

Project Management (Construction Projects) Part 1

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What is a Project?

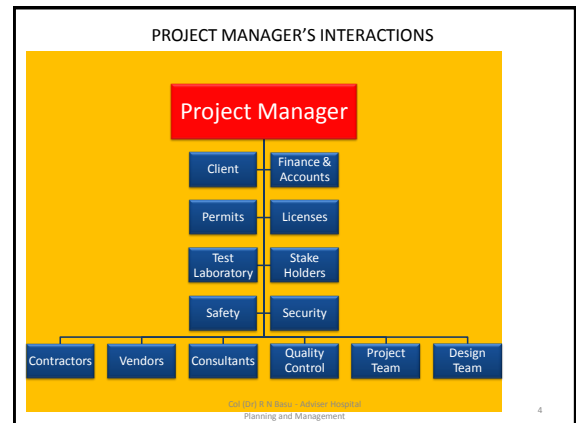
- A construction project is made up of a group of interrelated tasks
- It involves construction of facilities and systems
- A project functions:
 - Within its defined scope
 - Within its allotted budget
 - With a definite schedule
- A projects deliver capital asset with required quality to meet a strategic goal of an organization

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Role of Project Manager

- Management of construction project requires knowledge of modern management as well as an understanding of the design and construction process
- Projects execution is planned and controlled by Project Manager (PM)
- PM Must have authority commensurate with responsibility to form and manage a team for support of the project
- Should be experienced in similar projects
- He plans, organizes, directs, coordinates and controls the activities and interactions of a large number of functionaries

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Characteristics of a Project

- Projects are defined by their:
 - * Scope
 - * Schedule and
 - * Budget
- For example:
 - A 500-bed super specialty hospital is to be built at Kolkata (**scope**), at an estimate of Rs. 300 crores (**budget**), over a period of next three years (**schedule**)

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Determinants of a Project

- Scope
 - Must have a written requirements document
 - Scope refinement takes place through the lifecycle of the project.
 - Scope creep, however, will have serious repercussions in terms of:
 - Budget
 - Schedule
 - Scope creep occurs because of lack of clarity on the part of the client's original scope definition

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Determinants of a Project

- **Schedule**
 - Schedule has definite beginning and end
 - With a clearly defined scope, it can be determined when the facility can be operational
 - Developing the schedule involves:
 - Breaking down the work into manageable activities needed to accomplish the scope of each deliverable
 - Estimating the duration of each activity
 - Arranging the activity into logical sequence
 - Various techniques are available for developing a schedule.

Determinants of a Project

- **Budget**
 - All projects are constrained by limited monetary resources
 - Therefore, every project needs a budget to meet the initial funding requirement.
 - Refining the budget occurs through analysis in design development process through the preliminary engineering phase
 - No baseline should be drawn too early and not before preliminary engineering phase.

Project Life Cycle

- In a traditional design/bid/build project life cycle has following phases:
 - Initiation
 - Planning
 - Execution
 - Control
 - Closing

Project Management Objectives

- The objectives of project management are to execute a project so that deliverables can meet scope requirements on:
 - Budget
 - Schedule and at
 - Acceptable risk
 - Quality
 - Safety and
 - Security levels.

Project Initiation

- During this phase, it is determined how the project will be implemented
- Two important documents are the output of this phase:
 - I. Project Requirements Definition (PRD)
 - This documents **what** the project will deliver
 - ii. Project Management Plan (PMP)
 - This documents **how** the project will be delivered

Project Initiation (Contd.)

- The Client/Owner plans how the project will be implemented
- The Client/Owner considers:
 - what approach to take to manage and carry out work to implement the project
 - Selects Project Delivery Method
 - Assesses the type and size of resources needed
 - All these are documented in the Project Management Plan

Project Initiation (Contd.)

- **Role of the Client/Owner**
 - Planning the project in the initiation phase is the Client/Owner's responsibility through its Project Manager
 - If the Project is of very big size or very complex, then the Client/Owner can hire an outside Project Management Consultant in the initiation phase

Project Initiation (Contd.)

- **Role of Project Management Consultant**
 - Where the Client/Owner lacks the expertise or resources the Client/Owner retains a Project Management Consultant
 - The Project Management Consultant:
 - Advise on project planning and delivery
 - Produces PRD and PMP
 - Provides Project Management Services during the subsequent project implementation phases

Project Requirement Definition

- A Project Requirements Definition (PRD) defines what the project will accomplish
- It is the authoritative reference document of what the project is all about
- Acceptance of the PRD by Client/Owner executives confirms a common understanding of the project between the executives and the project manager
- The PRD is also called an Inception Report
- It is important that the PM receives a formal or less formal e-Mail from the Client/Owner's executive so that there is no misunderstanding

Project Requirement Definition

Topic	Description
Authorization	Reference to Project authorization that selected and authorized the project
Stakeholders	Corporate sponsors, customers, third parties affected, project team
Deliverables	Products/services the project will deliver
Scope of Work	Work to be done to deliver the products/services
Cost Estimates	Initial estimate of project budget

Project Requirement Definition

Topic	Description
Schedule Milestones	Initial project schedule in terms of key milestones
Finance	Project financial requirements and sources of funding
Risks	Threats to the project
Resources	Resources needed to accomplish the project
Constraints	Constraints such as funding, sites availability
Acceptance Criteria	What determines the acceptable products/services and their approval

Planning the Project

- **Capability and Capacity Assessment**
 - Capability is the measure of resource's skill levels, experience, and ability to perform
 - Capacity is the measure of quantity of resources
- The PM has to accurately determine the requirement of necessary resources
- The PM may need to consult with his experienced colleagues

Resource Needs

Capability	Resource	Function
Management and Control	Project Management	Manage the overall project and its phases – initiation, planning, design, construction, and closeout
	Project Management Oversight	Oversee project performance by a party independent of the project team and report to project sponsor (s)
	Cost Control	Control project cost within budget
	Schedule Control	Control project progress within schedule
	Accounting	Record project expenditure, issue payments, and manage project funding
	Records Management	Capture, store, control, and retrieve project records/documents
	Procurement/ Administration	Procure and administer project contract

Resource Needs

Capability	Resource	Function
Planning, Engineering, and Technical	Architectural	Develop architectural and design concept
	Engineering	Prepare detailed engineering and final design documents
	Environmental	Undertake environmental planning and clearance
	Communication	Communicate with the community/media/government
Construction and Supply	Construction contractor	Construct facilities
	Third Party Agency	Relocate or gain access to public and private utilities
	Equipment Supplier	Supply/install equipment

Project Delivery Strategy

- Project Manager has to decide on the strategy for delivering the project
- The strategy can take the following forms or its various combinations:
 - Contracting out the entire project
 - Doing part job with own forces and contracting out the balance
- In all cases, ultimate authority and accountability is retained by the PM
- Depending upon the strategy, project organization is decided

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Project Management Plan

- ⊙ The PM provides a road map for execution
- ⊙ The plan sets out how the project will be managed, executed, monitored, controlled, and closed through the phases of its life cycle.
- ⊙ PM sets out the:
 - project delivery strategy,
 - organization and management structure,
 - assignment of responsibilities between the Client/Owner and the contractor and
 - delegation of management and financial authority through the project team

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Project Management Plan (contd.)

- PMP refines baselines and documents scope of work, costs and schedule
- These are yardstick against which the performance can be measured and assessed and changes controlled
- Baselines are established for a phase or after completion of the preliminary engineering, for the entire project
- These baselines remains unchanged through the project

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Project Management Plan Outline

- [Project Overview](#)
- [Organization and Staffing](#)
- [Project Management and Controls](#)
- [Planning / Conceptual Design Phase Management](#)
- [Final Design Phase Management](#)
- [Construction Phase Management](#)

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Project Management Plan Outline

- 7. [Closeout Phase Management](#)
- 8. [Quality Management](#)
- 9. [Risk Management](#)
- 10. [Procurement and Contract Management](#)
- 11. [Communication](#)

Project Management Plan Outline Project Overview

- Background (Authorization / PRD)
- Stakeholders
- Scope / Budget Schedule
- Delivery Strategy

Thank you