Chapter 1 Outline

What is a project? A project is a temporary endeavor undertaken to create a unique product, serve, or result

- Projects are a temporary endeavor (i.e. has a start and finish time).
- Projects drive change in organizations, enable business value creation
-

Project Initiation Context: Are initiated in response to factors acting upon an organization:

- Meet regulatory, legal, or social requirements
- Satisfy stakeholders
- Implement or change strategies
- Create, improve, or fix a product/process/service

Organizational Project Management

(OPM) Strategies:

- *Portfolio Management*
- aligns portfolios with organizational strategies
- through selecting
- programs, prioritizing
- work, and providing
- resources
- *Program Management* harmonizes program components and controls interdependencies to realize specified benefits
- *Project Management* enables the achievement or organizational goals and objectives

Project Life Cycle: A series of phases that a project passes through from its start to its completion (chose which one through identifying processes in each phase, through performing the processes, and adjusting the attributes of the phase throughout):

- Starting Project → Organizing/Preparing → Carrying Out Work → Ending the Project
  - *Predictive/Waterfall Life Cycles:* scope, time, and cost are defined early
  - *Iterative Life Cycle:* scope defined early, time and cost are estimated and modified throughout the process
  - *Incremental Life Cycles:* Deliverable is produced through a series of iterations that add functionality within a predetermined time frame.
  - *Adaptive Life Cycles:* Agile, iterative, or incremental. Scope is defined and approved. Change driven.
  - *Hybrid Life Cycle:* Combination of predictive and adaptive: fixed steps follow Predictive, others follow Adaptive.

Initiating Process: Define a new project or a new phase of an existing project
Planning Process: Establish scope, refine objectives, define courses of actions
Executing Process: Complete the work defined and satisfy the project requirements
Monitoring and Controlling Process: Track, review, and regulate the progress and performance of the project
Closing Process: Formally complete/close the project, phase, or contract

<u>Project Management Knowledge Areas:</u>

- Project Integration Management
- Project Scope Management
- Project Schedule Management
- Project Cost Management
- Project Quality Management
- Project Resource Management
- Project Communications Management
- Project Risk Management
- Project Procurement Management
- Project Stakeholder Management

<u>Documents</u>

Project Business Case: Document of economic feasibility study, lists objectives and reasons for project, helps measure project success against project objectives.
Project Benefits Management Plan: Document of what the benefits of the project will be, describes what is in place to measure benefits, and describes key elements of the benefits (i.e. target benefits, strategic alignment, risks, etc.)

Project Charter: Document that formally authorizes the existence of the project and provides the project manager with authority

PMBOK Chapter 2 The Environment In Which Projects Operate

Overview
Two major categories of influences are enterprise environmental factors (EEFs) and organizational process assets (OPAs). EEFs originate from the environment outside of the project and often outside of the enterprise. EEFs may have an impact at the organizational, portfolio, program, or project level. OPAs are internal to the organization. These may arise from the organization itself, a portfolio, a program, another project, or a combination of these.

Enterprise Environmental Factors (EEFs)
refer to conditions, not under the control of the project team, that influence, constrain, or direct the project. These conditions can be internal and/or external to the organization. EEFs are considered as inputs to many project management processes, specifically for most planning processes.

Examples of EEFs internal to the organization:
- Organization structure, culture, and governance
- Geographic distribution of facilities and resources
- Infrastructure
- Information technology software
- Resource availability

Examples of EEFs external to the organization
- Market conditions
- Legal Restrictions
- Commercial databases
- Academic Research

Organizational Process Assets
Organizational process assets (OPAs) are the plans, processes, policies, procedures, and knowledge bases specific to and used by the performing organization. The organization's processes and procedures for conducting project work include but are not limited to:

- Initiating and planning
- Executing, Monitoring, and Controlling
- Closing

Organizational Systems:

Projects operate within the constraints imposed by the organization through their structure and governance framework. To operate effectively and efficiently, the project manager needs to understand where responsibility, accountability, and authority reside within the organization. This understanding will help the project manager effectively use his or her power, influence, competence, leadership, and political capabilities to successfully complete the project. The system factors include but are not limited to:

- Management Elements
- Governance Frameworks
- Organizational Structure Types

Ch: 3 THE ROLE OF THE PROJECT MANAGER

Project Manager- Person assigned by the performing organization to lead the team that is responsible for achieving the project objectives.

The Project Manager's Sphere of Influence (3 spheres)

- **The Project-** innermost sphere.
  - Communicating with project team and sponsors with a positive attitude and a concise and predictable manner
  - Developing relationships with team members
  - Incorporating feedback channels
- **The Organization-** Interactions with other project managers or other related projects
  - Positively influencing progress in the organization across team borders
  - Contributes knowledge and expertise to other levels of organization
  - Shows value in the project management approach to meeting goals
- **The Industry-** Overall environment
  - Informed about current industry trends
  - Participates in continuing education through training
  - Applies new information to current projects

Project Manager Competencies

- **Technical Project Management**
  - Critical success factors, schedule, financial reports, issue logs.
  - Planning and Prioritizing
  - Manage elements such as schedule, cost, resources, and risks
- **Strategic and Business Management Skills**
  - Recognizing and explaining essential business aspects of a project
  - Business factors that should be considered for a project
    - Risks, financial implications, cost vs. benefit, business value, project management triangle.
  - Aligning the organization's goals with those of the project
    - Strategy, mission, goals and objectives, priority, tactics, products and services.

Integration- Project Manager works with project sponsor to align project objectives and results

- Process Level: Managing tasks that may reoccur or overlap.
  - If a change occurs the scope, schedule, or budget, a Change Request must be performed
- Context Level: Knowledge of the environment surrounding a particular project and how to best manage the project accordingly

Complex Projects

- Connection between multiple parts, sometimes dynamic and confusing
- Three Dimensions:
  - System Behavior- Interdependencies of components and systems
  - Human Behavior- Interplay between individuals and groups
  - Ambiguity- Uncertainty of emerging issues and confusion
- Examining these possibilities and identifying key areas of issue can help the PM to keep the project on course.

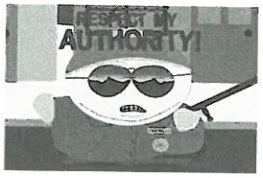
Ch: 4 PROJECT INTEGRATION MANAGEMENT

Project Integration Management: Processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups.

Project Integration Management Processes:

Develop Project Charter - Document that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.

- Establishes an agreement
- Formally initiates project
- Provides the project manager with the authority to plan, execute, and control the project



Develop Project Management Plan - Is the process of defining, preparing, and coordinating all plan components and consolidating them into an integrated PM plan.

- Inputs: project charter, outputs from other processes, enterprise environmental factors, organizational project assets.
- Tools and Techniques: expert judgment, data gathering, interpersonal and team skills, meetings.
- Outputs: project management plan
  - Subsidiary plans: scope management plan, schedule management plan, and others
  - Baselines: scope baseline, schedule baseline, and cost baseline
  - Additional Components: Project lifecycle, performance measurement, and others

Direct and Manage Project Work- the process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.

- Inputs: project management plan, project documents, approved change requests, enterprise environmental factors, organizational process assets
- Tools and Techniques: expert judgment, project management information system, meetings.
- Outputs: deliverables, work performance data, issue log, change requests, project management plan updates, project document updates, organizational process assets updates

Manage Knowledge - using existing/creating new knowledge to achieve project's objective.

- Inputs: project management plan, project documents, deliverables, enterprise environmental factors, organizational process assets
- Tools and Techniques: expert judgement, knowledge management, information management, interpersonal and team skills
- Outputs: lessons learned register, project management plan updates, organizational process assets updates

Monitor and Control Project Work - Tracking, and reporting overall progress.

- Inputs: project management plan, project documents, work performance information, agreements, enterprise environmental factors, organizational process assets
- Tools and Techniques: expert judgement, data analysis, decision making, meetings
- Outputs: work performance reports, change requests, project management plan updates, project documents updates

Perform Integrated Change Control

- Reviewing change requests to the projects scope with the change control board (CCB)
- Change request can be Approved, Deferred, or Rejected
  - Decisions can be made by autocracy, voting, or multi-criteria systematic analysis
- Editing the corresponding documents and deliverables based on a decision

Close Project or Phase- finalizes all activities for the project

- Benefits of project are achieved
- Team and resources are released to pursue new endeavors

CHAPTER 5

Product Scope: Features and functions that characterize a product, service, or result
Project Scope: Work performed to deliver a product, service, or result within specified features and functions.

Adaptive Life Cycles: Respond to high levels of change and require ongoing stakeholder engagement. Team determines high-priority items on the backlog lists that can be delivered in future iterations. *Iterations repeat: Collection Requirements, Define Scope, and Create WBS)*

Adaptive/Agile Life Cycles: Sponsor and customer representatives should be continuously engaged with the project. Product backlog reflects current needs. *Process repeats Validate Scope and Control Scope*

Project Charter:
- Project purpose
- Summary of milestones
- Measurable objectives
- High-level requirements
- High-level descriptions
- Overall risk
- Milestone schedule
- Key stakeholder list
- Approved requirements
- Exit criteria

Plan Scope Management:
Process: Creating a plan that documents how the project and product scope will be defined, validated, and controlled.
Key Benefit: Provide guidance and direction on how scope will be managed in the project.
Outputs: Scope Management Plan, Requirements Management Plan

Collect Requirements:
Process: Determining, documenting, and managing stakeholder needs and requirements to meet objectives.
Key Benefit: To provide the basis for defining the scope.
Outputs: Required Documentation, Requirements Traceability Matrix

Required Documentation:
- Scope management plan
- Requirements management plan
- Stakeholder engagement plan

Requirements Traceability Matrix:
Link product requirements from origin to the deliverables to satisfy them. Ensures that each requirement adds value to business

Define Scope:
Process: Developing a detailed description of the project and product.
Key Benefit: It describes the boundaries and accepted criteria of products.
Outputs: Project Scope Statement, Project Documents Updates

Project Scope Statement:
- Project Scope description
- Project deliverables
- Acceptance criteria
- Project exclusions

*Project Documents Updates:**
- Assumption Log
- Requirements Documentation
- Requirements traceability matrix
- Stakeholder register

Create WBS:
Process: Subdividing project deliverables and project work into smaller, more manageable components (Decomposition).
Key Benefit: Provide a framework of what has to be delivered.
Outputs: Scope Baseline, Project Documents Updates*

Scope Baseline: Approved version of scope statement.
- Project Scope Statement
- WBS
- Work Package
- Planning Package

Validate Scope:
Process: Formalizing acceptance of the completed project deliverables
Key Benefit: Brings objectivity to the acceptance process and increases probability of accepting the final product
Outputs: Accepted Deliverables, Work Performance Information, Change Requests, Project Document Updates*

Accepted Deliverables: Deliverables that meet the acceptance criteria and are formally approved.

Document Updates: lessons learned, requirements documentation, requirements traceability matrix

Control Scope:
Process: Monitor the status of a project scope and managing changes to the scope baseline
Key Benefit: The scope baseline is maintained throughout the project
Outputs: Work Performance Information, Change Requests, Project Management Plan Updates, Project Document Updates

Work Performance Info: How project scope is in comparison to scope baseline.

Project Management Plan Updates: Any changes to the project management plan (i.e. plan, baseline (schedule or scope, cost, performance)

Chapter 6: Project Schedule Management

Project Schedule: The processes required to manage the timely completion of the project.

- Project Schedule → scheduling method, scheduling tools, scheduling model, and project information
- *Scheduling methods* include: iterative scheduling with a backlog and on-demand scheduling
- *Tailoring considerations* include:
  - → Life cycle approach
  - → Project dimensions
  - → Resource availability
  - → Technology support

1. Plan Schedule Management: The process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.

- *The Schedule Management Plan* can establish some of the following: project schedule model development, release and iteration length, level of accuracy, units of measure, control thresholds, etc.

2. Define Activities: The process of identifying and documenting the specific actions to be performed to product the project deliverables.

- The *key benefit* of this process is it decomposes work packages into schedule activities that provide a basis for estimating, scheduling, executing, monitoring, and controlling the project work.
- *PM Plan updates* → schedule baseline and cost baseline

3. Sequence Activities: The process of identifying and documenting relationships among the project activities.

- The *Precedence Diagramming Method* include four types of dependencies or logical relationships:
  - → Finish-to-Start/ Finish-to-Finish/ Start-to-Start/ Start-to-Finish
- *Dependencies* may be characterized by the following attributes: mandatory or discretionary, internal or external
- Leads and Lags: The amount of time a successor activity can be advanced or delayed with respect to predecessor activities.
- Project Schedule Network Diagram: A graphical representation of the relationships of the scheduled activities.

4. Estimate Activity Durations: The process of estimating the number of work periods needed to complete individual activities with the estimated resources.

- Type of Estimating:
  - Analogous: use historical data from a similar activity or project
  - Parametric: an algorithm is used to calculate cost or duration based on historical data and project parameters.
  - Three-point: defines the approximate range for an activities duration by finding the most likely, optimistic, and pessimistic estimate.
  - Bottom-up: aggregating the estimates of the lower-level components of the WBS.
- *Data Analysis* techniques include: alternative analysis and reserve analysis

5. Develop Schedule: The process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create a project schedule model for project execution, and monitoring and controlling.

- Critical Path Method: estimates the minimum project duration and determine the amount of schedule flexibility. The total float is measured by the amount of time the schedule can be delayed.
- Schedule Compression:
  - Crashing: A technique used to shorten the schedule duration
  - Fast Tracking: A technique in which activities normally done in sequence are performed in parallel for some of their duration

6. Control Schedule: The process of monitoring the status of the project to update the project schedule and manage changes to the schedule baseline.

- Earned Value Analysis: Schedule performance measurements such as schedule variance (SV) and schedule performance index (SPI) are used to assess variation of the original schedule baseline

Chapter 7

Earned Value Analysis

Abbreviation	Name	Lexicon Definition	How Used	Equation	Interpretation of Result
PV	Planned Value	The authorized budget assigned to scheduled work.	The value of the work planned to be completed to a point in time, usually the data date, or project completion.		
EV	Earned Value	The measure of work performed expressed in terms of the budget authorized for that work.	The planned value of all the work completed (earned) to a point in time, usually the data date, without reference to actual costs.	EV = sum of the planned value of completed work	
AC	Actual Cost	The realized cost incurred for the work performed on an activity during a specific time period.	The actual cost of all the work completed to a point in time, usually the data date.		
BAC	Budget at Completion	The sum of all budgets established for the work to be performed.	The value of total planned work, the project cost baseline.		
CV	Cost Variance	The amount of budget deficit or surplus at a given point in time, expressed as the difference between the earned value and the actual cost.	The difference between the value of work completed to a point in time, usually the data date, and the actual costs to the same point in time.	CV = EV - AC	Positive = Under planned cost Neutral = On planned cost Negative = Over planned cost
SV	Schedule Variance	The amount by which the project is ahead or behind the planned delivery date, at a given point in time, expressed as the difference between the earned value and the planned value.	The difference between the work completed to a point in time, usually the data date, and the work planned to be completed to the same point in time.	SV = EV - PV	Positive = Ahead of Schedule Neutral = On schedule Negative = Behind Schedule
VAC	Variance at Completion	A projection of the amount of budget deficit or surplus, expressed as the difference between the budget at completion and the estimate at completion.	The estimated difference in cost at the completion of the project.	VAC = BAC - EAC	Positive = Under planned cost Neutral = On planned cost Negative = Over planned cost
CPI	Cost Performance Index	A measure of the cost efficiency of budgeted resources expressed as the ratio of earned value to actual cost.	A CPI of 1.0 means the project is exactly on budget, that the work actually done so far is exactly the same as the cost so far. Other values show the percentage of how much costs are over or under the budgeted amount for work accomplished.	CPI = EV/AC	Greater than 1.0 = Under planned cost Exactly 1.0 = On planned cost Less than 1.0 = Over planned cost
SPI	Schedule Performance Index	A measure of schedule efficiency expressed as the ratio of earned value to planned value.	An SPI of 1.0 means that the project is exactly on schedule, that the work actually done so far is exactly the same as the work planned to be done so far. Other values show the percentage of how much costs are over or under the budgeted amount for work planned.	SPI = EV/PV	Greater than 1.0 = Ahead of schedule Exactly 1.0 = On schedule Less than 1.0 = Behind schedule
EAC	Estimate At Completion	The expected total cost of completing all work expressed as the sum of the actual cost to date and the estimate to complete.	If the CPI is expected to be the same for the remainder of the project, EAC can be calculated using: If future work will be accomplished at the planned rate, use: If the initial plan is no longer valid, use: If both the CPI and SPI influence the remaining work, use:	EAC = BAC/CPI EAC = AC + BAC - EV EAC = AC + Bottom-up ETC EAC = AC + [(BAC - EV)/(CPI x SPI)]	
ETC	Estimate to Complete	The expected cost to finish all the remaining project work.	Assuming work is proceeding on plan, the cost of completing the remaining authorized work can be calculated using: Reestimate the remaining work from the bottom up.	ETC = EAC - AC ETC = Reestimate	
TCPI	To Complete Performance Index	A measure of the cost performance that must be achieved with the remaining resources in order to meet a specified management goal, expressed as the ratio of the cost to finish the outstanding work to the budget available.	The efficiency that must be maintained in order to complete on plan. The efficiency that must be maintained in order to complete the current EAC.	TCPI = (BAC - EV)/(BAC - AC) TCPI = (BAC - EV)/(EAC - AC)	Greater than 1.0 = Harder to complete Exactly 1.0 = Same to complete Less than 1.0 = Easier to complete Greater than 1.0 = Harder to complete Exactly 1.0 = Same to complete Less than 1.0 = Easier to complete

Project Quality Management: Addresses management of a project and its deliverables. Process for incorporating the organization's quality policy of planning, managing, and controlling requirements to meet stakeholder objectives.

I. **Plan Quality Management:** Process of identifying quality requirements/standards
II. **Manage Quality:** Process of translating the quality management plan to executable activities
III. **Control Quality:** Process of monitoring and recording results of execution

Key Concepts:

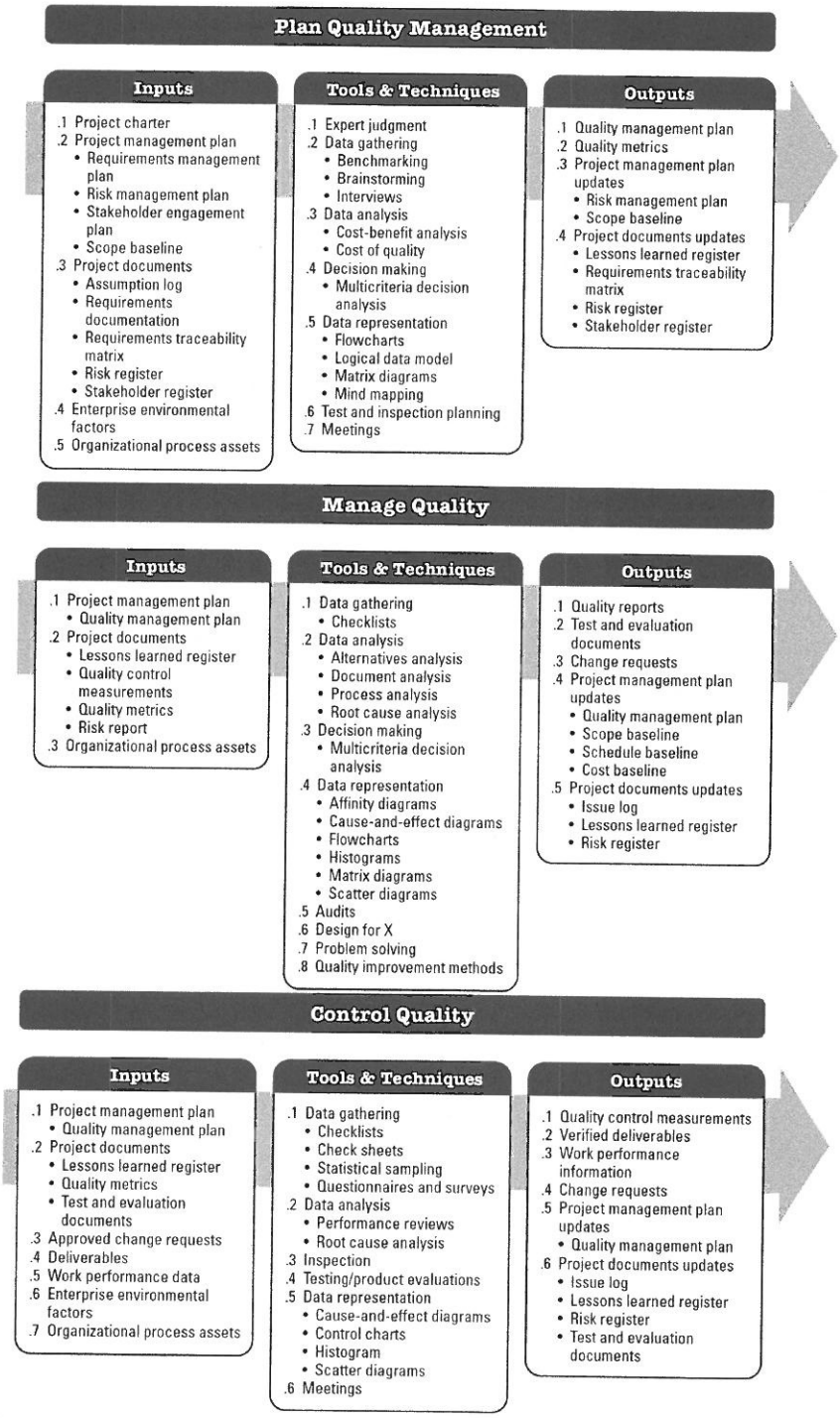
- *Quality:* Measures and techniques that are specific to the deliverable. The degree to which a set of inherent characteristics fulfill requirements
- *Grade:* Design intent is a category assigned to deliverables having the same functional use but different technical characteristics (quality failure ≠ grade failure)
- *Prevention:* Keeping errors out of the process
- *Inspection:* Keeping errors out of the hands of consumers
- *Attribute Sampling:* Results confirm or do not confirm
- *Variable Sampling:* Result is rated on a continuous scale that measures degree of conformity
- *Tolerances:* Range of acceptable results
- *Control Limits:* Boundaries of common variation in a statistically stable process

Cost of Quality (COQ): Costs incurred over the life of a product (investments, appraisal, and rework)

- *Prevention Costs:* Costs related to prevention of poor quality
- *Appraisal Costs:* Costs related to evaluating the deliverables
- *Failure Costs:* Costs relating to nonconformance of deliverables to the stakeholders' expectations

Five Levels of Increasingly Effective Quality Management (increasing)

I. Most expensive: Let the consumer know of the defects (possibly warranty issues, recalls, loss of reputation, rework costs)
II. Detect and correct defects before deliverables are sent out (appraisal costs and international failure costs)
III. Use quality assurance to examine and correct processes
IV. Incorporate quality into the planning and designing phases
V. Create a culture that is aware and committed to quality



Trends and Emerging Practices in Project Quality Management

- *Customer Satisfaction:* Understand, evaluate, define, and manage requirements so that customer expectations are met
- *Continual Improvement:* PDCA (Plan-Do-Check-Act) cycle is the basis for quality improvement. TQM (Total quality management), Six Sigma, and Lean Six Sigma
- *Management Responsibility:* Success requires participation by all members of a team. Management retains responsibility for quality
- *Mutually Beneficial Partnership with Suppliers:* An organization and its suppliers are interdependent. Relationships are more beneficial if long-term gains can be achieved mutually for both.

Project Resource Management: Processes of identifying, acquiring, and managing resources needed to complete a project.

- **Plan Resource Management:** Process of defining how to estimate, acquire, manage and utilize resources
  Key Benefit: Establishes the approach and level of management effort needed for managing project resources.
  When Performed: Once or at predefined points in the project
  Additional Info:
  - Ensure that sufficient resources are available for completion of the project.
  - Resources may include team members, supplies, materials, equipment, services, and facilities
  - Effective resource planning should consider and plan for availability/competition of resources.
  - Impacts project costs, schedules, risks, and quality.
- **Estimate Activity Resources:** Process of estimating team resources and type/quantities of materials necessary
  Key Benefit: Identifies the type, quantity, and characteristics of resources required to complete the project
  When Performed: Periodically throughout the project (as needed)
  Additional Info:
  - Closely coordinated with other estimation processes
- **Acquire Resources:** Process of obtaining team members, facilities, equipment and materials necessary
  Key Benefit: Outlines and guides the selection of resources and assigns them to their respective activities
  When Performed: Periodically throughout the project (as needed)
  Additional Info:
  - Internal resources as assigned from resource managers.
  - External resources are acquired through a procurement process.
  - Resource selection may be affected by collective bargaining agreements, subcontractor personnel, matrix project environments, internal or external reporting relationships
  - Impacts project schedule, project budget, project risks, project quality, training plans, and other management plans.
- **Develop Team:** Process of improving competencies, team interaction, and team environment to enhance performance
  Key Benefit: Results in improved teamwork, enhanced interpersonal skills/competencies, motivated employees, reduced attrition and improved overall project performance.
  When Performed: Throughout the project
  Additional Info:
  - Project managers should build trust, facilitate communication, create team-building opportunities, and manage conflict constructively.
  - Tuckman Ladder (five stages of development of teams): (1) Forming, (2) Storming, (3) Norming, (4) Performing, (5) Adjourning
- **Manage Team:** Process of tracking team member performance, providing feedback, resolving issues, and managing change.
  Key Benefit: Influences team behavior, manages conflict, and resolves issues
  When Performed: Throughout the project
  Additional Info:
  - Emphasis in communication, conflict management, negotiation, and leadership.
- **Control Resources:** Process of ensuring physical resources are available and monitoring actual use of resources
  Key Benefit: Ensuring that the assigned resources are available to the project at the right time and in the right place and that they are released when no longer needed.
  When Performed: Throughout the project
  Additional Info:
  - Monitor resource expenditures, identify shortages/surpluses, ensure proper use of resources, inform stakeholders of issues regarding resources, manage resource changes as they occur.

Key Concepts:

- Teams consist of individuals with assigned roles and responsibilities (PM should invest in team empowerment)
- Project Management Activities include initiating, planning, executing, monitoring/controlling, and closing project phases
- Project Manager is responsible for team formation and effectiveness of team
- Physical Resource Management is the allocation and use of physical resources

Trends Emerging:

- *Resource Management Methods:* Scarce nature of resources leads to → Just-in-Time Manufacturing (JIT), Kaizen, Total Productive Maintenance (TPM), and Theory of Constraints (TOC).
- *Emotional Intelligence (EI):* Improve inbound (self-management, self-awareness) and outbound (relationship management) competencies. More emotionally competent groups are more successful
- *Self-Organizing Teams:* Teams function without centralized control. Project Manager provides team with environment and supports needs of the team.
- *Virtual Teams/Distributed Teams:* Communication technology has led to teams where members aren't always in a centralized area.

Chapter 10: Project Communications Management

Project Communications Management: Includes processes to ensure that the information needs of the project and its stakeholders are met through the development of artifacts and implementation of activities achieve information exchange.

- ➔ Developing strategy to ensure communication is effective to stakeholders
- ➔ Carrying out the activities to implement the communication strategy
- ➔ **Exchange of Information**
  - Written Form
  - Spoken
  - Formal/Informal
  - Through Gestures
  - Through Media
  - Choice of Word
- ➔ **Communication Dimensions**
  - ◆ Internal
  - ◆ External
  - ◆ Formal
  - ◆ Informal
  - ◆ Hierarchical Focus
  - ◆ Official
  - ◆ Unofficial
  - ◆ Written/Oral

1.Plan Communications Management—The process of developing an appropriate approach and plan for project communication activities based on the information needs of each stakeholder or group, available organizational assets, and the needs of the project.

- *Interactive Communication:* Two or more parties performing a multidirectional exchange of information in real time
- *Push Communication:* Send or distributed directly to specific recipients who needs to receive the information
- *Pull Communication:* Used for large complex information sets.

2.Manage Communications—The process of ensuring timely and appropriate collection, creation, distribution, storage, retrieval, management, monitoring, and the ultimate disposition of project information.

- ➔ *Sender-Receiver Models:* Incorporating Feedback loops to provide opportunities for interaction and remove barriers to effective communication
- ➔ *Choice of Media:* Decisions about application of communications artifacts to meet specific project needs.
- ➔ *Writing Style:* Appropriate use of active versus passive voice, sentence structure and word choice.
- ➔ *Meeting Management:* Preparing an agenda, inciting essential participants, and ensuring they attend.
- ➔ *Presentation:* Awareness of the impact of body language and design of visual aid.
- ➔ *Facilitation:* Building consensus and overcoming obstacles and maintaining interest and enthusiasm among group members.
- ➔ *Active Listening:* Acknowledging, clarifying and confirming, understanding and removing barriers that adversely affect comprehension.

3. Monitor Communications—The process of ensuring the information needs of the project and its stakeholders are met.

- ➔ *Methods that may be required:*
  - ◆ Customer Satisfaction Surveys
  - ◆ Collecting Lessons Learned
  - ◆ Observations of the Team
  - ◆ Reviewing Data from the Issue Log
  - ◆ Evaluating Changes in the Stakeholder Engagement Assessment Matrix

Chapter 11: Project Risk Management

Project Risk Management Processes:

- **Plan risk management** – The process of defining how to conduct risk management activities for a project
- **Identify risks** – The process of identifying individual project risks as well as sources of overall project risk, and documenting their characteristics
- **Perform qualitative risk analysis** – The process of prioritizing individual project risks for further analysis or action by assessing their probability of occurrence and impact as well as other characteristics
- **Perform quantitative risk analysis** – The process of numerically analyzing the combined effect of identified individual project risks and other sources of uncertainty on overall project objectives
- **Plan risk responses** – The process of developing options, selecting strategies, and agreeing on actions to address overall project risk exposure, as well as to treat individual project risks
- **Implement risk responses** – The process of implementing agreed-upon risk response plans
- **Monitor risks** – The process of monitoring the implementation of agreed-upon risk response plans, tracking identified risks, identifying and analyzing new risks, and evaluating risk process effectiveness throughout the project

Risk exists at **two levels** within every project**:**

- **Individual project risk** – Is an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives
- **Overall project risk** – Is the effect of uncertainty on the project as a whole, arising from all sources of uncertainty including individual risks, representing the exposure of stakeholders to the implications of variations in project outcome, both positive and negative

Data analysis techniques used in the risk management process include:

- **Simulation – Simulates project**
- **Sensitivity analysis – Which risks have most potential impact**
- **Decision tree analysis – Support selection of best alternative courses of action**

Five alternative strategies to consider when dealing with threats:

- **Escalate – Proposed response would exceed authority**
- **Avoid – Eliminate or protect project against the threat**
- **Transfer – bear the impact**
- **Mitigate – Reduce impact**
- **Accept – No action taken**

Considerations for tailoring for the risk management process include:

- **Project size**
- **Project complexity**
- **Project importance**
- **Development approach**

Risk Management Plan Includes:

- **Risk strategy**
- **Methodology**
- **Roles and responsibilities**
- **Funding**
- **Timing**
- **Risk categories**

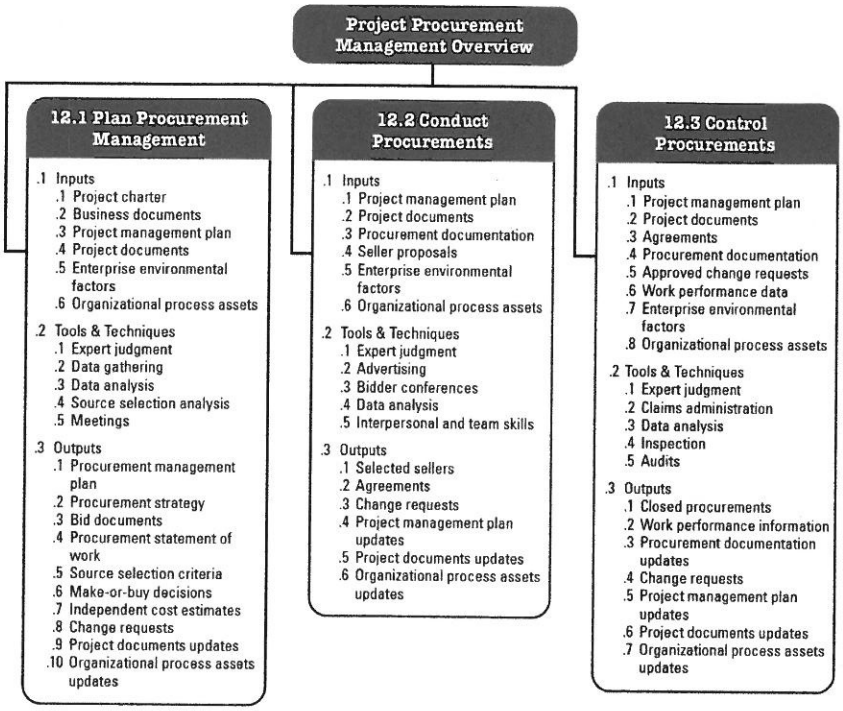
Project Documents as inputs for this process include:

- **Issue log**
- **Lessons learned register**
- **Risk register**
- **Risk report**

Project Procurement Management: Processes necessary to purchase or acquire products, services, ores results needed from outside the project team. Includes the management and control processes required to develop and administer agreements such as contracts, purchase orders, memoranda of agreements (MOAs), and international Service Level Agreements (SLAs)

Key Concepts:

- Project manager should be familiar with procurement processes (including laws and regulations).
- Involves agreements between buyer and seller
- International contracts have specific laws due to differing cultures and local laws
- Review and approval process is to ensure the contract correctly describes product/service that seller is agreeing to provide
- Buyer may become customer to subcontractors, suppliers, service providers, etc.



Emerging Trends:

- *Advances in Tools:* Building Information Model (BIM)
- *Advanced Risk Management*: Write contracts to accurately allocate risks to entities most capable of managing them.
- *Changing Contracting Processes:* International contracts are common and involve more risk and risk response:
- *Logistics and Supply Chain Management*: Flow of materials is critical to schedule and project success.
- *Technology and Stakeholder Relations:* Increased communication with stakeholders w/ new tech (i.e. webcams)
- *Trial Engagements:* Projects engage candidate sellers for initial deliverables before making final decision.

Tailoring Considerations: Complexity of procurement, physical location, governance and regulatory environment, availability of contractors.

12.1 Plan Procurement Management: Process of documenting project procurement decisions, specifying the approach and the identifying potential seller

Key Benefit: Determines whether to acquire goods and services from outside the project as well as what to acquire and how/when to acquire it.

When Performed: Once or at predefined points in the project (should be done early).

Additional Info: Requires of project schedule can significantly influence the project strategy and project schedule and is integrated with Develop Schedule Process and Estimate Activity Resources Process and Make-or-Buy Decisions. Typical steps in the procurement management plan may be:

- Prepare *Procurement Statement of Work* (SOW) or *terms of reference* (TOR).
- Prepare a high-level cost estimate to determine budget
- Advertise the opportunity
- Identify a short list of qualified sellers
- Perform a cost evaluation of the proposals
- Finalize negotiations and sign contract between buyer and seller

12.2 Conduct Procurement: Process of obtaining seller responses, selecting a seller, and awarding a contract

Key Benefit: Selects a qualified seller and implements the legal agreement for delivery. End results of the process are established agreements which include formal contracts.

When Performed: Periodically throughout the project as needed

Additional Info: There are trial runs for sellers and at the end the buyer will select one (think of the first guest speaker and the bids to perform construction projects)

12.3 Control Procurement: Process of managing procurement relationships, monitoring contract performance, making changes and corrections as appropriate, and closing out contracts

Key Benefit: Ensures that both seller's and buyer's performance meet the projects requirements according to the terms of the legal agreement.

When Performed: Throughout the project as needed

Additional Info: Control Procurements has a financial management component that involves monitoring payments to the seller. Due to the legal aspects of contracts, many organizations treat contract administration as a function separate from the project that both buyer and seller ensure is being enforced. Administrative activities may include:

- Collection of data and managing project record
- Refinement of procurement plans/schedules
- Set up for gathering, analyzing, and reporting procurement related data and preparation of reports
- Monitoring of procurement environment so that implementation can be facilitated and adjustments made
- Payment of invoices

Chapter 13: Project Stakeholder Management

Project Stakeholder Management

- To increase the chance of success, the process of stakeholder identification and engagement should commence as soon as possible after the project charter has been approved, the project manager has been assigned, and the team begins to form.
- Stakeholder satisfaction should be identified and managed as a project objective.
- *Key to Effective Stakeholder Engagement*: focus on continuous communication, manage conflicting interests, and address issues as they occur.
- *Tailoring Considerations:* stakeholder diversity, complexity of stakeholder relationships, and communication technology.
- *Trends and Emerging Practices* include:
  - → Identifying all stakeholders
  - → All team members involved in activities
  - → Consult with stakeholders
  - →Review stakeholder community regularly

1. Identify Stakeholders: identify stakeholders and analyze information regarding their interest, involvement, interdependencies, influence, and potential impact on project success.

- *Key benefit:* enables the project team to identify the appropriate focus for engagement of each stakeholder or group of stakeholders.
- *Data Analysis Techniques* include:
  - → Stakeholder analysis: interest, rights, ownership, knowledge, and contribution
  - → Document analysis
- *Stakeholder Register* include: identification information, assessment information, and stakeholder classification.

2. Plan Stakeholder Engagement: developing approaches to involve stakeholders based on their needs, expectations, interests, and potential impact on the project.

- *Key benefit:* provides an actionable plan to interact effectively with stakeholders.
- *Data Representation* include mind mapping and stakeholder engagement assessment matrix.
  - → Stakeholder engagement assessment matrix can be classified as: unware, resistant, neutral, supportive, and leading.

3. Management Stakeholder Engagement: communicating and working with stakeholders to meet their needs, expectations, address their issues, and foster appropriate stakeholder engagement involvement.

- *Key benefit*: allows the project manager to increase support and minimizes resistance from stakeholders.
- *Interpersonal and Team Skills* include:
  - → Conflict management
  - → Observation/conversation
  - → Cultural awareness
  - → Political awareness
  - → Negotiation

4. Monitor Stakeholder Engagement: monitoring stakeholder relationships and tailoring strategies for engaging stakeholders through the modification of engagement strategies and plans.

- *Key benefit*: maintains or increases efficiency and effectiveness of stakeholder engagement activities as the project evolves and its environment changes.
- Project management plan components include: resource management, communication management, and stakeholder engagement plan