



Project Integration Management

Study Notes

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Points to Note

- Please read Chapter 4 from Project Management Institute, A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) – Fourth Edition, Project Management Institute, Inc., 2008 (pages 71 to 102).
- 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 processes and activities required to ensure that various processes of the project are properly coordinated.
- Involves making trade-offs between alternatives and competing objectives.
- Includes following processes:
 - Develop Project Charter
 - Develop Project Management Plan
 - Direct and Manage Project Execution
 - Monitor and Control Project Work
 - Perform Integrated Change Control
 - Close Project or Phase
- Please refer to the *PMBOK® Guide* Fourth Edition (page 73; figure 4-1):
 - Understand all the processes
 - Try to relate the processes to real-life examples that you have come across in your projects



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 approved/authorized cost assigned to a planned work to be spent for a planned activity. It is also known as performance measurement baseline (PMB)/ budgeted cost of work scheduled (BCWS).
 - Actual Cost (AC): The actual cost incurred and documented. It is also known as actual cost of work performed (ACWP).
 - Earned Value (EV): Value of work already completed. 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.



Project Constraints

- Applicable restrictions that will affect the performance of the project/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.



Project Assumptions

- Factors which, for planning purposes, are considered true, real, or certain.
- 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.



Project Charter

- Document that formally authorizes a project or phase (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 description
- Issued by someone external to the project, and at a level that is appropriate to fund the project
- Provides Project Manager with the authority to apply organization's resources to project activities.
- For projects to be executed under a contract, signed contract will serve as the project charter.



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: A formally approved document used to define and describe how the project should be managed and executed.
- Project Schedule: A list of planned dates for performing activities and meeting the milestones identified in the project plan.
- Performance Measurement Baseline: An approved plan for the project work against which project execution is compared to measure and manage performance. It can change intermittently with changes in scope of work or deliverable.



Components of the Project Plan

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

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



Preventive Action, Corrective Action, and Defect Repair

- Preventive Action:

- An accepted action performed to reduce the probability of occurrence of negative consequences associated with project risk.

Example: Hiring a skilled resource early on in the project, who, you think, will be needed in the later stages.

- Corrective Action:

- An accepted action performed to bring projected future project performance in line with the project plan.

- Defect Repair:

- A formally documented defect in a project component recommended for repair or replacement



Work Authorization System

- Formal procedure to:
 - Sanction project work to ensure that work is done by the identified organization 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 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

- 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.



Change Control System

- A collection of formal (note: not informal) documented procedures, which define how the documentation and project deliverables are managed, changed, and approved.
- 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.



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 group of 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
 - Help support the audit of products, components, results, or services to verify conformance to requirements