Table of Contents

Develop Project Charter

Management needs to create and distribute documentation to authorize project initiation. This documentation can take many different forms, but one common form is a project charter**. A project charter** is a document that formally recognizes the existence of a project and provides direction on the project's objectives and management. It authorizes the project manager to use organizational resources to complete the project. Key project stakeholders should sign a project charter to acknowledge agreement on the need for and intent of the project. **Develop Project Charter** is the process of developing a document that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.

Inputs for Developing a Project Charter

- A project statement of work
- A business case
- Agreements
- Enterprise environmental factors
- **Organizational process assets**, which include formal and informal plans, policies, procedures, guidelines, information systems, financial systems, management systems, lessons learned, and historical information

Format of project charters should include at least the following basic information:

- The project's title and date of authorization
- The project manager's name and contact information
- A summary schedule, including the planned start and finish dates; if a summary milestone schedule is available, it should also be included or referenced
- A summary of the project's budget or reference to budgetary documents
- A brief description of the project objectives, including the business need or other justification for authorizing the project
- Project success criteria, including project approval requirements and who signs off on the project
- A summary of the planned approach for managing the project, which should describe stakeholder needs and expectations, important assumptions, and constraints, and should refer to related documents, such as a communications management plan, as available
- A roles and responsibilities matrix
- A sign-off section for signatures of key project stakeholders
- A comments section in which stakeholders can provide important comments related to the project
- Many projects fail because of unclear requirements and expectations, so starting with a project charter makes a lot of sense.
- If project managers are having difficulty obtaining support from project stakeholders, for example, they can refer to the agreements listed in the project charter

Figure 4-2. Develop Project Charter: Inputs, Tools and Techniques, and Outputs

Develop Preliminary Project Scope Statement

The project scope statement is the definition of the project-what needs to be accomplished. **The Develop Preliminary Project Scope Statement** process addresses and documents the characteristics and boundaries of the project and its associated products and services, as well as the methods of acceptance and scope control. A project scope statement includes:

- Project and product objectives
- Product or service requirements and characteristics
- Product acceptance criteria
- Project boundaries
- Project requirements and deliverables
- Project constraints
- Project assumptions
- Initial project organization
- Initial defined risks
- Schedule milestones
- Initial WBS
- Order of magnitude cost estimate
- Project configuration management requirements
- Approval requirements.

The preliminary project scope statement is developed from information provided by the initiator or sponsor. The project management team in the Scope Definition process further refines the preliminary project scope statement into the project scope statement. The project scope statement content will vary depending upon the application area and complexity of the project and can include some or all of the components identified above. During subsequent phases of multi-phase projects, the Develop Preliminary Project Scope Statement process validates and refines, if required, the project scope defined for that phase.

Develop Preliminary Project Scope Statement: Inputs

- Project Charter
- Project Statement of Work
- Enterprise Environmental Factor
- Organizational Process Assets

Develop Preliminary Project Scope Statement: Tools and Techniques

- **Project Management Methodology**: The project management methodology defines a process that aids a project management team in developing and controlling changes to the preliminary project scope statement.
- **Project Management Information System**: The project management information system, an automated system, is used by the project management team to support generation of a preliminary project scope statement, facilitate feedback as the document is refined, control changes to the project scope statement, and release the approved document.
- **Expert Judgment**: Expert judgment is applied to any technical and management details to be included in the preliminary project scope statement.

Develop Preliminary Project Scope Statement: Outputs

- **Preliminary Project Scope Statement**

Developing A Project Management Plan

A project management plan is a document used to coordinate all project planning documents and help guide a project's execution and control. Plans created in the other knowledge areas are considered subsidiary parts of the overall project management plan. Project management plans also document project planning assumptions and decisions regarding choices, facilitate communication among stakeholders, define the content, extent, and timing of key management reviews, and provide a baseline for progress measurement and project control. Project management plans should be dynamic, flexible, and subject to change when the environment or project changes. These plans should greatly assist the project manager in leading the project team and assessing project status.

Project Management Plan Contents:

- Small project that involves a few people working over a couple of months might have a project management plan consisting of only a project charter, scope statement, and Gantt chart.
- A large project that involves 100 people working over three years would have a much more detailed project management plan.
- It is important to tailor project management plans to fit the needs of specific projects
- A project management plan includes :
  - an introduction or overview of the project,
  - a description of how the project is organized,
  - the management and technical processes used on the project,
  - and sections describing the work to be performed,
  - the schedule, and the budget.

Introduction or overview of the project:

- The project name
- A brief description of the project and the need it addresses
- The sponsor's name
- The names of the project manager and key team members
- Deliverables of the project
- A list of important reference materials
- A list of definitions and acronyms, if appropriate

A description of how the project is organized

- Organizational charts
- Project responsibilities
- Other organizational or process related information

The management and technical processes used on the project:

- Management objectives
- Project controls
- Risk management
- Project staffing
- Technical processes

Sections describing the work to be performed

- Major work packages
- Key deliverables
- Other work related materials

Project Schedule Information

- Summary schedule

- Detailed schedule
- Other schedule related information

Budget section:

- Summary Budget
- Detailed Budget
- Other budget related information

Sample Contents for a Software Project Management Plan (SPMP)

MAJOR SECTION HEADINGS	SECTION TOPICS
Overview	Purpose, scope, and objectives; assumptions and constraints; project deliverables; schedule and budget summary; evolution of the plan
Project Organization	External interfaces; internal structure; roles and responsibilities
Managerial Process Plan	Start-up plans (estimation, staffing, resource acquisition, and project staff training plans); work plan (work activities, schedule, resource, and budget allocation); control plan; risk management plan; closeout plan
Technical Process Plans	Process model; methods, tools, and techniques; infrastructure plan; product acceptance plan
Supporting Process Plans	Configuration management plan; verification and validation plan; documentation plan; quality assurance plan; reviews and audits; problem resolution plan; subcontractor management plan; process improvement plan

IEEE Standard 1058-1998.

Scope Verification

Scope verification is "the process of obtaining the stakeholder's formal acceptance of the project scope and associated deliverables" (PMBOK). The scope verification process means that all stakeholders have seen and formally accepted a version of the scope that becomes the scope baseline for the project and is put under scope change control so that no changes to the scope of the project can be done without going through the scope change control process. After this is done, and all throughout the project, scope verification means that work results and deliverables are reviewed to make sure that they meet with the scope definition that was accepted at the beginning of the project.

"Project Quality Management," deals with the correctness of the scope, whereas scope verification deals with the acceptance of the scope. Quality control deals with work results as matched against deliverables, as does scope verification. However, the major difference is that quality control looks at how well the deliverables were done from the view of correctly finishing a deliverable, whereas during scope verification, the stakeholders formally accept the work result. These two definitions will certainly be a part of the examination.

Project Scope Management according to the PMBOK

Scope management, or rather the lack of it, is one of the biggest reasons for project failure. Correctly defining what is and is not included in the project is absolutely foundational to good project management. Projects which go through right expertise, schedule, high quality deliverables, can satisfied clients. As a project manager, you must understand the importance of project scope. Project scope management is the second knowledge area in the Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK). It

includes the processes that ensure all of the required work (and only the required work) is included in the project. According to the PMBOK, scope management has six processes:

- **Plan Scope Management:** Planning the process, and creating a scope management plan.
- **Collect Requirements:** Defining and documenting the stakeholder's needs.
- **Define Scope:** Developing a detailed project scope statement.
- **Create WBS:** Subdividing project deliverables into smaller work units.
- **Validate Scope:** Formalizing the acceptance of the deliverables.
- **Control Scope:** The ongoing process of monitoring and managing changes to the project scope.

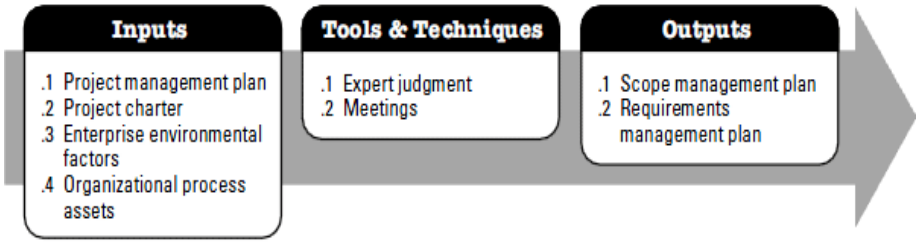


Figure 5-2. Plan Scope Management: Inputs, Tools & Techniques, and Outputs

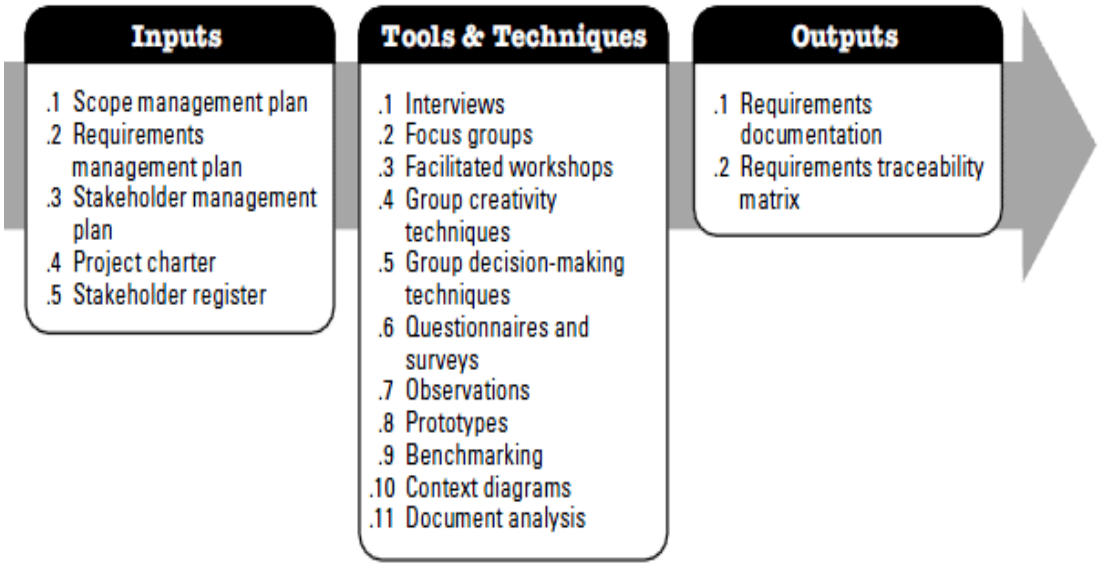


Figure 5-4. Collect Requirements: Inputs, Tools & Techniques, and Outputs

Figure 5-7. Define Scope: Inputs, Tools & Techniques, and Outputs

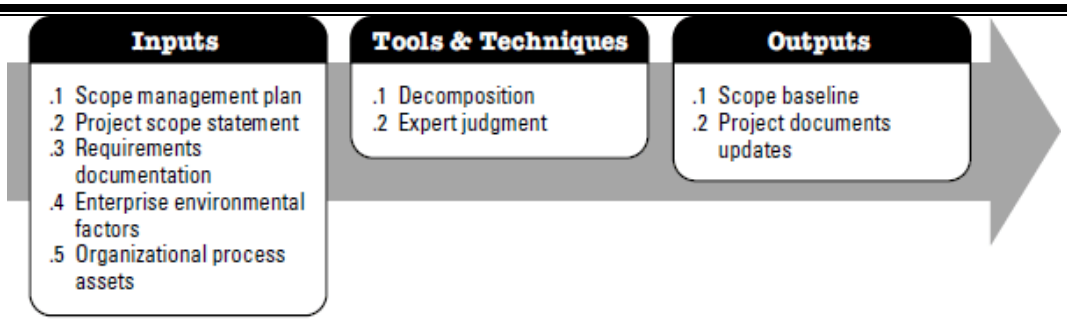


Figure 5-9. Create WBS: Inputs, Tools & Techniques, and Outputs

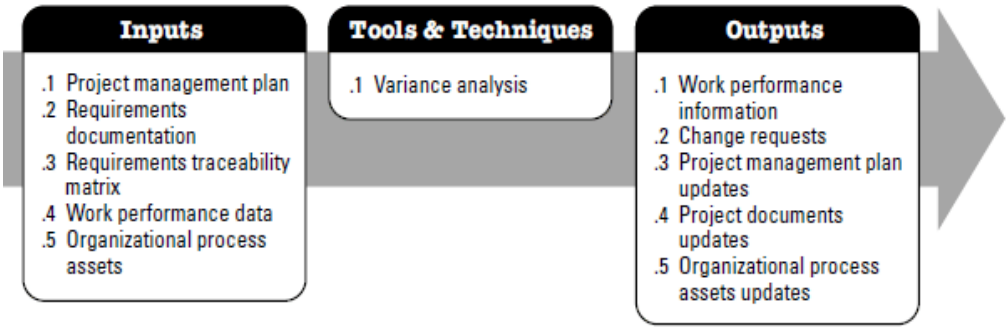


Figure 5-16. Control Scope: Inputs, Tools & Techniques, and Outputs

Scope Control

Scope control is part of the Monitoring & Controlling Process Group and focuses on project management. It's the process of managing changes in projects and has been deemed a method by PMBOK. Scope Control consists of Project Scope (size of the project) and Product Scope (size of the product).

- Project scope shows the total amount of work to be done, in order to achieve the desired outcome.
- Product scope is about all the functions related to the end-result, such as product features, functions, service and quality. In short, it's about quantity and quality.

Control Scope is the process of monitoring the status of the project and product scope and managing changes to the scope baseline. The key benefit of this process is that it allows the scope baseline to be maintained throughout the project. The inputs, tools and techniques, and outputs of this process are shown in figure.

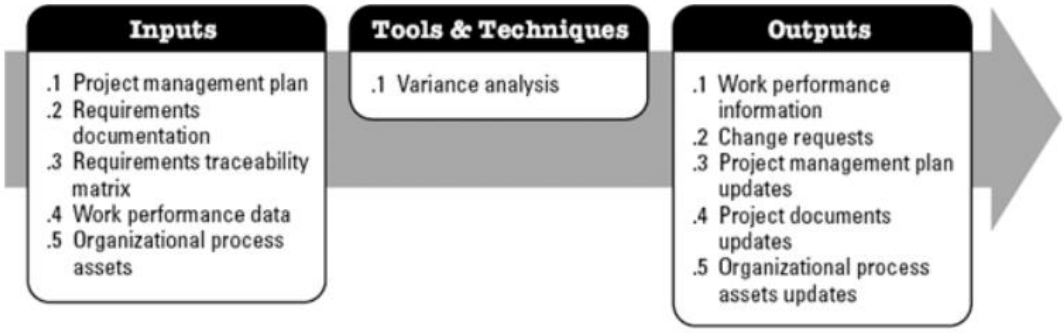


Figure 5-16. Control Scope: Inputs, Tools & Techniques, and Outputs

Project Group Formation

A very important we need to know for the Project Management Professional (PMP)® Exam is Team Development, specifically the five stages a team goes through as it develops. The stages a team generally goes through are: forming, storming, norming, performing and adjourning. As a project manager, a good understanding of these stages will help you guide a team from infancy to maturity.

- **Forming**
  The first stage is *forming*, which is when the members within the team first come together to meet. It can be considered the period of orientation when everyone is getting to know one another and becoming acquainted. Think of the forming stage like the first day of school or the first day at a new job. Usually, group dynamics and roles have yet to be established, a team leader will typically emerge and take charge and direct the individual members.
  - The forming stage is also where team members discuss things like:
    - ✓ Team goals
    - ✓ Individual roles
    - ✓ Strategy
    - ✓ Ground rules
- **Storming**
  Stage two of five is considered the most critical to go through. It's common for team performance to dip a bit in the storming stage as members can sometimes disagree on goals, strategy, responsibilities and roles. Also, keep an eye out for subgroups that can begin to form during this stage. In order to not get bottlenecked in the storming stage, members have to work together and play to each other's strengths to overcome obstacles and stay on pace (move in same speed). Also, take the time to address and overcome conflicts early on so they don't stay an issue throughout the other phases. Think of this phase like when you move in with a friend you've never lived with before, and you slowly start to notice the little things about them that get on your nerves. The same is likely to happen with members of your team.
- **Norming**
  Once you've weathered the storm, our team can move into norming. Here, team members have figured out how to work together and there's no more conflict or internal competitions lingering. Unity is upon everyone and a consensus(agreement/sahamati) develops around who the leaders are, what everyone's role is, and what comes next. There's also a sense of bonding between the team and is more familiar with each other's personalities and sense of humor. There should also be a sense of comfort in the norming stage when giving constructive feedback or asking for help as you work through various tasks.
- **Performing**
  Next up is the performing stage, which tends to be where there is the most cohesive work environment, people are happy and excited, and team performance is at an all-time high. There's a clear and stable structure in place throughout the group and everyone is fully committed to achieving the goals put in place. In the performing stage, there's a sense of focus, purpose, and alignment from everyone on the team, no matter their role. Remember that no matter what, problems and conflict can still emerge, but they're handled and deal with in a constructive and honest manner. And, because there's a bond and a relationship already built amongst the team members, it's easier and faster to get to a resolution if a conflict were to occur.
- **Adjourning**

Last but not least is the adjourning stage. Sometimes also called the termination or ending stage, most, if not all, of the goals of the team have been accomplished. The project as a whole is being wrapped up and final tasks and documentation are completed. As the workload becomes smaller, it's common for team members to be taken off the assignment and delegated to a new project. The team members also usually debrief and discuss what went well and what could be improved on for projects in the future.

Resource Allocation And Matching

Resource allocation, also known as resource scheduling, involves identifying and assigning resources to various activities for a specific period. It also monitors the resource's workload throughout the project life cycle and reassigns them if necessary.

Types of Resources

On an enterprise level, resources can be human and non-human. Some examples of resources for the projects are:

- **Labor:**

They constitute team members or employees and contingent staff with different skill sets and form the backbone of any project.

- **Equipment/Tools:**

It includes everything from software to hardware, depending on the organization's type.

- **Facilities:**

It comprises the environment needed for executing a project, such as a conference room or office space.

- **Materials:**

These are the consumables required to generate outputs. For example: office stationery, raw materials to build a house.

- **Budget:**

Finance needed to purchase any of the above resources.

Resource Allocation Problems

- Use of legacy tools or spreadsheets
- Frequent changes in project scope
- Unable to predict resource availability
- Project uncertainties causing delays
- Limited resources in a multi-project environment
- Lack of knowledge and communication
- Location and time zone differences

Importance of Resource Allocation in Project Management

- Minimize project resource cost significantly
- Maximize profitable resource utilization
- Find the right resource using centralized visibility
- Deliver projects on time and within budget
- Diversify employee skill sets
- Improve employee engagement and productivity

Directing And Managing Project Work

Direct and Manage Project Work is the process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives. The key benefit of this process is that it provides overall management of the project work. The application area of the project directly affects project execution because products are created during the execution phase. The project manager would also need to focus on leading the project team and managing stakeholder relationships. Many unique situations occur during project execution, so project managers must be flexible and creative in dealing with them.

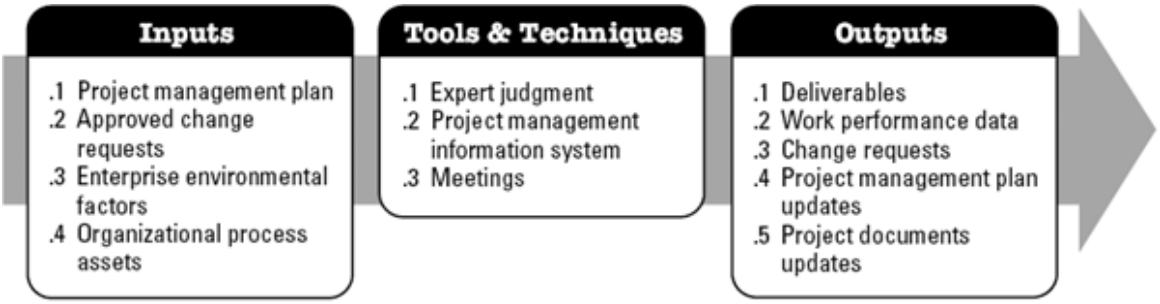


Figure 4-6. Direct and Manage Project Work: Inputs, Tools and Techniques, and Outputs

Coordinating Planning and Execution

- In project integration management, project planning and execution are intertwined and inseparable activities.
- The main function of creating a project management plan is to guide project execution
- A good plan should help produce good products or work results, and should document what good work results
- All project personnel need to develop both planning and executing skills, and they need experience in these areas
- In IT projects, programmers who have to write detailed specifications and then create the code from them become better at writing specifications.
- Although project managers are responsible for developing the overall project management plan, they must input from project team members who are developing plans in each knowledge area

Providing Strong Leadership and a Supportive Culture

- Project managers must lead by example to demonstrate the importance of creating good project plans and then following them in project execution.
- If project managers follow through on their own plans, their team members are more likely to do the same
- Good project execution also requires a supportive organizational culture
- If an organization has useful guidelines and templates for project management that everyone in the organization follows, it will be easier for project managers and their teams to plan and do their work

Capitalizing on Product, Business, and Application Area Knowledge

- project managers need to possess product, business, and application area knowledge to execute projects successfully
- Many IT projects are small, so project managers may be required to perform some technical work or mentor team members to complete the project

- On very large projects the project manager must understand the business and application area of the project

Project Execution Tools and Techniques

- ***Expert judgment:***
  Anyone who has worked on a large, complex project appreciates the importance of expert judgment in making good decisions. Project managers should not hesitate to consult experts on different topics, such as what methodology to follow, what programming language to use, and what training approach to follow.
- ***Meetings:***
  Meetings are crucial during project execution. Face-to-face meetings with individuals or groups of people are important, as are phone and virtual meetings. Meetings allow people to develop relationships, pick up on important body language or tone of voice, and have a dialogue to help resolve problems.
- ***Project management information systems:***
  Hundreds of project management software products are on the market today. Many large organizations use powerful enterprise project management systems that are accessible via the Internet and tie into other systems, such as financial systems. Even in smaller organizations, project managers or other team members can create Gantt charts that include links to other planning documents on an internal network. Although project management information systems can aid in project execution, project managers must remember that positive leadership and strong teamwork are critical to successful project management. Project managers should delegate the detailed work involved in using these tools to other team members and focus on providing leadership for the whole project to ensure project success. Stakeholders often focus on the most important output of execution from their perspective: the deliverables.

Monitoring And Controlling Project Work

Monitoring project work includes collecting, measuring, and disseminating(spread) performance information. It also involves assessing measurements and analyzing trends to determine what process improvements can be made. The project team should continuously monitor project performance to assess the overall health of the project and identify areas that require special attention. The project management plan, schedule and cost forecasts, validated changes, work performance information, enterprise environmental factors, and organizational process assets are all important inputs for monitoring and controlling project work. Important outputs of monitoring and controlling project work include change requests and work performance reports.

- ✓ Change requests include recommended corrective and preventive actions and defect repairs.
  - Corrective actions should result in improvements in project performance.
  - Preventive actions reduce the probability of negative consequences associated with project risks.
  - Defect repairs involve bringing defective deliverables into conformance with requirements.

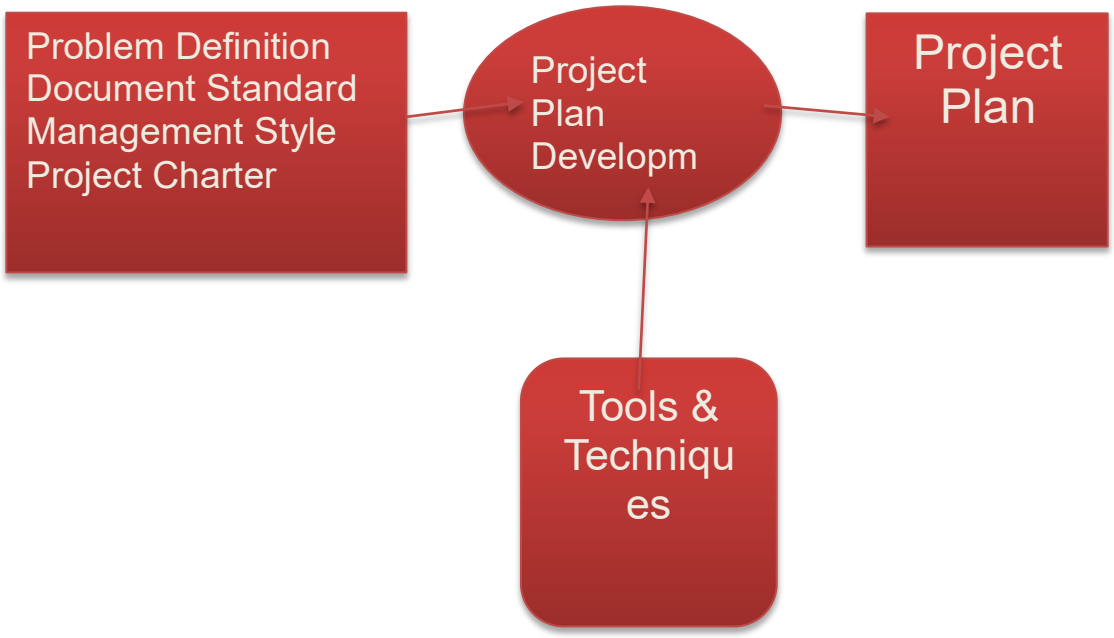
Project Integration Management

Project integration management involves coordinating all of the other project management knowledge areas throughout a project's life cycle. It is the duty of the project manager to integrate these functions of the project management. Project integration management must occur within the context of the entire organization, not just within a particular project

Project Integration Management Processes

1. **Developing the project charter** involves working with stakeholders to create the document that formally authorizes a project—the charter.
2. **Developing the project management plan** involves coordinating all planning efforts to create a consistent, coherent document—the project management plan.
3. **Directing and managing project work** involves carrying out the project management plan by performing the activities included in it.
4. **Monitoring and controlling project work** involves overseeing activities to meet the performance objectives of the project
5. **Performing integrated change control** involves identifying, evaluating, and managing changes throughout the project life cycle.
6. **Closing the project or phase** involves finalizing all activities to formally close the project or phase.

Each of the processes has some inputs, tools & techniques, and outputs. Tools and techniques are used to take the inputs and assist in producing the outputs. Example for Project Plan Development.



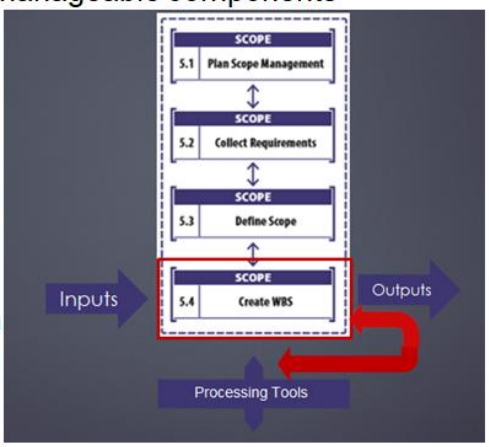
Good project integration management is critical to providing stakeholder satisfaction. Project integration management includes interface management, which involves identifying and managing the points of interaction between various elements of a project. The number of interfaces can increase exponentially as the number of people involved in a project increases. Thus, one of the most important jobs of a project manager is to establish and maintain good communication and relationships across organizational interfaces. The project manager must

communicate well with all project stakeholders, including customers, the project team, top management, other project managers, and opponents of the project.

Creating The Work Breakdown Structure

A work breakdown structure (WBS) is a deliverable-oriented grouping of the work involved in a project that defines its total scope. As most projects involve many people and many different deliverables, it is important to organize and divide the work into logical parts based on how the work will be performed. The WBS is a foundation document in project management because it provides the basis for planning and managing project schedules, costs, resources, and changes. Because the WBS defines the total scope of the project, some project management experts believe that work should not be done on a project if it is not included in the WBS.

Subdividing the major project deliverables into smaller, more manageable components



- Scope management plan
- Project scope statement
- Requirements documentation
- Enterprise environmental factors
- Organizational process assets

- Expert Judgment
- Decomposition

- Scope Baseline
- Project Documents Updates

The **scope baseline** includes the approved project scope statement and its associated WBS and WBS dictionary

Decomposition is subdividing project deliverables into **smaller pieces**

A **work package** is a task at the lowest level of the WBS

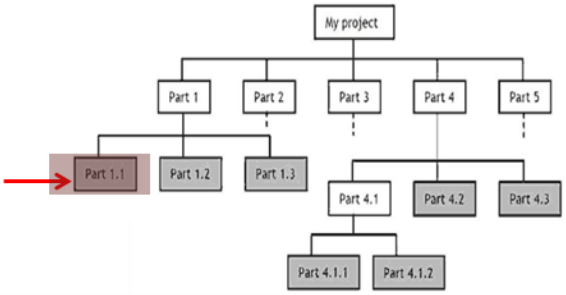


Figure 1: Work Breakdown Structure showing "children" and "parent" branches.

It is very difficult to create a good WBS. To create a good WBS, you must understand the project and its scope and incorporate the needs and knowledge of the stakeholders. The project manager and the project team must decide as a group how to organize the work and how many levels to include in the WBS. While many project managers have found that they should focus on doing the top levels well before becoming bogged down in more detailed levels, it is also true that more accurate estimates in scope, time, and cost are obtained when the project is defined appropriately and in sufficient detail. Operating at too high a level increases project risk; the act of defining the WBS is meant to offset that risk by considering the project's details in advance of its execution. Tasks on a WBS represent work that needs to be done to complete the project. The tasks do not have to be developed as a sequential list of steps. If you do want some time-based flow for the work, you can create a WBS using the project management process groups of initiating, planning, executing, monitoring and controlling, and closing as Level 2 in the WBS. People who will do the work should help to plan the work by creating the WBS

Approaches to Developing WBSs

- **Using guidelines**:
  Many organizations provide guidelines and templates for developing WBSs, as well as examples of WBSs from past projects. PMI developed a WBS Practice Standard to provide guidance for developing and applying the WBS to project management. It includes sample WBSs for a wide variety of projects in various industries, including projects for Web design, telecom, service industry outsourcing, and software implementation.
- **The analogy approach:**
  Use a similar project's WBS as a starting point. Review WBSs of similar projects and tailor to your project. Viewing examples of WBSs from similar projects allows you to understand different ways to create a WBS
- **The top-down approach:**
  Start with the largest items of the project and break them down. This process involves refining the work into greater and greater levels of detail. After finishing the process, all resources should be assigned at the work package level. The top-down approach is best suited to project managers who have vast technical insight and a big-picture perspective
- **The bottom-up approach:**
  Start with the specific tasks and roll them up. The team members first identify as many specific tasks related to the project as possible. They then aggregate the specific tasks and organize them into summary activities, or higher levels in the WBS. Some people have found that writing all possible tasks as notes and then placing them on a wall helps the team see all the work required for the project and develop logical groupings for performing the work. The bottom-up approach can be very time-consuming. Project managers often use the bottom-up approach for projects that represent entirely new systems or approaches to doing a job, or to help create buy-in and synergy with a project team.
- **Mind-mapping approach**:
  Mind mapping is a technique that uses branches radiating out from a core idea to structure thoughts and ideas. It allows people to write and even draw pictures of ideas in a nonlinear format. This more visual, less structured approach to defining and then grouping tasks can unlock creativity among individuals and increase participation and morale among teams. After discovering WBS items and their structure using the

mind-mapping technique, you could then translate the information into chart or tabular form. Mind mapping can be used for developing WBSs using the top-down or bottom-up approach. You can also add items anywhere on a mind-mapping document without following a strict top-down or bottom-up approach. After the mind-mapping documents are complete, you can convert them into a chart or tabular WBS form.

WBS dictionary

A WBS dictionary is a document that provides detailed information about each WBS item. The format of the WBS dictionary can vary based on project needs. It might be appropriate to have a short paragraph describing each work package. For a more complex project, an entire page or more might be needed for each of the work package descriptions. Some projects might require that each WBS item describe the responsible organization, resource requirements, estimated costs, and other information. The WBS dictionary is a definition of the work involved in the task—a clarification that makes the summary description in the WBS easier to understand in terms of the approach taken to complete the work.

Sample WBS dictionary

WBS Dictionary Entry March 20
Project Title: Information Technology (IT) Upgrade Project
WBS Item Number: 2.2
WBS Item Name: Update Database
Description: The IT department maintains an online database of hardware and software on the corporate intranet. However, we need to make sure that we know exactly what hardware and software employees are currently using and if they have any unique needs before we decide what to order for the upgrade. This task will involve reviewing information from the current database, producing reports that list each department's employees and location, and updating the data after performing the physical inventory and receiving inputs from department managers. Our project sponsor will send a notice to all department managers to communicate the importance of this project and this particular task. In addition to general hardware and software upgrades, the project sponsors will ask the department managers to provide information for any unique requirements they might have that could affect the upgrades. This task also includes updating the inventory data for network hardware and software. After updating the inventory database, we will send an e-mail to each department manager to verify the information and make changes online as needed. Department managers will be responsible for ensuring that their people are available and cooperative during the physical inventory. Completing this task is dependent on WBS Item Number 2.1, Perform Physical Inventory, and must precede WBS Item Number 3.0, Acquire Hardware and Software.

Project Name: Customer Help Desk	
Work Package ID: 1.4.1.1	
Work Package Name: Designed User Screen	
Work Package Description: Using the customer's User Screen Specification, a new top-level layout design is to be created. Based on this a non-functioning layout demonstrator is to be prepared to collect feedback from the customer. A fully functional prototype will be created for the client to review and approve.	
Assigned To: Dave Litten	**Group/Dept**: IT Systems
Date Assigned: 7/30/09	**Date Due**: 15/9/09
Estimated Cost: $3,800.00	**Account Code**: CHD/1/4/33
Acceptance Criteria:	**Resources Assigned:**
Deliverables:	**Assumptions:**

Advice for Creating a WBS and WBS Dictionary

- Some basic principles, however, apply to creating any good WBS and its WBS dictionary
- A WBS item is the responsibility of only one person, even though many people might be working on it.
- The WBS must be consistent with the way work actually will be performed.
- Project team members should be involved in developing the WBS to ensure consistency and buy-in.
- Each WBS item must be documented in a WBS dictionary to ensure accurate understanding of the scope of work included and not included in that item.
- The WBS must be a flexible tool to accommodate inevitable changes while properly maintaining control of the work content in the project according to the scope statement

Performing Integrated Change Control

Integrated change control involves identifying, evaluating, and managing changes throughout the project life cycle. Three main objectives of integrated change control are:

1. Influencing the factors that create changes to ensure that changes are beneficial: To ensure that changes are beneficial and that a project is successful, project managers and their teams must make trade-offs among key project dimensions, such as scope, time, cost, and quality.
2. Determining that a change has occurred: To determine that a change has occurred, the project manager must know the status of key project areas at all times. In addition, the project manager must communicate significant changes to top management and key stakeholders.

3. Managing actual changes as they occur: Managing change is a key role of project managers and their teams. It is important that project managers exercise discipline in managing the project to help minimize the number of changes that occur.

- Important inputs to the integrated change control process include the project management plan, work performance information, change requests, enterprise environmental factors, and organizational process assets.
- Important outputs include approved change requests, a change log, and updates to the project management plan and project documents.

Change is unavoidable and often expected on most IT projects. A good change control system is also important for project success.

Change Control on IT Projects

- Beginning in the 1990s, most project managers and top management realized that project management is a process of constant communication and negotiation about project objectives and stakeholder expectations
- Many IT projects involve the use of hardware and software that is updated frequently
- Projects have scope, time, cost, and other goals, and changes often affect those goals
- Even if project managers, project teams, and customers are flexible, it is important that projects have a formal change control system. This formal system is necessary to plan for managing change

Change Control System

A change control system is a formal, documented process that describes when and how official project documents may be changed. It also describes the people authorized to make changes, the paperwork required for these changes, and any automated or manual tracking systems the project will use. A change control system often includes a change control board, configuration management, and a process for communicating changes.

A **change control board (CCB)** is a formal group of people responsible for approving or rejecting changes to a project

Configuration management ensures that the descriptions of the project's products are correct and complete. They identify and document the functional and physical characteristics of the project's products, control any changes to such characteristics, record and report the changes, and audit the products to verify conformance to requirements. Project managers should communicate using written and oral performance reports to help identify and manage project changes. One of the most frustrating aspects of project change is not having everyone coordinated and informed about the latest project information. The project manager and staff members must develop a system for notifying everyone affected by a change in a timely manner.