Paul Newton

Project Management Processes

Project Skills

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PAUL NEWTON

PROJECT MANAGEMENT PROCESSES

PROJECT SKILLS

Project Management Processes: Project Skills
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PREFACE

This free eBook will help you to identify the appropriate project management process to apply at any point in your own project. You will learn what each of the process groups consists of and the processes you need to perform within each group during your project.

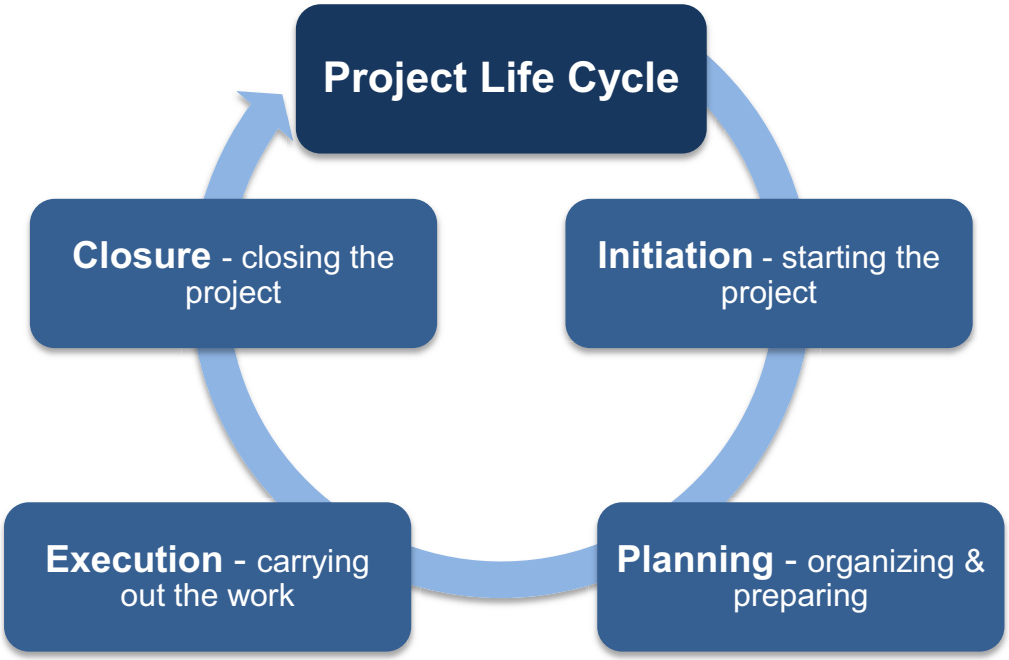
You will learn:

- How projects can be divided into processes and how this affects the way the project is managed.
- How the initiation process answers the questions 'what is this project trying to achieve and why?'
- Why accurate estimates are an essential part of the planning process and how these estimates are arrived at.
- How the monitoring and controlling processes work to either change the plan or alter the way it is being executed.
- Why it is essential to have agreed change control processes in place to prevent improvised changes from creating confusion.

INTRODUCTION

Projects are temporary structures set up with the specific aim of delivering an identifiable end-product. All projects will therefore have an identifiable life cycle, the characteristics of which will vary according to the size and complexity of the project. However, all projects can be mapped to the following simple life cycle structure:

1. Starting the project
2. Organizing and preparing
3. Carrying out the work
4. Closing the project



This is known as a four-phase life cycle and the phases are usually referred to as:

1. Project Initiation
2. Project Planning
3. Project Execution
4. Project Closure

Looking at a project in this way can help you to understand what it is that makes a project different from a business process, but it can also lead to confusion because it represents a gross over-simplification of what happens in most projects.

For example, consider the following example of a project to build a new hospital. The project sponsor is the area health authority. The project is divided into three phases:

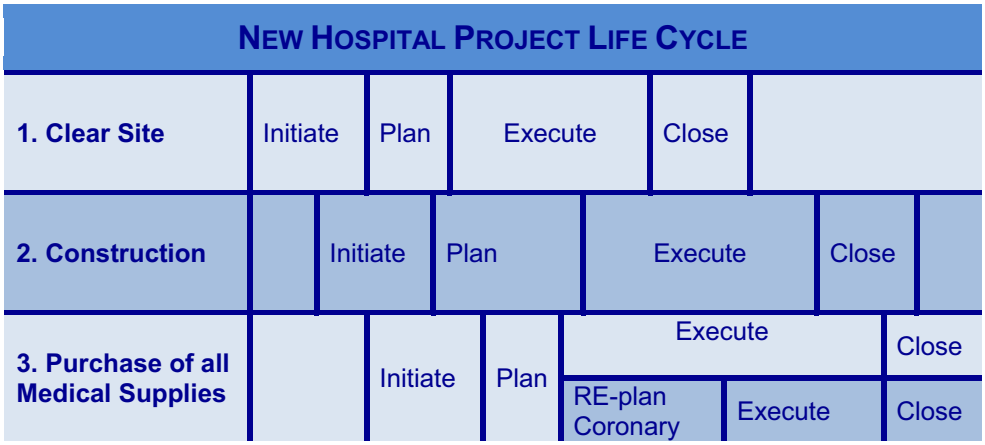
1. *Clearing the site*
2. *Constructing the buildings*
3. *Commissioning the medical facilities.*

These phases are not divisions of the project based on time, but are stages of the project that produce a major deliverable.

They are usually sequential, but they sometimes overlap. For example: the phase 'Constructing the buildings' could begin before the whole site was completely cleared and medical equipment could be moved into parts of the building before construction was completely finished.

When you divide a project into phases like this, it is usual to manage each phase as a project in its own right. For example, clearing the site would have its own initiation and planning process and would probably be nearing closure before the second phase 'Constructing the buildings' began its execution phase.

It is quite conceivable that issues that came to light during the clearing phase would impact on the construction phase. For example, the clearing phase might uncover issues with the land that mean that the foundations needed to be modified.

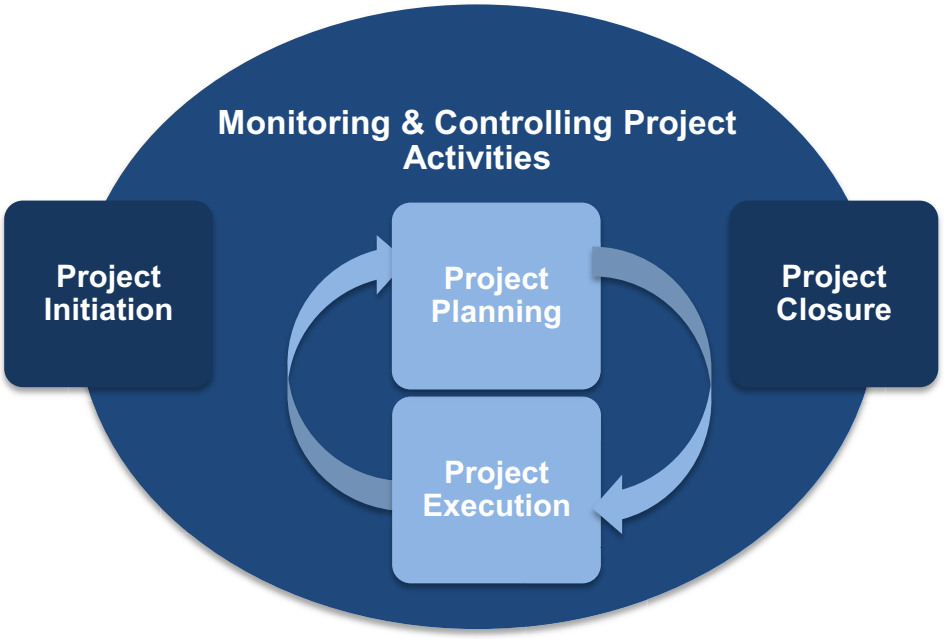


Later on in the project, the commissioning phase could be subjected to scope changes and re-planning because of changes to healthcare policy, changes to health and safety regulations, new medical equipment becoming available, etc. For example, imagine the project is at the point where the building work is nearing completion and medical equipment is being transferred over from other hospitals and bought in from suppliers. The health authority then receives a government grant for several million dollars to spend on acute coronary care.

At this point, they could decide to re-scope the parts of the project that deal with the coronary care unit. This would result in major re-planning of this area of the project but without affecting other areas, which would be nearing closure. Looking at the planning process as something discrete that has defined inputs and outputs makes sense because even if it is being done at the same time as one or more of the other processes it is always done in the same way.

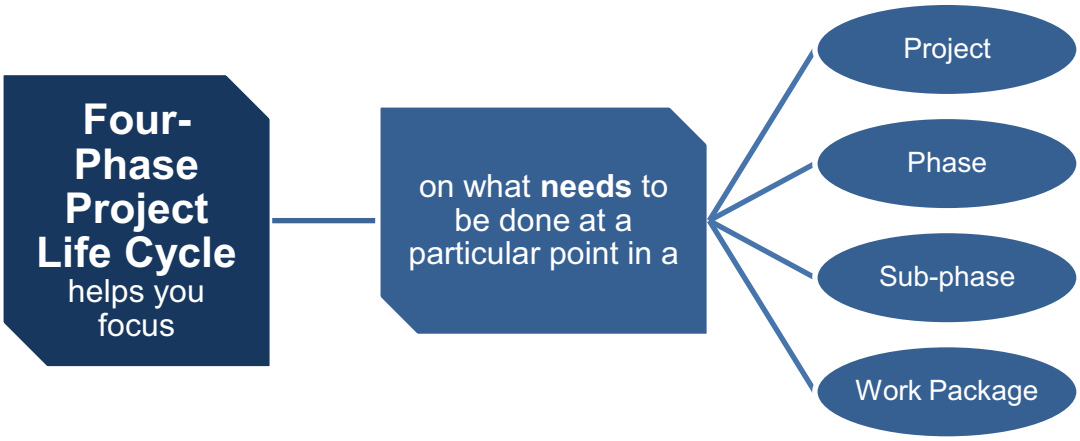
There is no need to do different types of planning at different stages of the project because planning is planning no matter when you do it and no matter what else is happening at the same time. The reason for describing things in terms of processes at all is that these groups offer a simplified and idealized way of looking at project management that minimizes the potential for misinterpretation, and makes the whole process easier to understand.

In the real world, a project like this one would have initiation, planning, executing, monitoring and controlling, and closure processes all happening at the same time. Anyone looking at this project that did not have a good understanding of project management processes would probably see it as disorganized and chaotic.



In contrast, someone who was familiar with the processes, even in a simplified and idealized form, would see that there was actually a structured management framework being used.

Before you read any further, make sure that you understand this concept. Project processes DO NOT NEED to happen in sequence throughout the life of the project, neither are they the same as project phases or stages. Processes are executed at a high level for the whole project but they are also repeated at lower levels even down to that of individual work packages when this is necessary.



The processes are guides that are designed to help you to focus on what needs to be done at particular points in a project, phase, sub-phase or work package. The aim of this eBook is to help you to identify the appropriate project management process to apply at any point in your own project.

Key Points

- All projects have an identifiable life cycle that involves: Starting the project, organizing and preparing, carrying out the work and closing the project.
- This is known as a four-phase life cycle and the phases are usually referred to as: project initiation, project planning, project execution, and project closure.
- This can help you to understand what it is that makes a project different from a business process but it represents a gross over-simplification of what happens in most projects.
- Many real-world projects will have initiation, executing, and closure processes all happening at the same time.
- Project processes are guides that can help you to focus on what needs to be done at particular points in a project, phase, sub-phase or work package.

1 PROJECT INITIATION PROCESSES

The question of when a project actually starts can be a difficult one to answer. The initiation processes are supposed to start the project but they appear to be part of the very thing they are attempting to start. Take the business case for example, this is the document that is produced to illustrate the cost-benefit and required investment the organization would need to undertake for the project to go ahead. So, is the work needed to produce the business case part of the project or not?

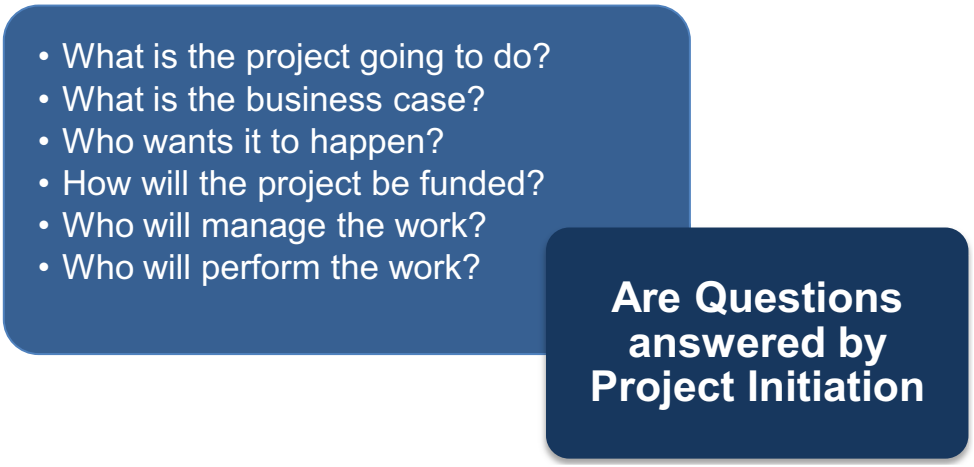
This is really only a semantic problem and it could be argued that the project starts at the moment it is imagined, when the business case is approved, or at some other point; it really doesn't matter. In reality, what usually happens is that people who are working in their own department identify a possible solution to a business need. They then go on to examine the viability of that solution and in doing so produce a nascent business case.

At some point enough people will become involved that the thing starts to be seen as a project. How this process happens or at what point the word 'project' is first used varies case by case.

The most important thing to remember about the initiation process is that it does NOT involve starting work on creating any of the 'products' of the project. It is concerned exclusively with clarifying the project's objectives and what will be needed to achieve them.

It should answer the following questions:

- What is the project going to do?
- What is the business case for doing it?
- Who wants it done?
- Where is the money coming from?
- Who is going to manage the work?
- Who is going to do the work?



The answers to these questions may be more or less settled but there is usually still some room for uncertainty. For example, you may not know exactly what the project is going to do but you should have a sufficiently clear idea so that you can document what it could do in a way that can serve as a basis for discussion.

All projects need a business case before they can be properly initiated. The business case is the document that is produced to illustrate the cost-benefit and required investment the organization would need to undertake for the project to go ahead. The motivation for producing a business case usually comes from one of the following:

- *Legal requirement*
- *Market- or customer-driven demand*
- *Organizational need*
- *Technological change*

A good business case will demonstrate at least the following basic points –

- Why the project was initiated, and what problem it is intended to solve.
- The details of what process was involved in this project, and how it evolved from beginning to end.
- What resources are required to put the plan into action.
- The benefits of putting the plan into action, and the potential problems that could arise from not doing so.
- What specific next step is needed to get the project started.

Depending on the size of the project and the reporting requirements of the business, all of those points could be covered in as little as a couple pages, or it could take a binder full of material. The important part is that the manager lays out an argument that is well defended and needs no additional input from outside the case in order to be convincing. The business case should stand on its own feet, able to be read and understood even by someone with no prior knowledge of the project.

If project is being performed for an external customer then there may be agreed contracts, memorandums of understanding (MOUs), service level agreements, or a statement of work (SOW) that can be used to further define the business case. A statement of work (SOW) is a formal document that defines the work activities, deliverables, and timeline a vendor must execute in performance of specified work for a client. It usually includes detailed requirements and pricing, with standard regulatory and governance terms and conditions. It thus overlaps in concept with a contract, and indeed SOWs are often legally equivalent to contracts.

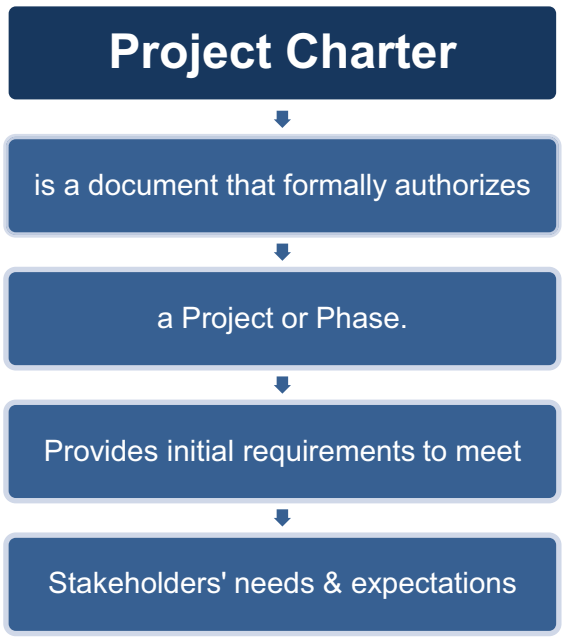
In addition, the organization's culture, infrastructure, personnel administration, and marketplace conditions all need to be considered because your company may have a limit on how many permanent staff can be assigned to a particular project or policies regarding the use of contract staff. There may also be guidelines for hiring, firing, and performance reviews.

With the business case in hand, and an understanding of what is possible within the constraints of the organization, the project initiation processes can begin. These include developing a project charter, a project scope statement and identifying project stakeholders. This involves the people who are going to be responsible for managing the project work including the project manager, the project sponsor, selected project team members, selected stakeholders, anyone with responsibility for any of the project management processes.

Collective decision-making is very important area of project management that can make or break this part of the project. If you feel as though your project meetings could be improved then you can download the 'Meeting Skills' eBooks from this website. These free eBooks cover all aspects of meetings including how to set an agenda that will ensure that the meeting achieves it's aims and how to chair a meeting so that it is as productive as possible.

Developing the Project Charter

The project charter provides the high-level project description and product characteristics. It also contains project approval requirements and will be completed by the sponsor or individual initiating the project.



There are a variety of inputs you will require for this process. They will be whatever you need to:

- Identify the high-level requirements
- Define and agree the high-level project scope
- Identify the project or stage objectives
- Define the project success criteria
- Identify and define any obvious milestones
- Define the approximate budget
- Ensure that the project is aligned with the organization's strategic goals.

There are several key sections that you need to include in your project charter:

1. Contact points for key individuals of the project.
2. Project Purpose – the issue/problem to be solved by the project.
3. Business Objectives for the project as they relate to the organizations strategic plan.
4. Assumptions that have been made as part of the project.
5. Description of the project.
6. Definition of the project scope and the limits identified.
7. Overview of major milestones and deliverables for the project.
8. Project Authority – including an organization chart and definition of roles and responsibilities.
9. Resources required for the project including: costing, equipment, staffing, support, operational & IT facilities,
10. Signatures of the key project members that authorize the project.

When the project charter is first circulated it can attract additional sponsorship from other areas of the business that feel as though they would benefit from getting on board and increasing the scope of the project or it can sometimes be decided that the business case is not strong enough for the project to proceed.

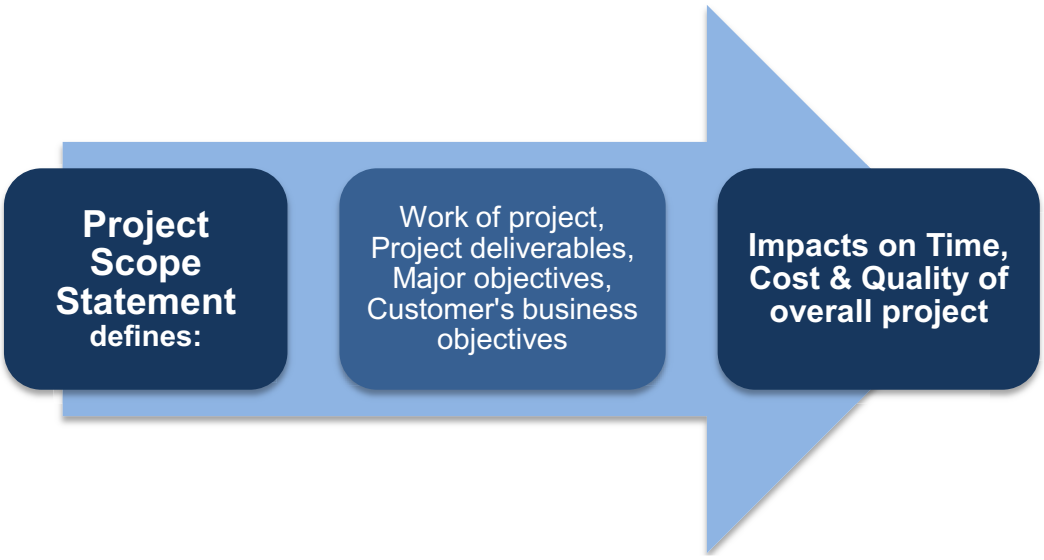
The main objective here is to clarify the business need and define the scope of the project and show clearly that other options have been considered and that this project is the right choice along with the reasons why this is so.

The most important function of this document is that it ensures that everyone involved is in agreement about what the project is going to deliver and that no one has any false expectations. The document itself may only be a single page in the case of a small project and it should be made clear to everyone involved that it is subject to change in the planning phase.

You can find a project charter template on this website which can help you to produce this document or you may find that your organization has a template of its own that you will be expected to use.

Developing the Project Scope Statement

As well as the project charter (PID or Project Brief) it is a good idea to produce what is usually referred to as a project scope statement. Scope statements may take many forms depending on the type of project being implemented and the nature of the organization.



The project scope statement details the project deliverables and describes the major objectives, including measurable success criteria for the project. A scope statement should be written before the statement of work and it should capture, in very broad terms, the product of the project.

For example, 'Developing a software-based system to capture and track customer orders.' It also specifies who is going to use the product and gives an estimate of the anticipated cost.

A scope statement is an agreement that defines the work of the project and the customer's business objectives. It can help you identify changes in scope after the project has started and help you plan for any modifications or adjustments that might be needed as it progresses.

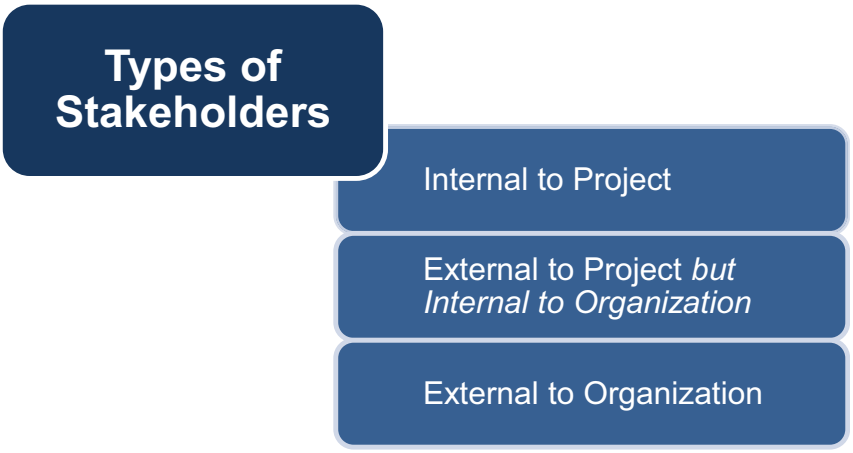
The first draft of this document/statement is referred to as a baseline scope statement and should detail:

1) Project stakeholders
2) Project goals and objectives
3) Project requirements
4) Project deliverables
5) What is out of scope
6) Milestones
7) Cost estimates

Work on the scope statement can begin before the project charter is completed and in the case of small projects it can be incorporated into the charter. However, irrespective of the size of the project, scope is absolutely critical in project management because of the impact it has on time, cost, and quality. Consequently, it must be specified as early as possible even though this will be subject to agreed changes later on.

Identifying the Project Stakeholders

This is the process that identifies people, groups, or organizations that could impact or be impacted by a decision, activity, or outcome of the project. It analyzes and documents their interests in and influence on the project. A stakeholder is defined as anyone with an interest in the project, irrespective of whether that interest is positive or negative. They may be individuals or organizations that are actively involved in the project, or whose interests may be affected by the execution or completion of the project.

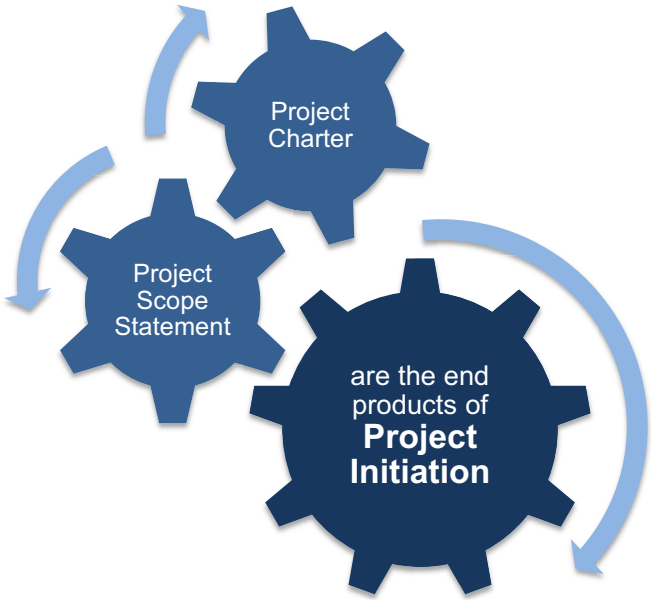


A stakeholder is anyone who is actively involved in the project, or whose interests may be positively or negatively affected by the performance or completion of the project and they can be:

- Internal to the project.
- External to the project, but internal to the performing of the organization.
- External to both the project and the performing of organization.

This process is described in detail in the 'Managing a Project Team' eBook.

In summary, the aim of the initiation processes is to answer the questions 'what is this project trying to achieve and why?'



The most important output from this phase is a document that answers the questions:

- What is this project going to achieve?
- What is the business case for doing it?
- What is the timeframe involved?
- Who is going to sponsor it?
- Who is going to manage it?

The answers to these questions are provisional at this point in time and will be subject to revision when and if the project proceeds to the next phase. This document is known as the project charter, the project brief, or the project initiation document (PID) depending on the project management method being used.

If this phase is omitted or rushed then there may be misunderstandings that could cause serious problems when the project moves into the planning phase and the various people involved realize that their expectations are quite different. For example, a sponsor may think that the project will produce a working piece of software, while the members of the project team think they are developing a prototype to prove that the concept is feasible.

Remember, if the project does not begin with a clear idea of what it is setting out to achieve and why, then it will need to evolve these things as it progresses, which will always carry far more risk than doing it from the start.

Key Points

- The initiating process group consists of processes necessary to define a new project or a new phase of an existing project.
- It involves obtaining authorization for the project or project phase.
- It defines objectives, outcomes, and success criteria.
- It assigns a project manager.
- It allocates funds and resources.
- The inputs to the charter are normally documented decisions, and can include: the contract where applicable, project statement of work (SOW), details of the organization's culture, guidelines, policies and procedures.
- This is normally written by the project sponsor or whoever initiated the project. If the project is external then it will be written normally by the buyer.
- Project stakeholders are individuals and organizations that are actively involved in the project, or whose interests may be affected as a result of project execution or project completion.
- They may also exert influence over the project's objectives and outcomes. Examples of project stakeholders include: the customer, the user group, the project manager, the development team, the testers, etc.
- The project management team must identify the stakeholders, determine their requirements and expectations.

2 PROJECT PLANNING PROCESSES

A common misconception is that this phase must be completed before the actual work of the project can begin. This is not true; planning is an activity that continues almost to the very end if the project. In any project, there will always be factors that change as it progresses.

In fact, it can be a serious mistake to spend too much time on planning in the early stages of the project as this not only wastes time but can give everyone involved a false impression of how much is really known at this stage. In contrast to the initiation phase (which does have a definite endpoint), it is simply impossible to plan a project and then execute the plan without taking account of changing circumstances.

The main purpose of this phase is to plan time, cost, and resources adequately to estimate the work needed and to effectively manage risk. Initial planning generally consists of:

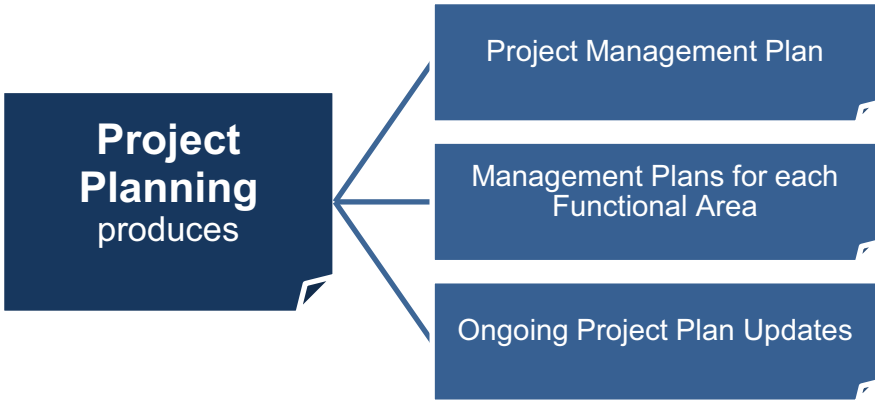
- Developing the scope statement
- Selecting the planning team
- Identifying deliverables
- Creating the work breakdown structure (WBS)
- Identifying the activities needed to complete those deliverables
- Sequencing the activities in a logical way
- Estimating the resources needed
- Estimating the time needed
- Estimating the costs
- Developing the schedule
- Developing the budget
- Gaining formal approval to begin

However, it must be understood that as soon as work begins new factors will become apparent, priorities will change, and promised resources will not materialize. If the planning process is not sufficiently flexible to take account of these things then the project will fail.

The need for re-planning should be built in from the beginning of the project and decisions will need to be made regarding how:

- Often to re-plan
- To manage the information that is needed for this re-planning
- To control changes to the plan
- To communicate these changes
- How and when to involve stakeholders.

Even if the answers to these questions are not clear at the outset, the important thing is to make decisions about them and then modify those decisions as it becomes clear what is and is not working.



The main output of this phase is the project plan and its associated plans for the functional areas of scope, schedule, cost, quality, human resources, communications, risk, and procurement.

According to the PMBOK®, a project plan is defined as:

> *'A formal, approved document used to guide both project execution and project control. The primary uses of the project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. A project plan may be summarized or detailed.'*

The PRINCE2 definition states:

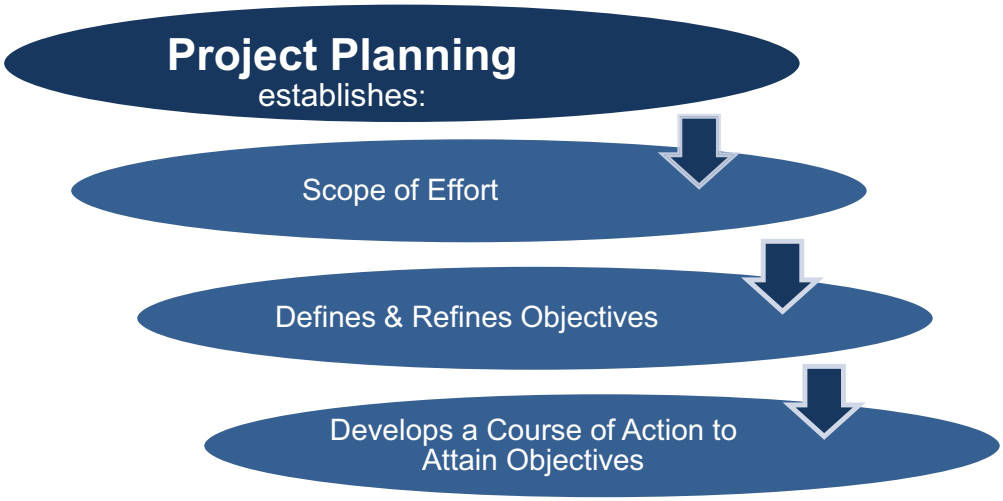
> *'The Project plan is a statement of how and when a project's objectives are to be achieved, by showing the major products, milestones, activities and resources required on the project.'*

The project plan must also describe the execution, management, and control of the project and typically covers the following areas:

- Scope Management
- Requirements Management
- Schedule Management
- Financial Management
- Quality Management
- Resource Management
- Communications Management
- Project Change Management
- Risk Management
- Procurement Management

The emphasis of the planning phase is to develop an understanding of how the project will be executed and a plan for acquiring the resources needed to execute it. Although much of the planning activity takes place during the planning phase, it is important to remember that the project plan will continue to be adjusted to respond to new challenges and opportunities.

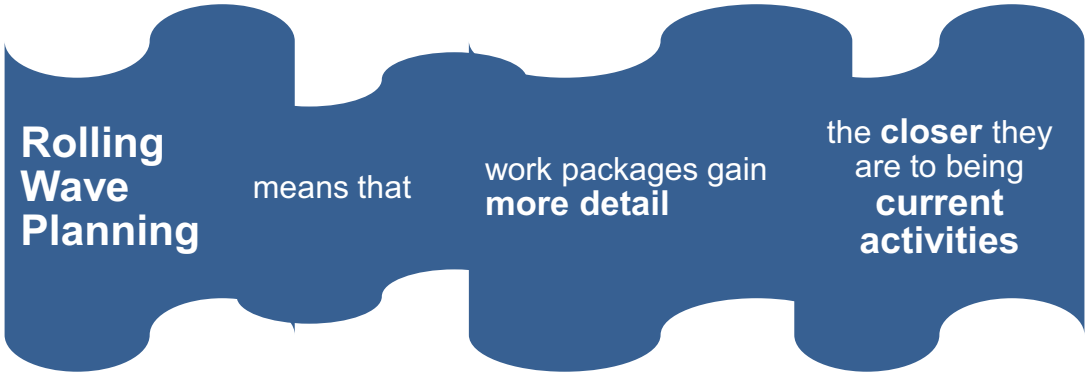
The iterative nature of planning is essential because projects follow an uncharted path where new information is continually becoming available as the project progresses. Part of the skill of project management is knowing how much time and effort to put into each stage of the planning exercise.



The problems created by too little planning are obvious: there will be insufficient information to make valid estimates of time and cost, and the project team may become disillusioned with the apparent lack of direction. On the other hand, if too much planning is done then this can slow the project down (often referred to as 'paralysis by analysis') and the project team may find that the plans are simply unrealistic because they are based on unfounded assumptions.

People new to project management are often uncomfortable with the evolutionary approach to the planning process, which involves defining areas in more detail as and when the necessary information becomes available. However, this is the only way to proceed if there is any degree of complexity involved.

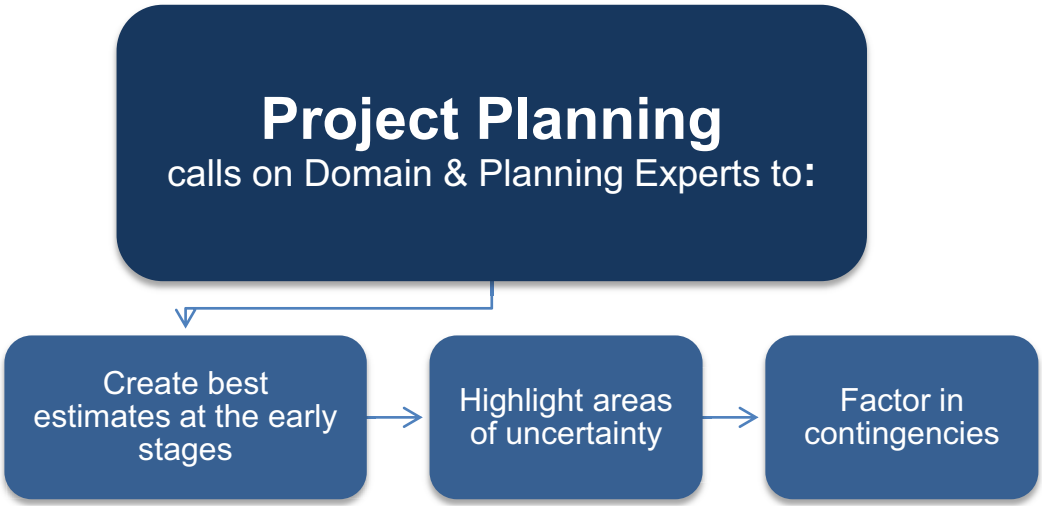
This process is known as 'rolling wave planning' and allows you to plan the project in a series of 'waves,' adding details as you know more. This means that you will have greater definition and details on those work packages required in the near future, and be able to elaborate on those further into the future as details become more clearly known.



This is referred to as 'progressive elaboration,' where work package requirements become more refined and detailed over time, and is particularly useful in projects of high uncertainty – for example, in software development or R&D projects, where the project goal is known, but the final deliverable may change somewhat as the project progresses.

Attempting to create detailed task-oriented plans for project teams in these types of environment is likely to lead to plans that are abandoned soon after being published, and a great deal of time spent endlessly re-planning rather than actually managing the project.

Unfortunately many IT projects undertake the bulk of their planning too early in the life cycle, when little concrete data is known about the problem domain, business environment, or how the team will work together. Rolling wave planning is rarely used in the construction industry, where lack of detail in initial plans may cause huge expense later.



Even though a complete set of plans cannot usually be developed ahead of the formal start of the project, high-level plans do need to be produced to define the overall size, cost, and duration. These are necessary in order to seek the formal approval required for their initiation. This raises the question, *'How can projects be quantified and approved ahead of a detailed understanding of the resource and cost implications?'*

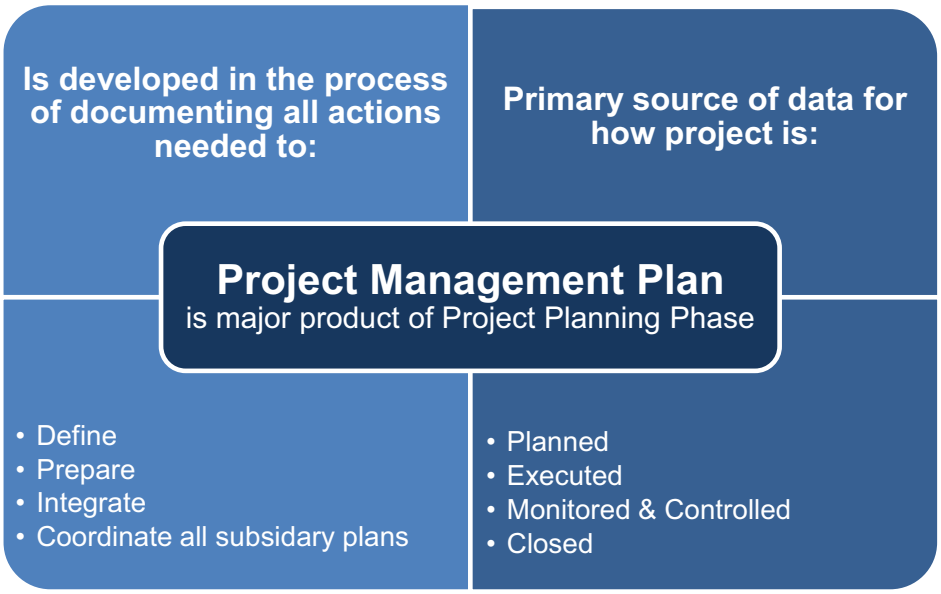
This question has no simple answer. However, the planning process should call upon both planning and domain experts in defining the overall size and cost of the project. It should be recognized that best estimates often have to be used in the early stages of planning, but that areas of uncertainty should not be 'glossed over.' In fact, these areas should be highlighted, so that contingencies can be factored in and the planning of these areas can be refined at a later date.

Some of the decisions that will need to be made include:

- How detailed to make the plan
- How far ahead to plan
- How to involve stakeholders in planning
- How to keep the planning process streamlined
- How to manage the data that is being fed back into the planning process
- How to determine the quality and reliability of this information

- How often to re-plan
- How to administer changes to the plan
- How to minimize the effect of changes on work in progress

The project plan is the major output from the planning process. Developing it is the process of documenting the actions necessary to define, prepare, integrate, and coordinate all subsidiary plans. It represents the primary source of information for how the project will be planned, executed, monitored and controlled, and closed.



The project plan and other documents developed from the planning process group cover all aspects of the project scope, schedule, costs, quality, communications, risk, and procurements. Updates from approved changes during the project may significantly impact parts of this document and will provide greater precision with respect to schedule costs and resource requirements.

A working version will need to be released to the project team at some point so that they know what they are supposed to be doing. This plan should pass the following tests.

- Does it include all known major project tasks?
- Is it in sufficient detail to generate work packages?
- Are all activities in their chronological sequence?
- Are the task interdependencies clear?
- Is it easy to understand?
- Does it make clear to everyone involved what they are expected to do?

- Can everyone see what is being done in the next few weeks?
- Does it have broad acceptance amongst the stakeholders?
- Is it flexible and able to take account of changes?
- Are the milestones shown?
- Are the duration estimates achievable?
- Are urgent and high-priority tasks clearly highlighted?
- Can it be used to check day-to-day progress?
- Does it take account of the available resources?

As a project manager one of the most comprehensive and important documents you will have to produce is the project management plan (often referred to as the project plan). This plan contains all the key information and plans that you require to manage, monitor and implement your project successfully.

1. Executive Summary – Provides an overview of the management approach to the whole project. This is where you state who makes up the project team, along with their skills, role and level of authority. You also need to describe which departments, divisions and suppliers will provide the project's required resources. This also needs to state at a high-level any constraints or limitations associated with these resources.
2. Project Scope – details exactly what your project is, whom you need to communicate with to gain approval and sign-off for your project to. The objective of this section is to ensure that everyone involved has been thoroughly communicated with and has a comprehensive understanding of what your project means to them and the organization. Within this section you will document and collate the 'end users' requirements and gain agreement for what they expect as a final product. The project charter provides a broad overview to which you need to add a stakeholder register and once the scope is verified demonstrates their acceptance of the project deliverables.
3. Timeframe Management Plan – provides the feasible delivery dates for each phase of your project and the final completion date. The milestones of your project are described in this section along with any known constraints. Controlling this area will be critical to the success of your project in a timely and cost effective manner.
4. Cost Management Plan – is the section where you provide detailed figures on all the estimated costs of your project. As project manager you will outline how you will manage, report and control the projects budget so that it achieves the promised return on the organization's investment. A common technique used in this area is Earned Value Management (EVM) where your forecast of expenditure is compared to the projects actual costs.

5. Quality Plan – defines the quality standards the project must meet and how you will mange the compliance of deliverables. When a project fails to meet its quality requirements there are serious repercussions on the delivery and acceptance of the project, so it is a key area to define appropriately.
6. Human Resources Plan – defines the core people, plus their skills and expertise that is required for your project. These core individuals will be committed to the project for its entirety and details of other resources required throughout the project are described in this section. You will outline how you will acquire, develop and manage all your project resources.
7. Change Management Plan – is a critical aspect of your project because this is where you define 'who' has the authority to approve change requests and how those change requests will be managed and approved. As more and more organizations become project based entities it is likely that you will need to liaise with a 'Change Control Board' or 'CCB' that manages, records and monitors this aspect of projects.
8. Communications Plan – forms the foundation of how you as project manager will identify and manage the various working relationships needed for your project. An essential aspect is to identify your stakeholders and their level of interest in the project so that you can properly manage their expectations. You will also define how (email, memo, meetings etc.) and when you will communicate with them to ensure they are kept informed of progress.
9. Risk Plan – within this section of your project plan you describe how you will identify, assess and manage risks. For each risk you will assign a level of seriousness, probability and likely impact of each risk, which will be documented in your Risk Breakdown Structure (RBS). As your project progresses the risk register and planned responses will be updated, as risks are no longer relevant and new ones occur.
10. Supplier Management Plan - identifies the products, services and resources that need to be acquired or purchased from outside of the project team. It will include the timeframe for each resource and the quoting and management processes attached to this procurement.

    It may also include the following:

    a) Life cycle selected for the project and the processes that will be applied to each phase.

    b) Details of the tailoring decisions specified by the project management team as follows:

    - Project management processes selected by the project management team,
    - Level of implementation for each selected process,
    - Descriptions of the tools and techniques to be used for accomplishing those processes,
    - Description of how the selected processes will be used to manage the specific project.

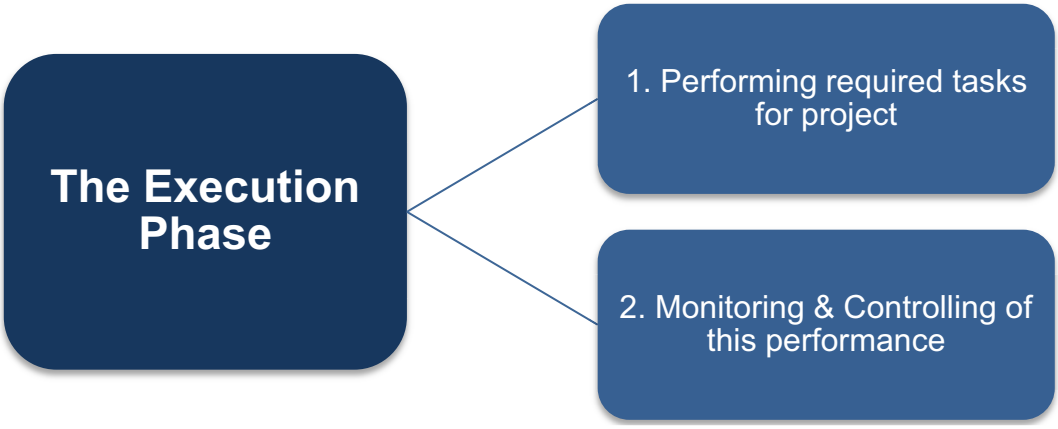
c) Description of how work will be executed to accomplish the project objectives.
d) Change management plan that documents how changes will be monitored and controlled.
e) Configuration management plan that documents how configuration management will be performed.
f) Description of how the integrity of the project baselines will be maintained.
g) Requirements and techniques for communication among stakeholders.
h) Key management reviews for content, the extent of, and timing to address, open issues and pending decisions.

Key Points

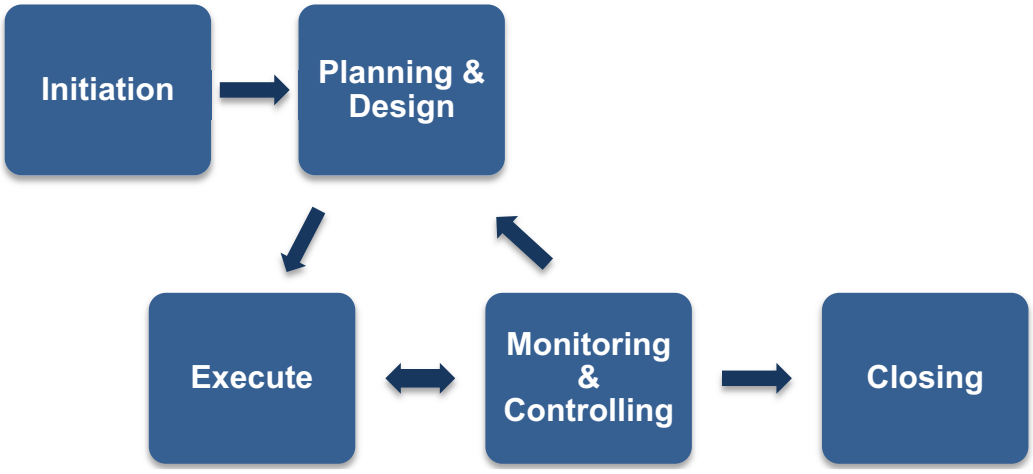
- The planning process group involves:
  - Defining the scope of the project
  - Designing the actions required to achieve the project's objectives
  - Defining the products to be produced and work required
  - Sequencing work and creating a schedule
  - Estimating the resource and effort requirements
  - Estimating costs and creating a budget
  - The key outputs of the planning process group are the:
  - Project plan
  - Work breakdown structure (WBS)
  - Schedule
  - Budget
  - Other subordinate plans
- A project plan is the planning document, capturing the entire project end-to-end, covering all project phases, from initiation through planning, execution and closure.
- It Includes:
  - Overview: Why the project is being conducted and its primary objectives
  - Scope: Business needs, requirements, deliverables, constraints and work breakdown structure (WBS)
  - Baselines: Scope, schedule and budget baselines
  - Schedule: Activities schedule and project milestones
  - Costs: Project budget and its funding approach
  - Quality: Quality measurement and control approach
  - Project team: The people working on the project, their roles and responsibilities
  - Closure: Closure approach, including the deliverables hand-off protocol
  - Changes: Procedures used to track changes in the project
  - Communication: Communication type, channels and the reporting approach
  - Risks: Risk index, methods to identify and evaluate risks, risk mitigation and contingency planning
  - Procurements: Required procurements and purchase processes

3 PROJECT EXECUTING PROCESSES

The whole point of a project is to produce deliverables of some sort and the execution phase is where this happens. Essentially, work is done according to the project plan and that work is monitored and the results fed back to the people responsible for the plan so that it can be updated to reflect the progress made.



It is possible to see this phase of the project as consisting of two processes: the 'doing' or executing, and the monitoring and controlling.



This phase is often called 'Execution and Control' because it does not represent a blind implementation of the initial project plan but rather a cyclical process. As you can see from the diagram above, the planning, executing, and the monitoring and controlling processes are all interdependent.

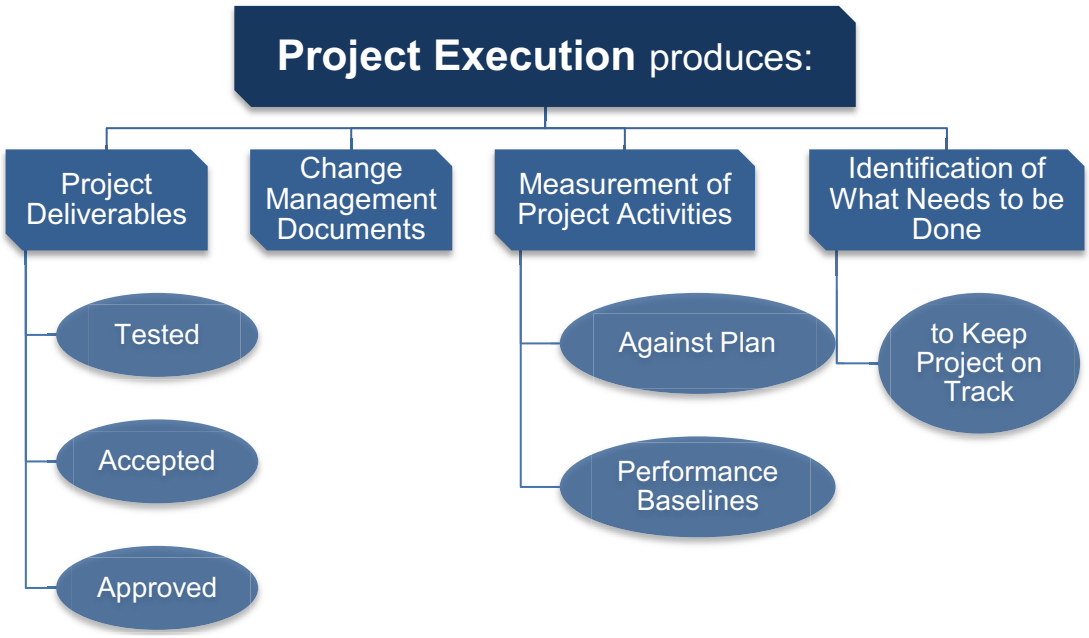
Executing consists of the processes used to complete the work defined in the project plan to accomplish the project's requirements. Execution process involves coordinating people and resources, as well as integrating and performing the activities of the project in accordance with the project plan. The main output of project execution is the project deliverables and producing these will be the responsibility of the project team who will be working to the project plan.

The actions performed during this process include:

- Performing the activities needed to meet the project objectives
- Obtaining and manage quotations, bids and proposals as needed
- Managing the project team and manage other resources
- Collecting and analyze performance data Generating project data for status reports and forecasts
- Managing risks
- Conducting change control and implementing approved changes
- Establishing and managing project communication channels
- Collecting and documenting lessons learned

Monitoring and controlling consists of monitoring project execution so that potential problems can be identified in a timely manner and corrective action taken as necessary. Monitoring and controlling includes measuring the ongoing project activities and the project variables (cost, effort, scope, etc.) against the project plan and the project performance baseline. It then identifies what needs to be done in order to get the project back on track.

Over the course of any project, the scope may change either as the result of necessary design modifications, differing site conditions, material availability, contractor-requested changes, value engineering and impacts from third parties, to name a few.



The change normally needs to be documented to show what was actually done; this is referred to as change management.

No matter how carefully planned a project has been, changes will need to be made as it progresses. These will result from both external influences as well as problems that arise within the project environment. The four main sources of change are:

Organizational: High level business decisions may change the basic terms of reference of the project – for example there may be a change to the overall scope of the project.

Environmental: resulting from changes in legislation or changes in government policy or changes in business strategy.

Technical: New technology may offer a better solution to that originally planned. Alternatively, technical problems may prevent a product from working in the way that it was supposed to.

End-User: resulting from changes in customer requirements. It is also possible that feedback gained during the review or testing of a product may show that it is unsuitable in some unexpected way.

Any person associated with a project should be able to raise any concern they have at any time. The concern may involve a perceived problem or a suggestion for an improvement to some area of the work, documentation or project organization. These issues should be reviewed at regular meetings. There are three possible outcomes when an issue is considered:

- A change to the design or features of a product may be agreed. This will mean changing the way the product is specified in the plans and updating any costs and timescales accordingly. An impact analysis should also be performed. This process looks at the knock-on effects of the change on other deliverables, and also the effect if the changes are not implemented. The purpose of the impact analysis is to arrive at a balanced view of the effect of the proposed change on the projects ability to satisfy its mandate. This will enable project management to decide whether to proceed with the change or not.
- The proposed change is rejected because it is not felt to represent a significant concern.
- The third option is unusual but it does occasionally happen that a deliverable does not agree with its specification but changing the specification is a better solution than changing the deliverable.

Where changing the deliverable is thought to be the best option, the project manager should use the impact analysis to assess the change in terms of its effect on timescales, cost, benefit, quality, personnel and risk and to decide at what level the decision to proceed should be taken. He or she should then determine whether or not the proposed change is significant enough to be referred back to the sponsor.

Managing the Project Team

At the very beginning of the project, the process of acquiring a project team is concerned with confirming human resource availability and obtaining the personnel needed to complete project assignments. Acquiring the project team is often complicated by the fact that the project manager will not usually have direct control over everyone they would like to have involved in the project. They may need to negotiate with others who are in a position to provide the right number of individuals with the appropriate level of knowledge skills and experience.

The next objective is to build a team that can work well together. This process should be started early on in the project because team building takes time and a team that works well together will have a major influence on project success. Team performance can be developed by using open and effective communication, developing trust among team members, managing conflicts in a constructive manner, and encouraging collaborative problem-solving and decision-making.

Team building is an important complex topic and an aspiring project manager should take the time to study other material on this subject. For example: Productivity Skills, Leadership Skills, Appraisal Skills and Meeting Skills.

Once the project work begins then the project manager will need to focus on tracking team member performance, providing feedback, resolving issues, and managing changes to optimize project performance. Managing people is probably one of the most complex areas as they can be unpredictable, can come into unexpected conflict with one another, their level of their morale can go up or down, and some may even decide to leave the project before it is completed.

Directing and Managing the Project Work

This involves leading and performing the work defined in the project plan and implementing approved changes to achieve the project's objectives. The main inputs to this process are the project management plan (described in detail in the previous section) and approved change requests.

Managing Project Quality Assurance

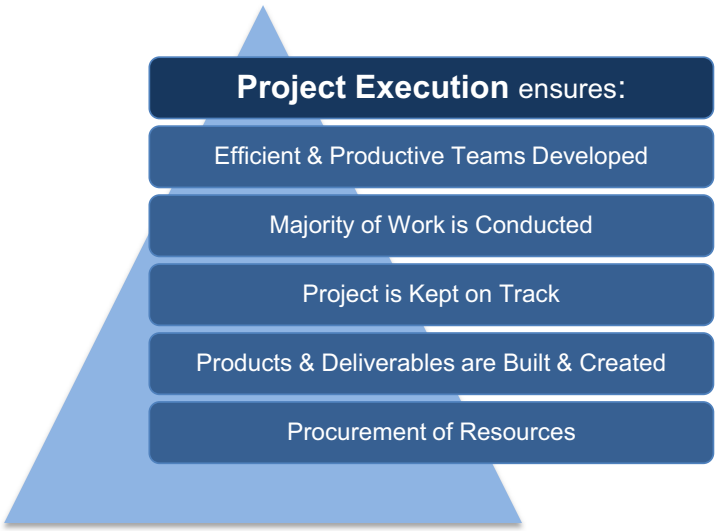
There is a lot of confusion about quality assurance and quality control. The difference is that quality assurance is part of the executing process and is concerned with making sure that the quality objectives are met. It is focused on process improvement. This process also provides an umbrella for continuous process improvement, which is an iterative means for improving the quality of all processes so as to reduce waste and eliminate activities that do not add value.

Managing Communication with Project Stakeholders

The purpose of this process is to keep the various stakeholders informed on the progress of the project. This is done according to the communications plan was created within the plan communications process.

Managing the Suppliers to the Project

This is the process of obtaining supplier responses, selecting a supplier, and awarding a contract. It may need to occur multiple times if there are multiple contracts and for each instance it will include issuing the bid package to potential supplier, evaluating potential supplier proposals and finally selecting the winning proposal.



In summary, these processes aim to get the work done efficiently and effectively so that the project stays on target with regard to scope and previously agreed goals. This process is where most of the work is carried out, and where products and deliverables are built, assembled, constructed, and created. It is also here that procurement and team development takes place.

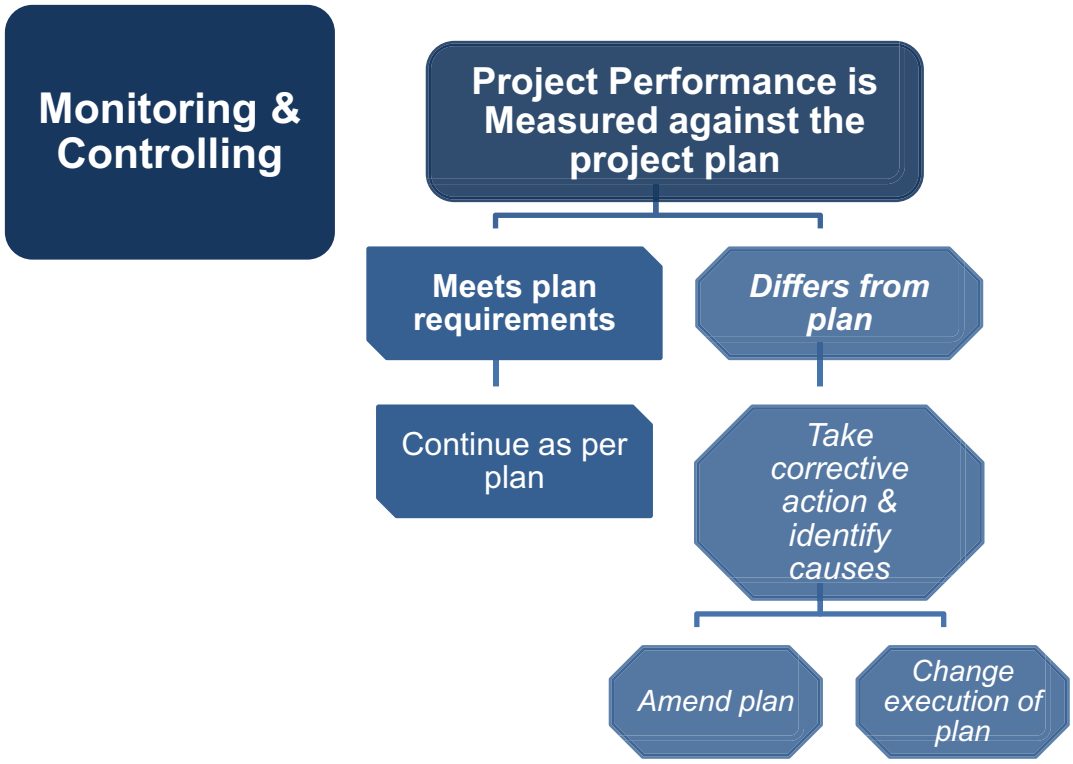
The Execution process involves more than simply the production of project deliverables. It is intimately entwined with the monitoring and controlling process. As the work detailed in the project plan is tackled, it becomes necessary to accept and document changes to it. This means that the main outputs of this process group include change requests and their implementation.

Key Points

- Project execution involves:
  - Establishing and managing the project team.
  - Coordinating people and resources.
  - Monitoring team performance.
  - Contracting procurements.
  - Directing and managing project execution.
  - Distributing information.
  - Performing quality assurance activities.
- The main items produced by project execution are:
  - The risk and issue management responses plus corrective actions.
  - The deliverables themselves plus work performance information.
  - Change requests.
  - Negotiation and influence to ensure appropriate staff are assigned.
  - Motivation building and mentoring to ensure the team performance.
  - Conflict resolution and problem solving.
  - Procurements and contracts are negotiated and put in place.
  - Organizational process assets are updated as a result of executing the project plan.

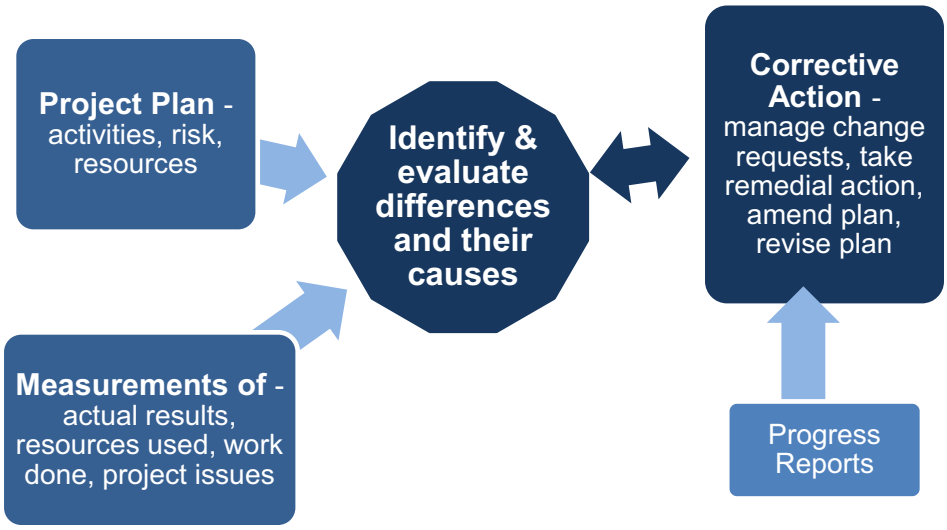
4 PROJECT MONITORING & CONTROLLING PROCESSES

The results of the executing processes are compared against the plan and where differences exist, corrective action is taken either to change the plan itself or the way in which the plan is being executed.



The point of the exercise is to take account of what is being learned from the execution of the plan and to re-plan on the basis of this new information, in order to prevent future project work from becoming too detached from the plan.

Evaluation and comparison of actual measured results against those planned is the fundamental principle of this process group. Where there is a variance corrective action is required to keep the project on schedule and to budget. The inputs are the project plan and progress reports that contain data collected from the project team. Where progress deviates significantly, and this usually means outside of a predetermined tolerance limit, it is important to identify the underlying causes and take corrective action.

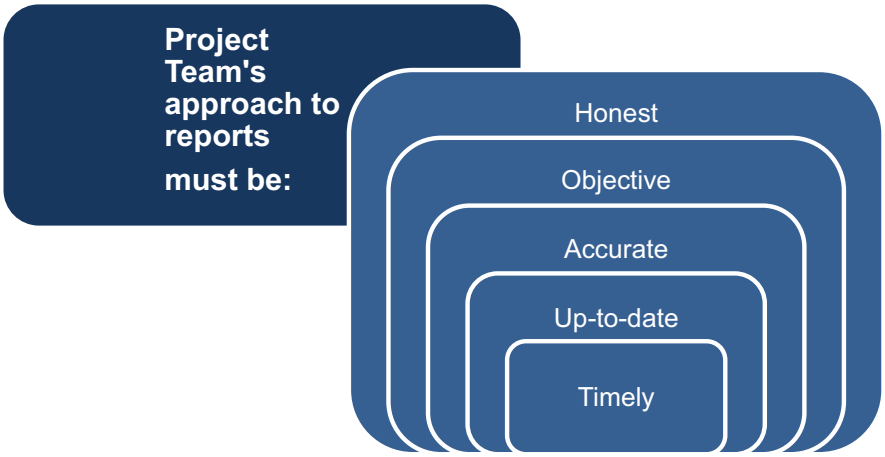


Reporting mechanisms are time-sensitive and you will need to be able to take appropriate action as and when deviations occur. If the reporting mechanisms are slow then you will not be able to control the project; you will just have an historical account of how out of control it was.

The control framework will vary from project to project, reflecting the size and complexity of the project and the extent to which the different levels of management are involved in it. Short projects subject to a high degree of change and uncertainty will require shorter reporting cycles than projects of a longer duration that are relatively stable.

Collecting Performance Data

The best control systems are often the simplest and making the data collection processes complex only increases both the costs and possibility of error. The accuracy and timeliness of the data collection procedures will also be influenced by a series of practical issues and the overall attitude of project management staff.



A practical issue that needs to be addressed is how the executing activities will be monitored and how progress will be reported. Project team members are usually expected to maintain up-to-date timesheets and records of the activities they are involved with. Their team leader then collates the data and passes it to the project manager.

The quality of this performance data is absolutely critical to the success of the project. Many projects run into trouble because reported progress does not match what is actually happening and the project manager acting on this information is unaware that problems are quietly stacking up. Project team members tend to develop a positive or negative attitude towards the value and importance of data collection quite early on in the project depending on how it is acted on by management.

Ideally the data that is collected should be as objective as possible and measure deliverables that have been completed or signed-off in some way. The worst approach is to ask people how much progress they have made on a task in percentage terms. Many people are naturally optimistic and want to be seen as a productive team member, which leads to persistent over-reporting of the progress they have made. This problem is made worse when management respond in a negative way to reported overruns.

You do not want team members attempting to disguise how much (or how little) progress they have made because if they do then the whole monitoring and control process will be a waste of time. You must do everything possible to collect objective data in a non-judgmental way.

Key Points

- Monitoring and controlling:
  - Involves tracking, reviewing, and regulating project progress
  - Includes status reporting, progress measurement, and forecasting
  - Reports on scope, schedule, cost, resources, quality, and risks
  - Controls project and project document changes
  - Includes control of scope, schedule, costs, and risks
  - Formalizes acceptance of deliverables
  - Records quality control results
  - Implements risk treatment plans and actions
  - Administers suppliers
- The key outputs are:
  - Progress and status reports
  - Plan updates
  - Risks registers
  - Change requests
  - Work products/deliverables

5 PROJECT CHANGE CONTROL PROCESSES

This is the process of reviewing all change requests, approving changes and managing changes to the deliverables, project documents and the project plan. It is conducted from project initiation through completion because no matter how carefully planned a project has been, changes will need to be made throughout its life cycle. This is one of the most important areas of the project because the cost of implementing changes goes up as the project progresses. Therefore, it is best to make essential changes as soon as possible in the project.

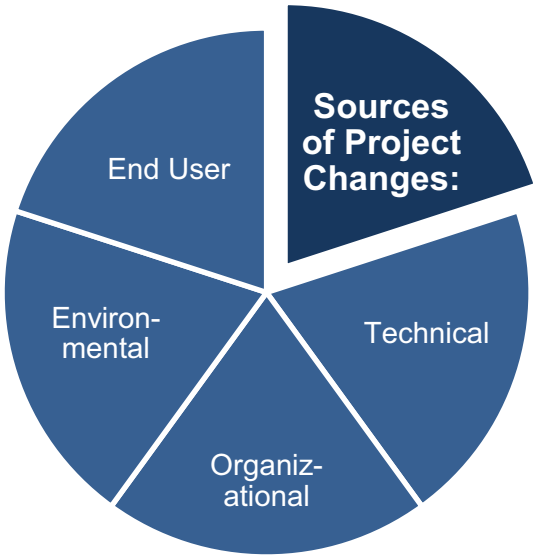
Any stakeholder involved with the project may request changes. For example, end-users may realize that their requirements have changed or testing of a product may show that it is inappropriate in some unforeseen way. The business may be affected by changes in legislation, changes in government policy or changes in business strategy. It is also possible that project team members may believe that an emerging technology may offer a better solution to that originally planned or that a product just might not work the way that it was supposed to.

All of these potential changes need a process to control them and their effect on the project. This process, called change control, should ensure that proposed changes are interpreted in terms of their potential effect on project timescales, costs, benefits, quality and personnel.

This means that although they may be initiated verbally, they should always be recorded in written form and entered into a change management system as a formal change request. As such, they will be subject to the process specified in the change control system and must be either approved or rejected.

If a change request or document update request is raised, then an impact analysis should be performed. This process looks at the knock-on effects of the change on other products, and also the effect if the changes are not implemented. This decision is usually taken by the project manager or a change control board (CCB) responsible for approving or rejecting change requests. The purpose of the impact analysis is to arrive at a balanced view of the effect of the proposed change on the projects ability to satisfy its mandate. This will enable project management to decide whether to proceed with the change or not.

Approved change requests can require new or revised cost estimates, activity sequences, schedule dates, resource requirements, and analysis of risk response alternatives. The applied level of change control is dependent upon the application area, complexity of the specific project, contract requirements, and the context and environment in which the project is performed.



These changes will result from both external influences as well as problems that arise within the project environment. The four main sources of change are:

1. *Environmental*: resulting from changes in legislation, government policy, or business strategy.
2. *Organizational*: High-level business decisions may change the basic terms of reference of the project – for example, there may be a change to the overall scope of the project.
3. *End-User*: resulting from changes in customer requirements. It is also possible that feedback gained during the review or testing of a product may show that it is unsuitable in some unexpected way.
4. *Technical*: New technology may offer a better solution to that originally planned. Alternatively, technical problems may prevent a product from working in the way that it was supposed to.

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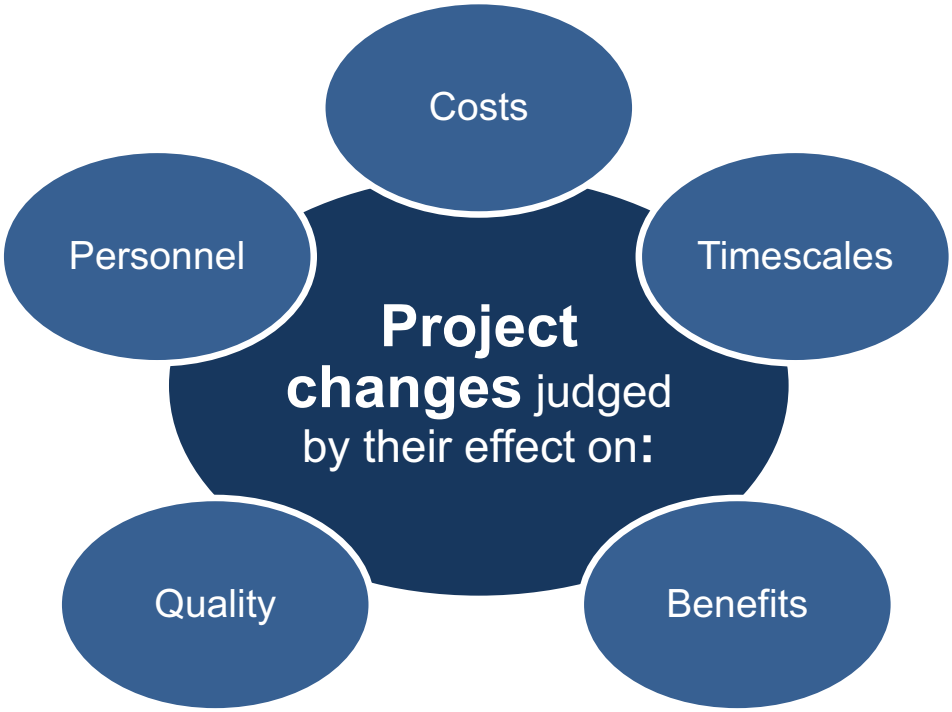
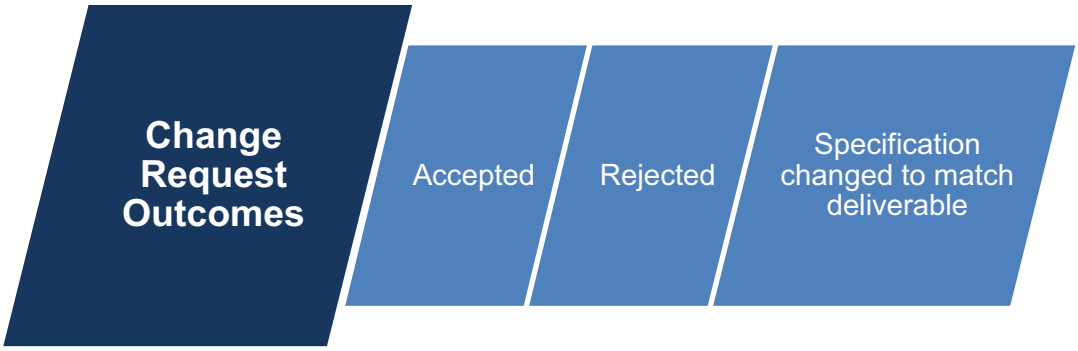


Where there is a proposed alteration to the project's products, change control should analyze the change and assess its impact, prioritize and plan the necessary work, and finally control its implementation.

Any person associated with a project should be able to raise any concern they have at any time. The concern may involve a perceived problem or a suggestion for an improvement to some area of the work, documentation, or project organization. These issues should be reviewed at regular meetings.



There are three possible outcomes when an issue is considered:

1. A change to the design or features of a product may be agreed. This will mean changing the way the product is specified in the plans and updating any costs and timescales accordingly. An impact analysis should also be performed.

   This process looks at the knock-on effects of the change on other deliverables, and also the effect if the changes are not implemented. The purpose of the impact analysis is to arrive at a balanced view of the effect of the proposed change on the project's ability to satisfy its mandate. This will enable the project manager to decide whether to proceed with the change or not.

2. The proposed change is rejected because it is not felt to represent a significant concern.
3. The third option is unusual but it does occasionally happen that a deliverable does not agree with its specification and changing the specification is a better solution than changing the deliverable.

Where changing the deliverable is thought to be the best option, the project manager should use the impact analysis to assess the change in terms of its effect on timescales, cost, benefit, quality, personnel, and risk and to decide at what level the decision to proceed should be taken. He or she should then determine whether or not the proposed change is significant enough to be referred back to the sponsor.

Change control meetings involve the CCB described previously. The roles and responsibilities of these boards are clearly defined and agreed upon by appropriate stakeholders and documented in the change management plan. CCB decisions are documented and communicated to the stakeholders for information and follow-up actions.

These involve people who are responsible for managing the project work including the project manager, the project sponsor, selected project team members, selected stakeholders, anyone with responsibility for any of the project management processes, and others as needed.

Collective decision-making is very important area of project management that can make or break this part of the project. It will involve meetings between the project manager, the team and other stakeholders in order to make decisions about the activity definitions and associated estimates. How well these meetings are conducted will have a major impact on how smoothly the project runs.

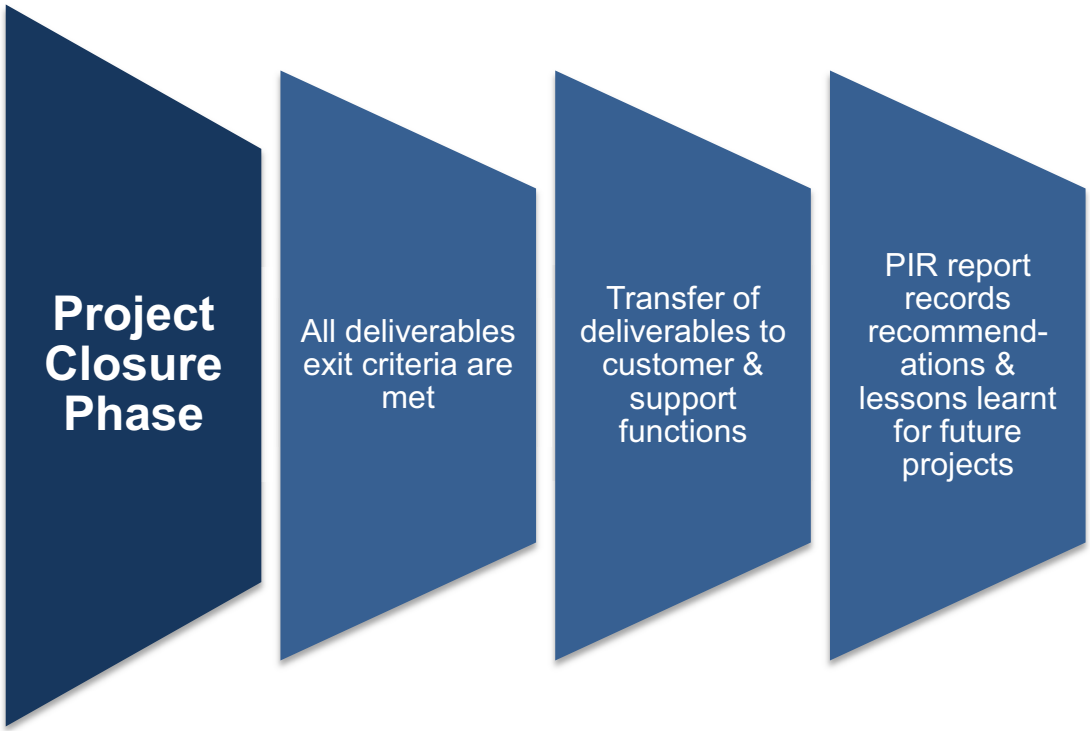
If you feel as though your project meetings could be improved then you can download the 'Meeting Skills' eBooks from this website. These free eBooks cover all aspects of meetings including how to set an agenda that will ensure that the meeting achieves it's aims and how to chair a meeting so that it is as productive as possible.

Key Points

- Change control is a formal process used to ensure that changes to a product or system are introduced in a controlled and coordinated manner.
- It reduces the possibility that unplanned changes will be introduced.
- The goals of a change control procedure usually include minimal disruption to services reduction in back-out activities, and cost-effective utilization of resources involved in implementing change.

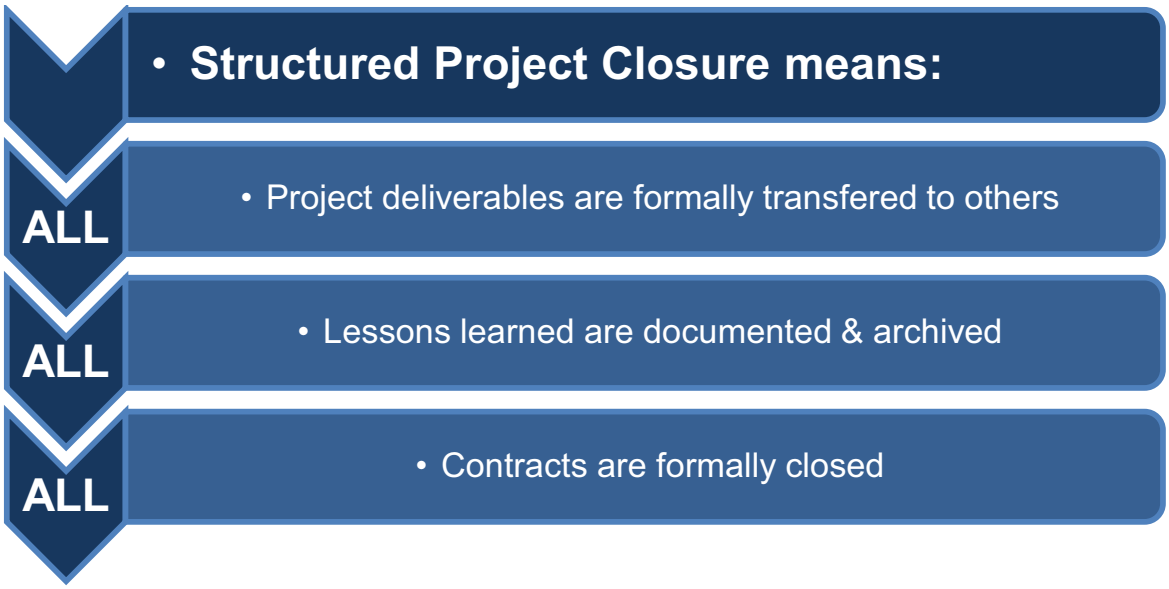
6 PROJECT CLOSURE PROCESSES

This represents the formal completion of the project deliverables and their transfer to the final beneficiaries – usually internal or external customers. This phase also includes 'administrative closure,' which is the termination of the activities of the project team, the completion of all project documentation, and a formal sign-off of any contracts.



Project documents are usually archived so that they can be referred to if the organization takes on a similar project where the experience gained and the lessons learned in the current project would prove useful. A carefully structured project closure phase should ensure that the project is brought to a controlled end, which in practice means that:

1) All of the project deliverables are formally transferred to others.
2) All of the lessons learned from the project are documented and archived.
3) Any contracts established by the project are formally closed.



When closing the project, the project manager will review all prior information from the previous phase closures to ensure that all project work is complete and that the project has met its objectives.

Since project scope is measured against the project plan, the project manager will review that document to ensure completion before considering the project closed. This process also establishes the procedures to investigate and document the reasons for actions taken if a project is terminated before completion.

If outside suppliers have been used in the project then this process also involves verification that all work and deliverables were acceptable, as well as administrative activities such as finalizing open claims, updating records to reflect final results and archiving this information for future use.

Requirements for formal closure are usually defined in the terms and conditions of the contract and are included in the procurement plan. This output is simply the formal notification from the buyer that the contract has been completed.

The closure process of a contract can occur in any phase of a multi-phase project if its the term is only be applicable to a given phase. Contracts that are applicable to a specific phase will have their particular procedures for contract closure included in the contract terms and conditions. If at the closure of a contract there are unresolved claims the supplier management process will detail when and how litigation will be handled.

In some instances closure of a contract may have to be earlier than planned. Any project contract or agreement needs to specify in a terminations clause the parties' responsibilities and rights in the event of early termination. This special type of procurement closure can occur from:

- Mutual agreement of both parties
- Default of one party, or
- For convenience of the buyer (as long provision is made in the contract).

Early termination can be for the whole contract or just a particular section. It is common practice that the purchaser will have to compensate the supplier as defined in the contract for any work-in-progress (WIP) that has been undertaken.

This is especially important if the project is using teaming agreements where two or more organizations form a partnership or joint venture for the contract. Within the contract there are clear definitions of buyer-seller roles and responsibilities for each party. Many outsourcing specialists will have their own teaming agreement templates.

Key Points

- The key activities for the closing process are:
  - Obtaining acceptance by the customer or sponsor (approval to close).
  - Releasing people and resources.
  - Reporting on team performance and lessons learned.
  - Updating or finalizing documents, project records, and results.
  - Finalizing procurements.
  - Performing quality assurance activities.
  - Storing or archiving information.

- The key outputs of this group are:
  1. Certificate of Completion/Closeout Report.
  2. Staff work assignments.
  3. Resource calendars.
  4. Plan updates.
  5. Final work products/deliverables or services.

SUMMARY

Project management is a complex activity that requires a structure, procedures and processes that are appropriate to your project. This will enable you to manage the inevitable changes that occur throughout a project's lifespan in a professional manner to ensure success. Each project function describes the expertise, skills and tools needed for your project.

So much work is now run as projects and so few people have the necessary skills to manage them properly that there is a huge demand for good project managers and that demand is increasing all the time.

The other project management skills eBooks available from www.free-management-ebooks.com provide you with an opportunity to read a more in-depth description of each functional area.

- Principles of Project Management
- Managing a Project Team
- Managing the Project Scope
- Managing the Project Schedule
- Managing the Project Budget
- Managing Project Quality
- Managing Project Risk

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eBooks – Our free management eBooks cover everything from accounting principles to business strategy. Each one has been written to provide you with the practical skills you need to succeed as a management professional.

Templates – Most of the day-to-day management tasks you need to do have already been done by others many times in the past. Our management templates will save you from wasting your valuable time re-inventing the wheel.

Checklists – When you are working under pressure or doing a task for the first time, it is easy to overlook something or forget to ask a key question. These management checklists will help you to break down complex management tasks into small controllable steps.

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