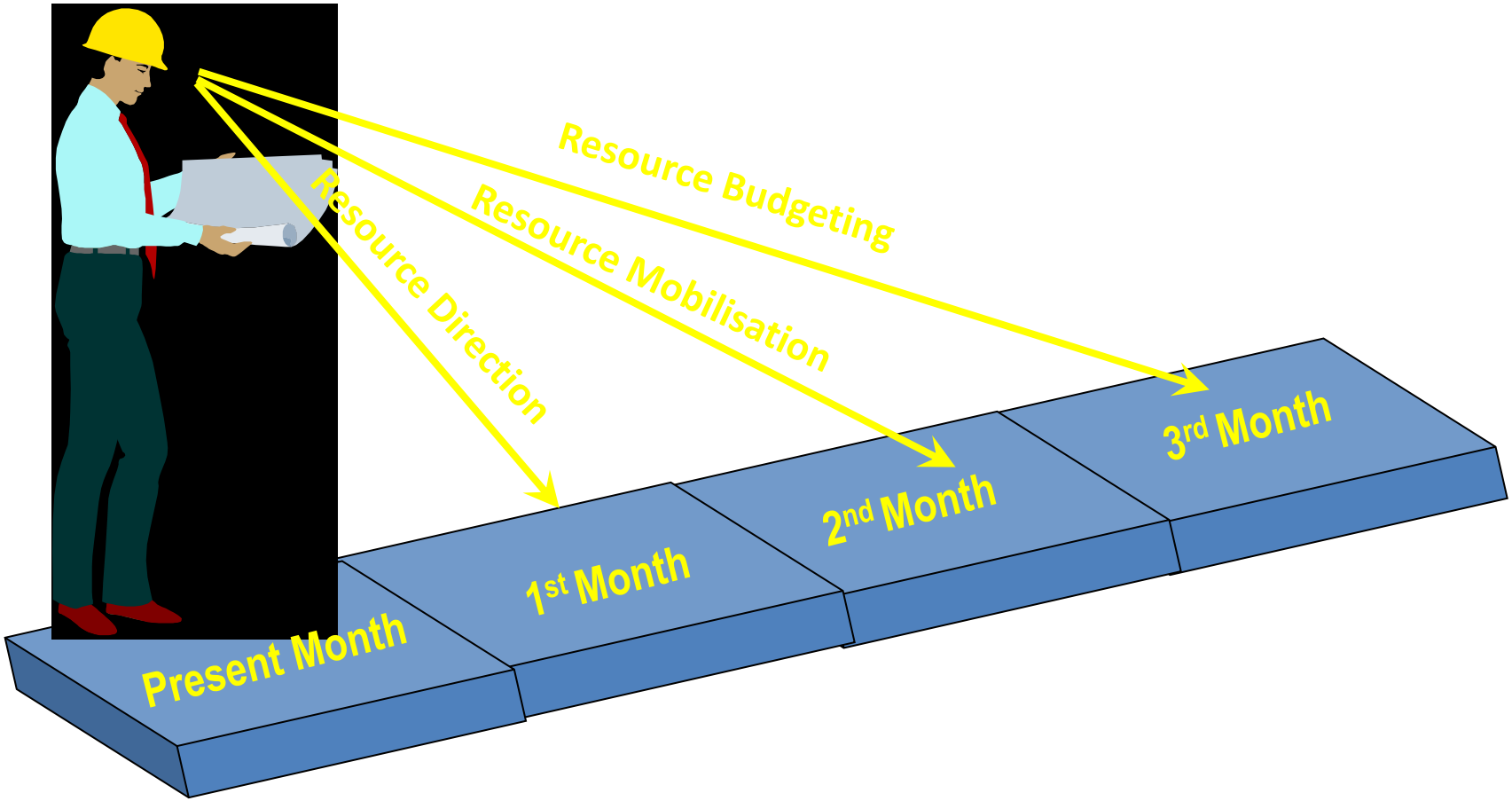
**Disadvantages**

- Dependencies may be difficult to visualize
- Minor changes in data can cause major changes in the chart

# Planning Levels

| Term | Objectives | Periodicity |
|---|---|---|
| Total | Project milestones setting and resource budgeting | Quarterly |
| 3 months | Intermilestones setting and Resource mobilisation | Monthly |
| Week | Direction for field execution | Weekly |
| Day | Productivity, Quality, Safety assurance | Day |

# 3 Months look ahead planning - Pictorial Representation

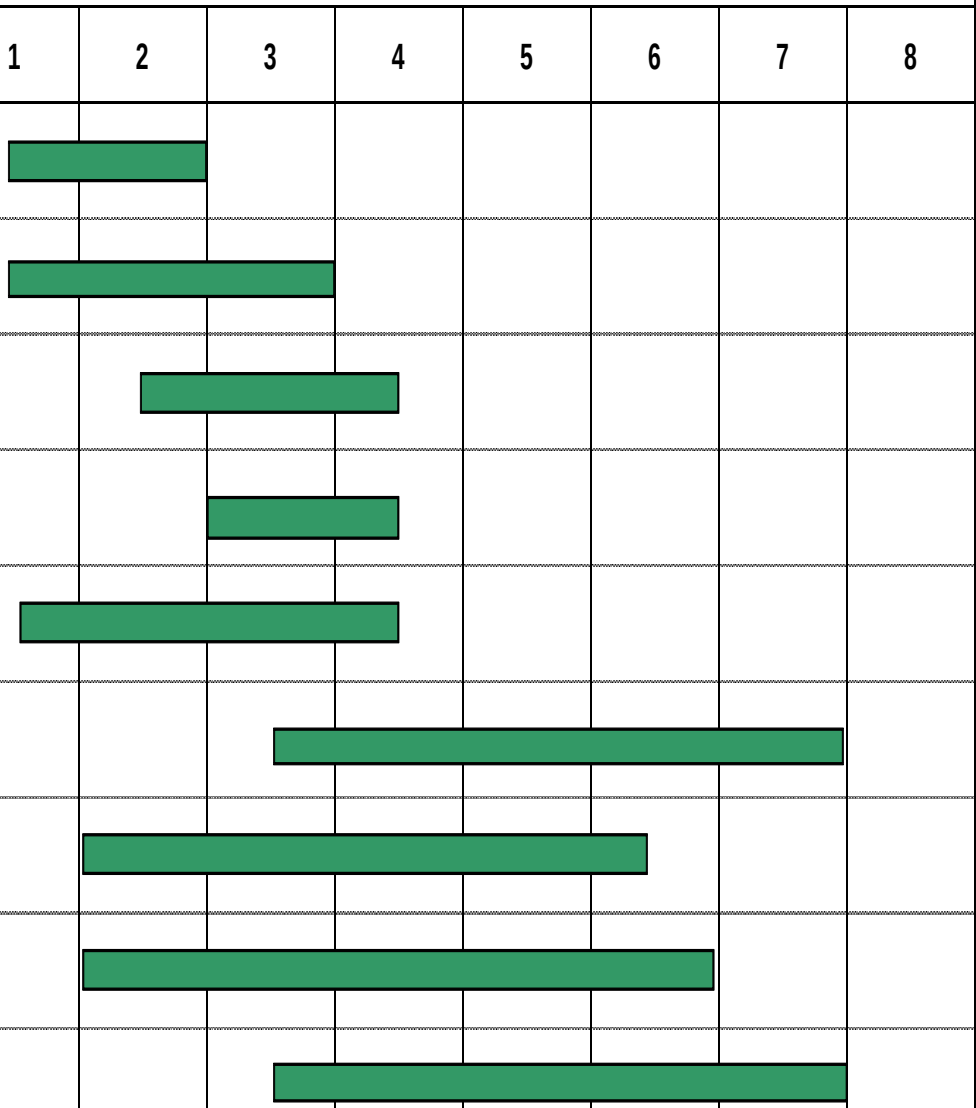


# CONSTRUCTION PROGRAMME FOR PIPE RACK WORK

| SL NO | ACTIVITY | UNIT | SCOPE | DURATION | PERIOD IN MONTH | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | MOBILIZATION | LS | - | 15 DAYS | | | | | | | | |
| 2 | EXCAVATION | CUM | 1480 | 45 DAYS | 495 | 985 | | | | | | |
| 3 | FOUNDATION WORK | CUM | 476 | 60 DAYS | | 215 | 261 | | | | | |
| 4 | PAINTING & BACKFILLING | CUM | 443 | 45 DAYS | | | 295 | 148 | | | | |
| 5 | STRUCTURE FABRICATION | MT | 660 | 75 DAYS | | 200 | 300 | 160 | | | | |
| 6 | STRUCTURE ERECTION | MT | 660 | 60 DAYS | | | 130 | 400 | 130 | | | |
| 7 | SPOOL FABRICATION | LM | 1500 | 75 DAYS | | | 500 | 700 | 300 | | | |
| 8 | SPOOL ERECTION | LM | 1500 | 75 DAYS | | | | 200 | 750 | 550 | | |
| 9 | TESTING AND COMMISSIONING | LS | - | 60 DAYS | | | | | | | | |
| 10 | HANDING OVER # | LS | - | 45 DAYS | | | | | | | | |

# EQUIPMENT SCHEDULE FOR PIPE RACK WORK

| SL NO | EQUIPMENT DESCRIPTION | UNIT | QTY | DURATION | PERIOD IN MONTH |
|---|---|---|---|---|---|
| | | | | | 1 2 3 4 5 6 7 8 |
| 1 | EXCAVATOR / JCB | NO | 1 | 45 DAYS | |
| 2 | DUMP TRUCK | NOS | 2 | 75 DAYS | |
| 3 | LOADER | NO | 1 | 60 DAYS | |
| 4 | BOBCAT | NOS | 3 | 45 DAYS | |
| 5 | PLATE COMPACTOR | NOS | 5 | 90 DAYS | |
| 6 | CRANE, 100T | NOS | 2 | 135 DAYS | |
| 7 | CRANE, 50T | NO | 1 | 90 DAYS | |
| 8 | TRAILER | NO | 1 | 90 DAYS | |
| 9 | MAN BASKET | NOS | 2 | 135 DAYS | |



# DIRECT MANPOWER SCHEDULE FOR PIPE RACK WORK

| SL NO | TRADE | UNIT | QTY | DURATION | PERIOD IN MONTH | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | CIVIL FOREMAN | EA | 1 | 90 DAYS | 1 | 1 | 2 | 1 | | | | |
| 2 | MASON | EA | 7 | 60 DAYS | | 6 | 10 | 6 | | | | |
| 3 | STEEL FIXER | EA | 9 | 75 DAYS | 6 | 8 | 12 | | | | | |
| 4 | CARPENTER | EA | 15 | 60 DAYS | | 12 | 18 | | | | | |
| 5 | LABOUR | EA | 19 | 225 DAYS | 8 | 20 | 30 | 25 | 25 | 18 | 12 | 10 |
| 6 | SCAFFOLDER | EA | 21 | 150 DAYS | | | 15 | 25 | 25 | 25 | 15 | |
| 7 | STRUCTURAL FOREMAN | EA | 2 | 60 DAYS | | 1 | 2 | 2 | 2 | | | |
| 8 | STRUCTURAL FITTER | EA | 13 | 60 DAYS | | 8 | 16 | 16 | 12 | | | |
| 9 | PIPING FOREMAN | EA | 2 | 135 DAYS | | | 1 | 2 | 2 | 2 | 2 | 1 |
| 10 | PIPE FITTER | EA | 12 | 135 DAYS | | | 8 | 14 | 18 | 16 | 8 | 6 |
| 11 | WELDER | EA | 7 | 135 DAYS | | 4 | 8 | 10 | 10 | 8 | 6 | 2 |
| | **TOTAL** | **EA** | **107** | **240 DAYS** | **15** | **60** | **122** | **101** | **94** | **69** | **43** | **19** |

# Scheduling

- It is a graphical representation
- Show the phasing rate of construction activities with starting and completion rates an the sequential  relationship among the various activities.
- To make work carried out in orderly and effective manner.

# Preparation of Schedules

- Dividing into number of operation
- Quantity of involved in each operation has to be calculated
- Time required for completion of project with different activities are to be calculated.
- Can be achieved from the quantity of work involved

# Schedules

- S0 - Work Schedule
- S1 - Invoicing Schedule
- S2 - Milestone Schedule
- S3 - P&M Schedule
- S4 - Staff Schedule
- S5 - Labour Schedule
- S6 - Material Schedule
- S7 - Special Agency Schedule
- S8 - Direct Cost Schedule
- S9 - Indirect Cost Schedule
- S10- Fund Flow Schedule

**Methods of Scheduling**

- Bar chart or Gantt charts
- Milestone charts
- Network analysis

# Bar Charts

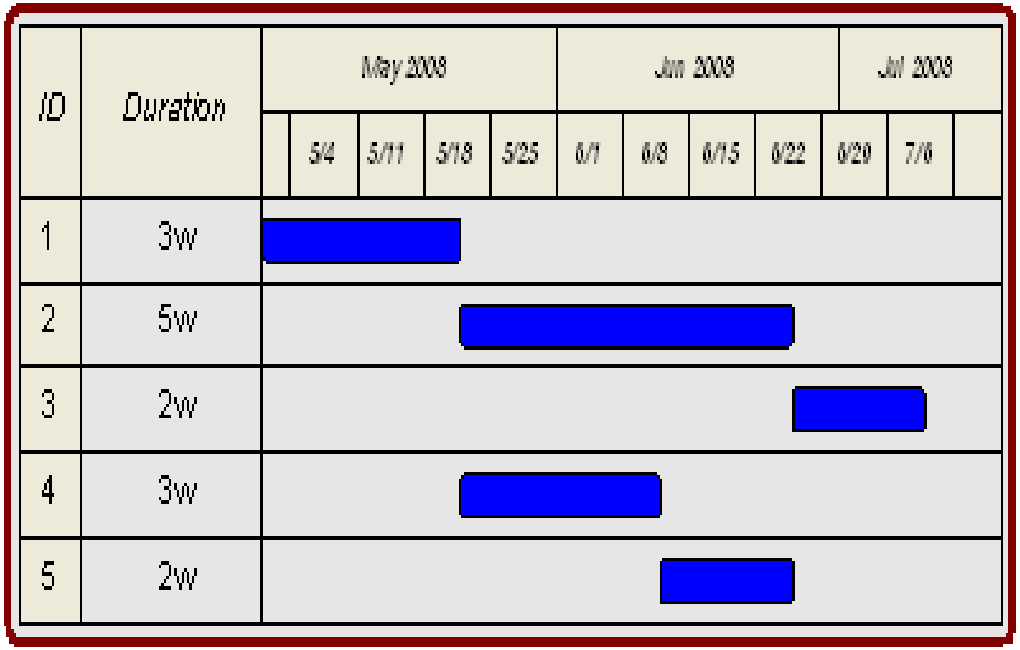
- The Gantt chart or bar chart used today was developed in the early 1900's from a several different charts used by Mr. Gantt to communicate between management and employees about what work was to be accomplished on a given day

# Bar Charts

- The bar chart is a two dimensional chart.
- The x-axis of the chart shows the project timeline.
- The y-axis of the chart is a list of specific activities that must be accomplished to complete the project.
- These activities are typically listed in order of earliest start on the project.
- The content of the bar chart are bars that show the planned (and/or actual) start and end times for each task.
- most bar charts show a pattern of bars that begin in the upper left of the chart and proceed to bars that complete the project displayed in the bottom right of the chart.

# bar charts

| Activity | Duration (work-weeks) | Prior Activity |
|---|---|---|
| 1 | 3 | None |
| 2 | 5 | 1 |
| 3 | 2 | 2 |
| 4 | 3 | 1 |
| 5 | 2 | 4 |

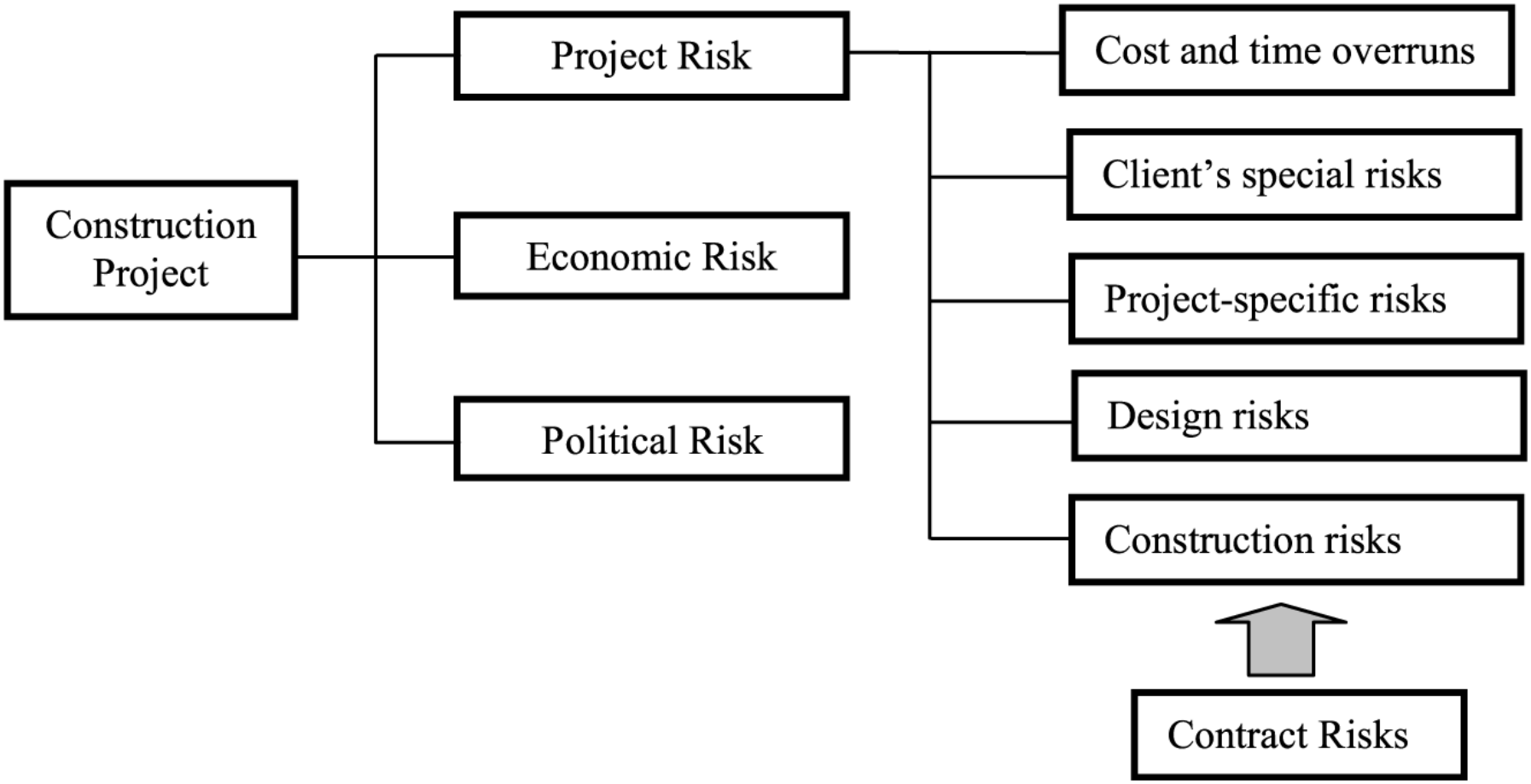


# Types of Project Plans

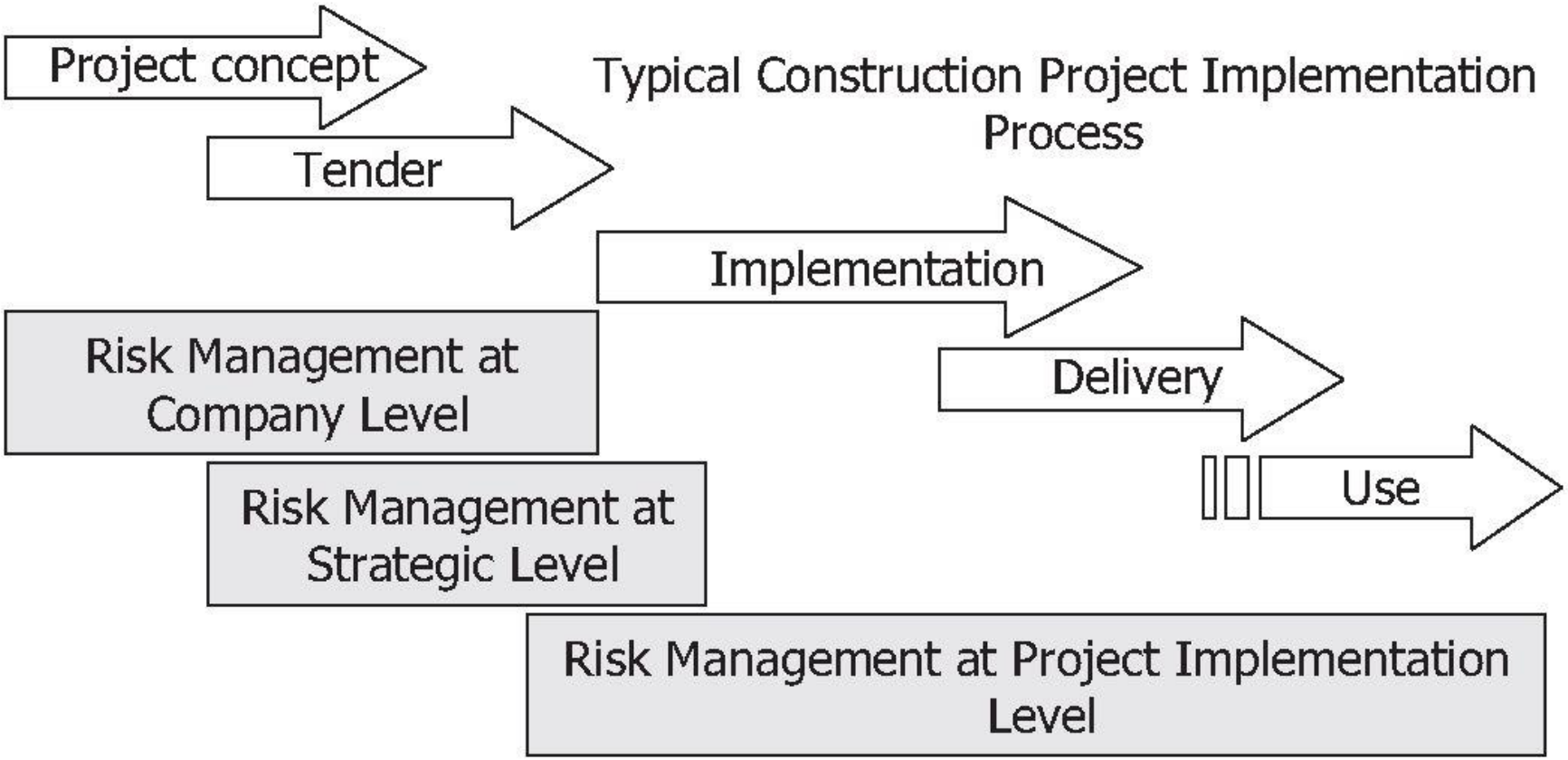
Used in risk assessment.

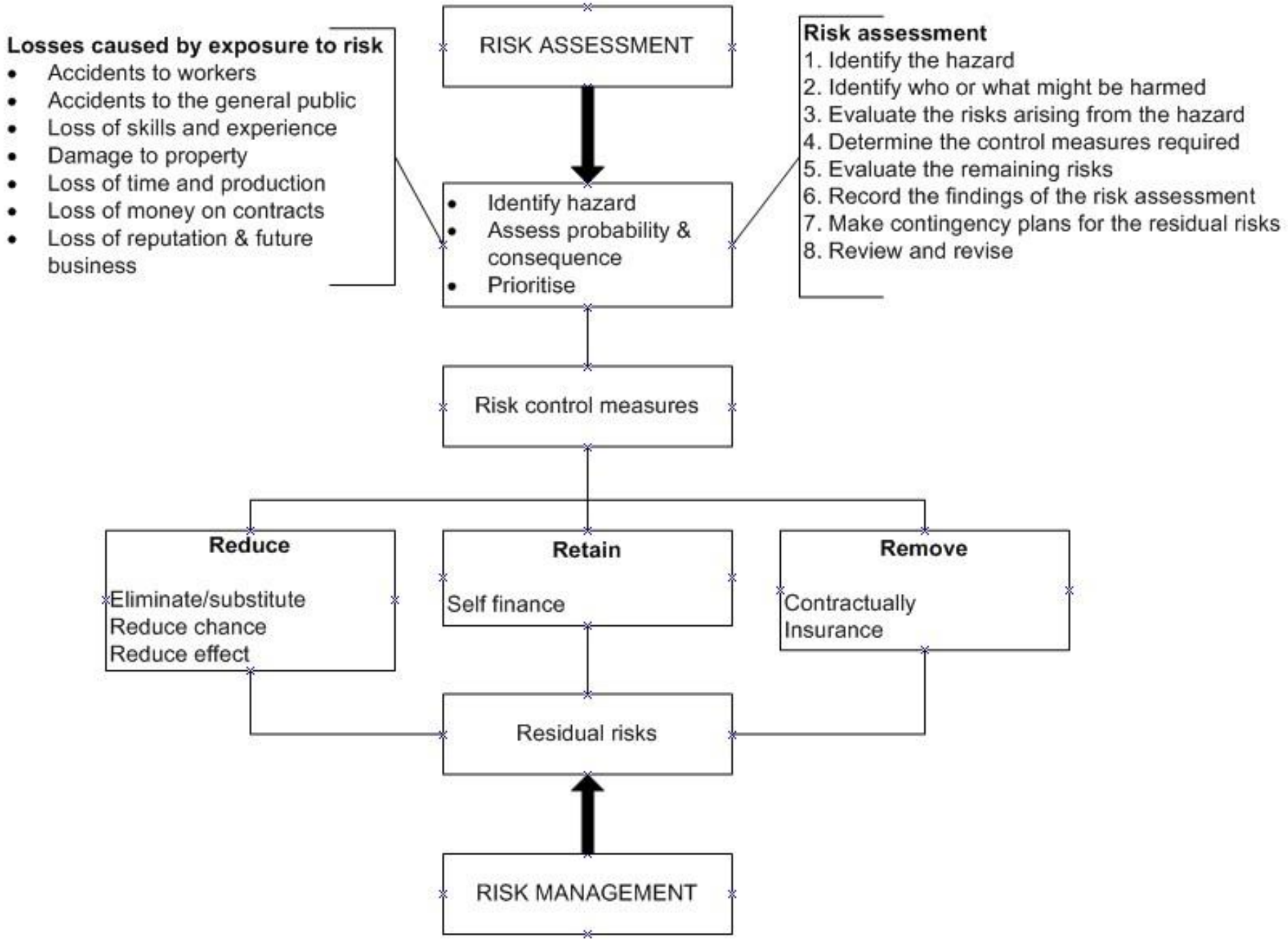
- Initial plan
- Reference plan
- Base plan
- Contingency plan
- Horizon plan
- Action plans

# Risk in Construction Project



# Types of Risks




Losses caused by exposure to risk
Accidents to workers
Accidents to the general public
Loss of skills and experience
Damage to property
Loss of time and production
Loss of money on contracts
Loss of reputation & future business
RISK ASSESSMENT
Identify hazard
Assess probability & consequence
Prioritise
Risk assessment
1. Identify the hazard
2. Identify who or what might be harmed
3. Evaluate the risks arising from the hazard
4. Determine the control measures required
5. Evaluate the remaining risks
6. Record the findings of the risk assessment
7. Make contingency plans for the residual risks
8. Review and revise
Risk control measures
Reduce
Eliminate/substitute
Reduce chance
Reduce effect
Retain
Self finance
Remove
Contractually
Insurance
Residual risks
RISK MANAGEMENT

# Initial Plan

- The ‘initial plan’ is the schedule containing those activities that will allow you to begin the assessment procedure.
- It is required when entering the ‘define’ phase of the project risk assessment.
- In “planning phase "some sort of plan should already exist for this purpose.
- A summary plan some where in the region of 25 to 60 activities should suffice or be adequate.
- At this stage, the risk management must, by necessity, be very strategic
- Too much detail in the ”Gantt chart” schedule can obscure the big picture

# Reference Plan

- At the end of the ‘define (the project)’ phase we may have modified the ‘initial’ plan to take into account areas that have been omitted.
- Wish to modify it before the risk management process begins in earnest.
  This will become a ‘reference’ plan.
- This is also know as ‘baselining’ a plan for later comparison purposes.
- The reference plan will not have all the nuts and bolts of a ‘base plan’ with which to instigate or activate the project.
- The project management plan at this stage should be a complete as possible at this level with nothing missing and equally nothing present that shouldn’t be.

# Base Plan

- Once the risk management process has completed the ‘Define to Evaluate’ phases the knowledge and information gained concerning the risks of the project are then incorporated into the ‘reference’ plan.
- It will contain milestones and cost data and cash flow information, resource allocation etc.
- It will also contain those ‘proactive’ plans that mitigate the affects of some risks with allowance made for the appropriate resource needs.
- The base plan will not be implemented in its entirety as you will need to manage ‘action plans’ with ‘horizon planning’.
- You will need to include ‘trigger’ points for particular actions, especially for contingency plans.

# Base Plan

- It will identify ‘target’ durations and costs as opposed to ‘expected durations and costs’.
- Target cost:

The overall potential cost of a project may be 10 crores of which 8 crores are expected cost and remaining 2 crores is contingency or emergency.

- Expected cost:

The ‘expected cost’ is precisely is the cost of the project if all goes to plan.

This will include all identified risks which we expect to occur and thus have been allowed for within the management of the plan.

# Contingency Plan

- These are plans put into place on the chance that a risk will happen.
- In practice, a ‘trigger’ will exist to implement the plan when it looks as though the risk is about to occur.
- The trigger will minimise any time delays just waiting for the risk to materialise
- This will mean you reserving resource or finance for its implementation.
- These plans will represent the response to a particular risk threat and a departure from the base plan.
  They are ‘reactive’ plans.
- You will need to consider the implications of ownership for contingency plans.

# Horizon Plan

- Method of planning i.e. horizon planning.
- No plan ever goes as expected and the longer the time period the more uncertainty exists.
- Hence, the project must be split into parts containing key milestones or phases.
- As one milestone is reached another appears on the ‘horizon’.
- Your aim is to try to maintain flexibility while considering future strategies.

# Action Plan

- These are put in place prior to a horizon approaching to begin the detailed planning towards another milestone or end of a phase.
- This is then the horizon ‘reached’ and a new set of action plans will then need to be put in place working towards the next horizon.
- The action plans themselves are well developed and can be implemented straight away.
  The plans that follow on at the ‘horizon’ may be less so and require review.
- when carrying out a risk analysis the effort becomes wasted beyond a certain time period.
- In general, the organisational culture says that the more detail you have in the plans the more ‘confidence’ people have.

# Project Network Diagrams

- Network diagrams show the precedence relationships among activities
- It's easier to understand these relationships graphically
- Network diagrams help to understand the flow of work in a project
- Network diagrams are a useful tool for project planning and control, as well as for scheduling
- One (perhaps exaggerated) claim is that the network represents ¾ of the planning process

# Critical Path Method (CPM)

- Identifies those chains of activities (critical paths) that control how long a project will take.
- Two variations:
  - Activity-on-Arrow (AOA)
    - activities are the arrows or lines
  - Activity on Node (AON)
    - also known as a Precedence Diagram
    - activities are nodes connected together by lines

# Some CPM Terms

- Float = the amount of time an activity can be delayed without delaying the project
- Critical = activities with no float; these activities can not be delayed w/o extending project duration
- Contingency = include a time allowance to account for time slippage & other delays
- Slippage = difference between actual and scheduled progress

# Two Versions of Network Diagrams

Activity-on-Arrow (AOA) networks

- also called Arrow Diagramming Method (ADM)
- simpler for projects with many dependencies
- emphasizes events; milestones can be easily flagged
- sometimes requires dummy activities

# Two Versions of Network Diagrams

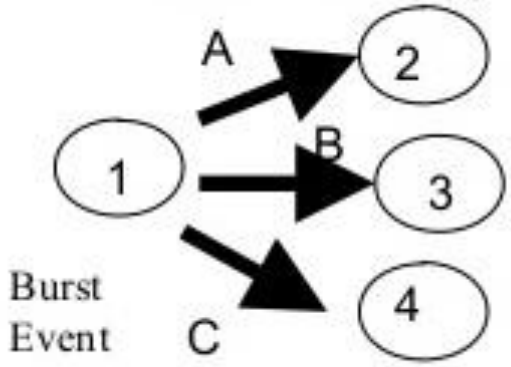
- Activity-on-Node (AON) networks
  - also called Precedence Diagramming Method (PDM)
  - easier to draw for simple projects
  - emphasizes activities
  - no dummy activities

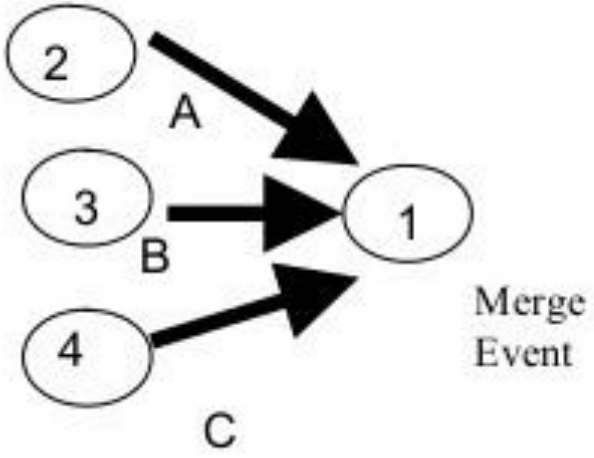
# Activities vs. Events

- ***Activity*** – a chunk of work that is part of the project; an activity may be broken down into multiple subactivities
- ***Event*** – a significant point in time during the project, such as a milestone event; an event could be the time at which an activity is completed or the time at which related concurrent activities have all completed
- ***Dummy Activity*** – an artificial activity with zero time duration that only shows a precedence relationship among activities

# Types of Events

1. **Tail Event** : which marks the beginning of an activity.
2. **Head Event** : which marks the completion of an activity.
3. **Dual Role Event** : which acts as tail event for one activity and head event for other activity.
4. **Burst & Merge Event**



- Successor event: the event that follows a particular event in the sequence of their completion is called as successor event to that event.
- Predecessor events: the event that occurs before a particular event in the sequence of their completion are called as predecessor event.

# Activity on Arrow (AOA)

- The two elements of Arrow Diagramming are arrows and nodes. One arrow is created for each activity to be accomplished.
- The tail of the arrow is the start of the activity.
- The head of the arrow is the end of the activity.
- While there is no requirement to do so, the length of the arrow is often scaled to be proportional to the duration of the activity.

# Activity on Arrow (AOA)

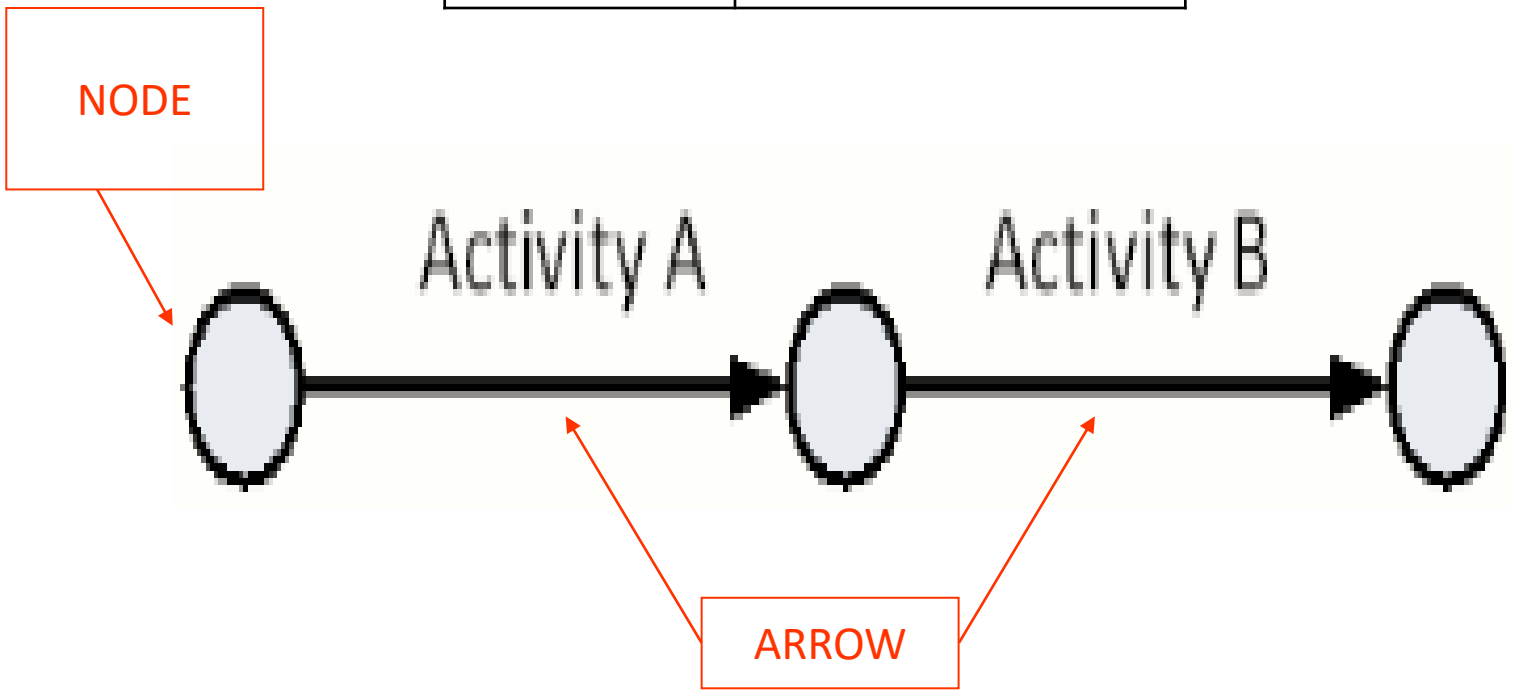
- At the tail, or start, and head, or end, of the activity arrows are nodes.
- Nodes are used to graphically show where activities end and begin in sequence.
- The starting node for a given activity is referred to as the activity's "i-node."
- The ending node for a given activity is called the activity's "j-node."

# Activity on Arrow (AOA)

- Nodes are used to illustrate when activities precede or follow other activities.
- Nodes are placed at the start and end of each activity arrow.
- Since projects are defined by a specific start and end, there should be a single starting “i-node” and a single ending “j-node” for each project.
- The set of all activities, starting from the first activities’ i-node and ending with the last activities’ j-node is called a “network.”

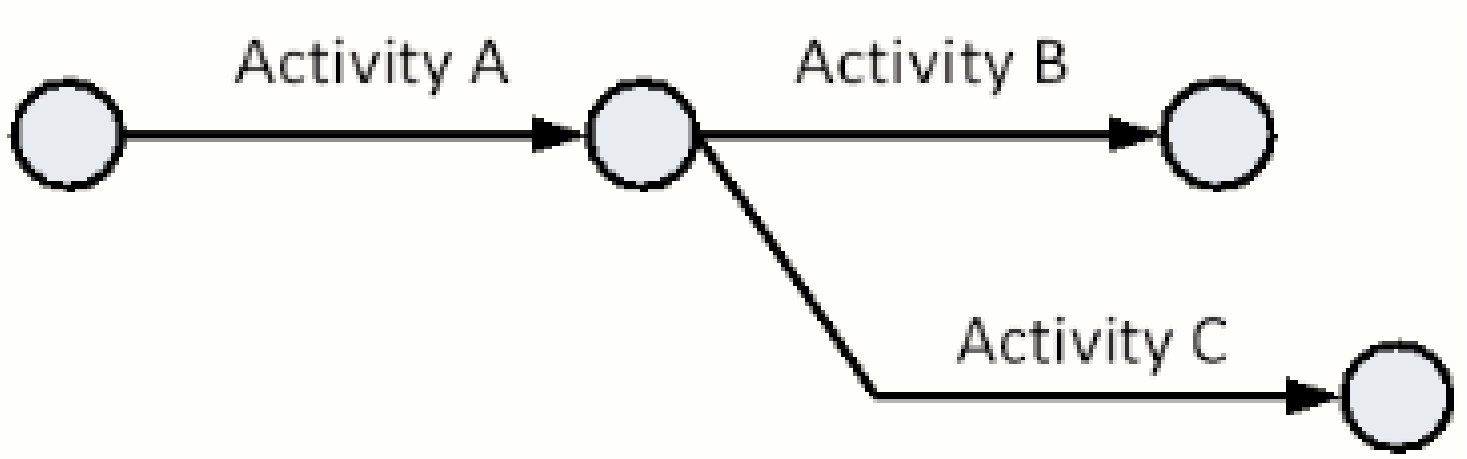
# example one

| Activity | Predecessors |
|---|---|
| A | None |
| B | A |



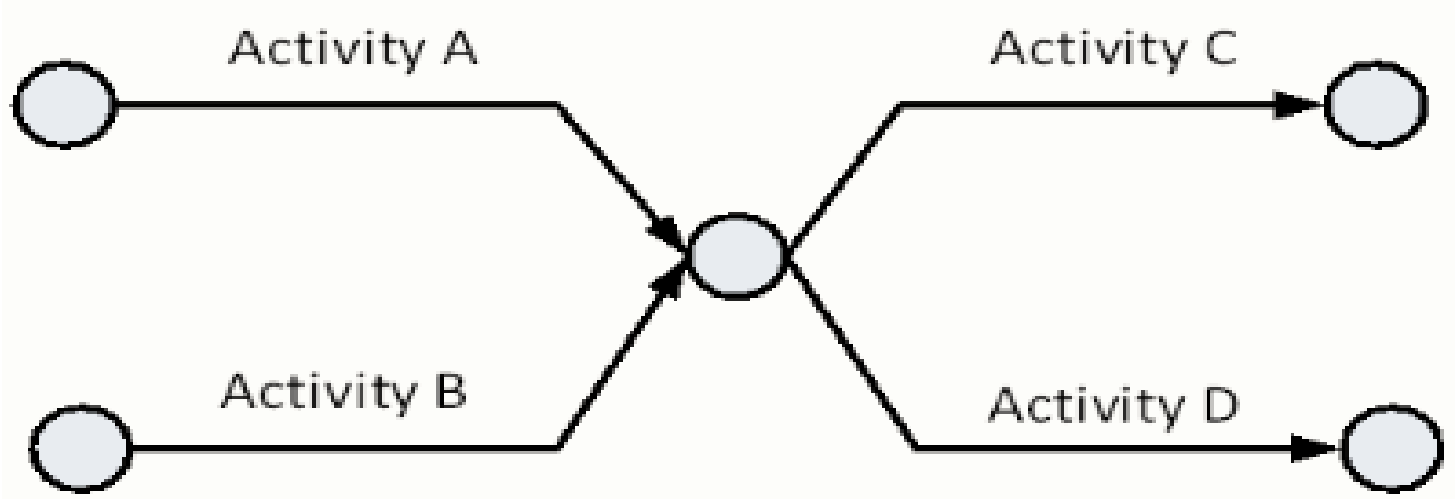
# example two

| Activity | Predecessors |
|---|---|
| A | None |
| B | A |
| C | A |

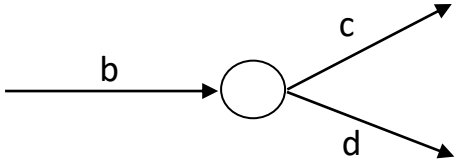


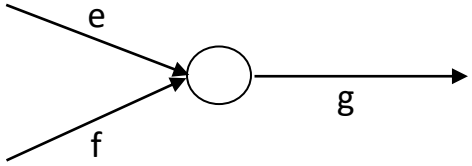
# example three

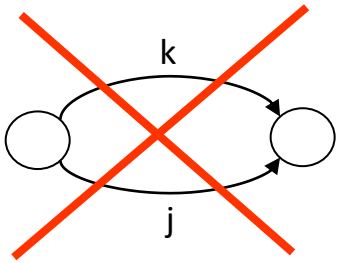
| Activity | Predecessors |
|---|---|
| A | None |
| B | None |
| C | A, B |
| D | A, B |

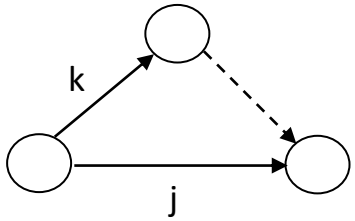


# Activity-on-Arrow (AOA) Networks

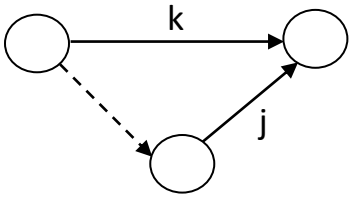


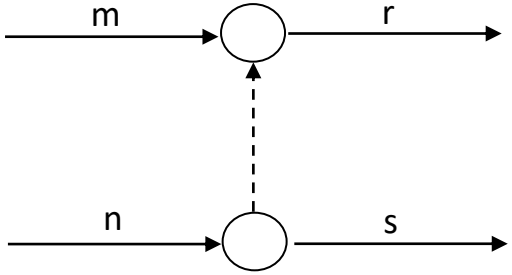




or




Dashed lines are called *dummy activities*

| Activity | Predecessor |
|---|---|
| m | – |
| n | – |
| r | m, n |
| s | n |



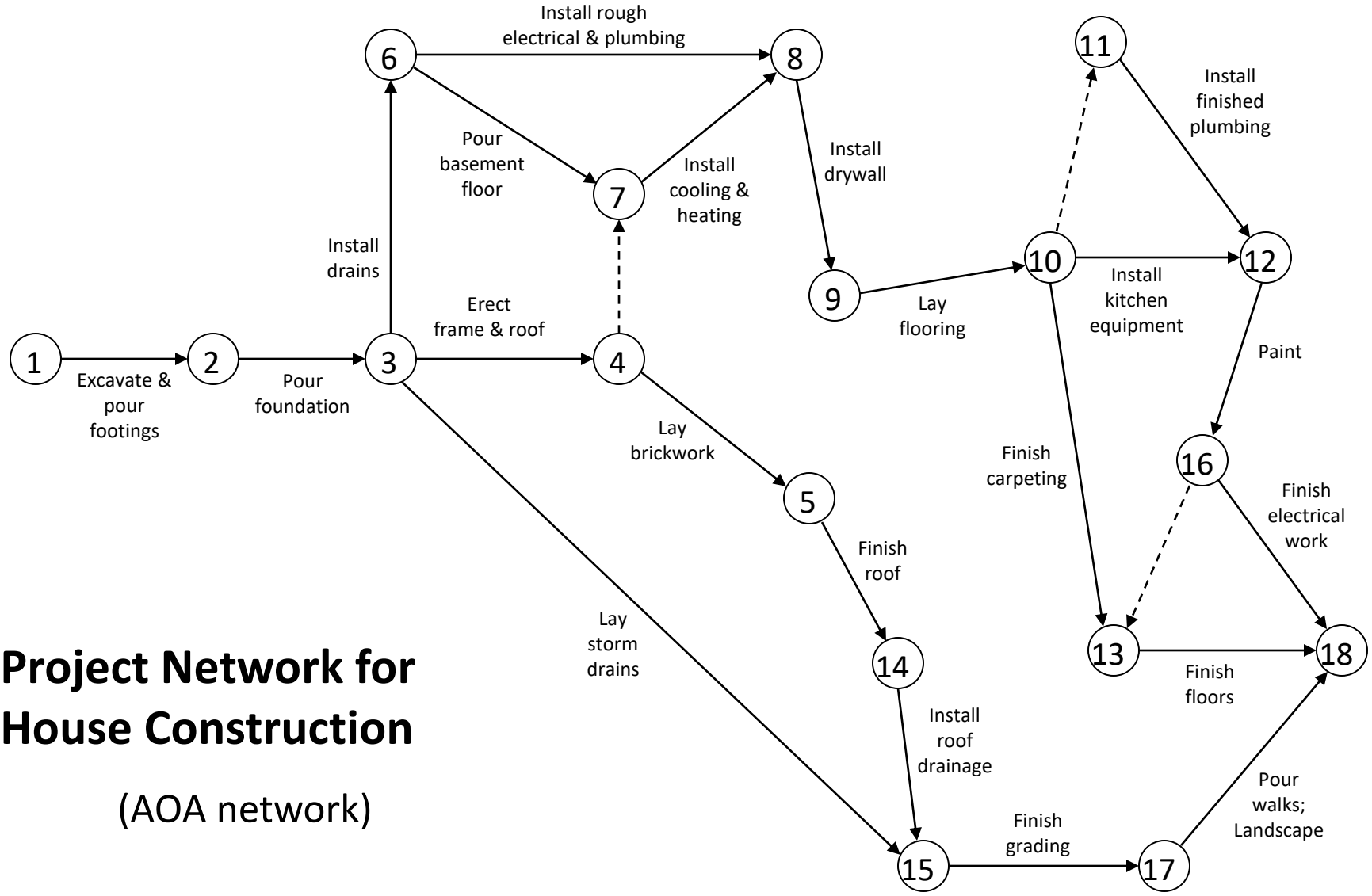
# examples for you to try

| Activity | Predecessors Activity |
|---|---|
| A | None |
| B | A |
| C | A |
| D | B, C |
| | |

| Activity | Predecessors Activity |
|---|---|
| A | None |
| B | None |
| C | A |
| D | A, B |

# Project Network for House Construction

(AOA network)

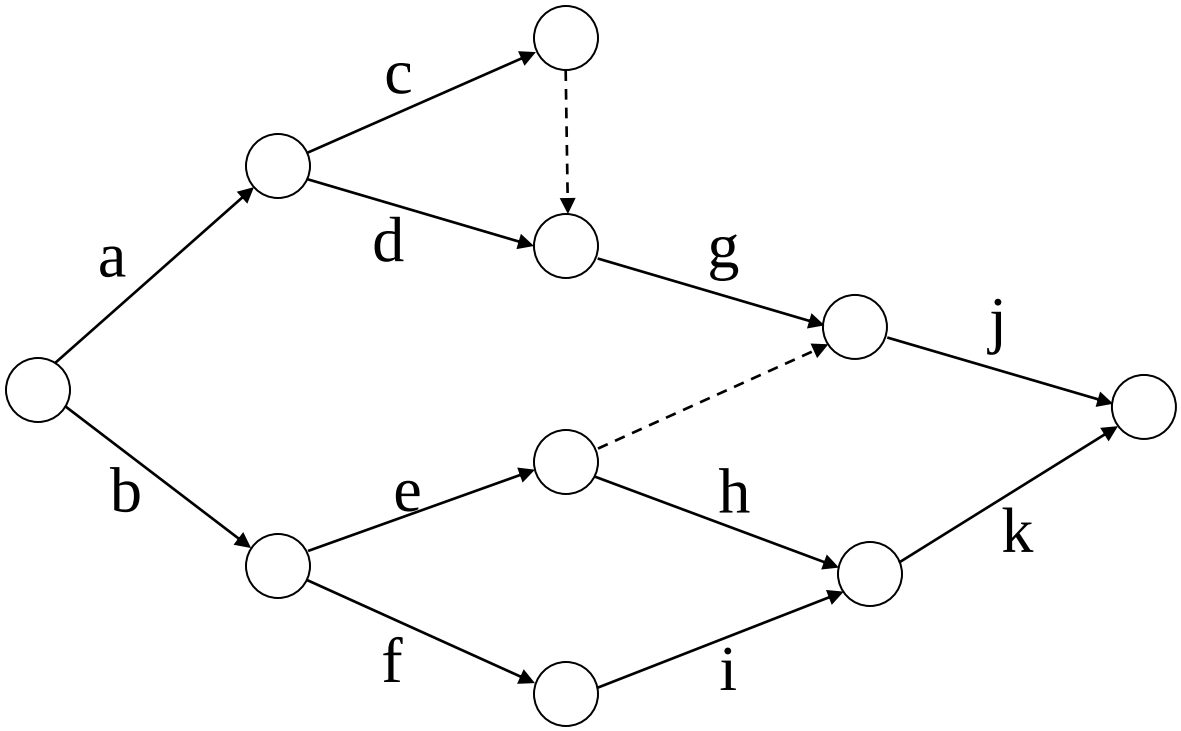


# Project Network Example

| Actv. | Pred. |
|---|---|
| a | -- |
| b | -- |
| c | a |
| d | a |
| e | b |
| f | b |
| g | c,d |
| h | e |
| i | f |
| j | e,g |
| k | h,i |

Draw AOA networks

# Activity-on-Arrow (AOA or ADM) Network
(Final Network)



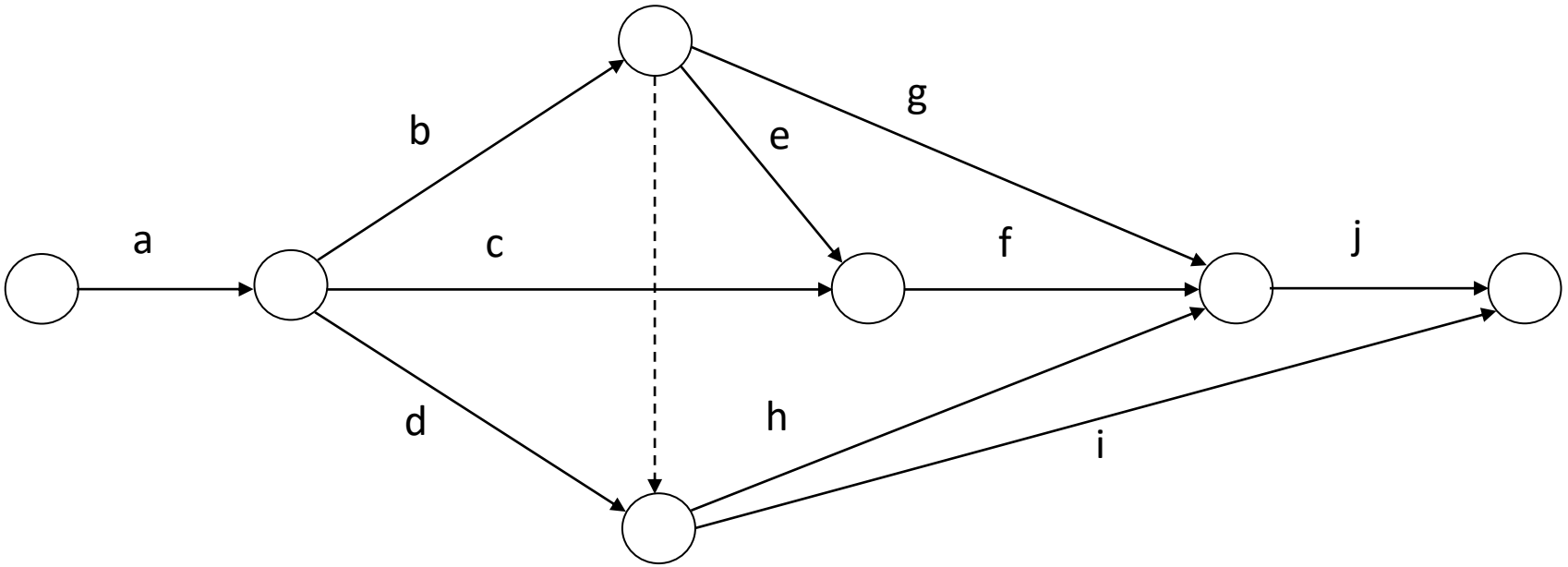
# Project Network Example

A project has the following activities and precedence relationships:

| Actv. | Pred. | Actv. | Pred. |
|---|---|---|---|
| a | -- | f | c,e |
| b | a | g | b |
| c | a | h | b,d |
| d | a | i | b,d |
| e | b | j | f,g,h |

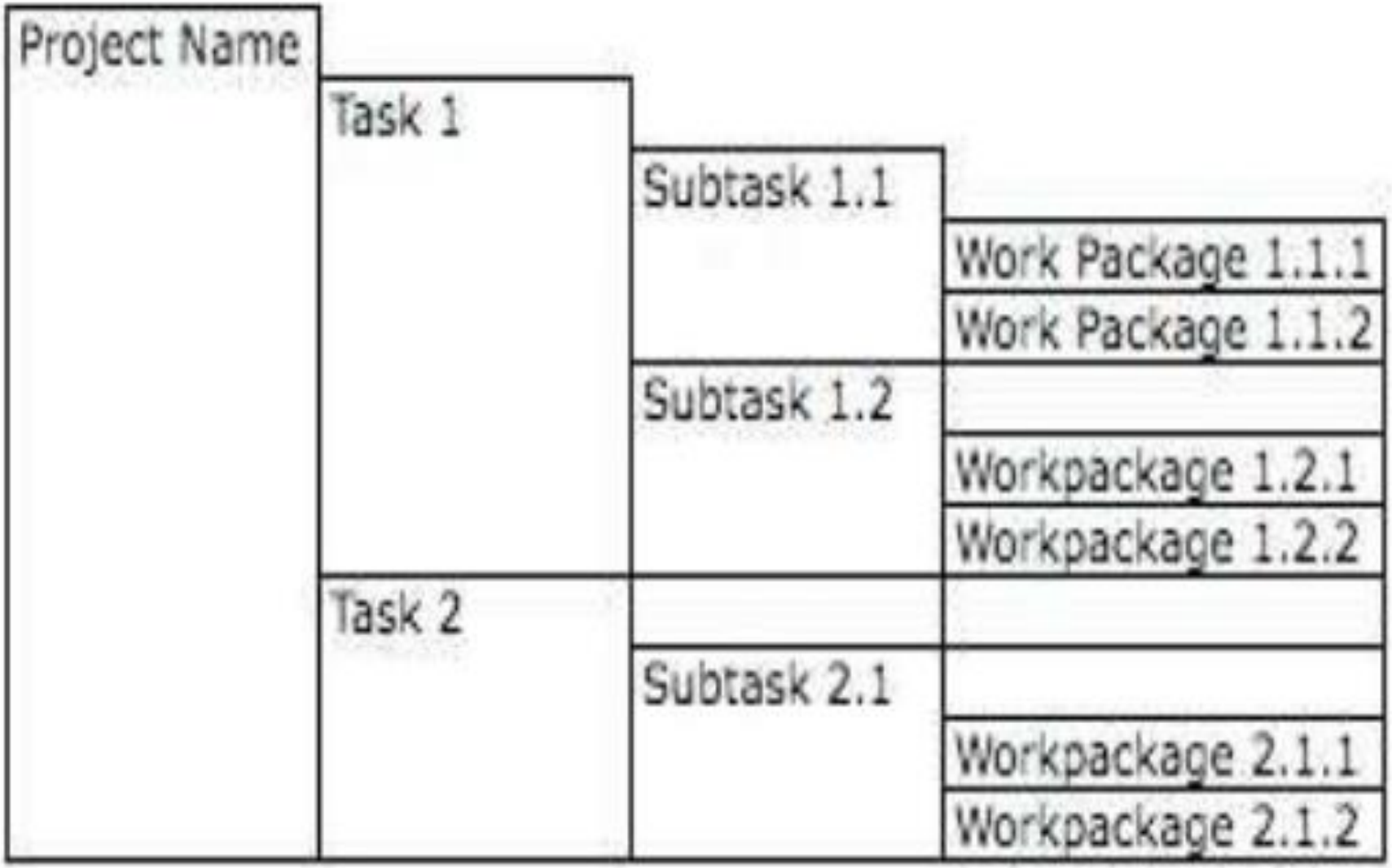
Draw AOA

# Activity on Arrow
## (Final Network)



# Work Breakdown Structure

- Dividing complex projects to simpler and manageable tasks is the process identified as Work Breakdown Structure (WBS).
- In WBS, much larger tasks are broken-down to manageable chunks of work.
- These chunks can be easily supervised and estimated.
- A work breakdown structure element may be a product, data, a service, or any combination.
- A WBS also provides the necessary framework for detailed cost estimating and control along with providing guidance for schedule development and control


Project Name
Task 1
Subtask 1.1
Work Package 1.1.1
Work Package 1.1.2
Subtask 1.2
Workpackage 1.2.1
Workpackage 1.2.2
Task 2
Subtask 2.1
Workpackage 2.1.1
Workpackage 2.1.2

# MODULE 4

# INTRODUCTION TO ENGINEERING ECONOMY

# INTRODUCTION

The word “economics” has been derived from two Greek words, oikus means “household” and Nemein means “management”.

Economics is a social science concerned with the production, distribution and consumption of goods and services. it studies how individuals, businesses, governments and nations make choices on allocating resources to satisfy their wants and needs, and tries to determine how these groups should organize and coordinate efforts to achieve maximum output.

the goals of the economics are,

- a high level of employment
- price stability
- efficiency
- an equitable distribution of income
- growth

# TYPES OF ECONOMICS

The economics is broadly classified into two types,

- Micro – economics
- Macro – economics

# MICROECONOMICS

**Microeconomics** – it focuses on how individual consumers and producers make their decisions. This includes a single person, a household, a business or a governmental organization. Microeconomics ranges from how these individuals trade with one another to how prices are affected by the supply and demand of goods. Also the efficiency and costs associated with producing goods and services, how labour is divided and allocated, uncertainty, risk, and strategic game theory studied are.

- Goals of microeconomics include,
- Efficiency – efficiency is achieved when society is able to obtain the greatest amount of satisfaction from the available resources.
- Equity – equity is achieved when income and wealth are fairly distributed within a society.

# MACROECONOMICS

It studies the overall economy. This can include a distinct geographical region, a country, a continent or even the whole world. Topics studied include government fiscal and monetary policy, unemployment rates, growth as reflected by changes in the gross domestic product (GDP) and business cycles that result in expansion, booms, recessions and depressions.

- Goals of macroeconomics includes
- Full employment – dull employment is achieved when all available resources (labour, capital, land and entrepreneurship) are used to produce goods and services.
- Stability – stability is achieved by avoiding or limiting fluctuation in production, employment and prices.
- Economic growth – economic growth is achieved by increasing the economy's ability to produce goods and services.

# COMPARISON BETWEEN MACROECONOMICS AND MICROECONOMICS

| Sl No | BASIS | MICRO ECONOMICS | MACRO ECONOMICS |
|---|---|---|---|
| 1 | **Definition** | It is the study of particular firm, particular household, individual price, wage, income, industry and particular commodity. | It is concerned with aggregate volume of the output of an economy with the extent to which its resources are employed, with the size of national income and with the general price level. |
| 2 | **Objectives** | Optimum allocations of resources. | Full employment and development of economic resources. |
| 3 | **Demand depends** | Consumer'sexpectations and the price of the particular product. | Household's expectations and theprice of the all products. |
| 4 | **Supply depends** | Expectations of profits by firms and the price of the good or services. | Producer's expectations and total productions costs. |
| 5 | **Nature of activity** | It is based on disaggregation. | It is based on aggregation. |
| 6 | **Assumptions** | It is assumed that there is full employment. | It is assumed that the allocation of resources is constant. |
| 7 | **Equilibrium** | Equilibrium occurs when the quantity price demanded equals the quantity supplied. | Equilibrium in an economy occurs when the aggregate demand equals the aggregate supply. |
| 8 | **Price** | There is a price for each good or service that will clear the market. | There is a price level in an economy at which the aggregate demand will equal aggregate supply. |

# ENGINEERING ECONOMICS

Engineering economics deals with the methods that enable one to make economic decisions towards evaluation of design and engineering alternatives. It helps in examining the relevancy of a project, estimating its value and justifying it from the engineering viewpoint. Engineering economics provides methods that enable one to take economic decisions towards minimizing costs and/or maximizing benefits to business organizations.

Engineering economy can be defined as a collection of mathematical techniques that simplify economic comparison.

# PRINCIPLE'S OF ENGINEERING ECONOMY

- **PRINCIPLE 1 : DEVELOP THE ALTERNATIVES**
- **PRINCIPLE 2: FOCUS ON THE DIFFERENCES**
- **PRINCIPLE 3: USE A CONSISTENT VIEWPOINT**
- **PRINCIPLE 4: USE A COMMON UNIT OF MEASURE**
- **PRINCIPLE 5: CONSIDER ALL RELEVANT CRITERIA**
- **PRINCIPLE 6: MAKE UNCERTAINTY EXPLICIT**
- **PRINCIPLE 7: REVISIT YOUR DECISION**

A sound engineering economic analysis procedure incorporates the basic method and involves following:

- Problem recognition, definition and evaluation
- Development of feasible alternatives
- Development of cash flow for each alternative
- Selection of criteria
- Analysis and comparison of the alternatives
- Selection of the preferred alternative
- Performance monitoring and post-evaluation results

# INTEREST AND TIME VALUE OF MONEY

- **PRESENT WORTH –** present worth, present value and principal all represent the value of money at time zero, which is the beginning of the engineering economic analysis period under investigation. In formulas, the present sum of money may be labelled as PW, PV, P or PO. All four of these symbols represent the same initial time frame, which is time zero.
- **Future worth –** future worth (fw), future value (f) or (fn) represent the future sum of money including principal plus interest. Future values occur at any point in time in the future and they are usually designated as the end of the engineering economic analysis period if they are the last activity to occur in the analysis period. The future worth of present values, and payments and disbursement streams, includes interest on the money invested or withdrawn from an account.

- **ANNUITY –** annuities (A) represent a payment or disbursement stream deposited or withdrawn at equal set intervals such as daily, weekly, monthly or yearly. As each annuity is deposited into an interest bearing account, it begins to draw interest at the end of each compounding period. The annuities deposited, plus any previous interest earned, are used when calculating the interest on the funds in the account at the end of each period. A series of payments made at the beginning instead at the end of each period is referred to as annuity due.
- **Salvage value –** the salvage value is what an asset is worth at the end of its useful life. In engineering economic analysis, the salvage value is represented by a future value occurring at the end of the analysis period. It is not always possible to accurately determine what a future salvage value of an asset will be; therefore, for the purpose of an analysis, a reasonable salvage value is assumed and included in the calculations. Many times, salvage values for similar items from previous projects are incorporated into a new analysis.

- **SUNK COST** – sunk cost represents funds not recoverable because they have already been expended some time in the past. This is known as the past cost of an equipment/asset. Let us assume that an equipment has been purchased for ₹ 3,00,000 about three years back. If it is considered for replacement, then its present value is not ₹ 3,00,000. Instead, its present market value should be taken as the present value of the equipment for further analysis. So, the purchase value of the equipment in the past is known as its sunk cost. The sunk cost should not be considered for any analysis done from now onwards.
- **Marginal cost** – marginal cost of a product is the cost of producing an additional unit of that product. Let the cost of producing 50 units of a product be ₹ 30,000, and the cost of producing 31 units of the same product be ₹ 30,100. Then the marginal cost of producing the 51st unit is ₹ 100.

**OPPORTUNITY COST –** in practice, if an alternative (A) is selected from a set of competing alternatives (A,B), then the corresponding investment in the selected alternative is not available for any other purpose. If the same money is invested in some other alternative (B), it may fetch some return. Since the money is invested in the selected alternative (A), one has to forego the return from the other alternative (B). The amount that is foregone by not investing in the other alternative (B) is known as the opportunity cost of the selected alternative (A).

**Capitalized cost –** capitalized cost is a term used in engineering economics and it refers to the present worth of a project with an infinite life. In other words, capitalized cost is a lump sum of money needed today (t = 0) to support an infinite life project simply on earned interest only. The concept of apitalized cost usually applies to public projects such as airporridgts, bces, dams, and long-term private projects such as hospitals and private airports.

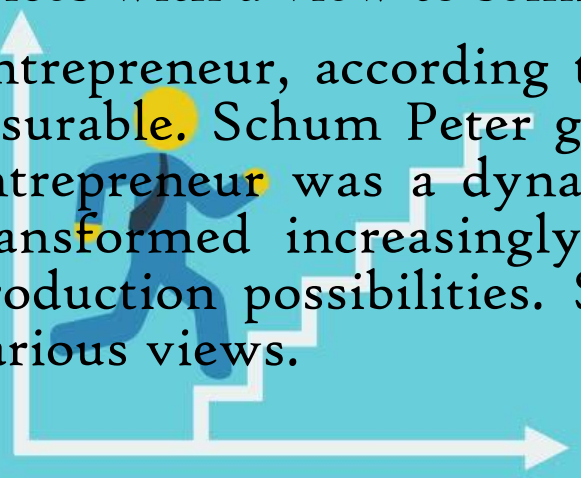
# MODULE 5
# ENTREPRENEURSHIP

# DEFINITION OF ENTREPRENEUR

- A common definition of an entrepreneur is someone who establishes a new entity to offer a new or existing product or service into a new or existing market, whether it is for a profitable or non-profitable outcome.
- An entrepreneur can be defined as a person who tries to create something new, organizes production and undertakes risks and handles economic uncertainty involved in enterprise.

# EVOLUTION CONCEPT OF ENTREPRENEUR

- The word entrepreneur is derived from the French word entreprendre which means 'to undertake or to try'.[Richard Cantallion 1775] which was used to designate an organizer of musical or other entertainments.
- Later in 16th century it was used for army leaders. It was extended to cover civil engineering activities such as construction in 17th century. But it was Richard Cantillon, an Irishman living in France who first used the term entrepreneur to refer to economic activities
- According to Cantillon "An entrepreneur is a person who buys factor services at certain prices with a view to selling its product at uncertain prices".
- Entrepreneur, according to Cantillon, an entrepreneur is a bearer of risk, which is non-insurable. Schum Peter gave a central position to the entrepreneur who believed that an entrepreneur was a dynamic agent of change; that an entrepreneur was a catalyst who transformed increasingly physical, natural and human resources into correspondingly production possibilities. Since then the term entrepreneur is used in various ways and various views.



# CHARACTERISTICS OF ENTREPRENEUR

- A good entrepreneur should be action oriented enthusiastic & energetic & ready to take risk at all levels to achieve the goal.
- Should have determination & commitment.
- Creativeness & result oriented, lord working
- Accepts responsibilities with enthusiasm,
- Self confident deactivated & self disciplined
- Both thinker & doer planner & worker,
- Future vision intelligent, imaginative & self directed

# FUNCTIONS OF AN ENTREPRENEUR

- Idea generation
- Determination of business objectives
- Rising of funds
- Procurement of machines and materials
- Market research
- Determining form of enterprise
- Recruitment of manpower
- Implementation of the project

- **INTRAPRENEURS**

A new breed of entrepreneurs is coming to the fore in large industrial organizations. They are called as ‘Intrapreneurs’. An Intrapreneur is the entrepreneurship within the existing business structure. It bridges the gap between science & market place.

- **ULTRAPRENEURS**

the path of successful entrepreneurship is ever changing as the art and science of entrepreneurship, is taking a new colours. Now-a-days new products and services are conceived, created, tested, produced and marketed very quickly and with great speed. Therefore, today’s entrepreneurs need to have different mind-set about establishing and operating a company. This mind set is what is called ultrapreneuring.

| Sl No | | ENTREPRENEURS | INTRAPRENEURS |
|---|---|---|---|
| 1 | DEPENDENCY | He is independent in his operation. | **He is dependent on the entrepreneurs i.e. owner.** |
| 2 | RAISING OF FUNDS | He himself raises funds required for the organization. | **He does not raise funds for the organization.** |
| 3 | RISK | Entrepreneurs bears the risk involved in the business. | **He does not fully bear the risk involved in the organization.** |
| 4 | OPERATION | An entrepreneur operates from outside.<br>Entrepreneurs converts the ideas into viable opportunities.<br>Entrepreneurs takes the profit of the bussiness | **An intrapreneur operates from inside.**<br>**Intrapreneurs takes the responsibility of creating innovation.**<br>**He is provided with a variety of perquisite for his innovation.** |

**the business.**

# CONCEPT OF ENTREPRENEURSHIP

- It is a process undertaken by entrepreneur to augment his business interests. It is defined as an indivisible process flourishes, when the interlinked dimensions of individual psychological entrepreneurship, entrepreneur traits, social encouragement, business opportunities government policies, availability of resources, opportunities coverage towards the common good, development of society & economy.

# ELEMENTS OF ENTREPRENEURSHIP

- **New business venturing -** This is the corporate venturing, the creation of new business within the organization. This includes redefining the company's products or services, development of new market segment or formation of new corporate ventures.
- **Innovations -** Innovation is the development of new products, improvement of existing products, development of improved & simplified production methods & procedures.
- **Self-renewal -** This is the transformation of an organization their renewal of main ideas. This includes a redefinition of a business concept, reorganization or modification in the system with an aim to initiate innovating.
- **Pro-activeness –** Pro-activeness includes initiative & risk thing competitiveness & dashing to take new challenges, organization with this type of pro-activeness spirit will lead the market than follow the competitors.

# CHARACTERISTICS OF ENTREPRENEURSHIP

- **Innovation** - Entrepreneurship involves innovation of new things to effect dynamic changes & good success in economy. It should create conditions for growth of economy.
- **Risk** – taking Risk is an inbuilt element of any business. Entrepreneurship should be risk bearing to the uncertainty of future.
- **Skilful management** - Entrepreneurship hinges together various functions of the management planning organizing staffing directing controlling & leading.
- **Organization** - It being together various facilities of production for an efficient & economical use.
- **Decision-making -** Decision-making is very vital. Taking decision at all levels & stages of entrepreneurship is a routine task.
- **Making the enterprise a success -** It is mainly an economic activity as it deals with creating &b operating an enterprise. It involves in satisfying the needs of customers with the help of production and distribution of goods & services. This makes the enterprise a success.

# STAGES IN THE ENTREPRENEURIAL PROCESS

- Identification of opportunity
- Evaluation of opportunity
  - Description of product
  - Agreement of opportunity
  - Assessment of the entrepreneur
  - Resources needed
  - Amount & sources of capital
  - Profit expected
- Preparation of business plan
  - Title of project, table of contents & executive summary
  - Description of business & industry.
  - Technology plan
  - Financial plan
  - Organization plan
  - Production & operation plan
  - Marketing & distribution plan
  - Summary
- Determination & organizing the resour
- Management of enterprise.

# BARRIERS TO ENTREPRENEURSHIP

- Lack of a viable concept
- Lack of market knowledge
- Lack of technical skills
- Lack of seed capital
- Lack of business know how
- Complacency—lack of motivation
- Social stigma
- Time presence and distractions
- Legal constraints and regulations
- Monopoly and protectionism
- Inhibitions due to patents

# SUPPORTING AGENCIES OF GOVERNMENT

The Central Government through its ministry of Small-Scale Industries and all the State Governments have started a number of agencies – both at Central and State level – to provide infrastructure and support services to small enterprises. A classification of all such agencies are:

- Central Level Institutions
- State Level Institutions
- Other Agencies

# CENTRAL LEVEL INSTITUTIONS

- **SSI BOARD**: Small Scale Industries Board. It is the apex advisory board to the central government in matters related to small scale sector in the country.
- **KVIC**: Khadi and Village Industries Commission. It promotes development of Khadi and other village industries.
- **SIDO**: Small Industries Development Organization: It mainly acts as a nodal agency and an interface between Central and State Governments. It also gives wide ranging technical and consultancy services.
- **NSIC**: National Small Industries Corporation Ltd.,
- **NSTEDB**: National Science and Technology Entrepreneurship Development Board. This agency promotes usage of science and technology in SSI sectors.
- **NPC**: National Productivity Council. This agency suggests various ways of improving productivity.
- **NISIET**: National Institute for Small Industry Extension and Training. It imparts high quality training to budding as well as existing entrepreneurs. It is located in Hyderabad.
- **NIESBUD**: National Institute for Entrepreneurship and Small Business Development. It co-ordinates the efforts of various agencies involved in entrepreneurship development. It is located in New Delhi.

**IIE:** Indian Institute of Entrepreneurship. It aims to carry out research and development activities in entrepreneurship studies. It is located in Guwahati.

**EDII:** Entrepreneurship Development Institute of India. It is an autonomous body sponsored by financial institutions like IDBI, ICICI etc., and engaged in spearheading and inspiring entrepreneurship movement in India. It is located in Ahmedabad.

# STATE LEVEL INSTITUTIONS

- **DI:** Directorate of Industries. It is involved in promotion of small scale sector at the state level.
- **DIC:** District Industries Centre
- **SFC:** State Financial Corporation. It provides financial support for starting SSI's
- **SIDC:** State Industrial Development Corporation. It promotes infrastructure facilities
- **SSIDC:** State Small Industrial Development Corporation. It helps small and tiny units in procurement of scarce raw materials. It also gives other services.

# OTHER AGENCIES

There are a number of other agencies – both Central and State level – which directly or indirectly help the cause of Small Scale sector in India, mainly in financial and industrial domain. They are:

- **SIDBI:** Small Industries Development Bank of India
- **NABARD:** National Bank for Agricultural and Rural Development
- **HUDCO:** Housing and Urban Development Corporation Ltd.,
- **NGO's:** Non-Governmental Organizations
- **EPC:** Export Promotion Council
- **CII:** Confederation of Indian Industries
- **FICCI:** Federation of Indian Chambers of Commerce and Industry
- **ASSOCHAM:** Associated Chamber of Commerce and Industry of India
- **WASME:** World Association for Small and Medium Enterprise
- **LUB:** Laghu Udyog Bharati
- **ICSI:** Indian Council of Small Industries
- **CSIR:** Council of Industrial and Scientific Research.

# MSME – MICRO, SMALL AND MEDIUM ENTERPRISE

# MSME

**Definition:** In accordance with the provision of Micro, Small & Medium Enterprises Development (MSMED) Act, 2006 the Micro, Small and Medium Enterprises (MSME) are classified in two Classes:

- **Manufacturing Enterprises-The** enterprises engaged in the manufacture or production of goods and are defined in terms of investment in Plant & Machinery.
- **Service Enterprises:-**The enterprises engaged in providing or rendering of services and are defined in terms of investment in equipment.

| Classification | Investment for plant, machinery or equipment's | |
|---|---|---|
| | **Manufacturing Enterprises** | **Service Enterprises** |
| **MICRO** | Up to Rs. 25 | Up to Rs. 10 Lakhs |
| **SMALL** | Above Rs. 25 Lakhs and up to Rs. 5 Crore | Above Rs. 10 Lakhs and up to Rs. 2 Crore |
| **MEDIUM** | Above Rs. 5 Crore and up to Rs. 10 Crore | Above Rs. 2 Crore and up to Rs. 5 Crore |

# CHARACTERISTICS OF MSME/SSI

- Its a One-man-show at most SSI's
- Capital investment is low.
- Most SSI's are fairly labour intensive with comparatively smaller capital investment.
- They can also be found in rural and semi-urban areas
- They are generally involved in the production of light consumer goods, specific industrial components, simple-to-process food items.
- Small scale units generally use local resources although the market for its products can be far and wide

# CHARACTERISTICS OF MSME/SSI

- SSI's are generally labour intensive.
- Organization structure of an SSI would be very simple.
- SSI's have a tendency of folding up very soon.
- Human resources, especially women and children, are exploited.
- The market share of an SSI is usually very small. Scaling becomes a problem.
- Division and specialization of labour is low.

# OBJECTIVES OF MSME/SSI

- To generate immediate and large scale employment opportunities in all parts of the country with relatively low investment.
- To reduce the unemployment and underemployment problems in the country.
- To encourage setting up of industries in small towns and villages thus improving local economy.
- To bring poor and backward areas to the mainstream of national development.
- To ensure a better and equitable distribution of national income and wealth.
- To mobilize the country's untapped capital and human resources.
- To generally improve the standard of living in our country.
- To encourage small entrepreneurs and help them grow and realize their dreams.

# SCOPE OF MSME/SSI

- Manufacturing activities
- Construction activities
- Public utilities
- Service/Repairing activities
- Financial activities
- Retailing activities
- Wholesale business

# ROLE OF MSME/ SSI IN ECONOMIC DEVELOPMENT

- Providing Employment:
- Mobilization of local resources:
- Feeding large scale industries:
- Promotion of exports:
- Equitable distribution of wealth:
- Equitable distribution of wealth:
- Promoting Regional Development:
- Capital Optimization:
- Inspiring new entrepreneurs:

# ADVANTAGES OF MSME/ SSI

- Small Scale Industries provide self-employment opportunities with relatively low investments.
- Most units do not require high-end technology.
- These industries can be located anywhere.
- They use local resources and local manpower thus improving local economy.
- Time taken from conceptual stage to production stage (gestation period) is less.
- They help earn and save foreign exchange.
- Small firm are viewed favourably by the society because wealth is not concentrated in few hands.
- They make use of large semi-skilled and unskilled labour that is available in our country.
- They introduce to the world local craftsmanship and handicrafts.
- Small firms require simple technology and low managerial skills.
- They assist large and medium industries by acting as ancillaries.
- They inspire many more entrepreneurs to start their own ventures that improves quality and competition.

# WEAKNESSES OF SSI

- Raw Material:
- Finance:
- Marketing:
- Capacity under-utilization:.
- Outdated Technology:
- Over protection:.
- Inefficient Entrepreneurs:
- Zero R&D:
- Lack of Successors:

# INTRODUCTION TO DIFFERENT SCHEMES

- **TECSOK:** TECHNICAL CONSULTANCY SERVICES OF KARNATAKA
- **KIADB:** KARNATAKA INDUSTRIAL AREA DEVELOPMENT BOARD
- **KSSIDC:** KARNATAKA STATE SMALL INDUSTRIES DEVELOPMENT CORPORATION LTD
- **SINGLE WINDOW AGENCY**
- **SISI:** SMALL INDUSTRIES SERVICE INSTITUTE
- **NSIC:** NATIONAL SMALL INDUSTRIES CORPORATION LTD.
- **SIDBI:** SMALL INDUSTRIES DEVELOPMENT BANK OF INDIA
- **KSFC:** KARNATAKA STATE FINANCIAL CORPORATION

# TECSOK: TECHNICAL CONSULTANCY SERVICES OF KARNATAKA

- It was established in 1976 by the government of Karnataka. It is located in Basava Bhavan, Basaveshwara Circle, Banglore.
- **Nature of support:** Multi-disciplinary technical, industrial and management consultancy.
- **Objectives:**
  - To provide reliable consultancy support for entrepreneurs to startup self-employment ventures in Karnataka.
  - To provide consultancy services to the various Departments and Agencies of state and Central Governments.

- **Functions:**
  - To identify investment opportunities which are location specific.
  - To assist entrepreneurs in obtaining statutory and procedural clearances.
  - To carry out feasibility studies and environmental impact studies.
  - To assist preparation of detailed project reports as per investment norms and financial norm.
  - To carry out market survey and research specific to industry needs.
  - To assist in project implementation and extend turn key assistance.
  - To help in reorganization and restructuring of employees.
  - To diagnose sick units and suggest rehabilitation measures
  - To provide consultancy in valuation of assets, manpower, planning and budgetary control system
  - To promote consultancy for merges and take overs.
- **Types of help:**
- Since its inception TECSOK has catalysed a large number of industries throughout Karnataka.

# KIADB: KARNATAKA INDUSTRIAL AREA DEVELOPMENT BOARD

- This is a statutory body established in 1966 by government of Karnataka. Headquarters is at Bangalore with 9 zonal offices all over Karnataka.
- **Objectives:**
  - To establish Industrial areas and promote rapid and orderly establishment of industries in the state of Karnataka
  - To provide infrastructural facilities and amenities to SSIs
  - To assist in implementation of government policies
  - To function on 'No profit – No loss' basis.

- **Functions:**
  - To acquire lands for industrial activity at identified and notified locations and form industrial area with all infrastructure facilities like - Road - Electricity power - Water supply
  - To acquire lands in favour of single unit.
  - To acquire lands for single unit complexes for government organizations and to facilitate government projects
  - To provide all the infrastructure facilities to such industrial areas.
  - To maintain the infrastructural facilities during the contractual project.
- **Types of help:**
- Till date KIADB has found 95 industrial areas spread all over the state and acquired land for nearly 290 single unit complexes.

# KSSIDC: KARNATAKA STATE SMALL INDUSTRIES DEVELOPMENT CORPORATION LTD

- Established in 1960 by Government of Karnataka.
- **Nature of support:** Infrastructure and industrial inputs.
- **Objectives:**
  - To assist small scale industries in the procurement of raw materials
  - To take up any activity aimed at rapid development of small scale industry

- **Functions:**
  - To establish and manage industrial estates
  - To procure and distribute scarce and rare raw materials to various SSIs
  - To provide assistance towards marketing of products from various SSIs
  - To organize national level and international level exhibition and facilitate exchange of information
  - To supply machinery under hire purchase scheme
  - To provide technical library facilities in coordination with Indian Standard Institution.
- **Types of help**
  - KSSIDC has promoted establishment of ancillary units to help PSU's like BEL, ITI, HAL, NGEF. BEML etc.
  - It has constructed 86 plots exclusively for SC/ST entrepreneurs.

# SINGLE WINDOW AGENCY

- **DIC:** DISTRICT INDUSTRIES CENTRE
- Launched in 1978 in all districts of each state. There are about 400 DIC's in India.
- **Nature of support:** Information and Consultancy Services. Industrial Inputs.
- **Objectives:**
  - To effectively promote cottage and small-scale industries in rural areas and small towns.
  - To act as a Single Window Agency to help the entrepreneur with all the information under one roof.
  - To serve as an integrated administrative frame work at the district level for industrial development.

- **Functions:**
  - Surveys: To carry out surveys to assess the potential of a district with respect to industrial development taking into account availability of raw material, manpower, infrastructure, demand for a product etc. This survey provides a basis for advising budding entrepreneurs.
  - Action Plan: To prepare an action plan for the industrial development of the district.
  - Appraisal: To appraise various investment proposals received from entrepreneurs.
  - Guidance: To guide entrepreneurs in selecting appropriate machinery and equipment.
  - Marketing: To assist entrepreneurs in marketing their products and assess the possibility of export promotion.
  - R&D: To link R&D institutes with entrepreneurial activities for product innovation.
- Training: To conduct artisan training programs.

# SISI: SMALL INDUSTRIES SERVICE INSTITUTE

- There are 58 SISIs all over the country including one in each State Capital.
- **Nature of support:** Entrepreneurship development, consultancy and training.
- **Objectives:**
  - To provide consultancy and training to small entrepreneurs – both existing and prospective.
  - To serve as an interface between Central and State governments.
  - To initiate entrepreneurial promotion programs

- **Functions:**
  - To render technical support services.
  - To conduct Entrepreneurship development programs
  - To collect Trade and Market information and share it with entrepreneurs.
  - To carry out modernization and in plant studies.
  - To conduct State and District industrial potential surveys.
  - To provide consultancy services.
  - To provide training in various trade/activities.

# NSIC: NATIONAL SMALL INDUSTRIES CORPORATION LTD.

- This is one of the oldest agencies set by the central government in 1955 and is the forefront of industrial development in the country.
- **Nature of support:** Wide ranging industrial inputs.
- **Objectives:**
  - To promote, aid and foster the growth of SSI's in the country with a focus on commercial aspects.
  - To enable the Small Scale Industries to gain competitive advantage and to contribute effectively to the development of the country.
  - To evolve special schemes to meet the needs of handicapped, scheduled castes and scheduled tribe entrepreneurs.

- **Functions:**
  - To provide machinery on hire-purchase scheme to SSI's
  - To procure government orders for small scale units
  - To develop small-scale units as ancillaries to large industries.
  - To import and distribute scarce and rare raw materials among actual users in the small-scale sector
  - To undertake the construction of industrial estates
  - To help exporting products of SSIs
  - To develop prototype of machines and equipment's and pass on the know how to SSIs
  - To set up SSI in other developing countries.

# SIDBI: SMALL INDUSTRIES DEVELOPMENT BANK OF INDIA

- It was established in 1990 under Act of Indian Parliament as a principal financial institution. It is a subsidiary of IDBI. Its head office is in Lucknow. SIDBI is among the top 25 development banks in the world.
- **Nature of support:** Financial services and other support services
- **Objectives:**
  - To promote, finance and develop small-scale sector in India.
  - To co-ordinate the functions of other institutes engaged in similar activities.
  - To finance industrial infrastructure projects.

- **Functions:**
  - To provide finance assistance to - new projects - expansion/diversification projects - modernization projects
  - To initiate steps for technological upgradation and modernization of existing units.
  - To promote rural industrialization
  - To provide channels for marketing SSI products in India and abroad.
  - To foster Human Resource Development to suit the SSI sector needs
  - To disseminate appropriate information to budding and existing entrepreneurs.
- **Types of help**
- SIDBI has so far disbursed more than 50,000
- as financial assistance.

# KSFC: KARNATAKA STATE FINANCIAL CORPORATION

- It was established in 1951 through a State Financial Corp. Act-1951.
- **Objectives:**
  - To cater to financial requirements of small-scale units.
  - To extend medium and long term credits to units which fall outside the preview of Industrial Finance Corporation and Public Sector Banks.
- **Functions:**
  - To provide long-term finance to small and medium industrial units organized on different ownership basis such as proprietorship, partnership, co-operative, public or private company concern.
  - To provide finance to service-oriented enterprises such as travel agencies, car rental agencies, hotels, tourism-related activities, hospitals and nursing homes etc.
  - To take over sick SSI units and auction them to entrepreneurs willing to rebuild.

# BUSINESS PLANNING PROCESS

# BUSINESS PLANNING PROCESS

- Planning is the first and the most crucial step for starting a business. A carefully charted and meticulously designed business plan can convert a simple idea/innovation into a successful business venture.
- A business plan is a road map for starting and running a business. A well-crafted business plan identifies opportunities, scans the external and internal environment to assess the feasibility of business and allocates resources in the best possible way, which finally leads to the success of the plan.
- A business plan is the blueprint of the step-by-step procedure that would be followed to convert a business idea into a successful business venture.

# BUSINESS PLANNING PROCESS

**Functional Plans**

- From this point on, the business plan would introduce, in a little more detailed manner, the major functions of the business in order to achieve its objectives. These functions are: operations of the business, its management, marketing, and finances.

**Operational Plan**

- This plan is all about producing the proposed product and the service delivery. The objective is to show the manner in which the proposed business plan will be able to deliver with a level of efficiency for the day-to-day operations, while keeping an eye on the strategic plan. This may require an explanation of the type of facilities needed, space requirements, capital equipment, labour force, and technological capacity. It may also address storage and inventory control, purchasing plan, work shifts, shutdowns, as well as legal requirements for licensing and permits.

# BUSINESS PLANNING PROCESS

**Management Plan**

- This section would demonstrate the plan's validity through exposing who is going to implement it, and how the presented concepts are going to be realized and turned into a market success. This section should refer to the availability of the formal ·resumes for key people in the lead and management team, and have copies of those resumes placed in the appendix

**Marketing plan**

- This part of business plan is where an entrepreneur presents an adequate description of how proposed business is going to succeed in moving the product from the production phase to consumption or from the firm to consumers through the market. It is basically the plan that would identify who the consumers are, what they like, what they are willing to buy, and how to attract them into buying this specific product. Also, who else has been attracting them, and how to beat such competitor, if any.

The efficient answers to these questions can be given by arranging the information into two parts.

- Market analysis that discusses the target market, market size and trends, market share, market claims, and market competition.
- Market strategy that addresses product pricing, product distribution and sales, advertising and promotion, and public relations

# FEASIBILITY STUDY

- Feasibility study is a systematic method to find out the possibility and practicability of starting a project or business. An Entrepreneur with limited financial resources before venturing in to a business has to study whether it is feasible or not. Feasibility study analyses availability of materials, skills and expertise, capital market, etc. Feasibility study contains fairly specific estimates of project cost, means of financing, sales revenues, production costs, financial and social profitability.
- **Uses of feasibility study**
- It helps Entrepreneur in making investment decision.
- It helps the agencies and organizations the viability of the project.
- It helps to work out the economics of production and expected profitability of the venture or enterprise.

# STEPS OF FEASIBILITY

- **Technical evaluation or feasibility**
- **Economic evaluation or feasibility**
- **Financial analysis**
- While conducting a financial appraisal certain aspects has to be looked into like:
- Investment outlay and cost of project
- Means of financing
- Projected profitability
- Break- even point
- Cash flows of the project /
- Investment worthiness judged in terms of various criteria of merit
- Projected financial position

- **Ecological analysis**

- **Feasibility study report**
- After making the feasibility study of the project taking into consideration the economic, financial, and technical aspects, the entrepreneur has to prepare a report. This feasibility study report is prepared in a prescribed format. Major contents of the report are:
- An introductory report regarding the product selected, process selected, production capacities, Justification for the proposed location, etc.
- Non recurring expenditure (on and, factory/office buildings godowns, machinery and equipment)
- Recurring expenses per month (on raw materials, consumables, Salaries, Rent, Fuel Power, etc.)
- Capital requirement and sources of capital (own capital, borrowings, subsidies, etc.)
- Total cost of production (per month)
- Profitability (per month)
- Percentage of operating profit per annum (Return on total project, return on won capital and Return on Total Sales)

- **INTERNATIONAL ENTREPRENEURSHIP**
- International entrepreneurship involves carrying out business activities across national border to respond to customer needs outside the country by availing opportunities outside the country.
- International business is becoming more and more important for ventures of all sizes, particularly in the present highly competitive global economy, wherein more and more countries are opening up their economies for international trade. It is important to realize that although it helps an entrepreneur expand their business, it also requires a better understanding of international markets by appropriately diagnosing economic, political, technological, market, legal, social and cultural environments of each country wherein the entrepreneur proposes to enter.

- **ENTREPRENEURIAL ENTRY INTO INTERNATIONAL BUSINESS**
- The key to entering into foreign markets is to understand the customer in detail first with due emphasis on issues related to language, social norms and culture. Entering into international markets mainly involves extending business internationally by adding customers, distribution channels and production facilities internationally.
- After having analysed the business environment to identify business opportunities abroad, an entrepreneur needs to respond to the following challenges before deciding to operate abroad:
- management practices and style,
  - strategic issues that need to be appropriately responded to,
  - alternative strategies and their implications to enter into other countries,
  - process to take decision for entering into international markets,
  - ethical practices and propensities across nations and their implications for business,
  - country-specific risk associated with change in government regulations.

There are various ways an entrepreneur can market products internationally. The method of entry into a market and the mode of operating overseas are dependent on the goals of the entrepreneur and the company's strengths and weaknesses. The modes of entering or engaging in international business can be divided into three categories:

- Exporting,
- Non-equity arrangements, and
- Direct 'foreign investment.

- **Exporting**
- Indirect Exporting
- Direct Exporting
- **Non-equity Arrangements**
- ***Licensing:***
- ***Turn-Key Projects:***
- ***Management Contracts:***
- ***Direct Foreign Investment***
- ***Minority Interests***
- Joint Ventures
- Majority Interest

# VENTURE CAPITAL

- Venture capital is the source of finance committed to an enterprise that has risk and adventure. It is a fund made available for financing of new business ventures from scratch. Venture capital is arranged to the entrepreneurs through the private equity market for supporting profitable, but risky ventures.
- Venture capital is "the money obtained through private investments or public investment funds directed to high risk and high potential enterprises".
- Central Bank, U.K. defines venture capital as "an equity by which an investor supports an entrepreneurial talent with finance and business skills to exploit market opportunities, and thus, gain long-term market gains".

# ROLE AND SIGNIFICANCE OF VENTURE CAPITAL

- Venture capital opens new avenues for deserving entrepreneurs:
- Venture capital is provided after reducing uncertainty to risks:
- Helps building entrepreneurial vision:
- Mobilisation of small savings
- Results in socio-economic benefits: