



**General Studies and Engineering Aptitude**

**For**

**ESE-2023 & 24**

## Basics of Project Management

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(IES officer)

- Cover complete syllabus and all topics of IES-2023 & 24.
- Cover all concepts and questions from the top 3 coaching institute class notes.
- Extra topics will cover in each subject if anything will be required in the future according to IES-2023 & 24 syllabus.
- Doubts and queries solution through dedicated WHATSAPP group.
- Career guidance and motivational support.
- Concise, concept oriented and topic wise presentation with detailed video lectures on Target IES YouTube channel.

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# 1. Basic concept of project and its life cycle

**Project-** A project can be define as a non routine non rape title work with discrete time having financial & technical performance goals.

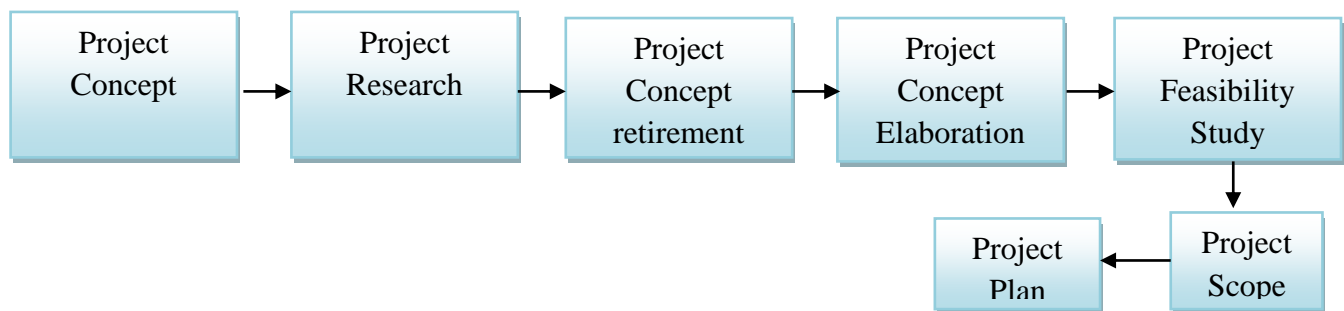
987- Guide to 'PMBOK'

'Project management Body of knowledge'  
Currently running 6<sup>th</sup> Edition.

## Characteristics of project-

A Project is a planned execution of correlation actuator in a given time & within given cost. A project is executed for the achievement of certain basic objective of scopes, time, cost & quality.

## Progressive elaboration-



## Project Strategic time:-

1. Customer request
2. Legal requirement
3. Market demand
4. Technology advancement
5. Company's own requirement.

## Enterprise Environmental factors-

1. Government rules & regulations
2. Political environment
3. Legal environment
4. Man Power of company
5. Planning, scheduling tools & software used by company
6. Market condition.

## Taxonomy or Classification of project

1. **Industrial Project-** To set up an industry for the purpose of production, manufacturing or converting into any other form.

**Non industrial Project-** Service oriented. Ex. Telecom, healthcare, education, irrigation, etc.

2. **Base on duration of project-**

- Long duration project - more than 5 year's period.

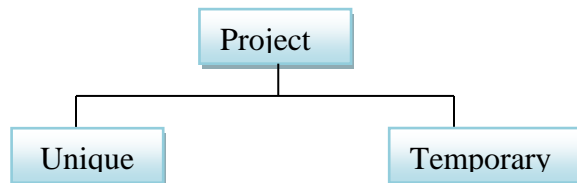
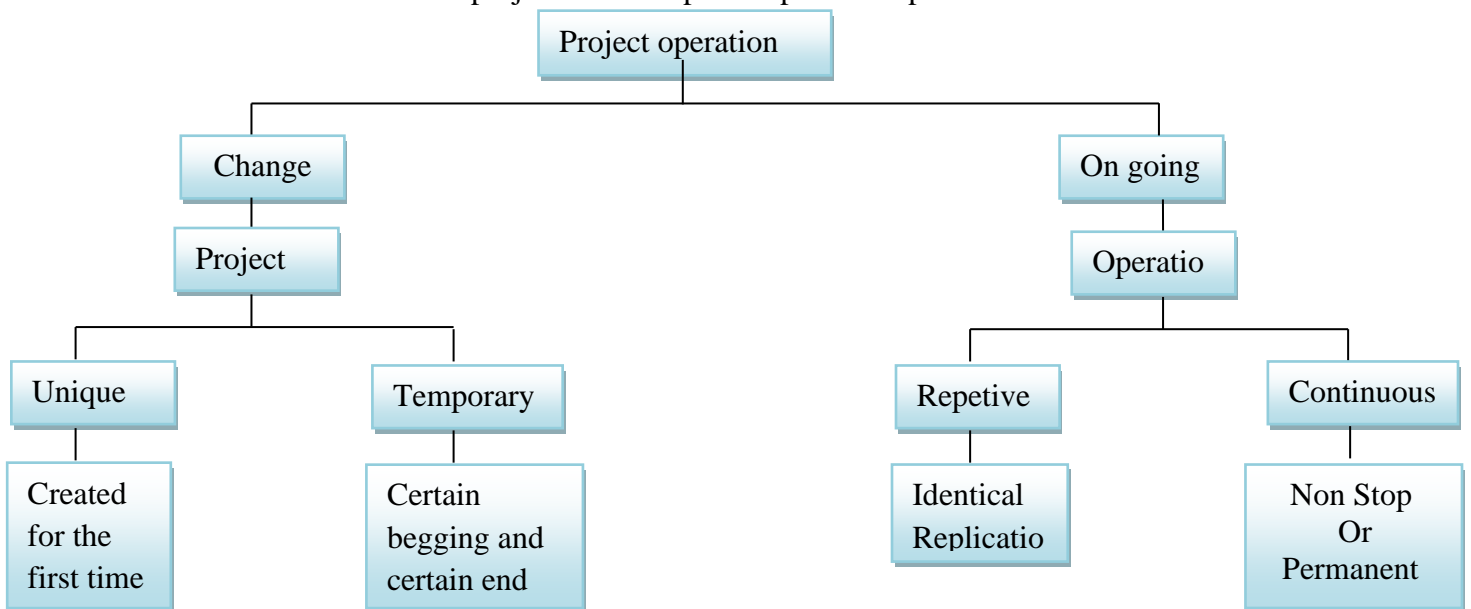
- Medium duration project - 3 to 5 year period.
- Short duration project – 1 to 3 year period.
- Special short duration project – less than 1 year period.

### 3. Base on value of project:

- Mega value project (> 1000 Cr)
- Large value project (100-1000 Cr)
- Medium value project (1- 100 Cr)
- Small value project (< 1 Cr)

### 4. Based on ownership.

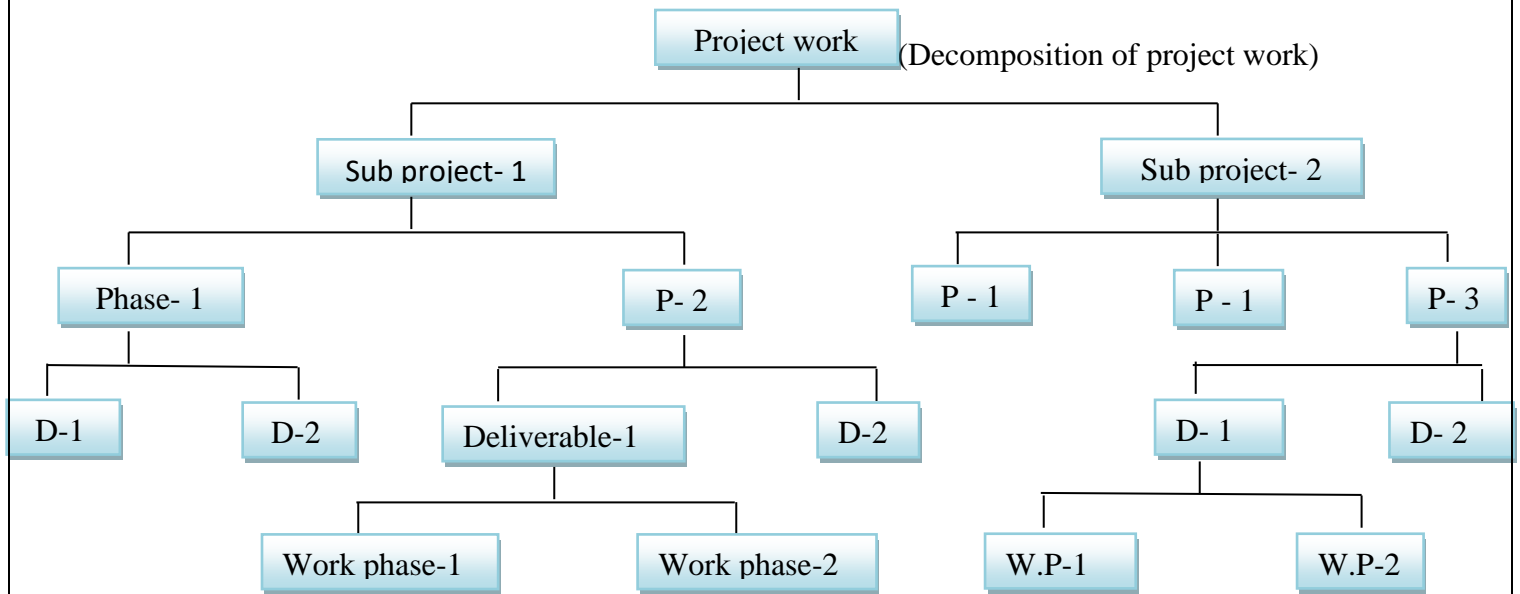
- Public section project= Owned by GOZ & PSUS.
- Private section project = Owned by private organization
- Joint section project = Public private partnership



Project	Operation
<ol style="list-style-type: none"> <li>1. Setting up a factory</li> <li>2. Developing a new varieties of nice seeds</li> <li>3. Installing a new software on a computer system</li> <li>4. Design &amp; development of robot</li> <li>5. Constructing a residential complex</li> <li>6. Erecting of an irrigation dam</li> </ol>	<ol style="list-style-type: none"> <li>1. Producing goods</li> <li>2. Harvesting rice crops</li> <li>3. Using the software</li> <li>4. Using the robot</li> <li>5. Living &amp; Maintenance of complex</li> <li>6. Supplying water to fields</li> </ol>



The work Breakdown structure (WBS) can be used to sub divide the work to make the deliverable in to work packages.



Smallest unit of project work = work phase

**Project Budget-** If the Budget is exceeded then it is called cost overrun, cost overrun must be avoided, budget of the project is assigned to different work packages, This results in better control & better management, Project budget is monitored based on cost estimation for different activities of project.

**Father of project management –** F.W Taylor  
Harry Gantt  
Henri Fayol

**Project Stake holders:-** Any individual or organization affected directly or indirectly by the activities and outcomes of project are called stakeholders.

**Project Stake holders**

- |                       |                                  |
|-----------------------|----------------------------------|
| 1. Customers          | 2. Banks & financial institution |
| 3. Project manager    | 4. Vendors & suppliers           |
| 5. Project sponsor    | 6. Program managers              |
| 7. Functional manager | 8. Partners & managers           |

**Project Schedule-** Time overrun leads to cost overrun project schedule is done by **Bar chart** or **Gantt Chart** & CPM.

**Project Quality-** The outputs of the project must be conforming to the quality standard and decided in the plan.

- Every project has a quality management plan.

Quality control	Quality Assurance
<ol style="list-style-type: none"> <li>1. Quality control is product oriented</li> <li>2. Q.C can be insured by removing defects in product.</li> <li>3. Q.C is checking the defects &amp; minimizing them</li> <li>4. Q.C is corrective in nature</li> </ol>	<ol style="list-style-type: none"> <li>1. Quality assurance is process oriented</li> <li>2. Q. A can not be assure nearly by removing product defect</li> <li>3. Q.A is doing the right thing at right time, throughout the life cycle of project.</li> <li>4. Q.A is preventive in nature.</li> </ol>

**Project risk-** Risk is defined as variability from expected out comes, every project has risk management tax & risk assessment matrix.

<b>Extreme risk</b>	–	Red	–	Entire team
<b>High risk</b>	–	Orange	–	Strict time lime
<b>Moderate risk</b>	–	Yellow	–	Intelligent planning
<b>Low risk</b>	–	Green	–	Ignored

## R A I D Analysis — Risk, Assumption, Issue, Dependencies

**Project resources-** Project uses different kind of resources like human resources, time resources, financial resources & natural resources; Resource control is achieve using resource histogram.

### PROJECT MANAGEMENT

**Management-** It is an act of getting people together to achoplrh a certain goal with in the available resources & time in effective manner.

**Project management-** Project management is an application of knowledge, skills, tools and techniques to meet the project requirements. The objective is to use the optimum resources to accomplish a goal in minimum time.

**Project management Process groups** – Initiating

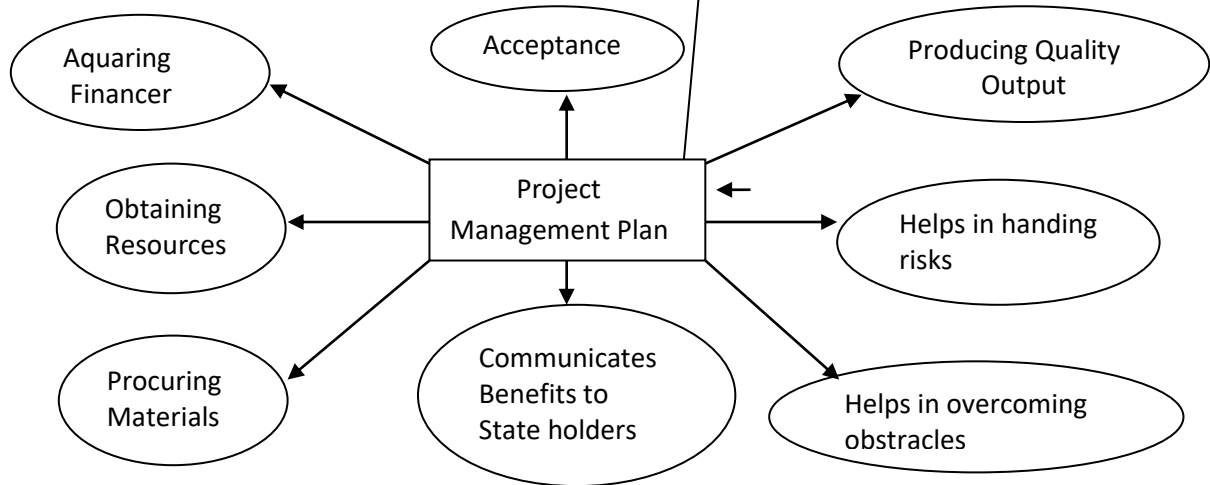
- Planning
- Execution
- Monitoring & controlling
- Closing process

#### **10 Knowledge are of project management:-**

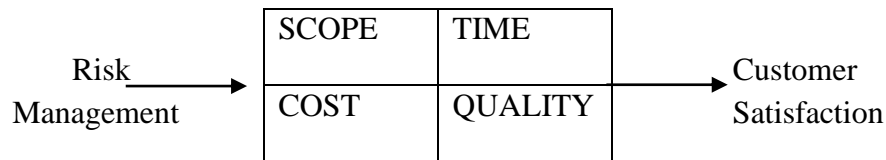
1. Project integration management (Core eventual are a)
2. Project scope management
3. Project time management
4. Project cost management
5. Project Quality management

6. Project Human recourse management
7. Project Communication management
8. Project Procurement management
9. Project risk management
10. Project stake holder management

### Functions of Project Plan-



### Basic parameter of project management-

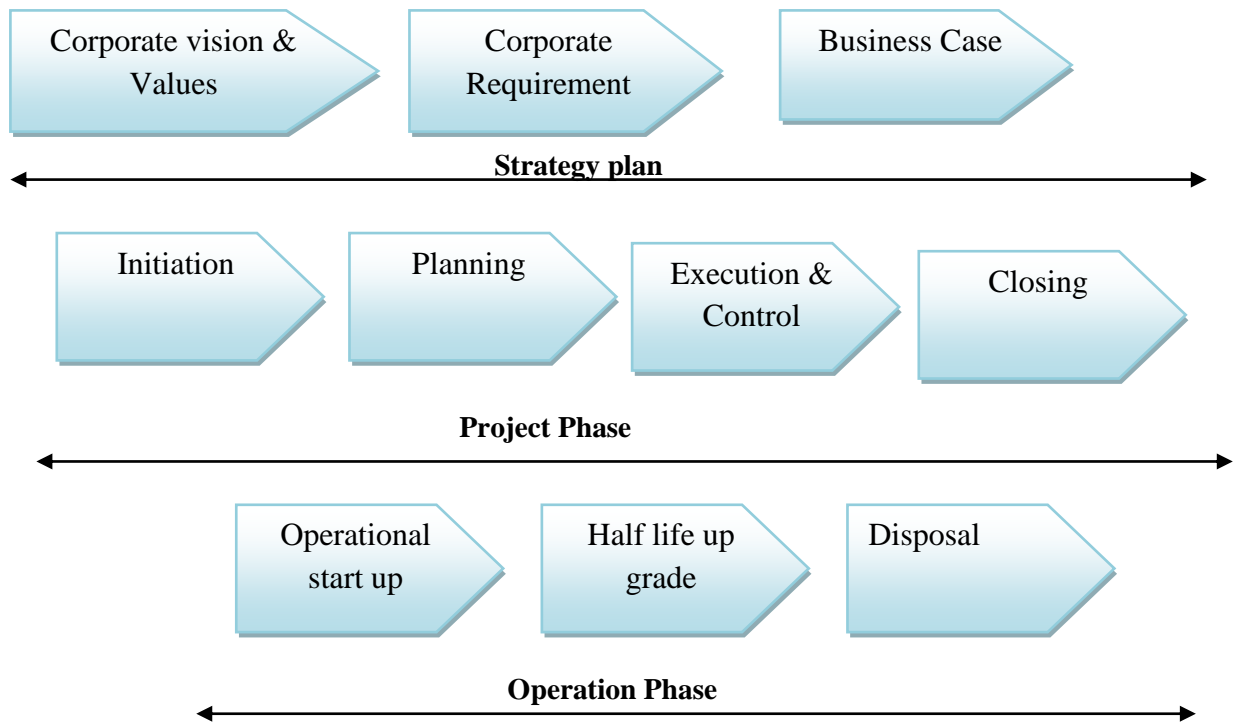


### The phases of project management

1. Ignition
2. Formulation
3. Feasibility
4. Appraisal
5. Planning
6. Execution
7. Monitoring & controlling
8. Completion
9. Commissioning
10. Closure.



## Project life cycle- 10 Stages



- PLC shows how a project subdivided into a number of phases parented sequentially along a project time line
- All phases from project start to end are known as project life cycle phases.
- Phases differ from project to project.

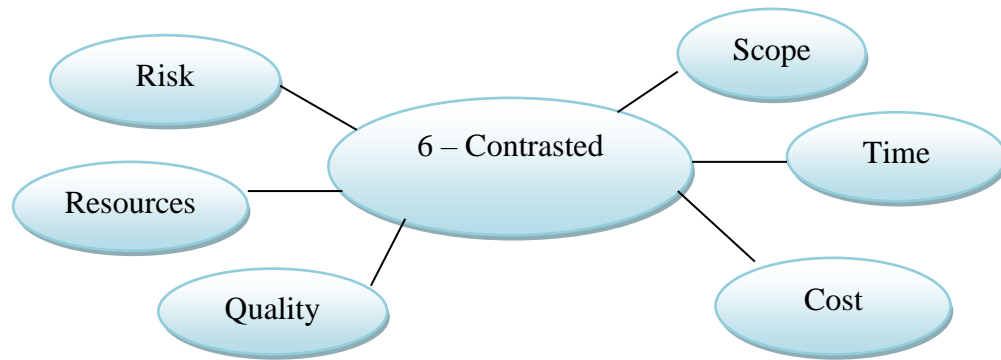
### Basic element of PLC-

1. Resource, manpower, material, money, machinery etc.
2. Operation or Activities which should be performed in sequence.
3. Constraints and external conditions.

## Classical project management Triangles



## Constraint of project management



### Project life cycle (Classical Product life cycle)- PLC has maturely 4 phases.

#### 1. (P-1) Feasibility or Appraisal conception

- In this problem is identified and potential solution are suggested.
- Feasibility study helps in starting from no. of possible business to get one option which satisfy client requirement.
- How problem identified and potential solutions are suggested i.e idea is conceived.
- If idea is found feasible from all consideration it is given “Grow Ahead” signal.
- In feasibility stage objective clearly defined them appraisal conducted in term of Risk, Benefits, and financial commitment.

#### 2. Design (Planning & scheduling)Development (P-2)

- In this phase uses the guidelines from the feasibility study to design the product.
- Once the investment decision is taken the design of the planning stage of project start
- In the phase original ideas are amplified to prepare ‘Blue point’ for next stage.
- Output of Design phase is DPR (Detailed Project Report)
- Intensity of activities continuous invoices from Phase-1 to Phase-2

#### 3. P-3, Execution of Production Phase.

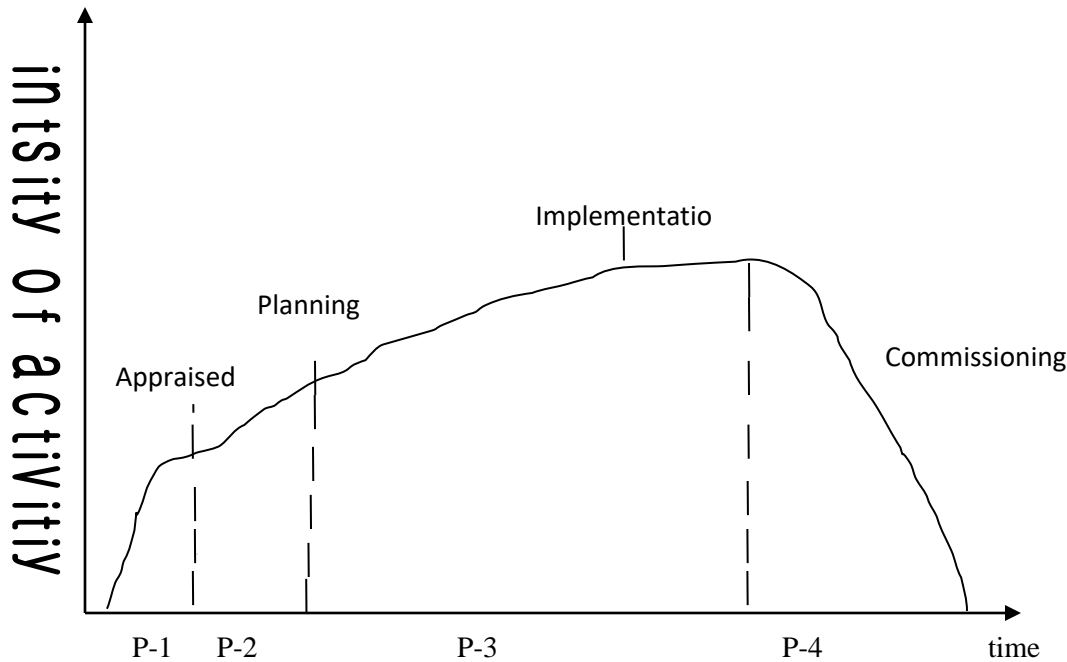
- How Physical shop is given to idea presented in DPR
- In this procurement of resources (material/machinery) Starts
- P-3 uses the design and project plan from the definition phase to gather with execution strategy to construct project.
- In this phase intensity of activities contagiously Innovate and niches the peak
- How great need of continuous monitoring & control.

#### 4. P-4, Termination of Commissioning of Handover Phase.

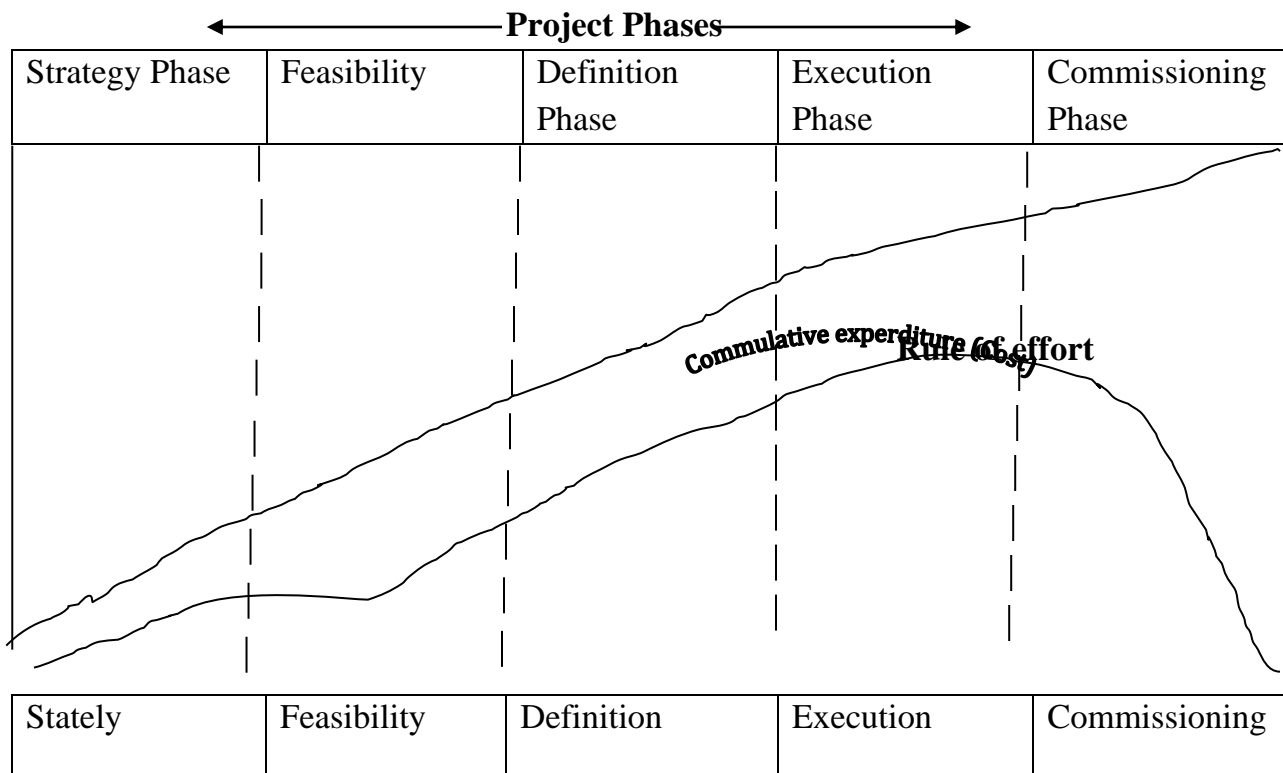
- P-4 confirms the project has been made to the approved design and then hand over the project to the

- Testing & teething problem solved. If trial Success full then commissioning project is handed over.
- This stage might include training of operating personnel.
- In this phase intensity of activities reduces to minimal at end.

### Life cycle graph between intensity & activities and time:

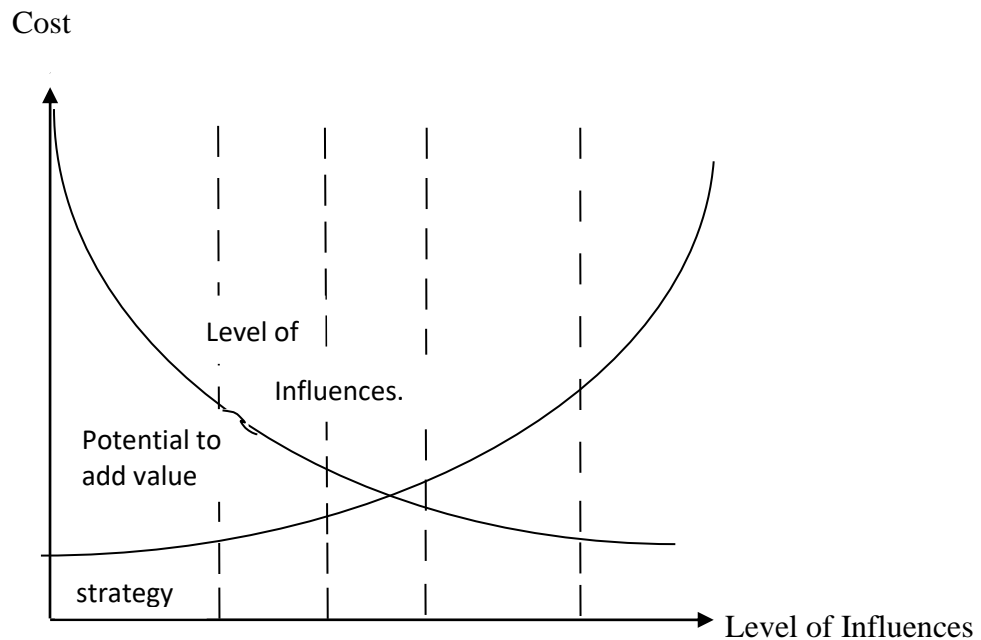


Level of effort (Intensity of activities vs (PLC)

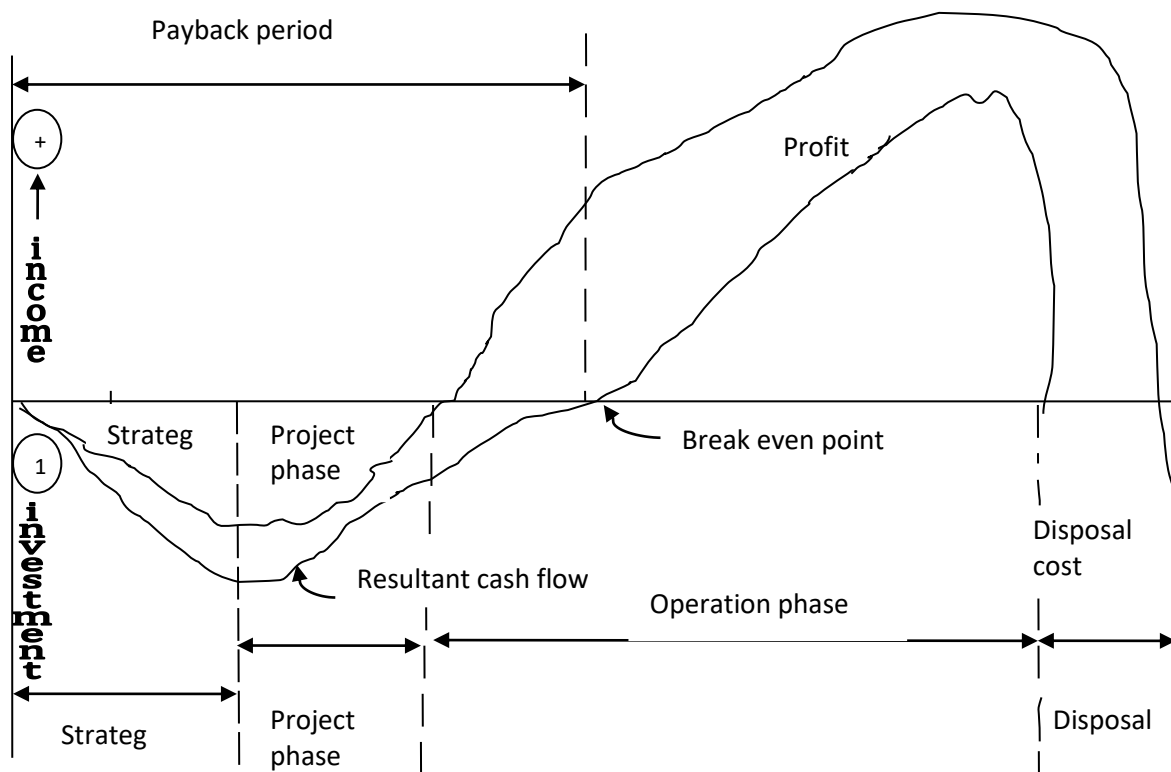


- The level of effort is a use full indication for the project manager to quantify the amount of work to be for form and the amount of work completed within each phase
- These parameters can be parented or a line graph of rate of expenditure or comparative expenditure
- 'S' curve profile similar to that used in the earned value calculation.
- This graph help manage to quantify amount of work to be performed and the amount of work completed in each phase.
- Similar project have similar led of effort profile.

### Level of influence vs cost of changes (Front and importance)



## Project life cycle costing-



**Halo effect-** Halo effect is the assumption that “the person is good at technology/ skills then he will be a good manager it describes an error in thinking in which you make an inference about person.

### Difference b/w phase & life cycle-

Phase	Project life cycle
<ol style="list-style-type: none"> <li>1. Phases are definite milestones in the life of a project which have changeable attributes</li> <li>2. Phases are definite deliverable objects at the end</li> </ol>	<ol style="list-style-type: none"> <li>1. Define the project management methodology to evaluating the project from start to end.</li> <li>2. Life cycle is a continuous process &amp; it defines the feasibility criteria to be used from the project.</li> </ol>

