Unit-3 Project Integration Management

Learning Outcomes

By the end of this unit the learner will be able to:

- ✓ Identify the project management knowledge areas.
- ✓ Explain the stages involved in project integration management.

Unit 3
Project Integration Management

The Project Management Knowledge Areas

There are nine knowledge areas and five basic process groups typical of almost all projects. The process groups were discussed in Unit 2. These are actually the five phases of a project, i.e. planning, initiation, implementation, monitoring & review, and closure. There are nine project knowledge areas: Project Integration Management, Project Scope Management, Project Cost Management, Project Quality Management, Project Time Management, Project Communications Management, Project Human Resource Management, Project Risk Management, and Project Procurement Management.

Project Integration Management

One of the nine knowledge areas of project management is Project integration management. It involves coordinating all of the other project management knowledge areas throughout a project's life cycle. It also involves ensuring that the various aspects of a project are coordinated with one another. The three major categories of project integration management are Project Plan Development, Project Plan Execution, and Overall Change Control.

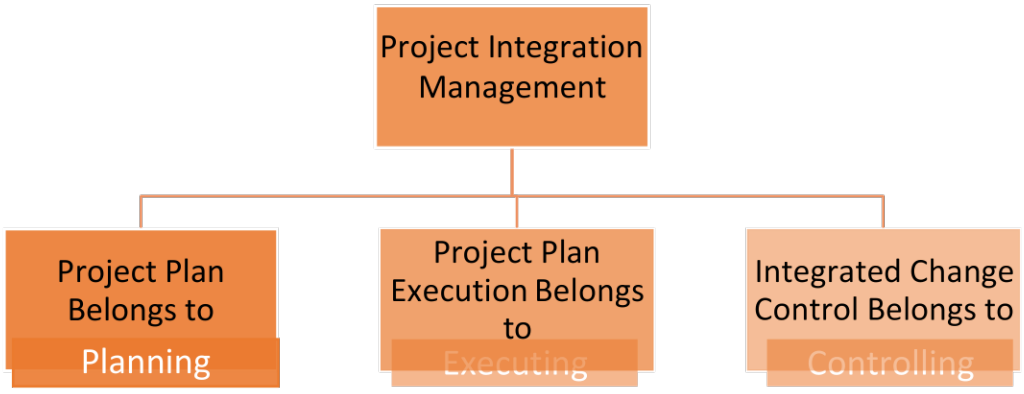

Figure 3.1: Project Integration Management

- **Project plan development** involves collating the results of other planning processes into a consistent and coherent document known as the project plan.
- **Project plan execution** involves carrying out the project plan by performing the activities included therein.
- **Integrated change control** involves coordinating changes across the entire project.

Each of the processes has certain inputs, outputs, and tools and techniques. Tools and techniques are used to take the inputs and assist in producing the outputs.

Fig: 3.2

Project integration management is the guiding force in managing a project. It depends on the activities of the other eight knowledge areas, since it ties together all other knowledge areas.

Project integration management pulls together all the other knowledge areas, guiding the project through the project life cycle and bringing it to a conclusion.

Project Plan Development

To guide the project through its life cycle, the project plan is necessary. The project plan provides documentation of the decision-making throughout the project. It also develops the assumptions and limitations of the project. The project plan facilitates the communication process throughout the organization. The project plan defines the role of key management personnel, providing a baseline benchmark that measures control and progress toward milestones.

The quality of the project plan depends on many factors. These include how well the plan is embedded in the organization's culture, procedures, constraints, policies, and accurate assumptions. The plan needs to be grounded in a sound methodology and well defined project team member skills and knowledge. The outputs of the project plan are:

- A comprehensive description of the project strategy and methodology – how the project will be implemented.
- Cost estimate
- Performance benchmarks.
- Key staff required for successful implementation.
- A clear and precise statement of scope.
- A preliminary work breakdown schedule.
- A schedule of events including milestones.
- Assignment of responsibilities.
- A comprehensive risk assessment and statement.
- Scope change processes.
- Communication protocol.
- Stated limitations and "off limit" issues.
- A list of open decisions and pending decisions.
- Monitoring process.
- Applicable standards and specifications of outputs.

Project Plan Execution

Projects are implemented using the project plan, organization policies, supporting detail and, if necessary, corrective actions. The project will be implemented by the project team. Implementation does not occur naturally. It requires the project manager and the project management team to have knowledge, management skills, and discipline.

In order for the execution of the project to be successful and effective, a formal process must exist to document work results and changes that need to be documented. Changes of scope need to be documented and, if necessary, charged to the customer.

Discipline is important because work often needs to be authorized, reviewed and adjusted. It takes an effective information system to provide this information to the team.

Overall Change Control

For the success of any project, Change control is extremely important. Changes in scope can involve schedule changes, quality control changes, cost changes, risk changes, and contract administrative changes.

The project manager and team members need to understand the project for effective change control. Change control requires adjustments to the project plan. Nothing occurs in a vacuum within a project. There is always a cause and effect. Good project managers adjust their plans as changes occur.

Project Plan Development

Project plan development uses the outputs of the other planning processes, including strategic planning, to create a consistent and coherent output which is called the ***project plan*** document. This document can be used to guide both the project plan's execution and its control.

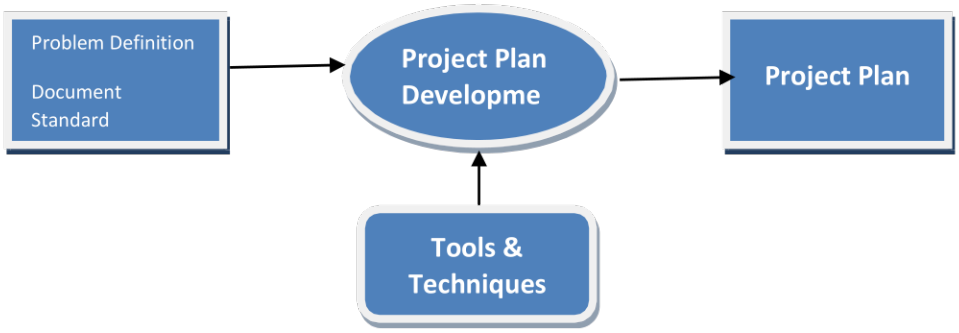

Fig: 3.3

The project plan is a formal, approved document used to manage project execution. It is a document or a collection of documents that is expected to change over time as more information becomes available on the project.

The project plan is used to:

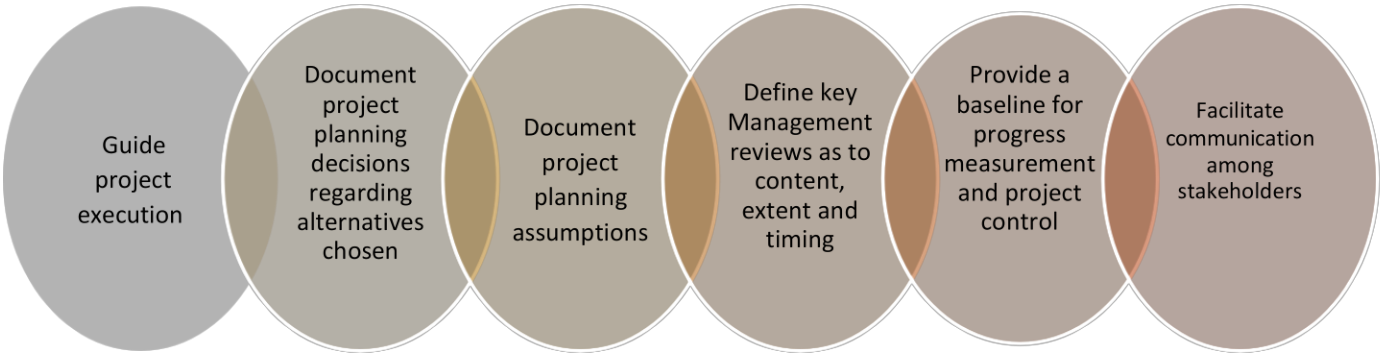

Fig. 3.4

Outline of the Project Plan

There are many ways to organize and present the project plan, but it is commonly organized into several sections/parts such as the following:

- Introduction or project overview
- Project organization
- Schedule

- Budget
- Scope or work to be done
- Management and technical processes

A possible outline of a project plan might look like the following:

Project Overview: This section should include the following information:

- **Project Name:** Unique name of the project.
- **Sponsor:** The name and contact information of the sponsor.
- **Project Description and Need:** Outline of the goals and objectives of the project, including a rough time and cost estimate.
- **Project Manager and Key Team Members:** The name of the project manager and contact information. Other key team members and their contact information as needed.
- *Project Deliverables:* Briefly list and describe the products that will be produced as part of the project.
- *Reference Materials:* Related documents, meetings, or historical information that will help project stakeholders to better understand the project.
- *Definitions and Acronyms:* List of definitions, terms and acronyms used in this document.

Project Organization: This section includes the following information:

- **Project Responsibilities:** A chart that identifies major project functions or activities and the individuals who are responsible for them.
- **Organization charts:** An organizational chart of the sponsoring company and the project organizational chart. The latter will show the lines of authority, responsibilities, and communication for the project.
- **Other Organization-Related Information:** Any other documents or charts that might help the project organizations.

Management and Technical Processes: These describe the management and technical approaches and include the following information:

- **Management Objectives:** View of the senior management about the project through assumptions, priorities, or constraints.
- **Project Controls:** Description of how to monitor project progress and handle changes. What forms are used for change control? Are there monthly status reviews and quarterly progress reviews?
- **Project Staffing:** The number and types of people required for the project. This should refer to the staffing management plan.

- **Risk Management:** A description of how risks will be identified, managed, and controlled. This should refer to the risk management plan.
- **Technical Processes:** Methodologies used for product documentation, development, and tools used.

Project Scope or Work to Be Completed

This should reference the scope management plan and summarize the following:

- **Major Work Packages:** Usually, project work is organized into several work packages using a work breakdown structure (WBS). Those work packages should be briefly summarized in this section.
- **Key Deliverables:** List and describe the key deliverables of the product as a function of time.
- **Other Work-Related Information:** Highlight key work-related information such as the specific hardware or software required for project control, training, testing, etc.

Project Schedule

This should include the following information:

Summary Schedule: a one-page summary of the overall project schedule and planned completion dates, including key deliverables.

Detailed Schedule: a more detailed breakdown of the schedule, which should include the activity dependencies.

Other Schedule-Related Information: including major assumptions and important information related to project schedule.

Project Budget

This should include the following information:

- **Summary Budget:** Total estimate of the overall project's budget. This might include the budget estimation for each month or year and by budget categories, e.g. salaries, hardware, software, etc.
- **Detailed Budget:** More detailed budget in each category. This might include description of fixed and recurring costs, labour cost calculation.
- **Other Budget-Related Information:** Assumptions and other important information related to financial aspects of the project.

Other Part of the Project Plan (Stakeholder Analysis)

It is important to include a stakeholder analysis as part of project planning, since the ultimate goal of project management is to meet or exceed stakeholder needs and expectations from a project.

A *stakeholder analysis* documents information such as key stakeholders' names and organizations, unique facts about each stakeholder, their roles in the project, their influence on the project, and their level of interest in the project.

Only project managers and other key team members should see the stakeholder analysis since, in many cases, the stakeholder analysis includes sensitive information.

Project Plan Execution

Managing and performing the work described in the project plan is called Project plan execution. The main input to this process is the *project plan* and the main output is the *work result* (outcomes of work or product).

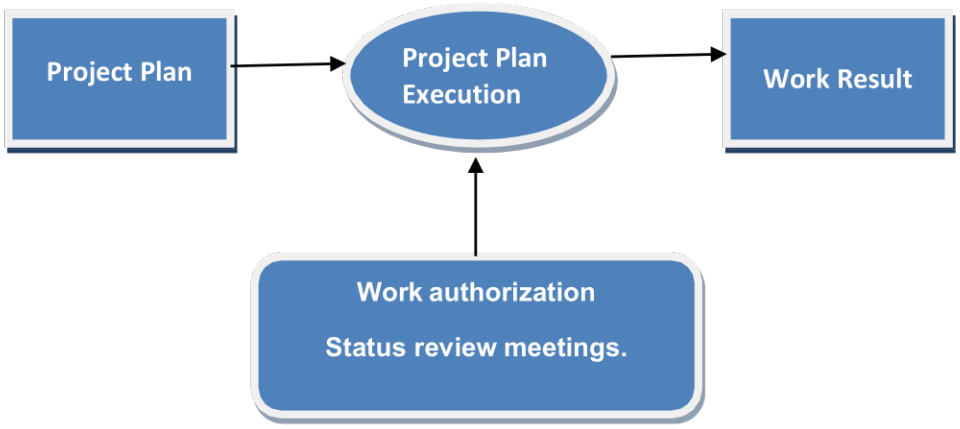

Fig: 1.4

The products of the project are developed during project execution. The vast majority of time and budget of a project are usually spent in executing the project plan.

Guiding project execution is the main function of developing a project plan. A good plan should help produce good products or work results. Knowledge gained from executing the project plan should be reflected in updates to the project plans.

Performance against the project baseline (project plan) must be continuously monitored so that corrective actions can be taken based on this comparison.

Good project plan execution requires many skills such as communication, leadership, and political skills.

For successful project execution, product skills and knowledge are also critical. Project managers and their staff must have the required expertise to produce the products of the project.

Project plan execution requires specialized tools and techniques such as a *work authorization system* and *status review meetings*.

Work Authorization System

This is a method of ensuring that qualified people do the work at the right time and in the proper sequence. It may be a manual process; i.e. written forms and signatures can be used to authorize work to begin on work packages or specific project activities.

Status Review Meetings

These are regularly scheduled meetings used to exchange project information. It is also an excellent tool for motivating people to make progress on the project.

Integrated Change Control

Integrated change control involves identifying, evaluating, and managing changes throughout the project life cycle. The three main objectives of this process are as follows:

- **Influencing the factors that create changes to ensure that changes are beneficial:** Requires a trade-off between the project dimensions such as time, cost, scope, and quality.
- **Managing actual changes as they occur:** Requires the project manager to exercise discipline in managing the project scope either by rejecting new changes or by approving changes and incorporating them into a revised project baseline.

  A proposed schedule change will often affect cost, quality, risk, and staffing.
- **Determine that a change has occurred:** This requires the project manager to know the status of key project areas at all times. The Project Manager must communicate significant changes to top management and key stakeholders to ensure that there are no surprises in the longer term or higher costs in the future.

The **inputs** to the integrated change control process include:

- ***Project plans:*** The project plan provides the baseline against which changes will be controlled.
- ***Change requests:*** Change requests may occur in many forms -- oral or written, direct or indirect, externally or internally generated, and legally mandated or optional.
- ***Performance reports:*** Performance reports provide information on project performance.

Important **outputs** of the integrated change control include:

- ***Project plan updates****:* These are modifications to the contents of the project plan or supporting detail.
- ***Corrective actions****:* These include any action taken to bring expected future project performance in line with the project plan.

- ***Documentation of lessons learned****:* These are the causes or variances and the reasoning behind the corrective actions chosen.

The major **tools and techniques** that help manage integrated change control are:

- ***Change control system****:* This is a collection of formal, documented procedures that define the necessary paperwork, tracking system, processes, and approval levels necessary for authorizing changes.
- ***Configuration management****:* This ensures that the descriptions of the project's products are correct and complete. It is performed through the identification and control of the functional and physical design characteristics of the products and supporting documents.

The following observations are from the **Kerzner (2001) text *Project Management: A systems approach to planning and controlling.*** The author adds some very important language to project integration management. Kerzner used the term "statement of work" or SOW as a tool that specifically describes the nature and deliverables of the project team. It is a vital component of the project charter.

The SOW is particularly useful because it is written by the project team and then reviewed by senior leadership.

To ensure that the deliverables of the project perform to the expectations of the project owner, a well written **SOW** addresses the tests that will occur.

For example, after the inventory system is installed, the project team will check it for accuracy by running the equivalent of one week's transactions through the system and running a simulation that includes an audit of one week's bills and accounts receivable ledger, a year-end rollover, etc.

This is a good example where the use of imprecise language can cause misinterpretations of the true meaning of communications. The project charter, the SOW, and the Work Breakdown Schedule must be precisely written to ensure that whoever reads them interprets them in the same way.

A third party should always read all the documents, and they should be revised if the third party (someone not directly involved in the project) does not understand them.

Structures Work Breakdown (WBS) is vital for successful project management. A well designed and written WBS describes the project's tasks as individual subdivided elements that in many ways become mini-projects. The best written WBS includes budgeted costs, budgeted times, prerequisite events, milestone dates, and the names of the individuals responsible for the tasks. The WBS provides the information used for other important project documents and tasks, including overall project costs, the assignment and balance of individual responsibilities, risk analysis, the overall control of the project, and the coordination of objectives.

The decision on how large a task should be to warrant inclusion in the WBS is the major issue for the project manager. When information is input into project management software packages, all of them require a lot of detail.

This micro level of detail not only allows for more detailed costing information but also requires more administration time.

Further Reading:

- ✓ ***Project Integration Management, (2019), By Dr Amir Manzoor***
- ✓ ***Project Management for the Unofficial Project Manager: A FranklinCovey Title, (2017), By Kory Kogon, Suzette Blackemore, James Wood***

