Project Integration Management

Study Notes

Points to Note

- Please read Chapter 4 from Project Management Institute, A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) – Fifth Edition, Project Management Institute, Inc., 2013 (pages 63 to 104).

- The study notes explain 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 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 Project Integration Management?

- *Comprises the processes and activities needed to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups.

- Involves making trade-offs between alternatives and competing objectives.

- Includes following processes:
  - Develop Project Charter
  - Develop Project Management Plan
  - Direct and Manage Project Work
  - Monitor and Control Project Work
  - Perform Integrated Change Control
  - Close Project or Phase

- Please refer to the *PMBOK® Guide* - Fifth Edition (page 65; figure 4-1):
  - Understand all the processes
  - Try to relate the processes to real-life examples that you have come across in your projects

*This definition is taken from the Glossary of the Project Management Institute, A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) – Fifth Edition, Project Management Institute, Inc., 2013

Some Examples of Integration Processes

- Project work should be integrated with the ongoing operations of the performing organization.
- Product and Project Scope must be integrated.
- Cost estimates must be integrated with the processes in cost, time, and risk Knowledge Areas.
- Change requests should be integrated with initial project deliverable projections.

Earned Value Analysis

- Most common technique for performance measurement.
- Integrates the project scope, cost, and schedule measures to assist the project management team to assess project performance from initiation through closeout.
- Involves calculating:
  - *Planned Value (PV): The authorized budget assigned to scheduled work. It is also known as performance measurement baseline (PMB)/ budgeted cost of work scheduled (BCWS).
  - *Actual Cost (AC): The realized cost incurred for the work performed on an activity during a specific time period. It is also known as actual cost of work performed (ACWP).
  - *Earned Value (EV): The measure of work performed expressed in terms of the budget authorized for that work. It is also known as budgeted cost of work performed (BCWP).

Please note that more details on Earned Value will be discussed in our chapter notes on Project Cost Management.

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Project Constraints

- *A limiting factor that affects the execution of a project/program/portfolio/process.

Examples:

  - Pre-defined budget, contractual provisions
  - Labor union requirements
  - Organization structure of the performing organization
  - Preferences of the project management team (i.e. advocating structures that were successful in the past)
  - Competencies of individuals available for the project etc.

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Project Assumptions

- *A factor in the planning process that is considered to be true, real, or certain without proof or demonstration.
- Are progressively elaborated (i.e., we have a high level understanding of assumptions in the early stages of the project, and they get better defined as project progresses).
- Need to be identified, documented, and validated.
- Involves risk – hence forms an integral component of Risk Management System.

Examples:

- Availability of human resources,
- Availability of resources with the desired qualifications,
- Assumptions about environment, economy, inflation, government policies, markets, technology, etc.

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Project Charter

- *A document issued by the project initiator or sponsor that formally authorizes the existence of a project (i.e., formally signals the start of a project).

- Includes (directly or by reference to other documents):
  - Business need - why project is being undertaken and how it promotes business growth
  - Product scope description
  - Strategic Plan

- Issued by the project initiator or sponsor

- **Provides Project Manager with the authority to apply organization's resources to project activities.

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**Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK®Guide) – Fifth Edition, Project Management Institute, Inc., 2013, Page 71.

When should the Project Manager be Identified/Assigned?

- As early in the project as possible
- Preferably while the project charter is being developed
- Always before project planning starts
- Definitely before the start of project execution

Project Management Plan, Project Schedule, and Performance Measurement Baseline

- *Project Management Plan: The document that describes how the project will be executed, monitored, and controlled.

- *Project Schedule: An output of a schedule model that presents linked activities with planned dates, durations, milestones, and resources.

- *Performance Measurement Baseline (PMB): An approved integrated scope-schedule-cost plan for the project work against which project execution is compared to measure and manage performance. The PMB includes contingency reserve, but excludes management reserve.

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Components of the Project Plan

- Change management plan
- Communications management plan
- Configuration management plan
- Cost management plan
- Cost baseline
- Human resource management plan
- Process improvement plan
- Procurement management plan
- Quality management plan
- Stakeholder management plan
- Scope baseline:
  - Project scope statement
  - WBS
  - WBS dictionary
- Schedule baseline
- Scope management plan
- Requirements management plan
- Risk management plan
- Schedule management plan

Please note: You will understand what these documents signify in subsequent chapters.

Project Management Institute, A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) – Fifth Edition, Project Management Institute, Inc., 2013, Table 4-1, Page 78.

Preventive Action, Corrective Action, and Defect Repair

- Preventive Action:
  - *An intentional activity that ensures the future performance of the project work is aligned with the project management plan.
- Corrective Action:
  - *An intentional activity that realigns the performance of the project work with the project management plan.
- Defect Repair:
  - *An intentional activity to modify a nonperforming product or product component.

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Work Authorization System

- Formal procedure to:
  - Sanction project work to ensure that work is done by the appropriate persons, at the right time, and in proper sequence.
  - Begin work – This is primarily a written authorization process.
- For smaller projects, a verbal authorization system is permitted.
- Also, work to be performed is well-defined so that nothing extraneous to it is performed (i.e. to prevent ‘gold plating’).

Role of Stakeholder

- Every stakeholder has skills and knowledge that contribute to creating a project plan.
- Different stakeholders make varying contributions at various stages of the project. Project Manager must create an environment in which stakeholders can contribute optimally.
- The Project Manager should be open to the opinions of all stakeholders and try to understand their explicit and implicit requirements.
- Getting inputs from stakeholders is important as the stakeholders feel more involved with the project and, thus, there will be stakeholder buy-in.

Project Management Information System (PMIS)

- PMIS consists of tools and techniques used to gather, integrate, and disseminate the outputs of project management processes.
- Used to support all aspects of the project management from initiating till closing.
- Can include both manual and automated systems.

Lessons Learned

- *The knowledge gained during a project which shows how project events were addressed or should be addressed in the future with the purpose of improving future performance.
- Lessons can be learned from each and every project, even if some of them are failures.
- Lessons should be learned not only from own mistakes but also from others' mistakes.
- Most companies conduct post-implementation meetings and examine case studies to document lessons learned.

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Change Control System

- *A set of procedures which describes how modifications to the project deliverables and documentation are managed and controlled.
- It includes documentation, tracking systems, processes, and approval levels needed for authorizing change.
- In many cases, the Change Control System of the performing organization can be adopted “as is” for use in the present project also.
- Certain identified types of changes can be “Automatically Approved”.
- All changes must be documented.
- Changes change the project baselines.
- Includes Change Control Board (CCB) – a group responsible for approving or rejecting proposed changes.

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Perform Integrated Change Control

- Process of influencing the factors that circumvent integrated change control so that only approved changes are implemented.
- Process to review, analyze, and approve change requests - timely response minimizes the possibility of negative effect on time, cost, or the feasibility of *a* change
- Involves managing the changes that are approved
- Involves maintaining integrity of the performance measurement baselines
- Involves documenting the entire impact created by the change request
- Process to review, approve/reject recommended preventive, or corrective actions
- Involves coordinating changes across the entire project (e.g., change in schedule will impact cost, risk, quality, and staffing)

Very important: Change Control in one Knowledge Area will impact other Knowledge Areas. So, the Project Manager should be able to relate changes across Knowledge Areas.

Steps Followed If Customer Requests for Changes

- Evaluate and assess the changes. Determine how the changes are going to have an impact on the project.
- Discuss with team members how best to handle the changes (is it possible to crash, fast-track, etc.?). Also, try to determine what would be the implication of each change – e.g., impact on scope, schedule, cost, quality, etc.
- Inform customer about the implication of the changes.
- If customer still wants the changes to be implemented, discuss with the management, sponsor, and other stakeholders.
- Based on their inputs, if the change is warranted, a change control request will have to be formally made and entered into the change management/configuration management system, necessary approvals need to be received, and then the team will work on the approved changes.

Guiding Rule – Who Can Authorize A Change?

Type of Change	Approving Authority
Change to project charter	Person who approved the project charter
Change in the project direction impacting cost, quality, time, etc.	Management
Minor changes that can be managed within the project plan	Project Manager

Configuration Management System

- A part of the overall project management system
- *A collection of formal documented procedures, which are used to apply technical and administrative direction and surveillance to:
  - Identify and document the functional and physical characteristics of a product/component/result/service
  - Control changes to such characteristics
  - Record and report each change and its implementation status
  - Support the audit of products, components, results, or services to verify conformance to requirements

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