Points to Note


• The study notes explains topics that are important for PMP® exam preparation and you can expect several questions from these topics.

• Pay close attention to all the terms used. It is very important to understand all the concepts discussed in this chapter.

• Try to relate the concepts to real life examples.

• After reading the study notes, please read, understand, and answer the chapter test questions in this knowledge area. The chapter questions improve your understanding of the concepts discussed in the study notes.
What is a Project?

- Project is a temporary endeavor undertaken to create a unique product, service, or result.

- Features of project:
  - Temporary: Project has a definite beginning and a definite ending. The duration may vary from one day to even a few years – but ultimately all projects must either meet their objectives or be terminated. Please note that even though the projects are temporary, the products or services created by them may far outlast the projects themselves.
  - Unique product, service or result: All projects create something unique which has never been created before. A product or service may be unique to whatever category it belongs (e.g., a project to create a building has a unique design, location, resources, etc.).

- Please visualize those situations at your work place and check whether what you are working on is in fact a project or some other engagement, taking into account the following guidelines that help you understand some of the characteristics of a project:
  - Does it have features of operations that are repetitive, and required to sustain business?
  - Does it relate to merely fixing something which is broken or making minor modifications or carrying on maintenance activities (e.g., making changes in a document or website, resolving minor issues, etc.)? These activities will not produce a unique product and are hence not projects.
  - Does the work require you to follow project management practices (e.g., does it require you to use expert knowledge discussed in several PMBOK® Guide Knowledge Areas such as Integration Management, Time Management, Scope Management, Cost Management, etc.?)? Does it require a project plan to be created and Project Manager assigned? If answers to these questions are “No”, then you are not dealing with projects.

Important: Please read PMBOK® Guide Fourth Edition (pages 5 and 6) which cites examples of projects and how they can be identified.
# Projects and Operations (How they differ)

<table>
<thead>
<tr>
<th></th>
<th>Projects</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duration</strong></td>
<td>Temporary - has definite beginning and definite end (although duration may vary)</td>
<td>Ongoing activity</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Deliver service/product and close the project</td>
<td>Sustain business</td>
</tr>
<tr>
<td><strong>End Result</strong></td>
<td>Create unique product or service</td>
<td>Sustain business</td>
</tr>
</tbody>
</table>
Programs, PMO, and Portfolios

• **Program:**
  - A combination of related projects and includes associated operational work that is not part of the individual projects.
  - Program management (as opposed to project management) is important because:
    - It provides a holistic view of several related projects which, if executed together, will achieve better results than when executed individually.
    - It satisfies a distinct strategic objective, which requires management of several projects simultaneously.
      e.g.: A space launch is usually a program. It includes several individual projects related to manufacturing, testing, creating the launch pad, R & D, etc. It may also include operational activities like co-ordination with research institutes, compliance with procedures, remembering lessons learned from other launch programs, etc. For the space launch to be successful, all the underlying projects and associated operational activities should be well coordinated and executed as part of a single program.

• **Project Management Office (PMO):**
  - An organizational unit assigned to centralize and manage projects
  - An entity that selects, deploys, and manages project resources
Programs, PMO, and Portfolios (continued)

- **Portfolio:**
  - Collection of projects or programs and operations that are grouped together
  - Portfolio Management is important because:
    - It satisfies strategic business objectives.
    - It identifies, prioritizes, authorizes, controls, and manages projects, programs, and other related work.

  e.g.: A space launch portfolio will include several individual space launch programs. The Portfolio Manager will be instrumental in determining which space launch programs should be selected based on risks, returns, human resources, strategic objectives, and other considerations. Also, all the programs and projects will be managed as part of the portfolio and follow the standards & guidelines laid down as part of the portfolio.

**Important:** Please read *PMBOK® Guide* Fourth Edition (pages 7 to 12) which discusses these concepts in greater detail.
Project Stakeholders

Includes everyone who may be positively or negatively impacted by the project. Some examples are:

- **Project Managers:**
  - Responsible for managing the project
  - Not required to be a technical expert

- **Customers:**
  - Entities who provide requirements for the project (e.g., for a new computer processor manufacturing project, the computer manufacturers are the customers)

- **Users:**
  - Those who directly use the project’s product (e.g., when a new drug is launched, patients are the users)

- **Functional Managers:**
  - Responsible for managing the work related to the functional areas of the business

- **Sponsor:**
  - Provides financial resources for the project (a customer can also be a sponsor)

- **Project Team:**
  - Group of persons that carries out the project work

- **Program Managers:**
  - Responsible for managing related projects

- **Portfolio Managers/ Portfolio Review Board:**
  - Responsible for governing a number of projects or programs that may or may not be interdependent
Characteristics of Project Stakeholders

- Stakeholders’ interests may positively or negatively impact the project.
- Stakeholders may exert influence over the project and its outcome.
- Very important for the Project Manager to identify all the stakeholders and their expectations (sometimes their expectations may be implicit and not explicitly stated).
- Stakeholders may have conflicting interests and objectives; so managing stakeholders may involve balancing those interests.
- Project Manager must aim to find resolutions to issues among various stakeholders.
- Involving stakeholders in the project phases improves the probability of successfully completing the project and thus satisfying customer requirements. This may also result in buy-in or shared ownership of the project by the stakeholders.
- In general, differences among stakeholders must be so resolved in favor of the customer.
## Organizational Structures—Their Influence on Projects

<table>
<thead>
<tr>
<th>Project Characteristics</th>
<th>Organization Structure</th>
<th>Functional</th>
<th>Weak Matrix</th>
<th>Balanced Matrix</th>
<th>Strong Matrix</th>
<th>Projectized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager’s Authority</td>
<td>Little or None</td>
<td>Limited</td>
<td>Low to Moderate</td>
<td>Moderate to High</td>
<td>High to Almost Total</td>
<td></td>
</tr>
<tr>
<td>Resource Availability</td>
<td>Little or None</td>
<td>Limited</td>
<td>Low to Moderate</td>
<td>Moderate to High</td>
<td>High to Almost Total</td>
<td></td>
</tr>
<tr>
<td>Who controls the project budget</td>
<td>Functional Manager</td>
<td>Functional Manager</td>
<td>Mixed</td>
<td>Project Manager</td>
<td>Project Manager</td>
<td></td>
</tr>
<tr>
<td>Project Manager’s Role</td>
<td>Part-time</td>
<td>Part-time</td>
<td>Full-time</td>
<td>Full-time</td>
<td>Full-time</td>
<td></td>
</tr>
<tr>
<td>Project Management Administrative Staff</td>
<td>Part-time</td>
<td>Part-time</td>
<td>Part-time</td>
<td>Full-time</td>
<td>Full-time</td>
<td></td>
</tr>
</tbody>
</table>

Comparison of Functional vs. Projectized Organization Structures

<table>
<thead>
<tr>
<th></th>
<th>Functional</th>
<th>Projectized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager’s authority</td>
<td>Virtually none</td>
<td>High to almost total</td>
</tr>
<tr>
<td>Ability to get resources for</td>
<td>Very difficult, because resources work in</td>
<td>Easier to get resources</td>
</tr>
<tr>
<td>project</td>
<td>specific functional areas</td>
<td></td>
</tr>
<tr>
<td>Reporting hierarchy</td>
<td>Resources report to Functional Manager</td>
<td>Resources report to Project Manager</td>
</tr>
<tr>
<td>Dedication to the project</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Performance Evaluation</td>
<td>Done by Functional Manager</td>
<td>Done by Project Manager</td>
</tr>
<tr>
<td>Home for the resource after</td>
<td>Available, resources go back to functional</td>
<td>No home after project is completed</td>
</tr>
<tr>
<td>project completed</td>
<td>departments</td>
<td></td>
</tr>
<tr>
<td>Specialized skills</td>
<td>Well developed, because resources place more</td>
<td>Not as well developed, team members need</td>
</tr>
<tr>
<td></td>
<td>emphasis on functional skill-sets compared to</td>
<td>to pay more emphasis to projects and not to</td>
</tr>
<tr>
<td></td>
<td>projects</td>
<td>develop functional skill-sets</td>
</tr>
<tr>
<td>Efficiency of resource</td>
<td>Efficient allocation of resources</td>
<td>Less efficient- duplication of job functions</td>
</tr>
<tr>
<td>allocation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career paths</td>
<td>Well defined - along functional specialization</td>
<td>Depends on type of project, no well defined</td>
</tr>
<tr>
<td></td>
<td></td>
<td>career path</td>
</tr>
</tbody>
</table>
Some Important Terms

- **Project Management Office (PMO):** An organizational unit assigned to centralize and manage related projects. The responsibilities of a PMO may include providing support to Project Managers (e.g., training, monitoring, coordinating, etc.).

- **Program:** A number of related projects managed in a coordinated way to derive benefits, which are not available if managed individually.

- **Portfolio Management:** Portfolio management may involve managing projects or programs and operations in a centralized management framework to achieve strategic business objectives.

- **Subprojects:** Projects are divided into better manageable components or subprojects – usually contracted to an external enterprise or other functional unit in the performing organization.
Product Life Cycle, Project Life Cycle, Project Management Life Cycle

- **Product Life Cycle**: This comprises product phases that follow a sequence and are non-overlapping. The product lifecycle is used to launch a new product. A single product life cycle may have been generated as an outcome of several projects (multiple project life cycles). For example, a project undertaken to bring out a new desktop computer into the market constitutes only one phase in the product life cycle of the desktop computer.

- **Project Life Cycle**: It consists of generally sequential and sometimes overlapping project phases, which are determined by the organization’s need/project involved/ related domain. Understanding the project life cycle constitutes the basic framework needed for managing the project.

- **Project Management Life Cycle**: It describes the processes required to be followed to manage the project and are grouped under various process groups explained in *PMBOK® Guide* Fourth Edition (i.e., initiating, planning, executing, monitoring & controlling, and closing).
Project Life Cycle - Features

- Defines the beginning and end of the project
- Includes the transitional activities at the beginning and the end of the project (thus provides linkages with ongoing operations of the performing organization)
- Defines work and resources involved in each phase
- Project life cycle may be just one phase of the product life cycle
- Subprojects within projects have their own distinct life cycles
Factors that increase with project progress and then decrease sharply when project nears completion:

- Cost of project
- Staffing levels
Factors that increase with project progress:
- Probability of successfully completing the project
- Cost of changes made
- Cost of correcting errors
Factors that decrease with project progress:

- Uncertainty/risks about the project
- Ability of stakeholders to influence final characteristics of project’s product
- Ability of stakeholders to influence final cost of project’s product
Process Groups

- The five process groups or project management process groups are:
  - Initiating
  - Planning
  - Executing
  - Monitoring and Controlling
  - Closing

- Process groups are linked by the results they produce, i.e., output of one process group becomes input to the succeeding process group.

- Process groups may overlap and interact within phases.

- If a project is broken down into several phases (e.g., design, implementation, etc.), then the process groups will occur in each of these phases.

- Rolling wave planning: Refers to the progressive detailing of the project plan. It is an iterative and ongoing process.

**Note:** Please refer *PMBOK® Guide* Fourth Edition (page 42, Figure 3-3). Please spend some time in understanding the processes and their interactions. These processes are explained in detail in subsequent chapters.
Key General Management Skills

- Leadership
- Decision Making
- Team Building
- Motivating
- Influencing
- Communicating
- Negotiating
- Problem Solving
- Political and Cultural Awareness