



GLOBALSTANDARD

A Guide to the
**PROJECT MANAGEMENT
BODY OF KNOWLEDGE
(PMBOK® GUIDE)**

Fifth Edition



Project Management Institute

A GUIDE TO THE PROJECT MANAGEMENT BODY OF KNOWLEDGE

(PMBOK® Guide) – Fifth Edition

ANNEX A1

THE STANDARD FOR PROJECT MANAGEMENT OF A PROJECT

A project is a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates a definite beginning and end. The end is reached when the project's objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists.

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements. Project management is accomplished through the appropriate application and integration of logically grouped project management processes.

Managing a project typically includes:

- Identifying requirements;
- Addressing the various needs, concerns, and expectations of the stakeholders as the project is planned and carried out;
- Setting and maintaining active communication with stakeholders; and
- Balancing the competing project constraints, which include, but are not limited to:
 - Scope,
 - Quality,
 - Schedule,
 - Budget,
 - Resources, and
 - Risks.

The specific project circumstances will influence the constraints on which the project manager needs to focus and require effective application and management of appropriate project management processes.

A1.1 What is a Standard?

The International Organization for Standardization (ISO) and others define a standard as a “*Document approved by a recognized body, that provides, for common and repeated use, rules, guidelines, or characteristics for products, processes or services with which compliance are not mandatory.*” (ISO 9453) [11]

In October 1998, PMI was accredited as a standards developer by the American National Standards Institute (ANSI). The processes outlined in this Annex, which are described in the *PMBOK® Guide – Fifth Edition*, provide the standard for project management of a project.

A1.2 Framework for this Standard

This standard describes the nature of project management processes in terms of the integration between the processes, their interactions, and the purposes they serve. For this standard, it is assumed that the project, the project manager and the project team are assigned to the performing organization. Project management processes are grouped into five categories known as Project Management Process Groups (or Process Groups):

- **Initiating Process Group.** Those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase.
- **Planning Process Group.** Those processes required to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.
- **Executing Process Group.** Those processes performed to complete the work defined in the project management plan to satisfy the project specifications.
- **Monitoring and Controlling Process Group.** Those processes required to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes.
- **Closing Process Group.** Those processes performed to finalize all activities across all Process Groups to formally close the project or phase.

Project Management Process Groups are linked by the outputs they produce. The Process Groups are seldom either discrete or one-time events; they are overlapping activities that occur throughout the project. The output of one process generally becomes an input to another process or is a deliverable of the project, subproject, or project phase. Deliverables at the subproject or project level may be called incremental deliverables. The Planning Process Group provides the Executing Process Group with the project management plan and project documents, and, as the project progresses, it often creates updates to the project management plan and the project documents. Figure A1-1 illustrates how the Process Groups interact and shows the level of overlap at various times. If the project is divided into phases, the Process Groups interact within each phase.

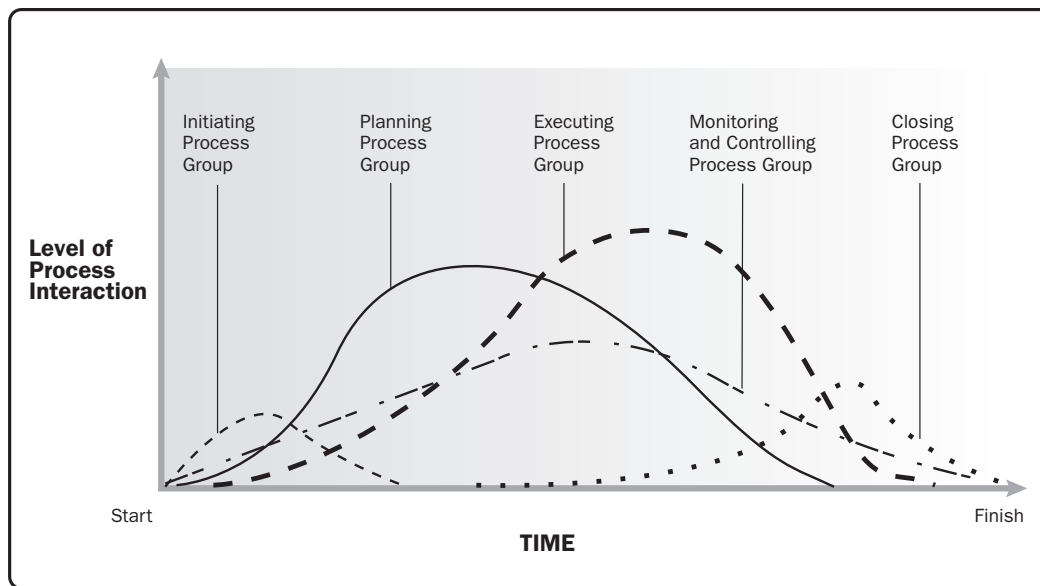


Figure A1-1. Process Group Interactions in a Project

An example of this interaction would be the exit of a design phase, which requires sponsor acceptance of the design document. Once it is available, the design document provides the product description for the Planning and Executing Process Groups in one or more subsequent phases. When a project is divided into phases, the Process Groups are carried out, as appropriate, to effectively drive the project to completion in a controlled manner. In multiphase projects, processes are repeated within each phase until the criteria for phase completion have been satisfied.

A1.3 Project Management Process Groups

The following sections identify and describe the five Project Management Process Groups required for any project. These five Process Groups have clear dependencies and are typically performed in each project and highly interact with one another. These five Process Groups are independent of application areas or industry focus. Individual Process Groups and individual processes are often iterated prior to completing the project and can have interactions within a Process Group and among Process Groups. The nature of these interactions varies from project to project and may or may not be performed in a particular order.

The process flow diagram, Figure A1-2, provides an overall summary of the basic flow and interactions among Process Groups and specific stakeholders. The project management processes are linked by inputs and outputs where the result or outcome of one process becomes the input to another process but not necessarily in the same Process Group. **The Process Groups are not project phases.** In fact, it is possible that all Process Groups could be conducted within a phase. As projects are separated into distinct phases or subcomponents, such as concept development, feasibility study, design, prototype, build, or test, etc., all of the Process Groups would normally be repeated for each phase or subcomponent along the lines explained above and illustrated in Figure A1-2.

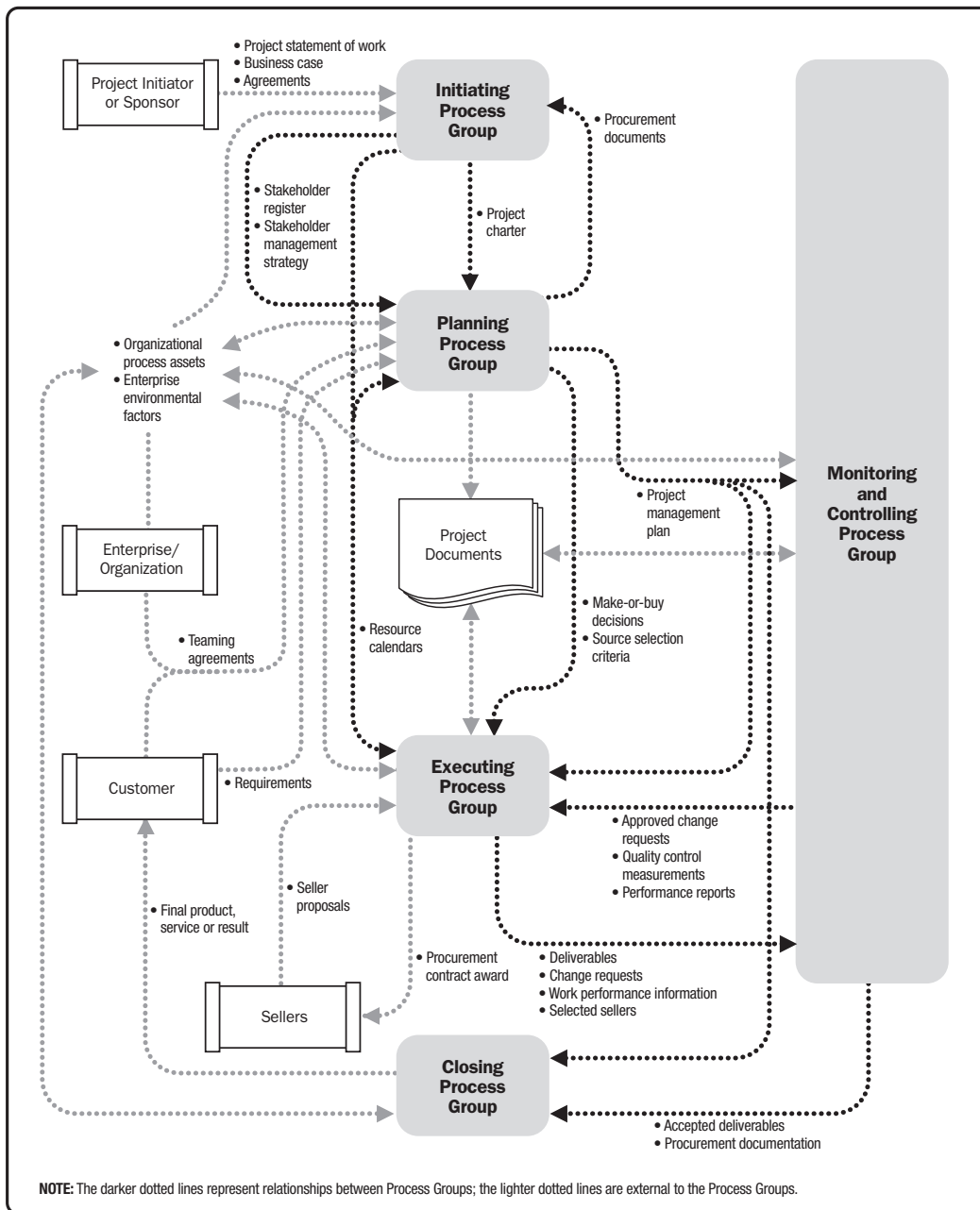


Figure A1-2. Project Management Process Interactions

Table A1-1 reflects the mapping of the 47 project management processes into the 5 Project Management Process Groups and the 10 Project Management Knowledge Areas.

The project management processes are shown in the Process Group in which most of the activity takes place. For example, when a process that normally takes place in the Planning Process Group is updated in the Executing Process Group, it is not considered a new process. The iterative nature of project management means that processes from any group may be used throughout the project life cycle. For example, executing a risk response may trigger the Perform Quantitative Risk Analysis process to evaluate the impact.

Table A1-1. Project Management Process Group and Knowledge Area Mapping

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

A1.4 Initiating Process Group

The Initiating Process Group consists of those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase. Within the Initiating processes, the initial scope is defined and initial financial resources are committed. Internal and external stakeholders who will interact and influence the overall outcome of the project are identified. If not already assigned, the project manager will be selected. This information is captured in the project charter and stakeholder register. When the project charter is approved, the project becomes officially authorized. Although the project management team may help to write the project charter, this standard assumes that business case assessment, approval, and funding are handled external to the project boundaries (Figure A1-3). A project boundary is defined as the point in time that a project or project phase is authorized to its completion. The key purpose of this Process Group is to align the stakeholders' expectations with the project's purpose, give them visibility about the scope and objectives, and show how their participation in the project and its associated phases can ensure that their expectations are achieved. These processes help to set the vision of the project—what is needed to be accomplished.

Large complex projects should be divided into separate phases. In such projects, the Initiating processes are carried out during subsequent phases to validate the decisions made during the original Develop Project Charter and Identify Stakeholders processes. Performing the Initiating processes at the start of each phase helps to keep the project focused on the business need that the project was undertaken to address. The success criteria are verified, and the influence, drivers, and objectives of the project stakeholders are reviewed. A decision is then made as to whether the project should be continued, delayed, or discontinued.

Involving the sponsors, customers, and other stakeholders during initiation creates a shared understanding of success criteria, reduces the overhead of involvement, and generally improves deliverable acceptance, customer, and other stakeholder satisfaction.

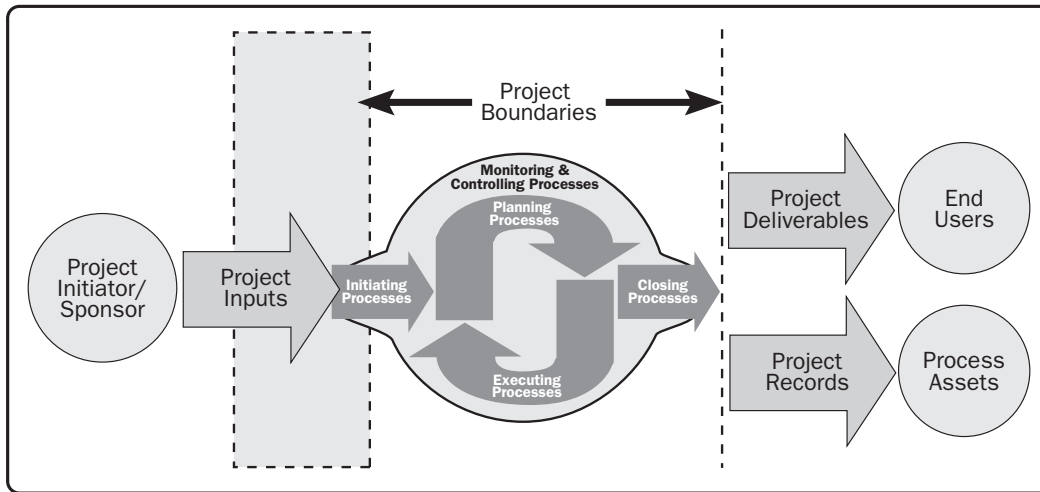


Figure A1-3. Project Boundaries

Initiating processes may be performed at the organizational, program, or portfolio level and would then be outside of the project’s level of control. For example, prior to commencing a project, the need for high-level requirements may be documented as part of a larger organizational initiative. A process of evaluating alternatives may be utilized to determine the feasibility of the new undertaking. Clear descriptions of the project objectives may be developed, including the reasons why a specific project is the best alternative to satisfy the requirements. The documentation for this decision may also contain the initial project scope statement, deliverables, project duration, and a forecast of the resources for the organization’s investment analysis. As part of the Initiating processes, the project manager is given the authority to apply organizational resources to the subsequent project activities.

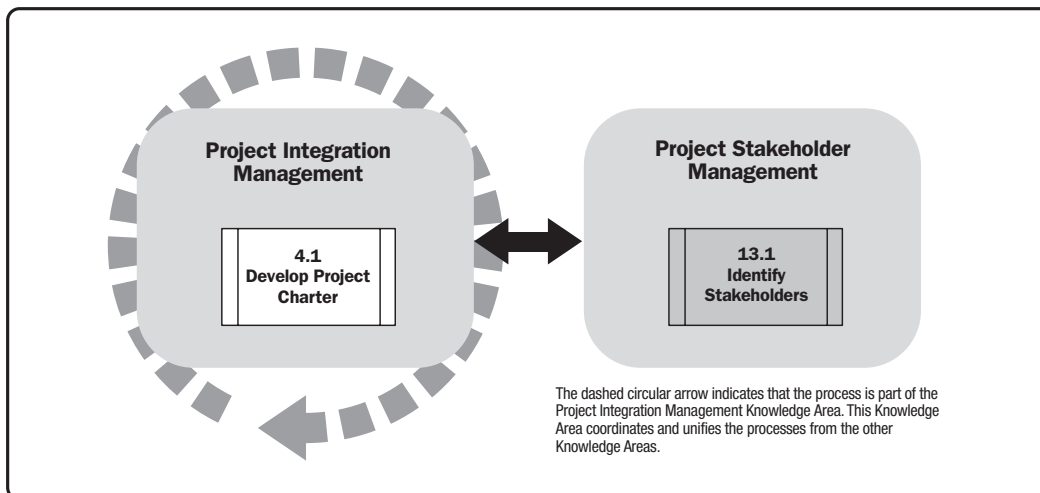


Figure A1-4. Initiating Process Group

A1.4.1 Develop Project Charter

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. The key benefit of this process is a well-defined project start and project boundaries, creation of a formal record of the project, and a direct way for senior management to formally accept and commit to the project. The inputs and outputs for this process are shown in Figure A1-5.

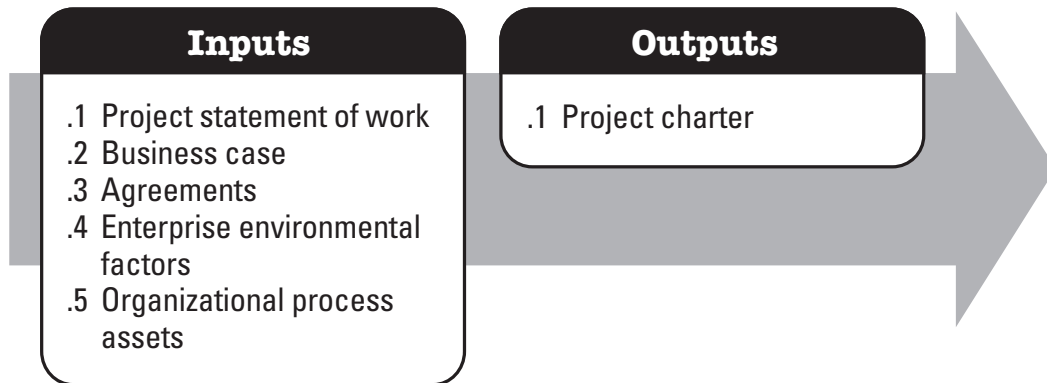


Figure A1-5. Develop Project Charter: Inputs and Outputs

A1.4.2 Identify Stakeholders

Identify Stakeholders is the process of identifying the people, groups, or organizations that could impact or be impacted by a decision, activity, or outcome of the project; and analyzing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and potential impact on project success. The key benefit of this process is that it allows the project manager to identify the appropriate focus for each stakeholder or group of stakeholders. The inputs and outputs of this process are depicted in Figure A1-6.

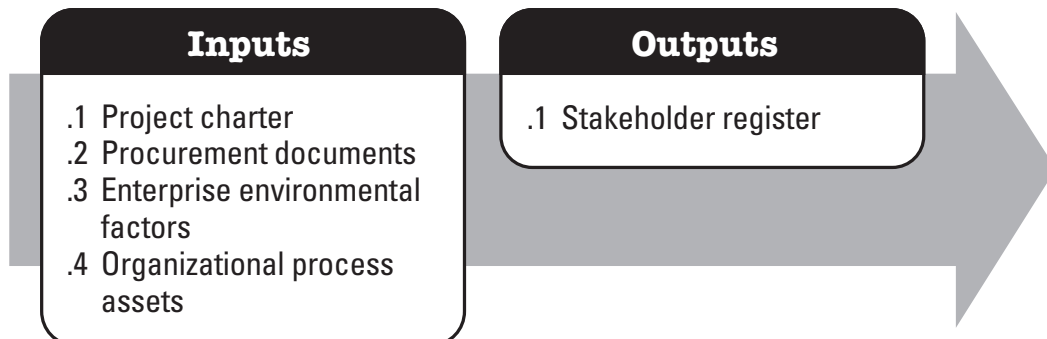


Figure A1-6. Identify Stakeholders: Inputs and Outputs

A1.5 Planning Process Group

The Planning Process Group consists of those processes performed to establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives. The Planning processes develop the project management plan and the project documents that will be used to carry out the project. The complex nature of project management may require the use of repeated feedback loops for additional analysis. As more project information or characteristics are gathered and understood, additional planning will likely be required. Significant changes occurring throughout the project life cycle trigger a need to revisit one or more of the planning processes and, possibly, some of the initiating processes. This progressive detailing of the project management plan is called progressive elaboration, indicating that planning and documentation are iterative and ongoing activities. The key benefit of this Process Group is to delineate the strategy and tactics as well as the course of action or a path to successfully complete the project or phase. When the Planning Process Group is well managed, it is much easier to get stakeholder buy-in and engagement. These processes describe how this will be done, resulting in the desired objectives.

The project management plan and project documents developed as outputs from the Planning Process Group will explore all aspects of the scope, time, costs, quality, communications, human resources, risks, procurements, and stakeholder management.

Updates arising from approved changes during the project (generally during Monitoring and Controlling processes and specifically during Direct and Manage Project Work process) may significantly impact parts of the project management plan and the project documents. Updates to these documents provide greater precision with respect to schedule, costs, and resource requirements to meet the defined project scope.

The project team seeks input and encourages involvement from all stakeholders when planning the project and developing the project management plan and project documents. Since the feedback and refinement process cannot continue indefinitely, procedures set by the organization dictate when the initial planning effort ends. These procedures will be affected by the nature of the project, the established project boundaries, appropriate monitoring and controlling activities, as well as the environment in which the project will be performed.

Other interactions among the processes within the Planning Process Group are dependent upon the nature of the project. For example, for some projects there will be little or no identifiable risks until after significant planning has been done. At that time, the team might recognize that the cost and schedule targets are overly aggressive, thus involving considerably more risk than previously understood. The results of the iterations are documented as updates to the project management plan or to various project documents.

The Planning Process Group (Figure A1-7) includes the project management processes identified in Figures A1-8 through A1-31 (see Sections A1.5.1 through A1.5.24).

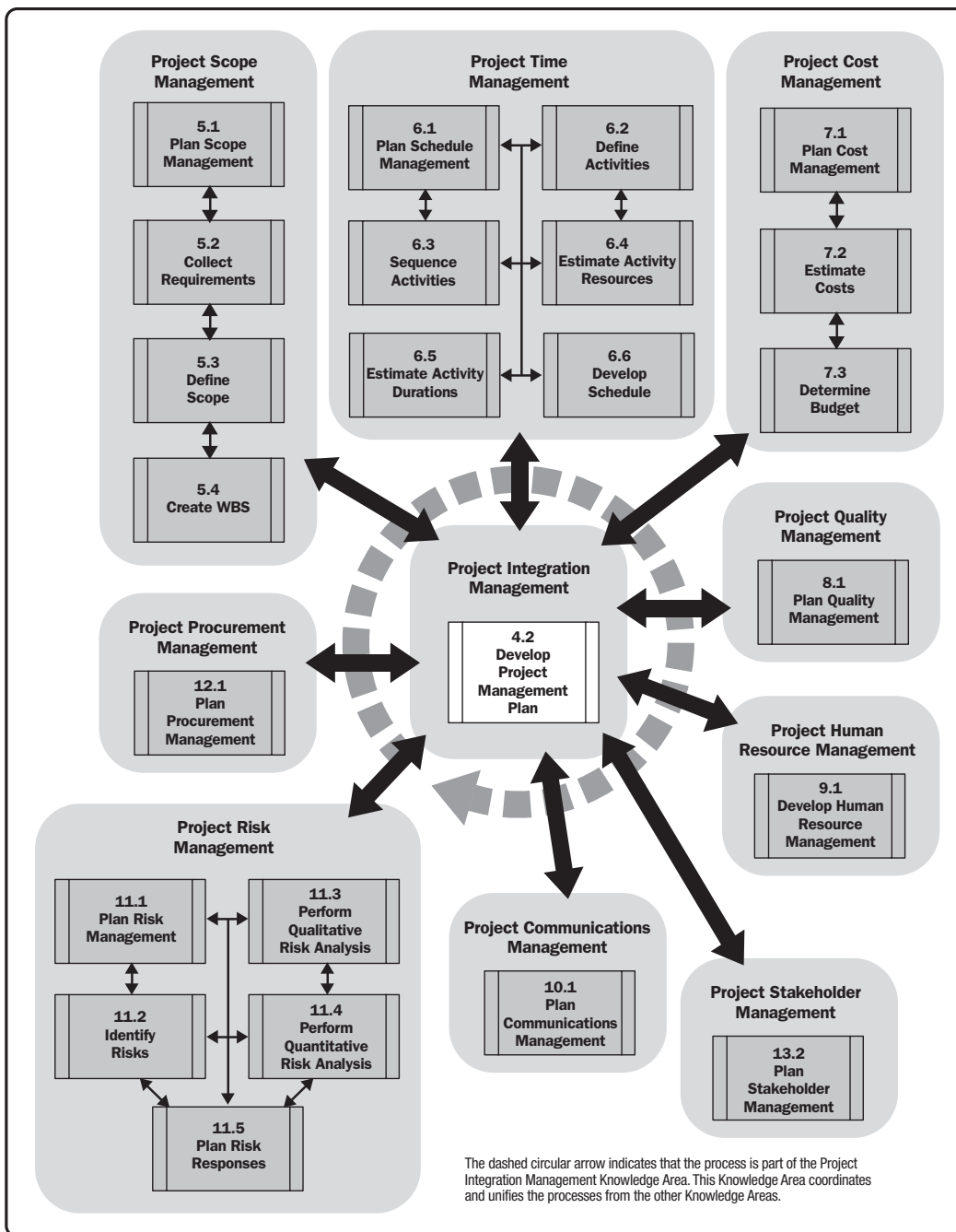


Figure A1-7. Planning Process Group

A1.5.1 Develop Project Management Plan

Develop Project Management Plan is the process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan. The key benefit of this process is a central document that defines the basis of all project work. The inputs and outputs for this process are depicted in Figure A1-8.

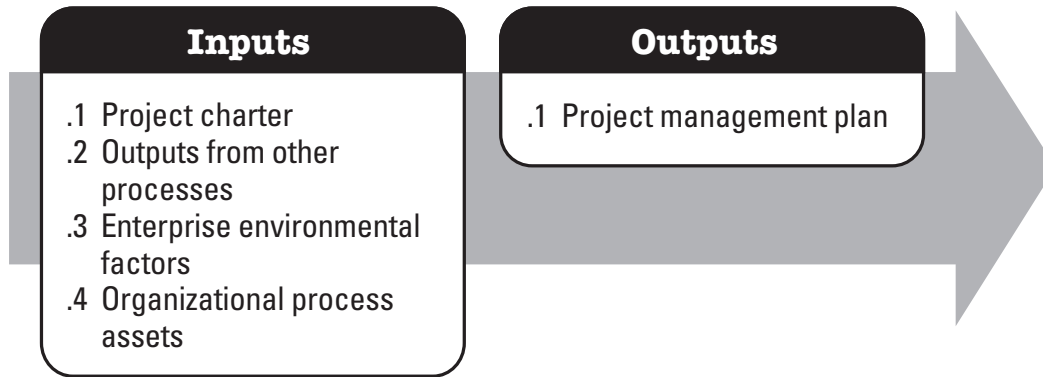


Figure A1-8. Develop Project Management Plan: Inputs and Outputs

A1.5.2 Plan Scope Management

Plan Scope Management is the process of creating a scope management plan that documents how the project scope will be defined, validated, and controlled. The key benefit of this process is that it provides guidance and direction on how scope will be managed throughout the project. The inputs and outputs of this process are depicted in Figure A1-9.

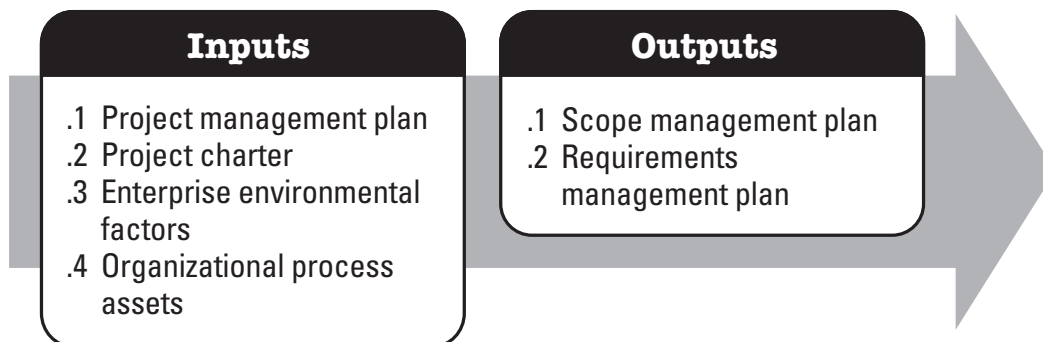


Figure A1-9. Plan Scope Management: Inputs and Outputs

A1.5.3 Collect Requirements

Collect Requirements is the process of determining, documenting, and managing stakeholder needs and requirements to meet project objectives. The key benefit of this process is that it provides the basis for defining and managing the project scope including product scope. The inputs and outputs of this process are depicted in Figure A1-10.

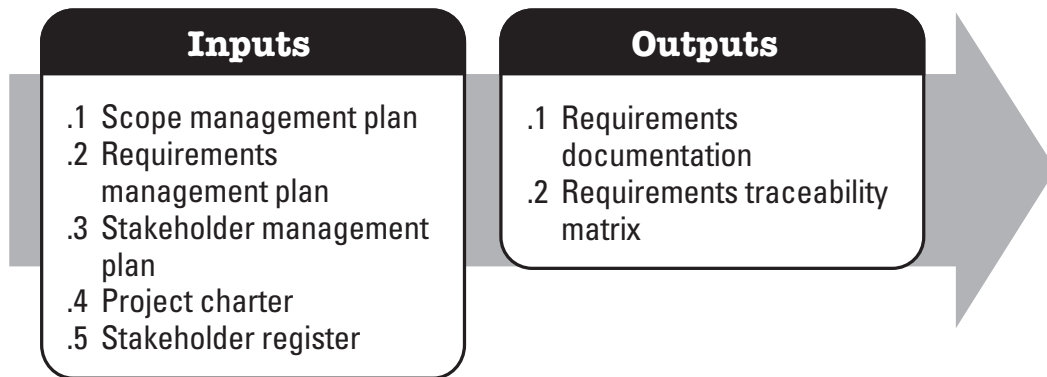


Figure A1-10. Collect Requirements: Inputs and Outputs

A1.5.4 Define Scope

Define Scope is the process of developing a detailed description of the project and product. The key benefit of this process is that it describes the project, service, or result boundaries by defining which of the requirements collected will be included in and excluded from the project scope. The inputs and outputs of this process are depicted in Figure A1-11.

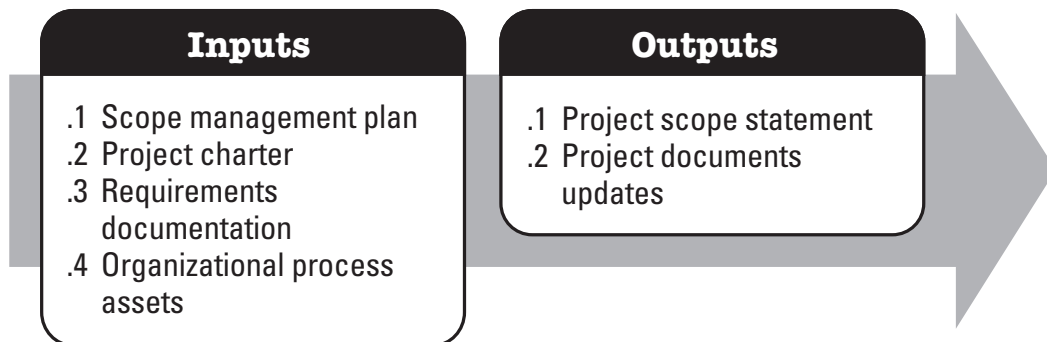


Figure A1-11. Define Scope: Inputs and Outputs

A1.5.5 Create WBS

Create WBS is the process of subdividing project deliverables and project work into smaller, more manageable components. The key benefit of this process is that it provides a structured vision of what has to be delivered. The inputs and outputs of this process are depicted in Figure A1-12.

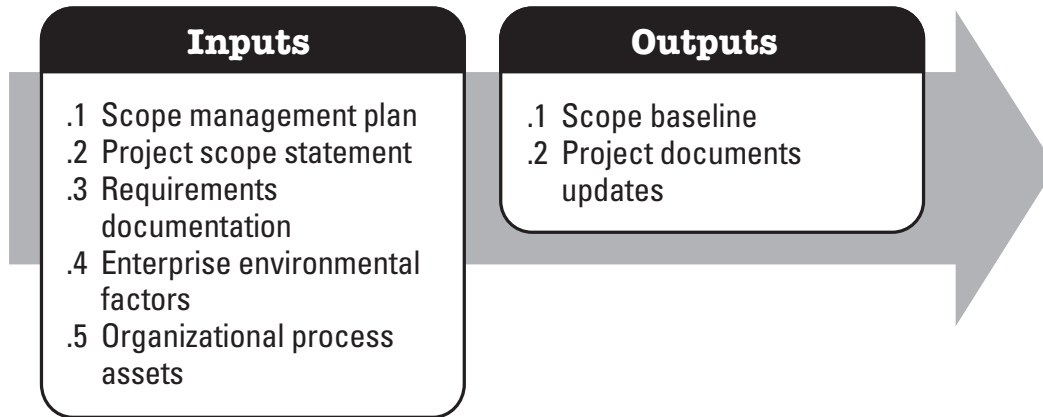


Figure A1-12. Create WBS: Inputs and Outputs

A1.5.6 Plan Schedule Management

Plan Schedule Management is the process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule. The key benefit of this process is that it provides guidance and direction on how the project schedule will be managed throughout the project. The inputs and outputs of this process are depicted in Figure A1-13.

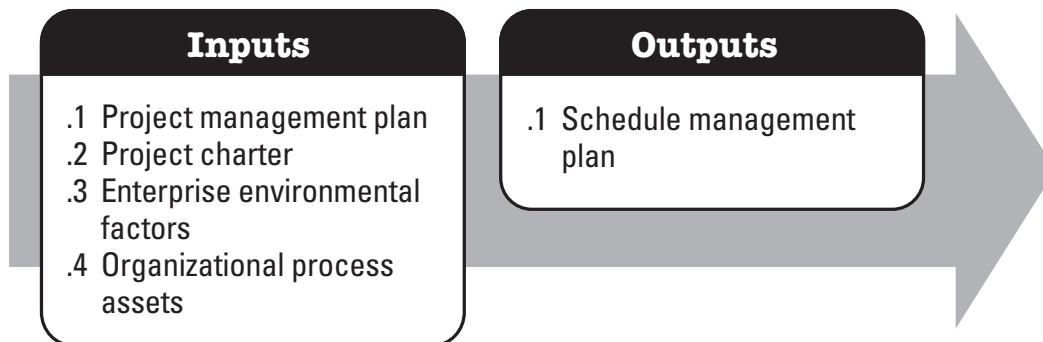


Figure A1-13. Plan Schedule Management: Inputs and Outputs

A1.5.7 Define Activities

Define Activities is the process of identifying and documenting the specific actions to be performed to produce the project deliverables. The key benefit of this process is to break down work packages into activities that provide a basis for estimating, scheduling, executing, monitoring, and controlling the project work. The inputs and outputs of this process are depicted in Figure A1-14.

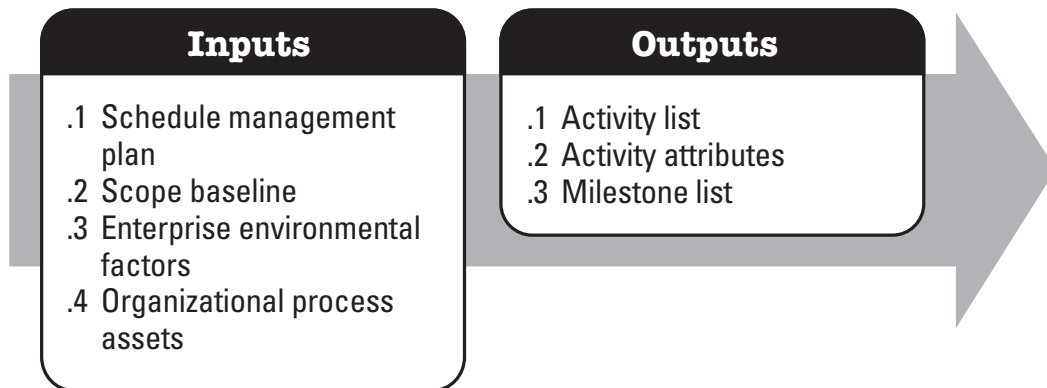


Figure A1-14. Define Activities: Inputs and Outputs

A1.5.8 Sequence Activities

Sequence Activities is the process of identifying and documenting relationships among the project activities. The key benefit of this process is that it defines the logical sequence of work to obtain the greatest efficiency given all project constraints. The inputs and outputs of this process are depicted in Figure A1-15.

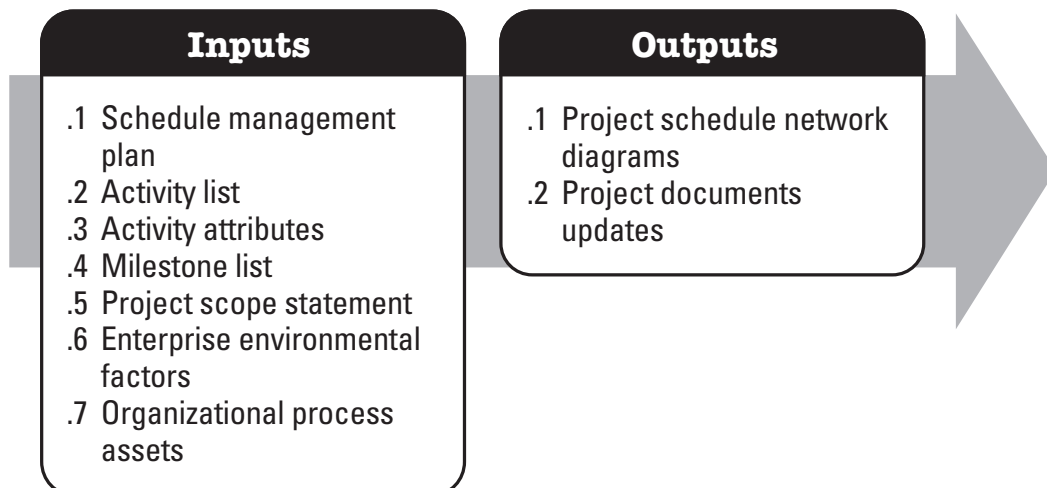


Figure A1-15. Sequence Activities: Inputs and Outputs

A1.5.9 Estimate Activity Resources

Estimate Activity Resources is the process of estimating the type and quantities of material, human resources, equipment, or supplies required to perform each activity. The key benefit of this process is that it identifies the type, quantity, and characteristics of resources required to complete the activity which allows more accurate cost and duration estimates. The inputs and outputs of this process are depicted in Figure A1-16.

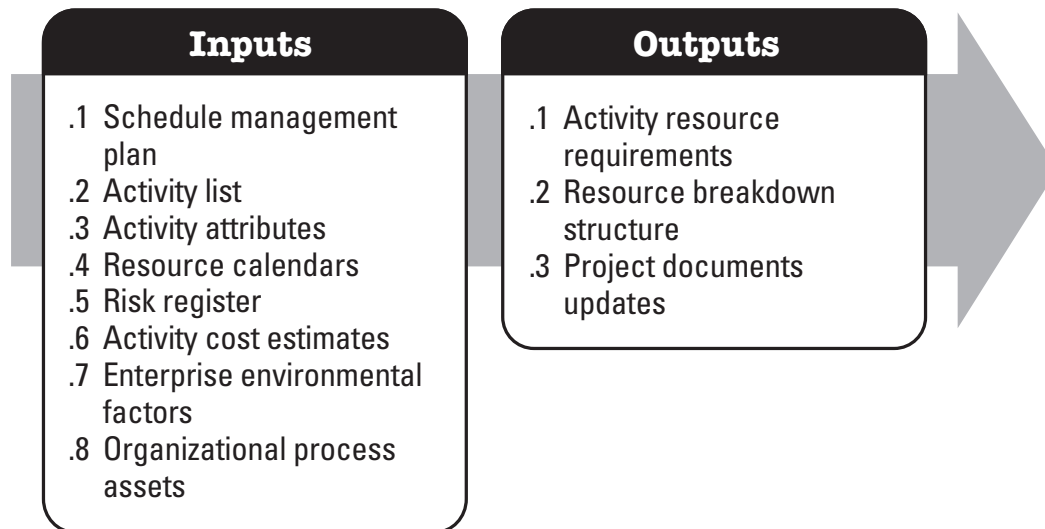


Figure A1-16. Estimate Activity Resources: Inputs and Outputs

A1.5.10 Estimate Activity Durations

Estimate Activity Durations is the process of estimating the number of work periods needed to complete individual activities with estimated resources. The key benefit of this process is that it provides the amount of time each activity will take to complete, which is a major input into the Develop Schedule process. The inputs and outputs of this process are depicted in Figure A1-17.

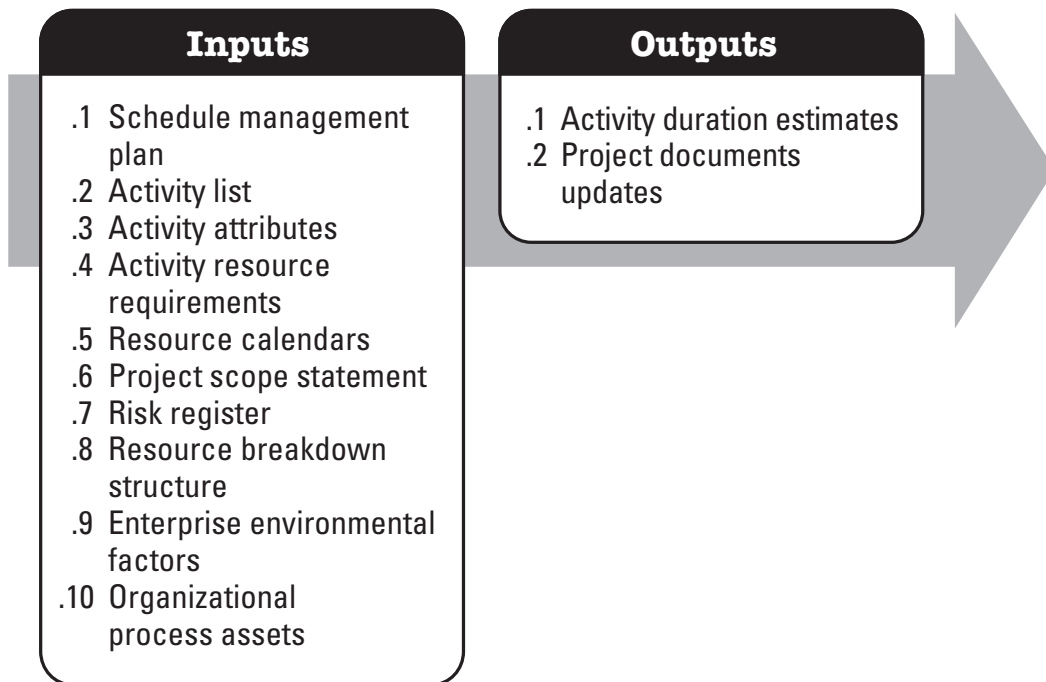


Figure A1-17. Estimate Activity Durations: Inputs and Outputs

A1.5.11 Develop Schedule

Develop Schedule is the process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule model. The key benefit of this process is that by entering schedule activities, durations, resources, resource availabilities, and logical relationships into the scheduling tool, it generates a schedule model with planned dates for completing project activities. The inputs and outputs of this process are depicted in Figure A1-18.

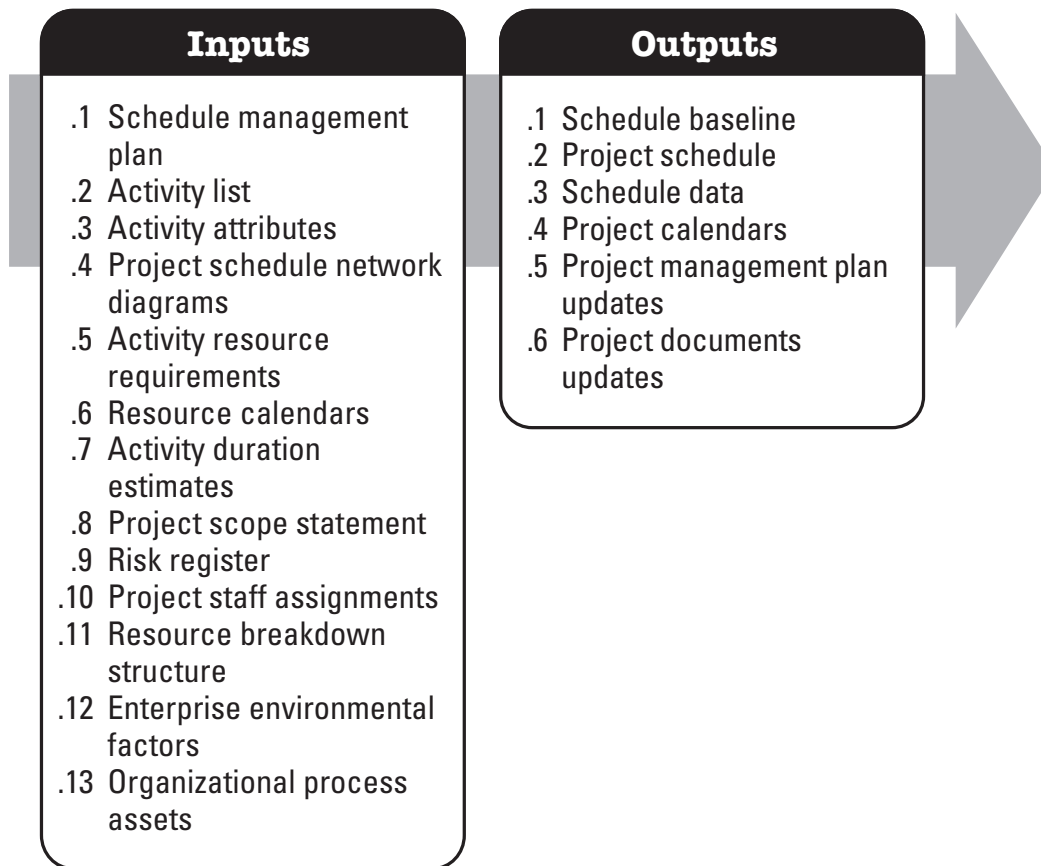


Figure A1-18. Develop Schedule: Inputs and Outputs

A1.5.12 Plan Cost Management

Plan Cost Management is the process that establishes the policies, procedures, and documentation for planning, managing, expending, and controlling project costs. The key benefit of this process is that it provides guidance and direction on how the project costs will be managed throughout the project. The inputs and outputs of this process are depicted in Figure A1-19.

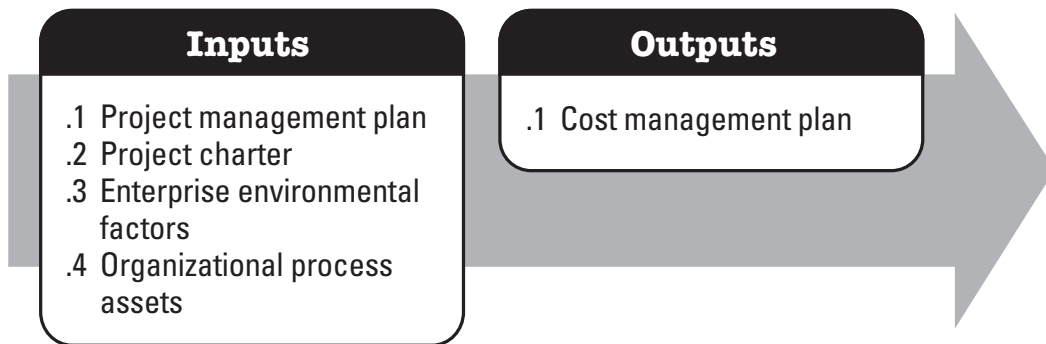


Figure A1-19. Plan Cost Management: Inputs and Outputs

A1.5.13 Estimate Costs

Estimate Costs is the process of developing an approximation of the monetary resources needed to complete project activities. The key benefit of this process is that it determines the amount of cost required to complete project work. The inputs and outputs of this process are depicted in Figure A1-20.

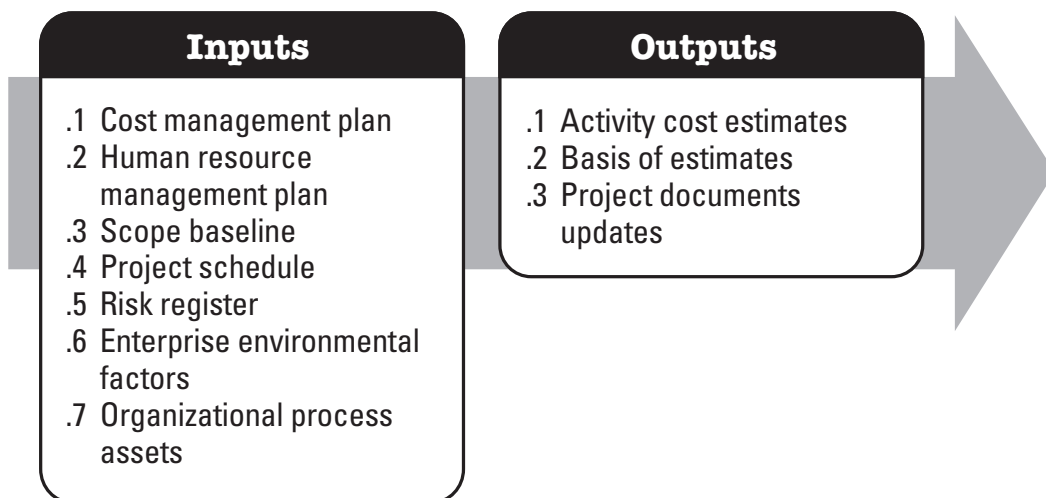


Figure A1-20. Estimate Costs: Inputs and Outputs

A1.5.14 Determine Budget

Determine Budget is the process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline. The key benefit of this process is that it determines the cost baseline against which project performance can be monitored and controlled. The inputs and outputs of this process are depicted in Figure A1-21.

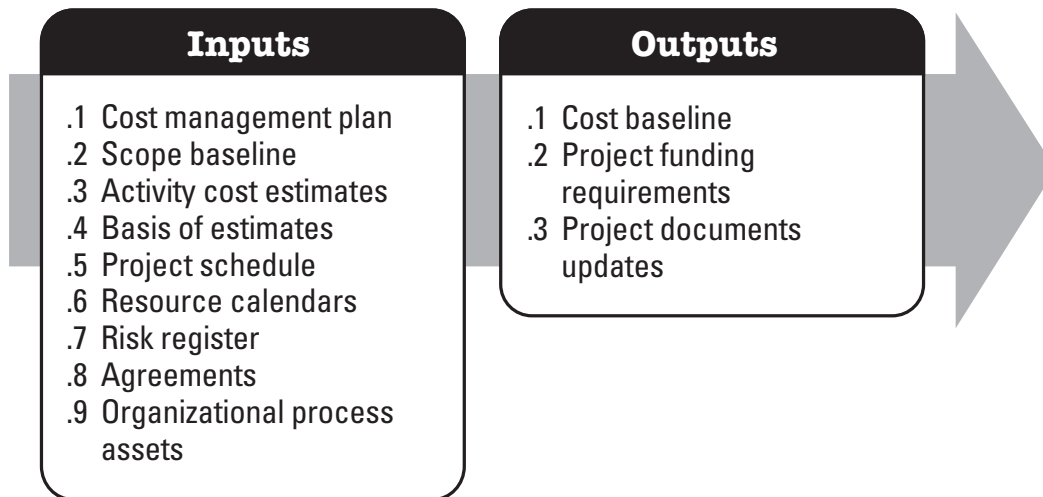


Figure A1-21. Determine Budget: Inputs and Outputs

A1.5.15 Plan Quality Management

Plan Quality Management is the process of identifying quality requirements and/or standards for the project and its deliverables, and documenting how the project will demonstrate compliance with relevant quality requirements. The key benefit of this process is that it provides guidance and direction on how quality will be managed and validated throughout the project. The input and outputs of this process are depicted in Figure A1-22.

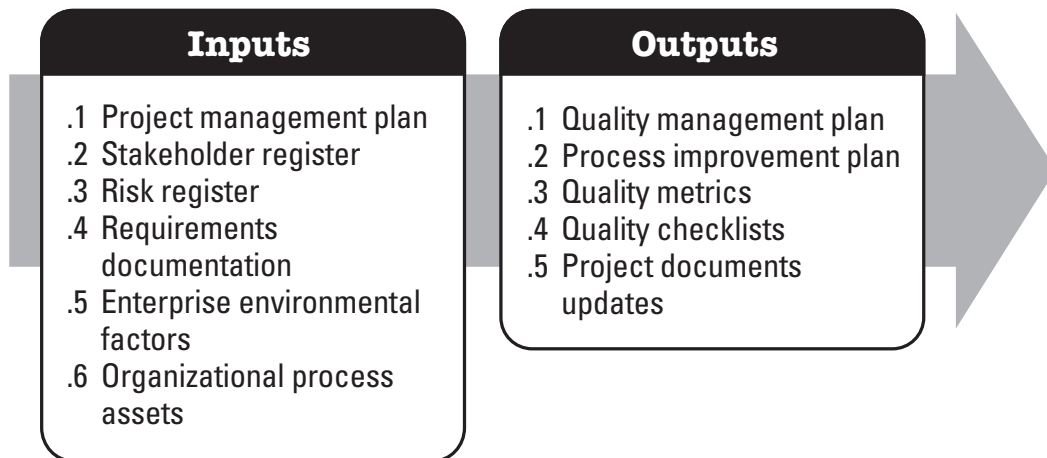


Figure A1-22. Plan Quality Management: Inputs and Outputs

A1.5.16 Plan Human Resource Management

Plan Human Resource Management is the process of identifying and documenting project roles, responsibilities, required skills, reporting relationships, and creating a staffing management plan. The key benefit of this process is that it establishes project roles and responsibilities, project organization charts, and the staffing management plan including the timetable for staff acquisition and release. The input and outputs of this process are depicted in Figure A1-23.

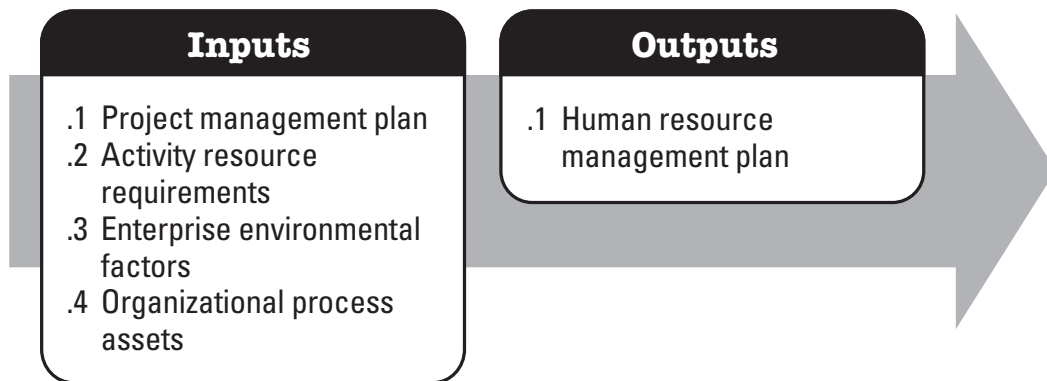


Figure A1-23. Plan Human Resource Management: Inputs and Outputs

A1.5.17 Plan Communications Management

Plan Communications Management is the process of developing an appropriate approach and plan for project communications based on stakeholder's information needs and requirements, and available organizational assets. The key benefit of this process is that it identifies and documents the approach to communicate most effectively and efficiently with stakeholders. The inputs and outputs of this process are depicted in Figure A1-24.

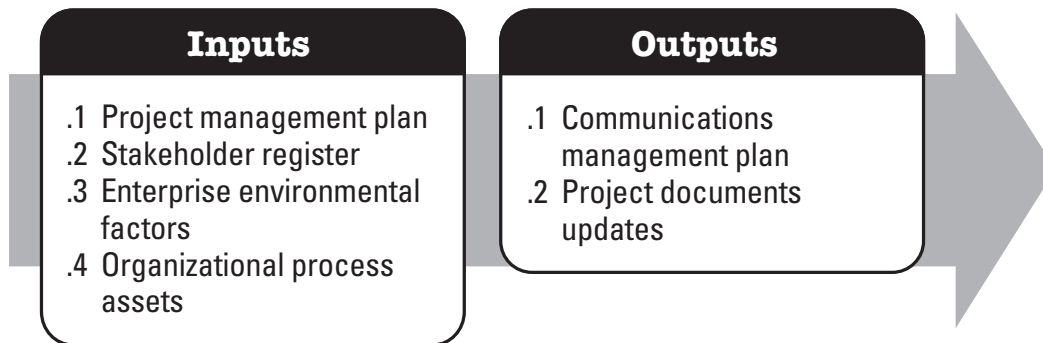


Figure A1-24. Plan Communications Management: Inputs and Outputs

A1.5.18 Plan Risk Management

Plan Risk Management is the process of defining how to conduct risk management activities for a project. The key benefit of this process is that it ensures that the degree, type, and visibility of risk management are commensurate with both the risks and the importance of the project to the organization. The input and outputs of this process are depicted in Figure A1-25.

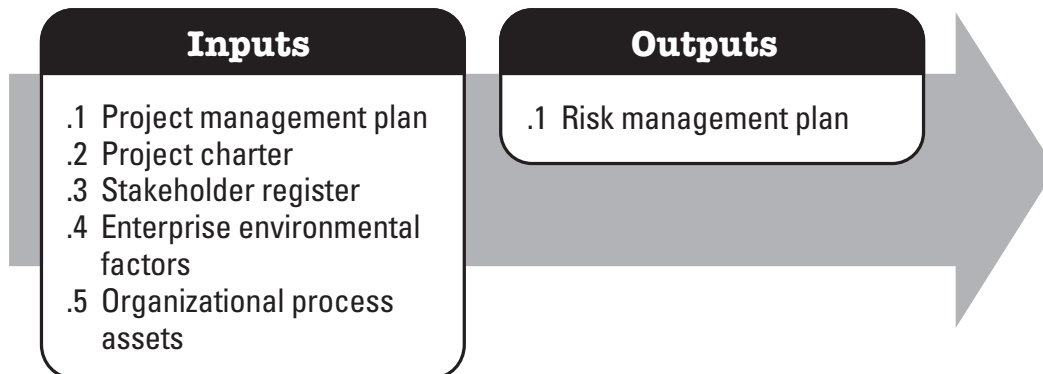


Figure A1-25. Plan Risk Management: Inputs and Outputs

A1.5.19 Identify Risks

Identify Risks is the process of determining which risks may affect the project and documenting their characteristics. The key benefit of this process is the documentation of existing risks and the knowledge and ability it provides to the project team to anticipate events. The inputs and outputs of this process are depicted in Figure A1-26.

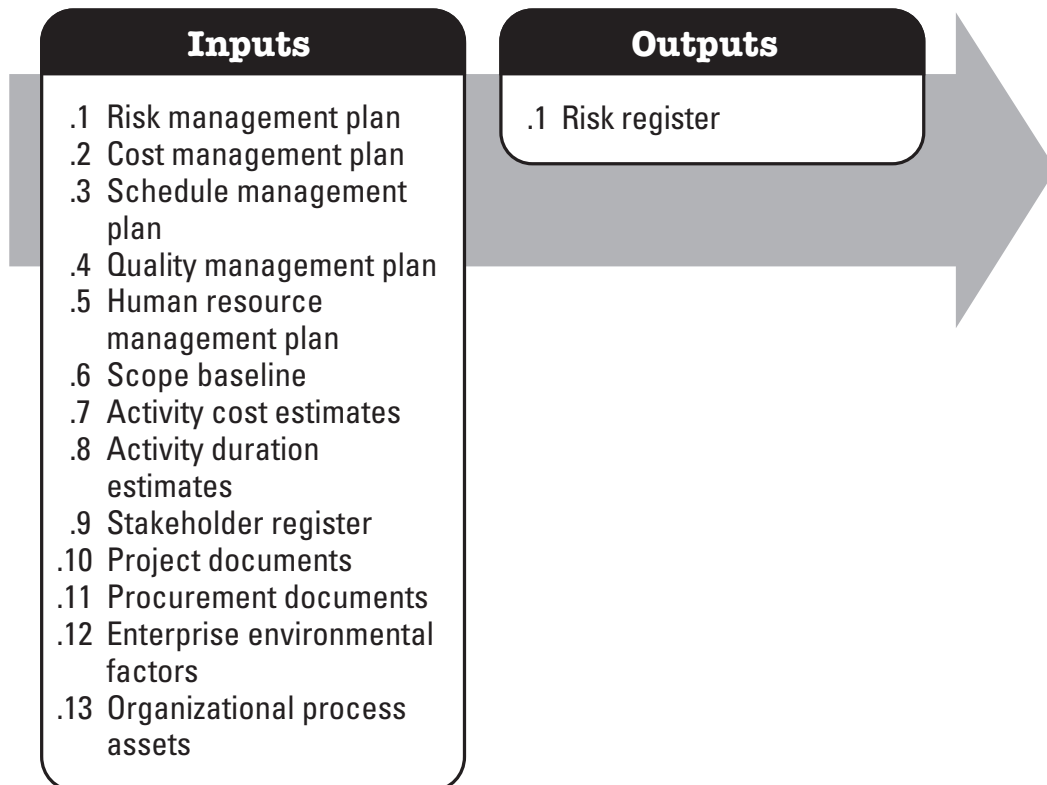


Figure A1-26. Identify Risks: Inputs and Outputs

A1.5.20 Perform Qualitative Risk Analysis

Perform Qualitative Risk Analysis is the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact. The key benefit of this process is that it enables project managers to reduce the level of uncertainty and to focus on high-priority risks. The inputs and outputs of this process are depicted in Figure A1-27.

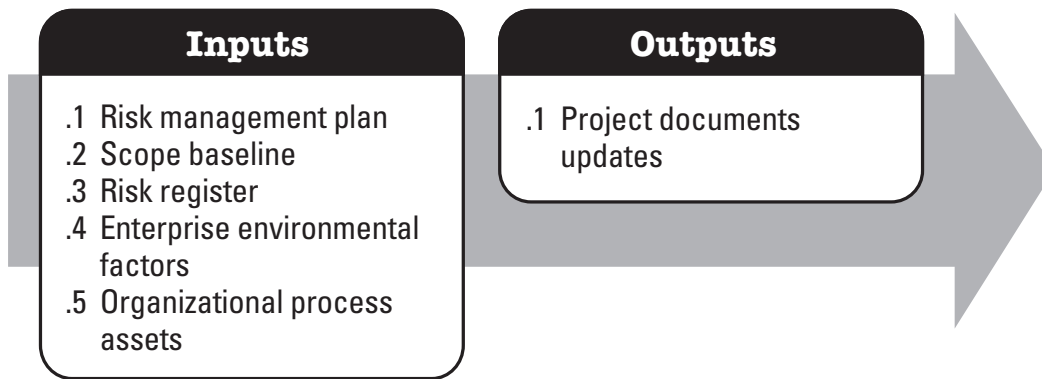


Figure A1-27. Perform Qualitative Risk Analysis: Inputs and Outputs

A1.5.21 Perform Quantitative Risk Analysis

Perform Quantitative Risk Analysis is the process of numerically analyzing the effect of identified risks on overall project objectives. The key benefit of this process is that it produces quantitative risk information to support decision making in order to reduce project uncertainty. The inputs and outputs of this process are depicted in Figure A1-28.

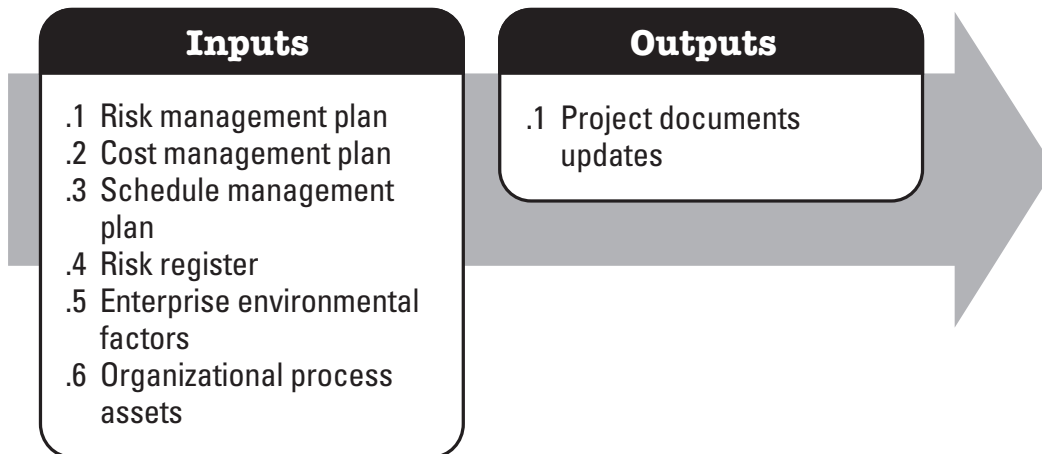


Figure A1-28. Perform Quantitative Risk Analysis: Inputs and Outputs

A1.5.22 Plan Risk Responses

Plan Risk Responses is the process of developing options and actions to enhance opportunities and to reduce threats to project objectives. The key benefit of this process is that it addresses the risks by their priority, inserting resources and activities into the budget, schedule and project management plan as needed. The inputs and outputs of this process are depicted in Figure A1-29.

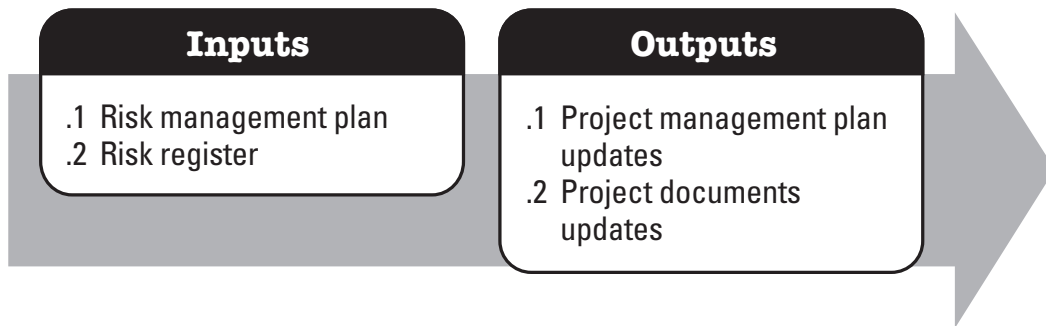


Figure A1-29. Plan Risk Responses: Inputs and Outputs

A1.5.23 Plan Procurement Management

Plan Procurement Management is the process of documenting project procurement decisions, specifying the approach, and identifying potential sellers. The key benefit of this process is that it determines whether to acquire outside support, and if so, what to acquire, how to acquire it, how much is needed, and when to acquire it. The inputs and outputs of this process are depicted in Figure A1-30.

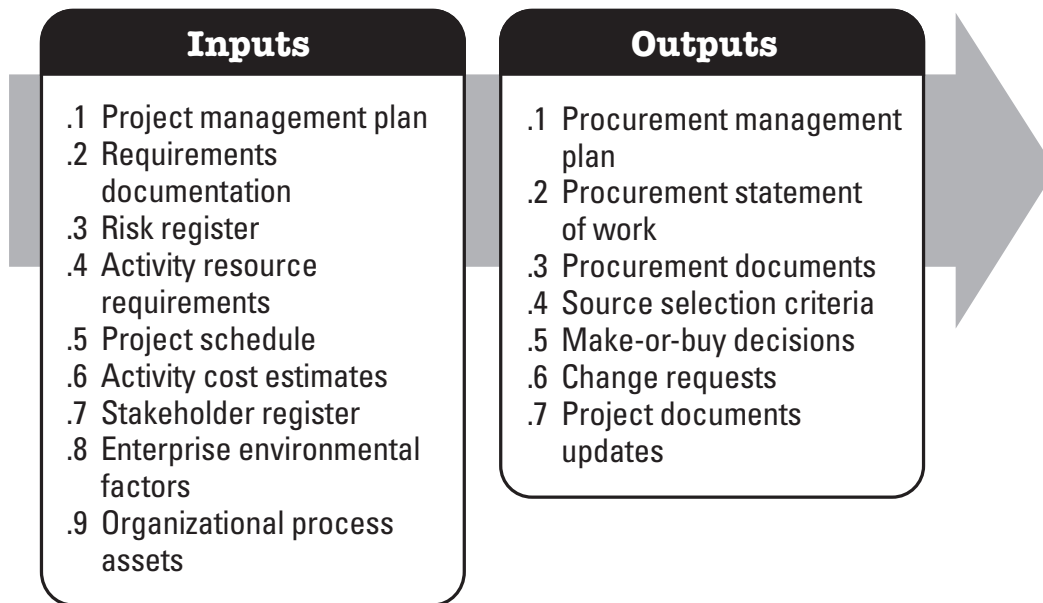


Figure A1-30. Plan Procurement Management: Inputs and Outputs

A1.5.24 Plan Stakeholder Management

Plan Stakeholder Management is the process of developing appropriate management strategies to effectively engage stakeholders throughout the project life cycle, based on the analysis of their needs, interests, and potential impact on project success. The key benefit of this process is that it provides a clear, actionable plan to interact with project stakeholders to support the project's interests. The inputs and outputs of this process are depicted in Figure A1-31.

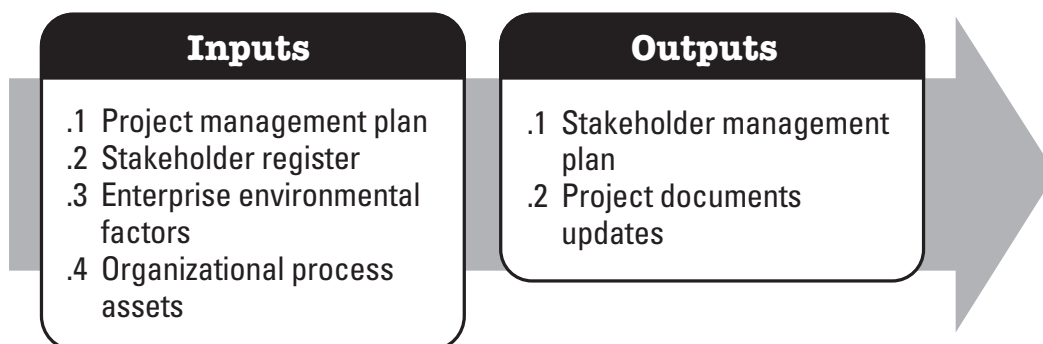


Figure A1-31. Plan Stakeholder Management: Inputs and Outputs

A1.6 Executing Process Group

The Executing Process Group consists of those processes performed to complete the work defined in the project management plan to satisfy the project specifications. This Process Group involves coordinating people and resources, managing stakeholder expectations, as well as integrating and performing the activities of the project in accordance with the project management plan (Figure A1-32).

During project execution, results may require planning updates and rebaselining. This can include changes to expected activity durations, changes in resource productivity and availability, and unanticipated risks. Such variances may affect the project management plan or project documents and may require detailed analysis and development of appropriate project management responses. The results of the analysis can trigger change requests that, if approved, may modify the project management plan or other project documents and possibly require establishing new baselines. A large portion of the project's budget will be expended in performing the Executing Process Group processes. The Executing Process Group (Figure A1-32) includes the project management processes identified in Figures A1-33 through A1-40 (see Sections A1.6.1 through A1.6.8).

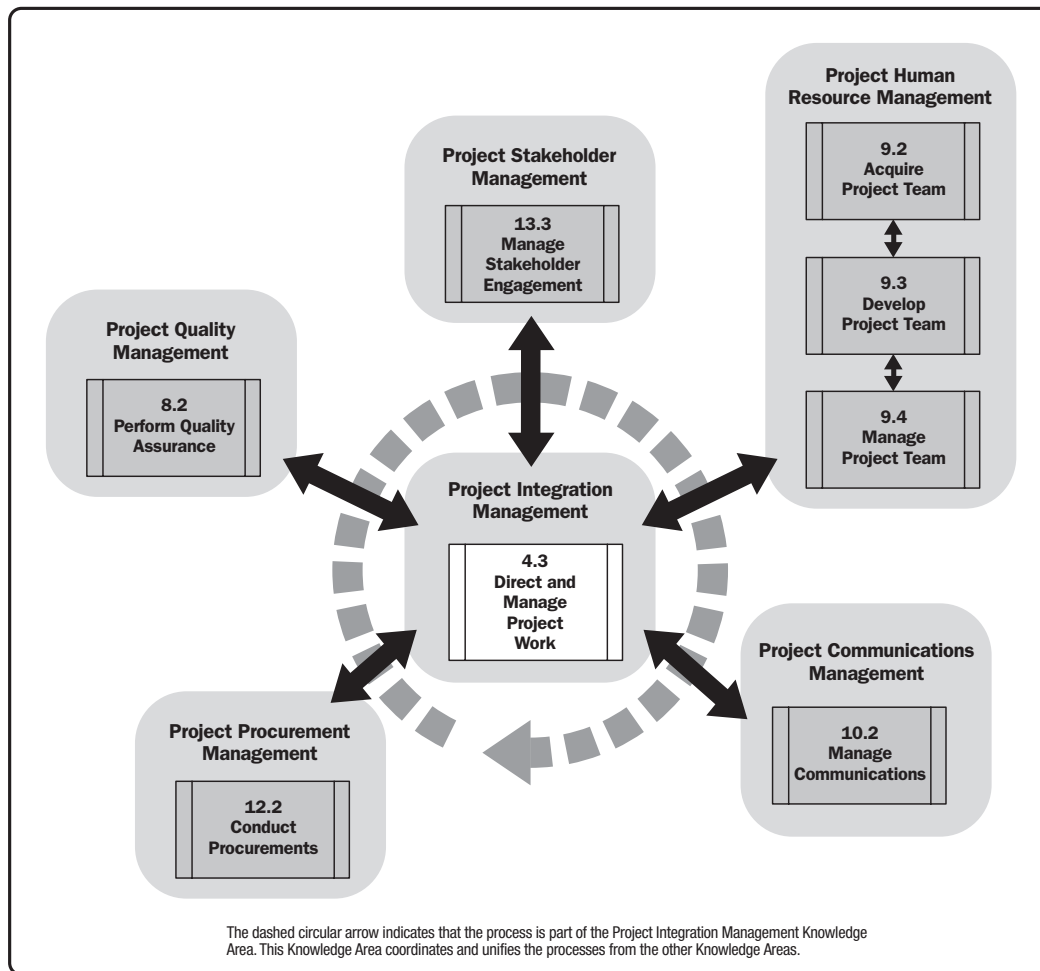


Figure A1-32. Executing Process Group

A1.6.1 Direct and Manage 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 inputs and outputs of this process are depicted in Figure A1-33.

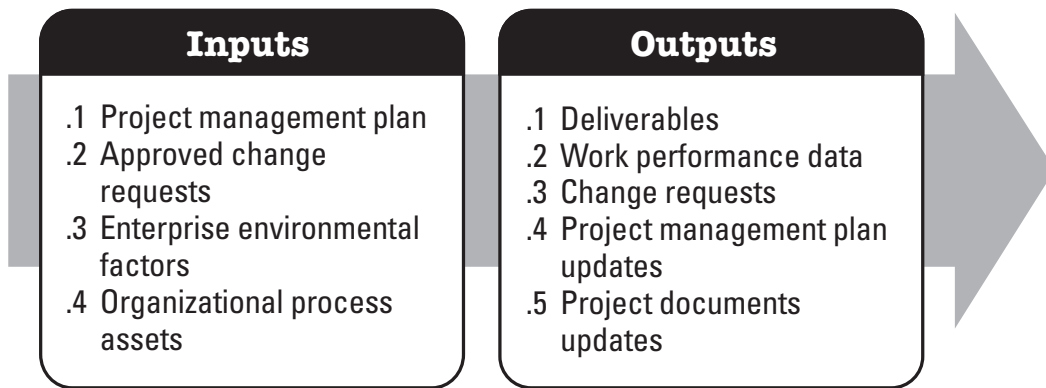


Figure A1-33. Direct and Manage Project Work: Inputs and Outputs

A1.6.2 Perform Quality Assurance

Perform Quality Assurance is the process of auditing the quality requirements and the results from quality control measurements to ensure that appropriate quality standards and operational definitions are used. The key benefit of this process is it facilitates the improvement of quality processes. The input and outputs of this process are depicted in Figure A1-34.

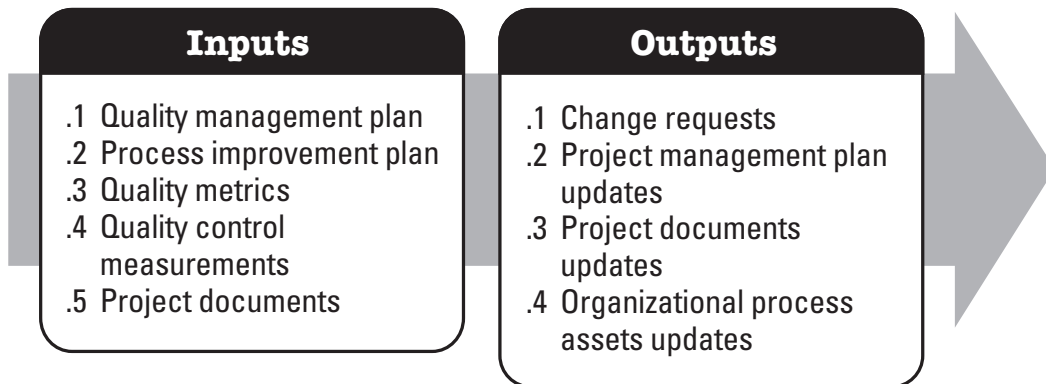


Figure A1-34. Perform Quality Assurance: Inputs and Outputs

A1.6.3 Acquire Project Team

Acquire Project Team is the process of confirming human resource availability and obtaining the team necessary to complete project activities. The key benefit of this process consists of outlining and guiding the team selection and responsibility assignment to obtain a successful team. The inputs and outputs of this process are depicted in Figure A1-35.

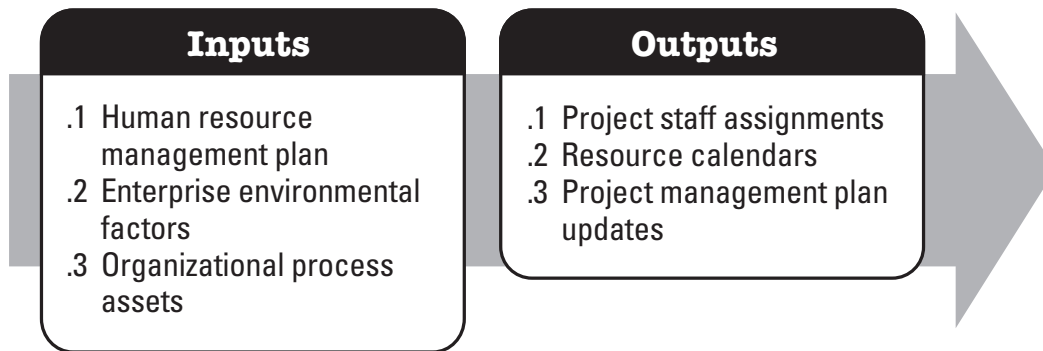


Figure A1-35. Acquire Project Team: Inputs and Outputs

A1.6.4 Develop Project Team

Develop Project Team is the process of improving competencies, team member interaction, and overall team environment to enhance project performance. The key benefit of this process is that it results in improved teamwork, enhanced people skills and competencies, motivated employees, reduced staff turnover rates, and improved overall project performance. The inputs and outputs of this process are depicted in Figure A1-36.

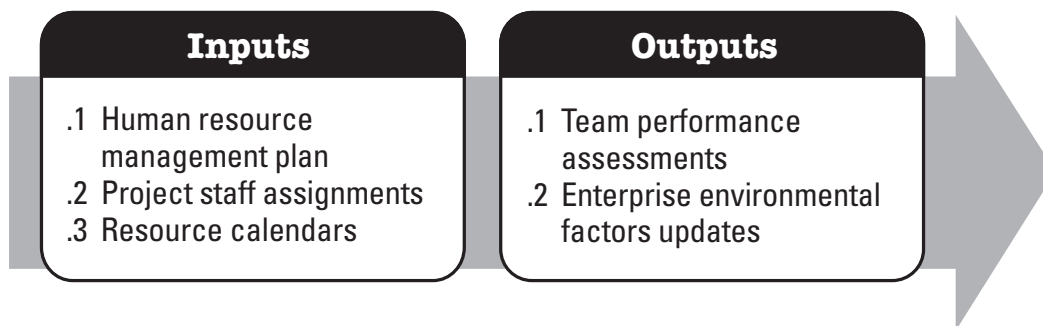


Figure A1-36. Develop Project Team: Inputs and Outputs

A1.6.5 Manage Project Team

Manage Project Team is the process of tracking team member performance, providing feedback, resolving issues, and managing team changes to optimize project performance. The key benefit of this process is that it influences team behavior, manages conflict, resolves issues, and appraises team member performance. The inputs and outputs of this process are depicted in Figure A1-37.

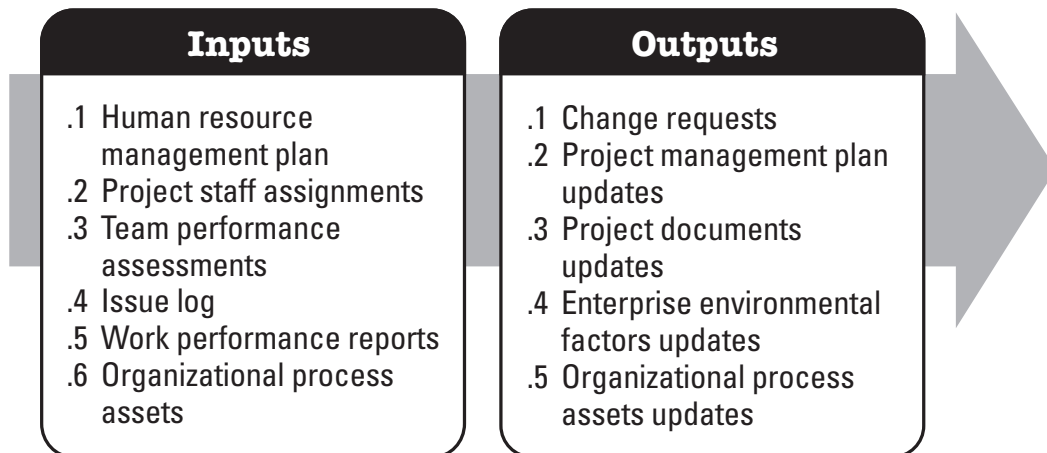


Figure A1-37. Manage Project Team: Inputs and Outputs

A1.6.6 Manage Communications

Manage Communications is the process of creating, collecting, distributing, storing, retrieving, and the ultimate disposition of project information in accordance with the communications management plan. The key benefit of this process is that it enables an efficient and effective communications flow between project stakeholders. The inputs and outputs of this process are depicted in Figure A1-38.

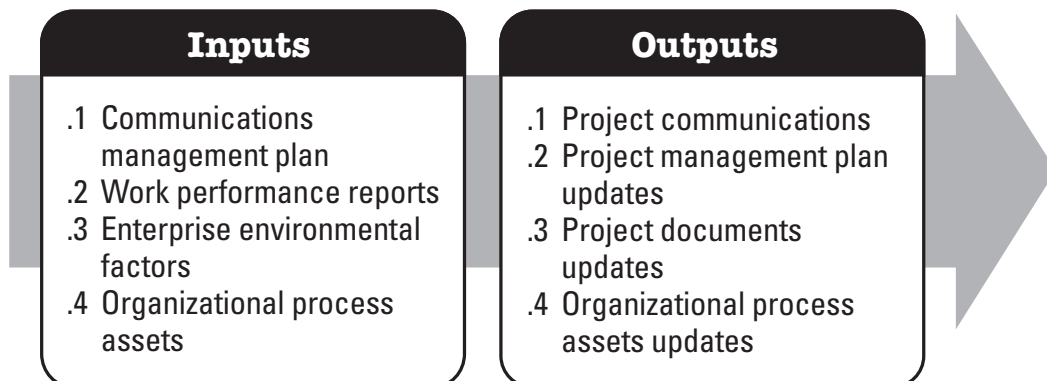


Figure A1-38. Manage Communications: Inputs and Outputs

A1.6.7 Conduct Procurements

Conduct Procurements is the process of obtaining seller responses, selecting a seller, and awarding a contract. The key benefit of this process is that it provides alignment of internal and external stakeholder expectations through established agreements. The inputs and outputs of this process are depicted in Figure A1-39.

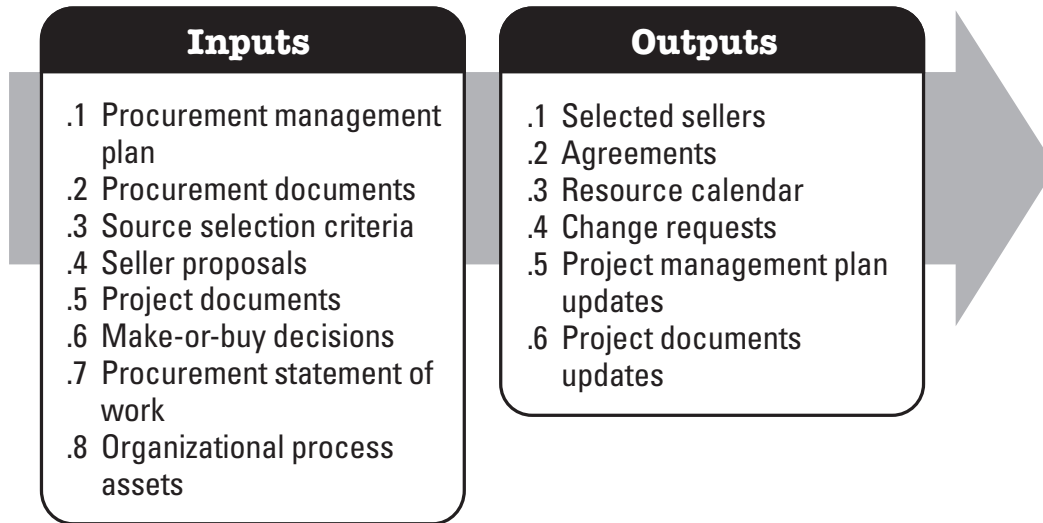


Figure A1-39. Conduct Procurements: Inputs and Outputs

A1.6.8 Manage Stakeholder Engagement

Manage Stakeholder Engagement is the process of communicating and working with stakeholders to meet their needs/expectations, address issues as they occur, and foster appropriate stakeholder engagement in project activities throughout the project life cycle. The key benefit of this process is that it allows the project manager to increase support and minimize resistance from stakeholders, significantly increasing the chances to achieve project success. The inputs and outputs of this process are depicted in Figure A1-40.

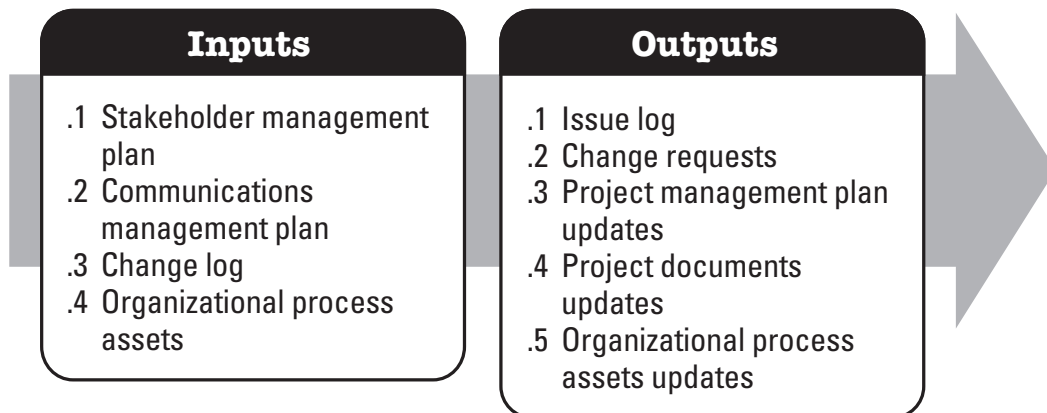


Figure A1-40. Manage Stakeholder Engagement: Inputs and Outputs

A1.7 Monitoring and Controlling Process Group

The Monitoring and Controlling Process Group consists of those processes required to track, review, and orchestrate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes. The key benefit of this Process Group is that project performance is measured and analyzed at regular intervals, appropriate events or exception conditions to identify variances from the project management plan. The Monitoring and Controlling Process Group also involves:

- Controlling changes and recommending corrective or preventive action in anticipation of possible problems,
- Monitoring the ongoing project activities against the project management plan and the project performance measurement baseline, and
- Influencing the factors that could circumvent integrated change control or configuration management so only approved changes are implemented.

This continuous monitoring provides the project team insight into the health of the project and identifies any areas requiring additional attention. The Monitoring and Controlling Process Group not only monitors and controls the work being done within a Process Group, but also monitors and controls the entire project effort. In multiphase projects, the Monitoring and Controlling Process Group coordinates project phases in order to implement corrective or preventive actions to bring the project into compliance with the project management plan. This review can result in recommended and approved updates to the project management plan. For example, a missed activity finish date may require adjustments and trade-offs between budget and schedule objectives. In order to reduce control overheads, management by exception procedures and other techniques can be appropriately considered. The Monitoring and Controlling Process Group (Figure A1-41) includes the following project management processes (Sections A1.7.1 through A1.7.11):

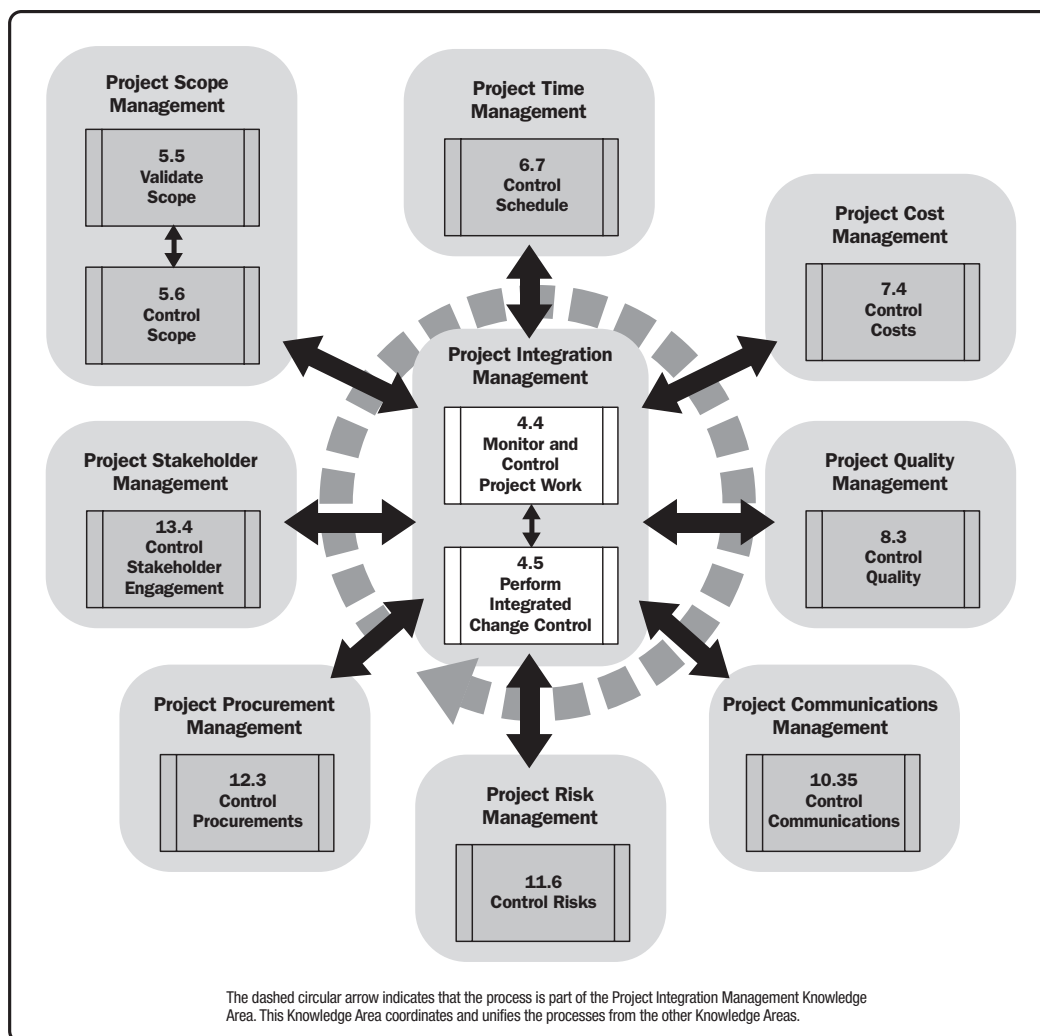


Figure A1-41. Monitoring and Controlling Process Group

A1.7.1 Monitor and Control Project Work

Monitor and Control Project Work is the process of tracking, reviewing, and reporting the progress to meet the performance objectives defined in the project management plan. The key benefit of this process is that it allows stakeholders to understand the current state of the project; the steps taken; and budget, schedule, and scope forecasts. The inputs and outputs for this process are depicted in Figure A1-42.

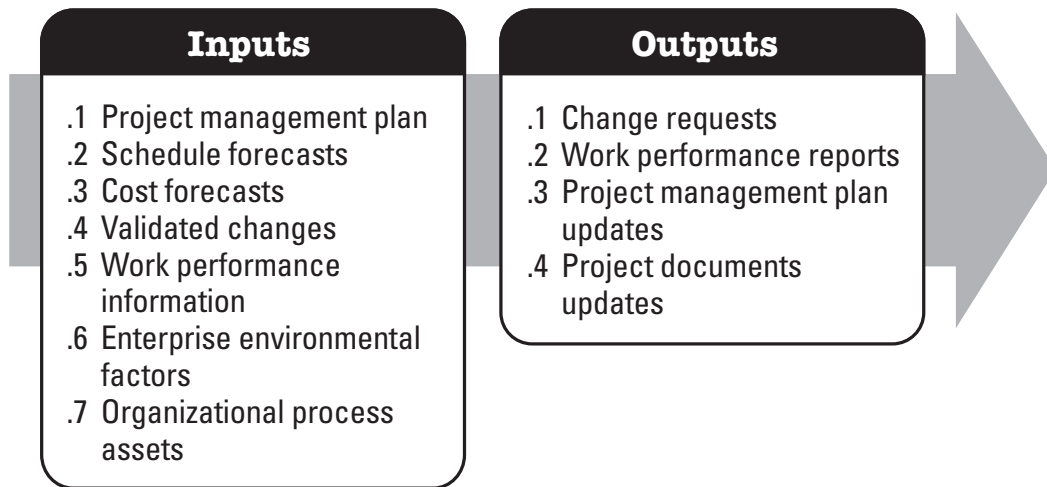


Figure A1-42. Monitor and Control Project Work: Inputs and Outputs

A1.7.2 Perform Integrated Change Control

Perform Integrated Change Control is the process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition. It reviews all requests for changes or modifications to project documents, deliverables, baselines or the project management plan, and approves or rejects the changes. The key benefit of this process is that it allows for documented changes within the project to be considered in an integrated fashion while reducing project risk, which often arises from changes made without consideration to the overall project objectives or plans. The inputs and outputs of this process are depicted in Figure A1-43.

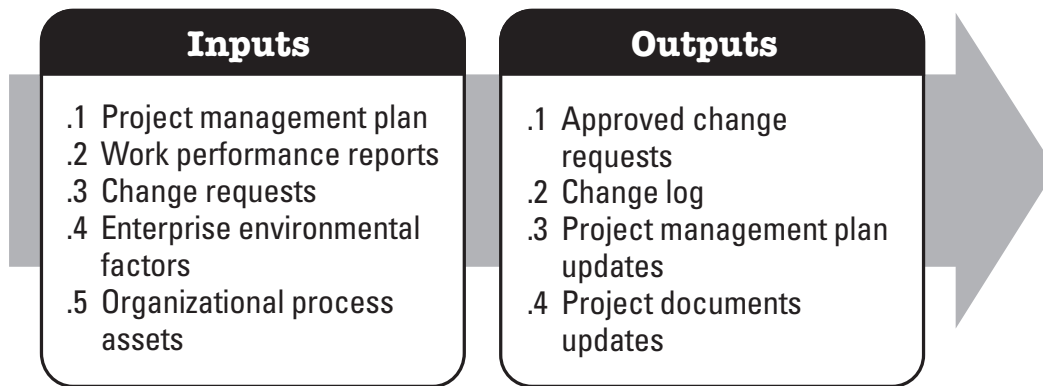


Figure A1-43. Perform Integrated Change Control: Inputs and Outputs

A1.7.3 Validate Scope

Validate Scope is the process of formalizing acceptance of the completed project deliverables. The key benefit of this process is that it brings objectivity to the acceptance process and increases the chance of final product, service, or result acceptance by validating each deliverable. The inputs and outputs of this process are depicted in Figure A1-44.

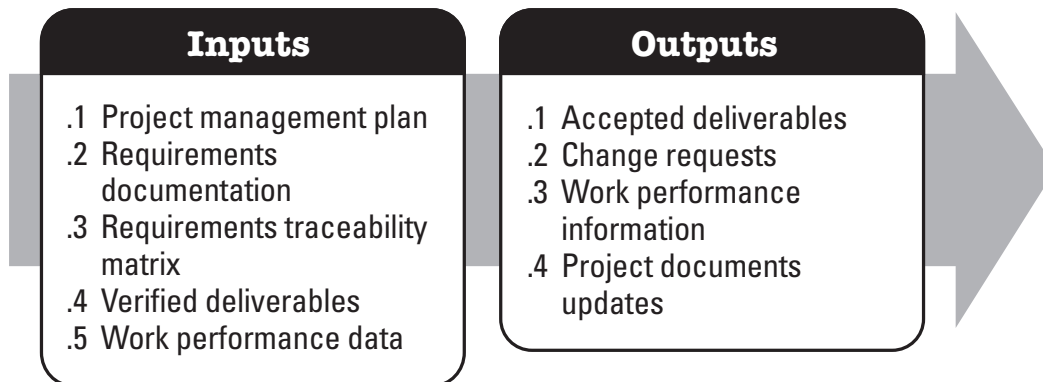


Figure A1-44. Validate Scope: Inputs and Outputs

A1.7.4 Control Scope

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 and outputs of this process are depicted in Figure A1-45.

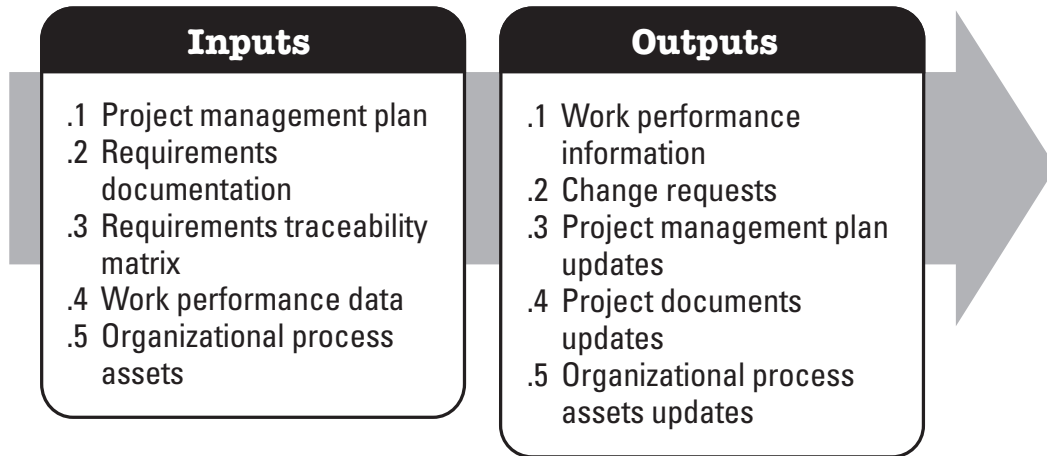


Figure A1-45. Control Scope: Inputs and Outputs

A1.7.5 Control Schedule

Control Schedule is the process of monitoring the status of project activities to update project progress and manage changes to the schedule baseline to achieve the plan. The key benefit of this process is that it provides the means to recognize deviation from the plan and take corrective and preventive actions and thus minimize risk. The inputs and outputs of this process are depicted in Figure A1-46.

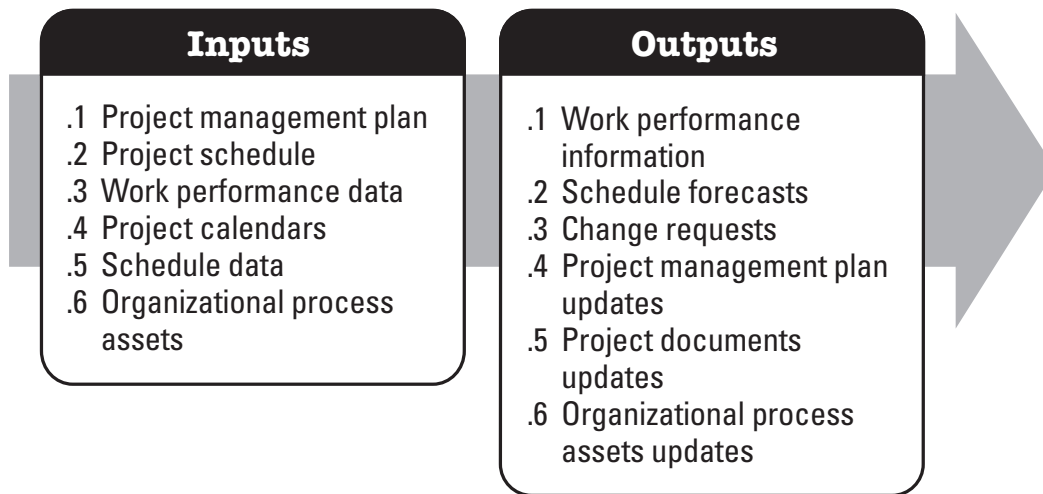


Figure A1-46. Control Schedule: Inputs and Outputs

A1.7.6 Control Costs

Control Costs is the process of monitoring the status of the project to update the project costs and managing changes to the cost baseline. The key benefit of this process is that it provides the means to recognize variance from the plan in order to take corrective action and minimize risk. The inputs and outputs of this process are depicted in Figure A1-47.

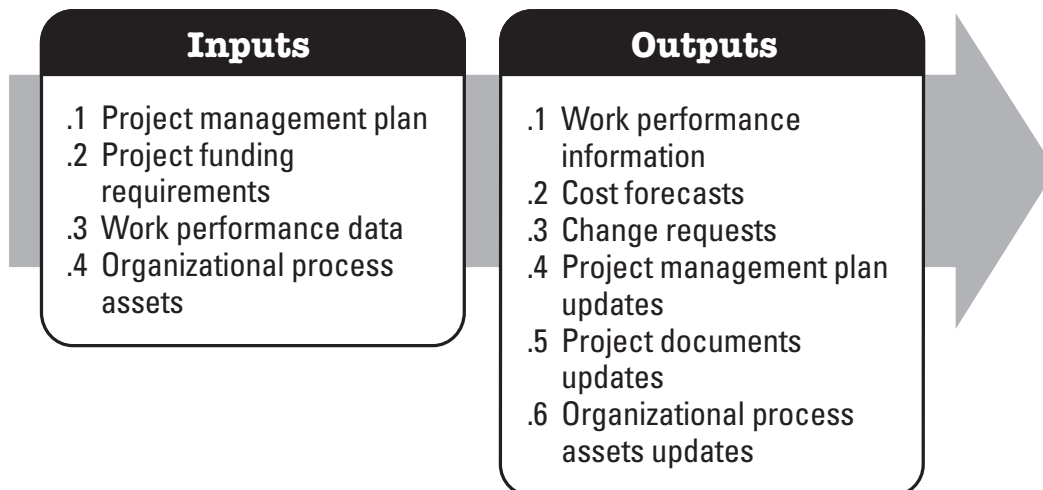


Figure A1-47. Control Costs: Inputs and Outputs

A1.7.7 Control Quality

Control Quality is the process of monitoring and recording results of executing the quality activities to assess performance and recommend necessary changes. The key benefits of this process include: (1) identifying the causes of poor process or product quality and recommending and/or taking action to eliminate them; and (2) validating that project deliverables and work meet the requirements specified by key stakeholders necessary for final acceptance. The inputs and outputs of this process are depicted in Figure A1-48.

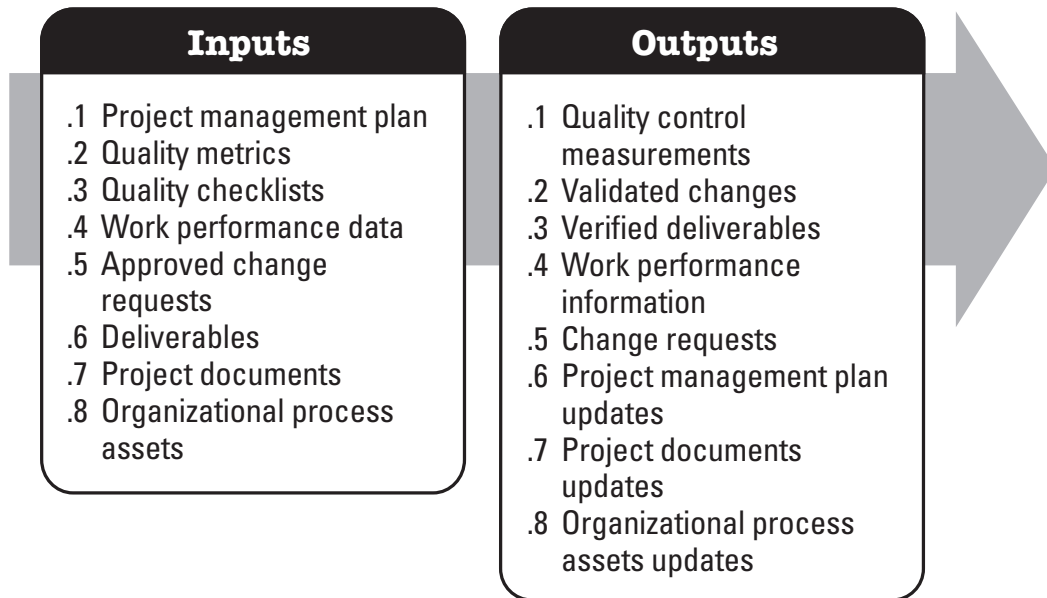


Figure A1-48. Control Quality: Inputs and Outputs

A1.7.8 Control Communications

Control Communications is the process of monitoring and controlling communications throughout the entire project life cycle to ensure the information needs of the project stakeholders are met. The key benefit of this process is that it ensures an optimal information flow among all communication participants at any moment in time. The inputs and outputs of this process are depicted in Figure A1-49.

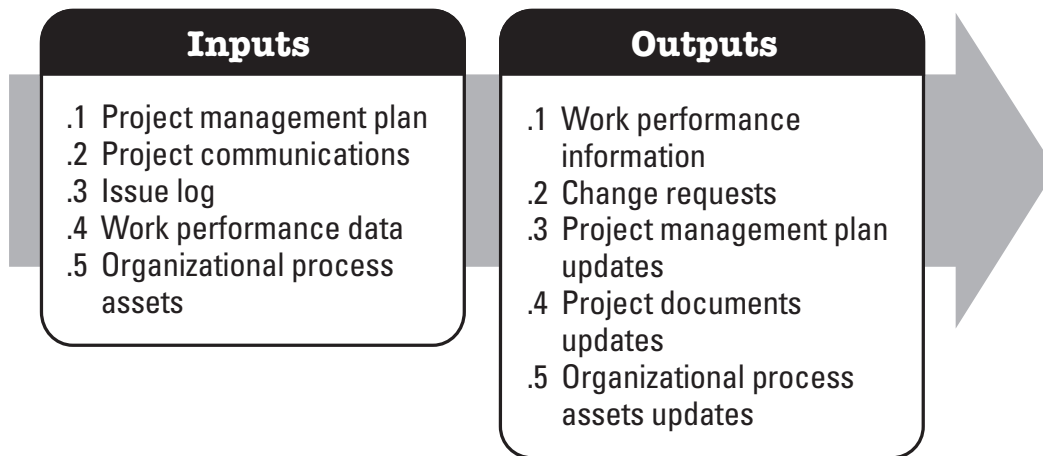


Figure A1-49. Control Communications: Inputs and Outputs

A1.7.9 Control Risks

Control Risks is the process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout the project. The key benefit of this process is that it improves efficiency of the risk approach throughout the project life cycle to continuously optimize risk responses. The inputs and outputs of this process are depicted in Figure A1-50.

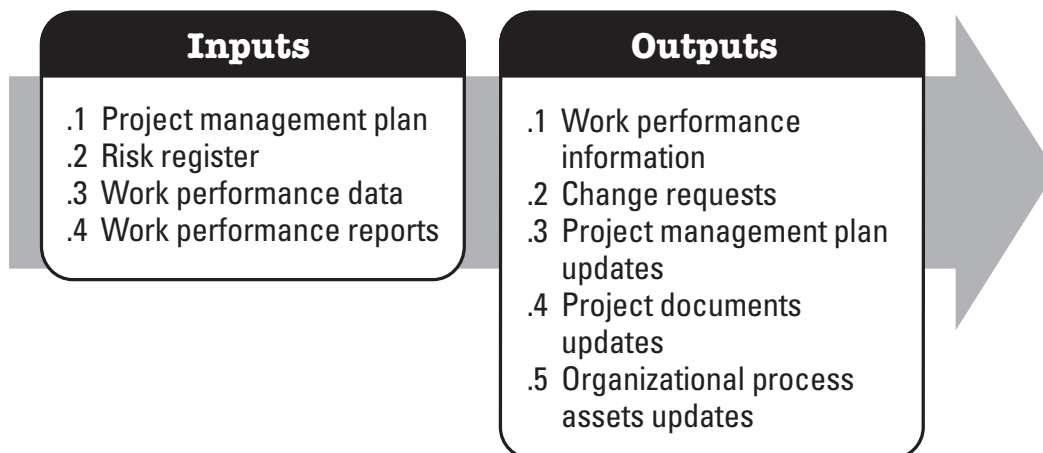


Figure A1-50. Control Risks: Inputs and Outputs

A1.7.10 Control Procurements

Control Procurements is the process of managing procurement relationships, monitoring contract performance, and making changes and corrections to contracts as appropriate. The key benefit of this process is that it ensures that both the seller's and buyer's performance meets procurement requirements according to the terms of the legal agreement. The inputs and outputs of this process are depicted in Figure A1-51.

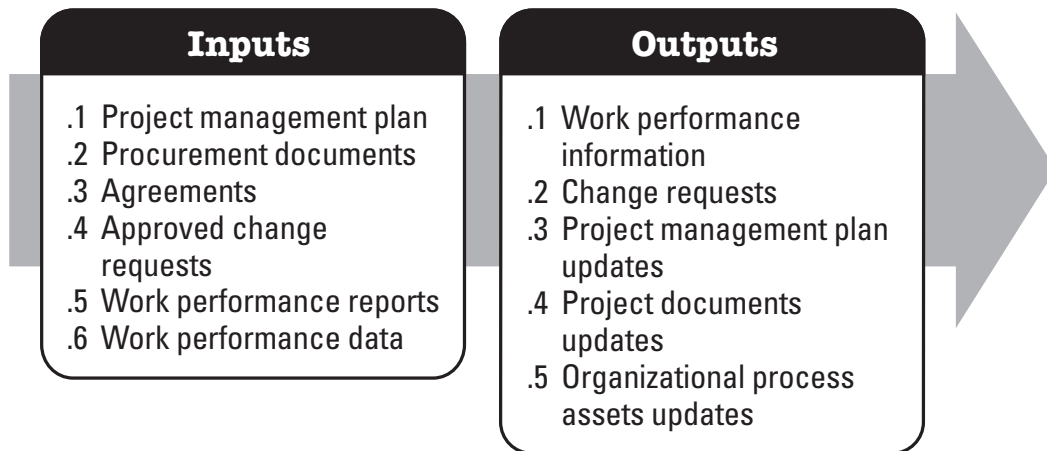


Figure A1-51. Control Procurements: Inputs and Outputs

A1.7.11 Control Stakeholder Engagement

Control Stakeholder Engagement is the process of monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders. The key benefit of this process is that it will maintain or increase the efficiency and effectiveness of stakeholder engagement activities as the project evolves and its environment changes. The inputs and outputs of this process are depicted in Figure A1-52.

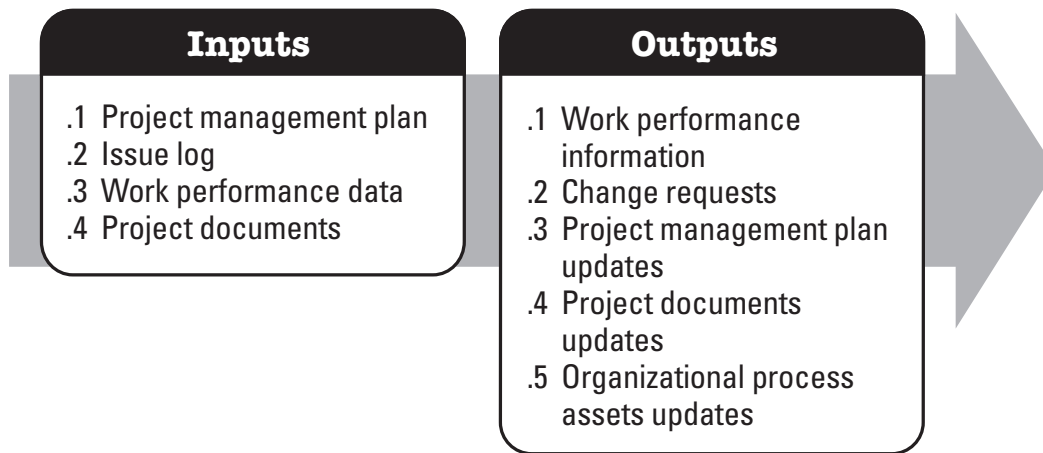


Figure A1-52. Control Stakeholder Engagement: Inputs and Outputs

A1.8 Closing Process Group

The Closing Process Group consists of those processes performed to conclude all activities across all Project Management Process Groups to formally complete the project, phase, or contractual obligations. This Process Group, when completed, verifies that the defined processes are completed within all the Process Groups to close the project or a project phase, as appropriate, and formally establishes that the project or project phase is complete.

This Process Group also formally establishes the premature closure of the project. Prematurely closed projects may include, for example: aborted projects, cancelled projects, and projects in a critical situation. In specific cases, when some contracts cannot be formally closed (e.g. claims, ending clauses etc.) or some activities are to be transferred to other organizational units, specific hand-over procedures may be arranged and finalized.

At project or phase closure, the following may occur:

- Obtain acceptance by the customer or sponsor to formally close the project or phase,
- Conduct post-project or phase-end review,
- Record impacts of tailoring to any process,
- Document lessons learned,

- Apply appropriate updates to organizational process assets,
- Archive all relevant project documents in the project management information system (PMIS) to be used as historical data,
- Close out all procurements activities ensuring termination of all relevant agreements, and
- Perform team members' assessment and release project resources.

The Closing Process Group (Figure A1-53) includes the following project management processes (See Sections A1.8.1 and A1.8.2):

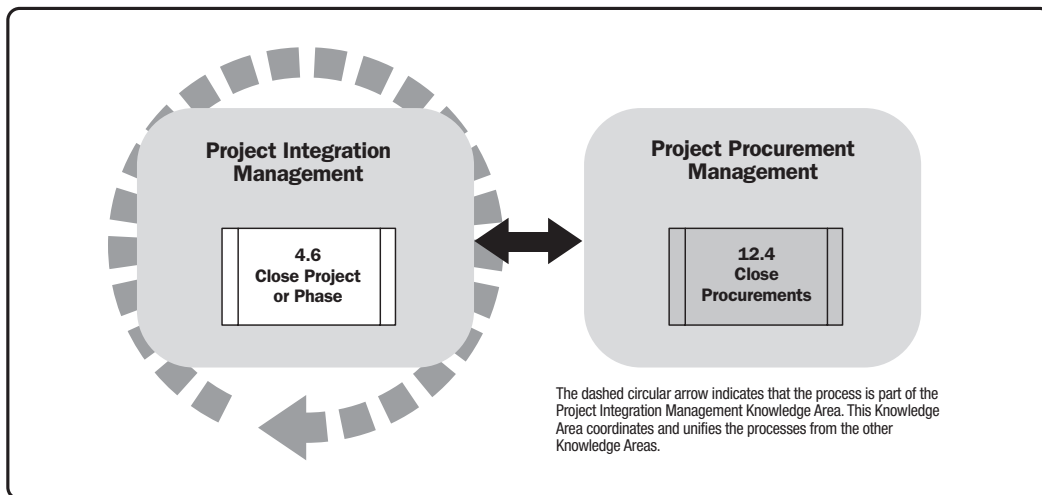


Figure A1-53. Closing Process Group

A1.8.1 Close Project or Phase

Close Project or Phase is the process of finalizing all activities across all of the Project Management Process Groups to formally complete the project or phase. The key benefit of this process is that it provides lessons learned, the formal ending of project work, and the release of organization resources to pursue new endeavors. The inputs and outputs of this process are depicted in Figure A1-54.

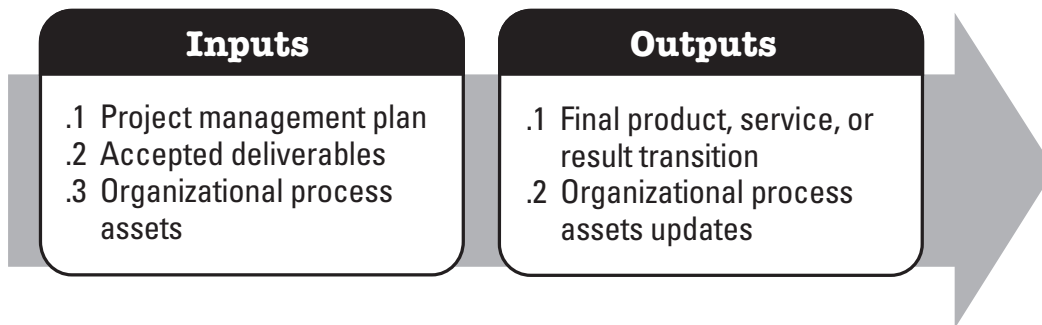


Figure A1-54. Close Project or Phase: Inputs and Outputs

A1.8.2 Close Procurements

Close Procurements is the process of completing each procurement. The key benefit of this process is that it documents agreements and related documentation for future reference. The inputs and outputs of this process are depicted in Figure A1-55.

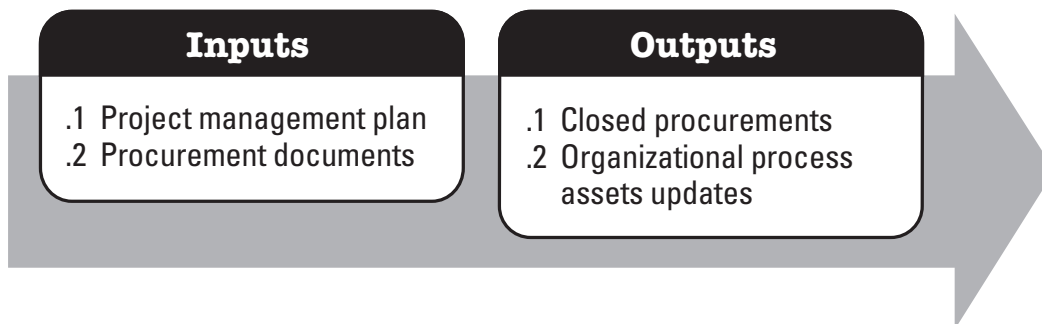


Figure A1-55. Close Procurements: Inputs and Outputs

