

Project Management Principles

Project Management Skills

Team FME

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Preface

Organizations are increasingly using project management techniques within their operations, and the specialist language of project management has become more and more commonplace in managerial and executive meetings. This trend is here to stay and it means that managers need to be familiar with project management roles, terms, and processes.

The Project Management Institute (PMI) is a not-for-profit professional organization for the project management profession with the purpose of advancing project management. It is responsible for maintaining the industry standard known as 'The Project Management Body of Knowledge' (PMBOK® Guide), which is recognized by the American National Standards Institute (ANSI). The PMI is also responsible for administering the most widely recognized and respected project management credential (PMP), which is held by over 500,000 project management professionals worldwide.

This eBook has been designed to help managers understand the principles of project management and how the processes detailed in the PMBOK® Guide support them.

You will learn:

- How projects are defined and why they differ from business processes
- How the structure of an organization impacts project management
- How project management roles and responsibilities are defined
- What the PMBOK® Guide is and how it can help you
- What type of projects lend themselves to the PMBOK® framework

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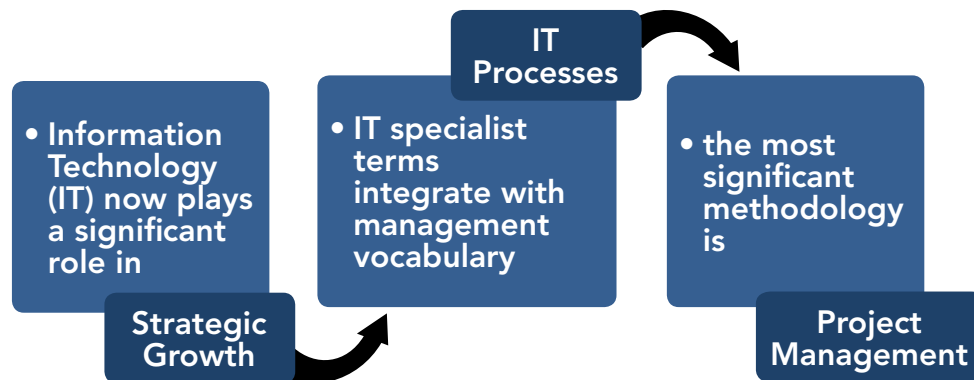
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Introduction

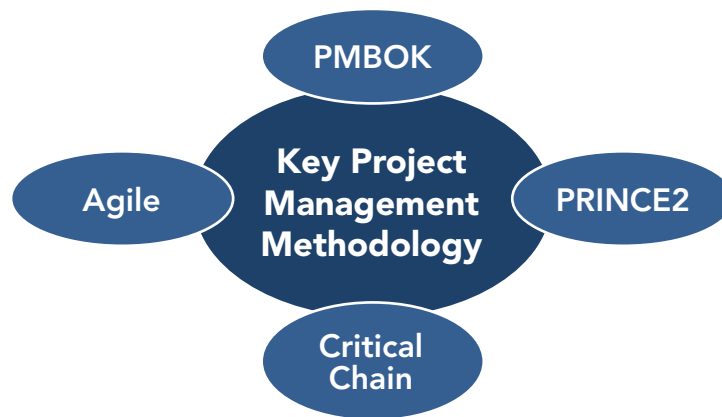
The impact of technology and its influence on organizational processes is an essential aspect of any growth strategy. It is hard to find any development or procedural change that does not have an information technology aspect and in many cases it is actually the changes in available technology that drive the need to change organizational processes.

This has led to a merging of IT working practices into that of general management including the use of project management.



Managers now find that they are frequently involved in projects that are being managed using a formalized project management methodology. Communications forms a key part of such projects and if you are going to be successful in your role as a manager it is essential that you have a thorough understanding of project management terminology, processes, and procedures.

There are various ways in which projects can be approached and a host of 'methodologies,' 'frameworks,' and 'processes' have been developed over the past 60 years or so. Some of these have their origins in academic research whereas others have grown out of proprietary methods developed by organizations that are highly project focused, for example management consultancies.



Each of these approaches has its own way of looking at projects and its own terminology for the documents and processes that make up project management. There has been some rationalization in recent years but there are still a dozen widely used methods. The ones you are most likely to encounter are PMBOK®, PRINCE2, Critical Chain, and Agile.

PMBOK® is short for Project Management Body of Knowledge, which describes project management practices that are common to 'most projects, most of the time.' The PMBOK® is published by the Project Management Institute (PMI), which was formed in the USA in 1969. The PMI also offers various levels of certification and the PMBOK® is widely used and respected.

PRINCE2 is a process-based approach for project management, providing an easily tailored and scalable methodology for the management of all types of projects. The method is the standard for public sector projects in the UK and is practiced worldwide. The acronym stands for Projects in a Controlled Environment and this is a project management program that shares more of the functional and financial authority with senior management, not just the project manager.

The **Critical Chain** method is not fundamentally different from the current mainstream approaches but it differs in the way that it handles risk and contingency. Developed in 1997 it is a method of planning and managing project execution designed to deal with uncertainties inherent in managing projects, while taking into consideration the limited availability of resources.

The **Agile** approach uses an iterative method of determining requirements for engineering and software development projects in a highly flexible and interactive

manner. It is most often used in small-scale projects or in cases where the final deliverables are too complex for the customer to understand and specify before testing prototypes.

The project management eBooks on this website follow the PMBOK® approach, but even if your organization uses another approach most of the information and concepts will still be helpful if you are relatively new to the subject.

These books are for anyone who wants to find out more about a structured approach to project management and the PMBOK® Guide. Each of these eBooks is designed to provide easy access to the concepts underlying the PMBOK® Guide processes in a way that can be used by team members and other stakeholders.

Why Use PMBOK®?

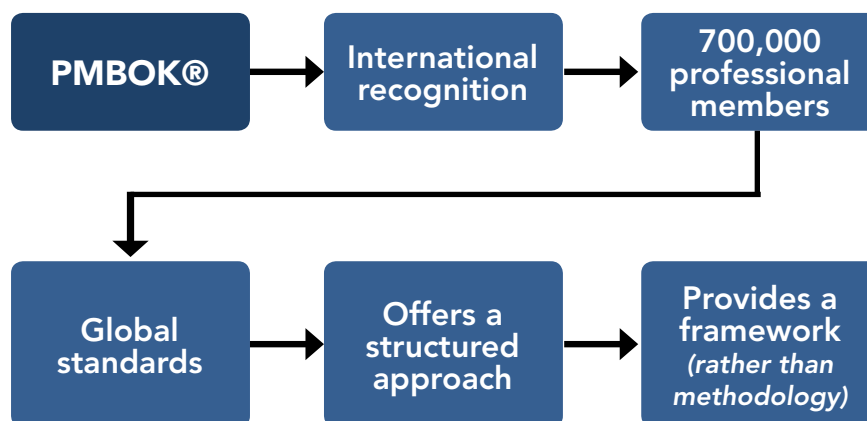
The Project Management Institute (PMI) is the world's largest not-for-profit membership association for the project management profession. It has more than 700,000 members, credential holders, and volunteers in nearly every country in the world.

The PMI is the publisher of the 'PMBOK® Guide,' now in its fifth edition. This internationally recognized standard gives project managers the essential tools to practice project management and deliver organizational results. Translations are available in Arabic, Chinese, French, German, Italian, Japanese, Korean, Portuguese, Russian, and Spanish.

One of the initiatives of the PMI is the development of global standards. These aim to ensure that the basic project management framework is applied consistently in order to reinforce a common language and approach between project stakeholders.

The PMBOK® describes a professional approach to project management that is applicable to most projects. This approach is based on its proven value and benefits in practice through the contribution of thousands of project managers worldwide.

It is NOT a methodology but more of a framework, a structure that allows different business processes to be grouped together. It also defines common deliverables that act as inputs to and outputs from each process. The framework can help you master a complex topic in a relatively short time by acting as a map, which helps you to navigate around an entire body of knowledge.



You do not have to create every single document that is specified in the PMBOK® or perform every process in exactly the way that is detailed. This flexibility means that you can use your own judgment based on your experience, taking into account the size and complexity of the project, to decide which elements are and are not appropriate.

It is the most widely used standard reference of industry best practices for project management and identifies generally accepted guidelines that are applicable to a wide range of projects including:

- Construction
- Software
- Engineering and
- Services.

Although the project management processes are described in detail, together with the tools and techniques required, it does not prescribe the exact way that things should be done. In practice each individual organization will fine-tune the approach depending upon its structure, culture, and the particular type of project.

Another advantage of using the Guide is that it can prevent you from treating project management as a series of ad hoc individual techniques and steer you towards a more structured approach. This is particularly helpful when you are working with a new team and everyone needs to understand a concept quickly in order to fine-tune it to your own project. Even when this fine-tuning involves significant changes, at least everyone involved will be using the same vocabulary and have the same understanding of what the process is trying to achieve.

The eBooks in this series follow the structure of the PMBOK® Guide because it represents a tried and tested framework. We have tried to ensure full alignment of our eBooks with the Guide by using the numbering convention as well as the naming convention.

If you need more detailed explanation of a particular subject then you can simply refer to the related chapter and paragraph number in the PMBOK® Guide. Remember, many of the generic project management methodologies available refer to the PMBOK® Guide as a basic framework.

A knowledge of the PMBOK® processes will go a long way towards giving you an understanding of almost any project management methodology that your organization may use.

KEY POINTS

- ✓ Managers now find that they are frequently involved in projects that are being managed using a formalized project management methodology.
- ✓ Each of these approaches has its own way of looking at projects and its own terminology for the documents and processes that make up project management.
- ✓ The project management eBooks on this website follow the PMBOK® but even if your organization uses another approach most of the information and concepts will still be helpful if you are relatively new to the subject.
- ✓ The Project Management Institute (PMI) is the world's largest not-for-profit membership association for the project management profession.
- ✓ A knowledge of the PMBOK® processes will go a long way to giving you an understanding of almost any project management methodology.

What is a Project?

Before concerning ourselves with the details of project management documents and processes, it is a good idea to take a step back and think about what makes something a project and why it needs to be managed differently from the day-to-day work of the organization. In other words,

'Why do we need project management?'

There are many different definitions of what constitutes a project:

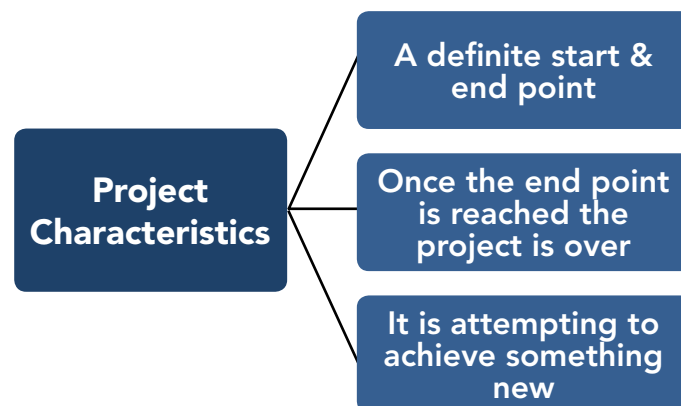
Project Management Institute—'A project is a temporary endeavor undertaken to create a unique product, service or result.'

PRINCE2—'A Project is a temporary organization that is created for the purpose of delivering one or more business products according to an agreed Business Case.'

Association for Project Management (APM)—‘An endeavor in which human material and financial resources are organized in a novel way to deliver a unique scope of work of given specification often within constraints of cost and time to achieve beneficial changes defined by quantitative and qualitative objectives.’

H. Kerzner—‘Project management is the planning, organizing, directing and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives. Furthermore, project management utilizes the systems approach to management by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy)’ (2009).

Many organizations also have their own definition of what constitutes a project. Whichever definition you prefer does not really matter; the important thing is to be able to identify work that constitutes a project so that it can be properly managed.



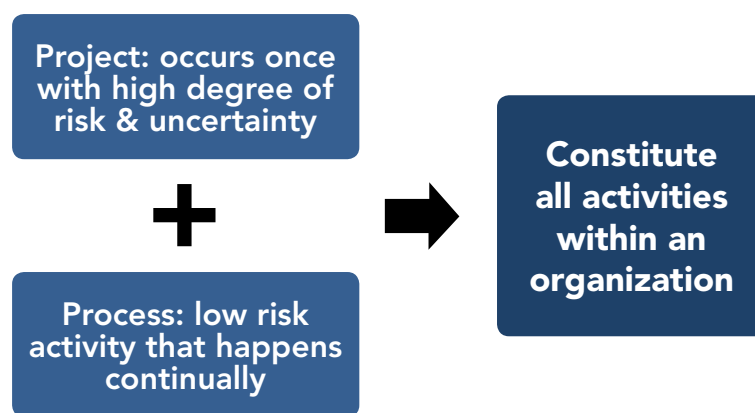
Projects have some or all of the following characteristics:

- They have a definite start and endpoint
- Once the endpoint is reached the project is over
- They are attempting to achieve something new

Projects can vary in size and small projects can be planned and managed by the same person whereas larger projects may employ thousands of people working on many sites and require a dedicated group in order to manage and coordinate the activities.

Everything that an organization does can be categorized either as a project or process. A process is something that happens continually and has a low risk associated with it, whereas a project happens once and has a relatively high level of risk.

To illustrate this, imagine an organization that has an annual staff appraisal process in which managers make a written assessment of their staff against criteria specified by the HR department. This is a process because even if the criteria change from year to year the procedure undertaken by everyone involved remains more or less the same.



If the organization decided to introduce an IT system to facilitate this process then the selection, implementation, and testing of the new system would represent a project because it would be a one-off activity which carries the risk of exceeding the budget or timescale allocated to it.

It is perfectly logical for different organizations to see the same activity in a different way. For example, the supplier of the computer system may see this activity as a process because it is something that it does every time it sells a system. Each time it does so, it gains more experience, which allows it to plan and execute future installations based on what it has learned previously.

This distinction is important because project management is used where there is a high degree of uncertainty and risk because there is no experience of performing the activity. So in this scenario,

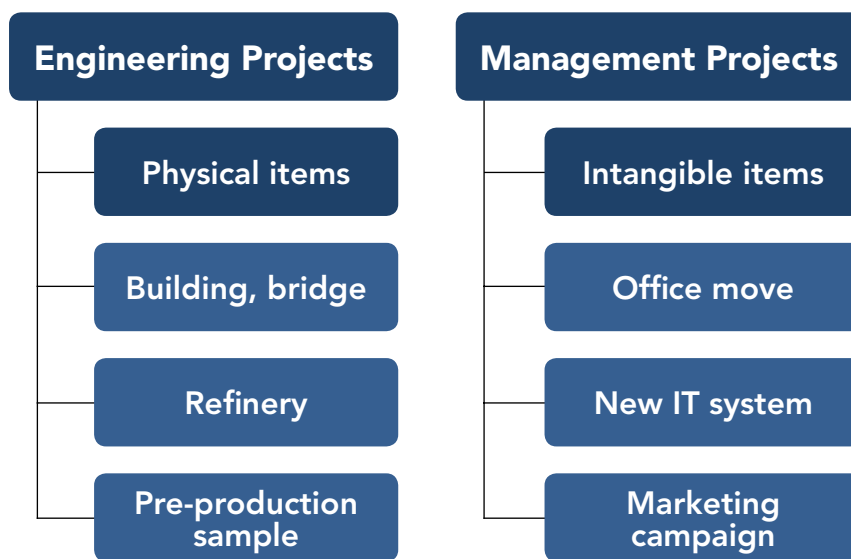
The organization buying the system would treat it as a project.

The vendor would treat it as part of a process.

The vendor would see it as a process that could be refined with each iteration in order to reduce costs and increase the quality. The distinction between projects and processes depends on whether the organization repeats an activity often enough for it to become routine. Once an activity is repeated often enough within an organization to become routine it is no longer considered a project—it becomes one of their many management processes.

Types of Project

Projects can be broadly classified into engineering projects and management projects. Engineering projects encompass civil, electrical, and mechanical engineering and the final deliverables are physical objects, for example a building, reservoir, bridge, refinery, or pre-production sample. Specialist companies or consortia invariably undertake these types of project.



Management projects include things like: restructuring the organization, preparing for an exhibition, developing an IT system, launching a new marketing campaign, moving offices, or indeed anything where the objective is to produce an end result that is not identifiable as a physical item.

A broad range of organizations does these types of project, including: commercial companies, government departments, charities and NGOs (Non Governmental Organizations), and other not-for-profit organizations.

The differences between these types of project go further than just the nature of the final deliverable. For example:

Use of Specialist Staff

Engineering projects almost always represent the day-to-day work of the organization. For example, a construction company will employ people who specialize in building office blocks, public buildings, houses, or roads.

Similarly, a manufacturing company will have design engineers to take a product from conception, through the design process and prototyping before the work is handed over to production engineers who will then be responsible for mass production.

This is quite different from a management project where people who don't usually run projects may find themselves doing much the work.

Environmental Issues

The challenges of engineering projects are often physical in nature. For example, a construction project may be held up by bad weather, the discovery of archeological remains, or other unforeseen environmental problems.

Management projects on the other hand usually take place on the organization's own premises and are not subject to these sorts of issues.

Specification of Final Deliverable

In the case of engineering projects the final deliverable is usually specified in detail at the beginning of the project because it will need to comply with existing standards or legislation. If the deliverable is a mechanical or electronic part then it will need to fit with the rest of the finished product.

This is not usually the case with management projects where the exact form of the final deliverable may not become clear until some of the work of the project has been done. It may also alter as the project develops, or in response to market research or other developments.

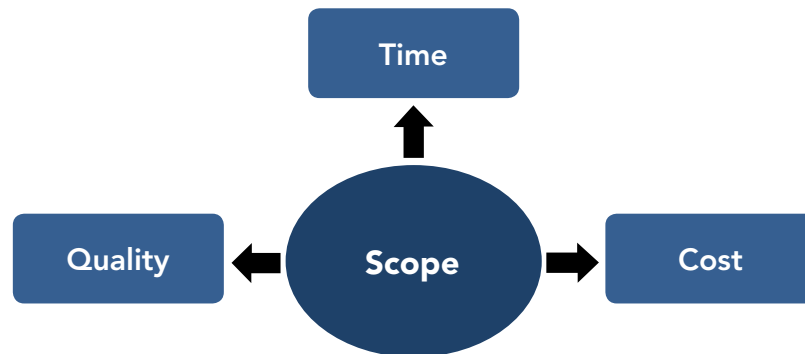
Generally speaking, engineering projects and management projects are quite different things and this eBook is aimed at managers undertaking management projects rather than engineering projects.

KEY POINTS

- ✓ Everything that an organization does can be categorized either as a project or process.
 - ✓ A process is something that happens continually and has a low risk associated with it.
 - ✓ A project happens once and has a relatively high level of risk.
 - ✓ Projects are attempting to achieve something new, they have a definite start and endpoint, and once the endpoint is reached the project is over.
 - ✓ Engineering projects encompass civil, electrical, and mechanical engineering and the final deliverables are physical objects, for example a building, reservoir, bridge, refinery, or pre-production sample.
 - ✓ Management projects include things like: restructuring the organization, preparing for an exhibition, developing an IT system, launching a new marketing campaign, moving offices, or indeed anything where the objective is to produce an end result that is not identifiable as a physical item.
-

What is Project Management?

Projects need to be managed to meet their objectives, which are defined in terms of expectations of time, cost, and quality.



For example,

Project Scope: To move the organization's head office to another location. Its requirements are:

- Time: Complete by March 2015
- Quality: Minimize disruption to productivity
- Cost: Not spend more than \$125,000

The scope of the project is defined as:

the totality of the outputs, outcomes, and benefits and the work required to produce them.

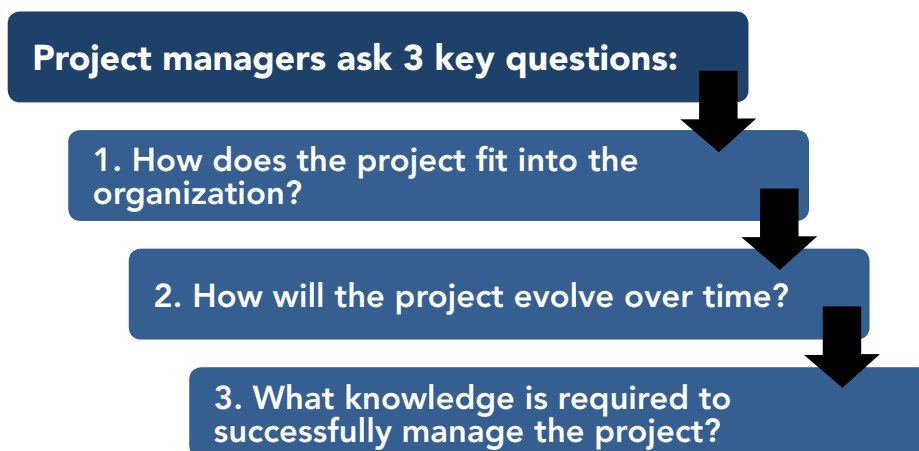
This can change over time, and it is the project manager's responsibility to ensure the project will still deliver its defined benefits. Consequently, a project manager must maintain focus on the relative priorities of time, cost, and quality with reference to the scope of the project.

The Project Management Institute (PMI) defines project management in the following way:

'Project management is the application of knowledge, skills, tools and techniques to meet project requirements.'

This definition begs the question ‘Exactly what knowledge, skills, tools, and techniques will I need to successfully manage a project?’ In order to answer this question, it is helpful to look at project management from three different perspectives.

- 1. How the project fits into the organization**—This refers to both the project and the individuals who will be involved in it, including how their responsibilities are defined and how they interact with each other.
- 2. How the project will evolve over time**—This is referred to as the project life cycle and is the chronological sequence of activities that need to happen in order to deliver the project. Whatever their differences, all projects will by definition share a similar life cycle; they will all have a beginning, middle, and an end.
- 3. What knowledge is required to successfully manage the project**—These are usually referred to as ‘Project Knowledge Areas’ because there are discrete areas within project management that can be considered in isolation even though they are interdependent.



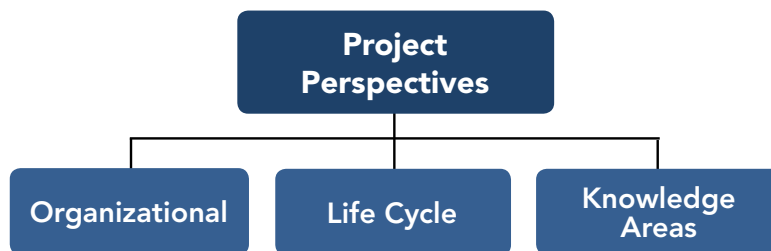
This might sound unnecessarily complicated, but looking at a project from each of these three viewpoints will give you a much better understanding of the whole process than using any one of them individually.

To use an analogy: Imagine that a ship is traveling from London to New York.

The organizational perspective would be concerned with which members of the crew were responsible for doing what and how they communicated and interacted with each other.

The *life cycle of the voyage* would be concerned with where the ship was and what it was doing at any point from the beginning to the end of the journey.

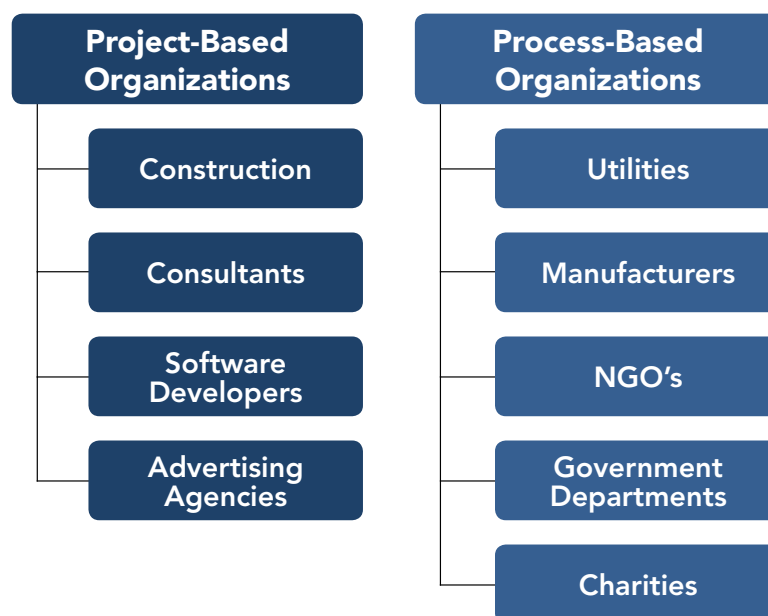
The *knowledge areas* would be things like navigation, collision avoidance, routine maintenance, etc. Even though these activities would be taking place continuously and interdependently, it is still possible to think about them as discrete areas of knowledge.



This analogy is not perfect but it does illustrate that when you are studying a complex activity it can be helpful to look at it from a variety of perspectives in order to gain a better understanding of the whole.

Understanding How Projects are Organized

The way in which an organization is structured is largely a result of whether its day-to-day work is process driven or project driven.



Project Focused

These organizations' day-to-day work involves delivering unique projects for external customers for a set time period. Their management structure is designed to support projects and everyone working in the organization is assigned to one or more projects.

Examples include:

Construction companies, Consulting organizations, Software developers, and Advertising agencies.

Process Focused

The day-to-day work of these organizations predominantly involves continually delivering products or services for external customers. Their management structure is designed to support the process required to deliver the product or service to the end customer.

Examples include:

Utility companies, Manufacturing companies, Government departments, Charities, and NGOs.

In reality, even the most process-focused organizations will run occasional projects and some may have parts of the organization that are dedicated to project-based working. The vast majority of the staff in public utilities (electricity, gas, and water) will be employed to provide an ongoing service to their customer base. But there will be some areas of the business concerned with physical or management infrastructure that are wholly project driven.

For example:

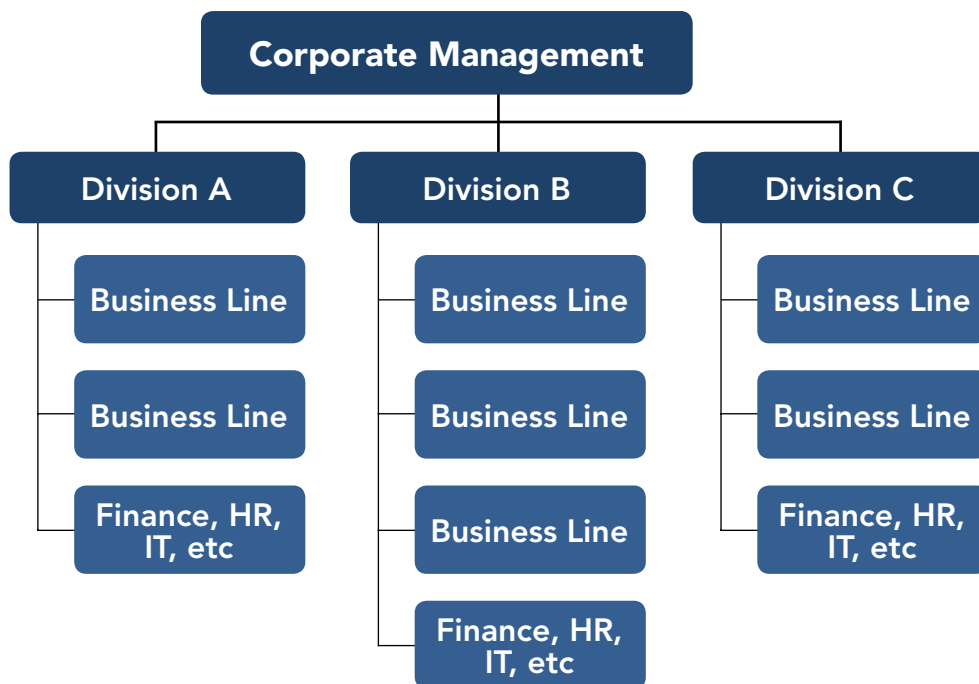
Staff responsible for the development of new information systems and those responsible for the construction of new physical infrastructure, like electrical substations and water treatment plants.

The extent to which your organization has the necessary assets and processes to conduct successful projects will play a significant role in your project costs and level of risk. The less experience it has, the higher your project costs will be and the greater degree of risk compared to a project-driven organization.

Every organization is unique and these classifications are only useful in that they illustrate the fact that project management is likely to present more of a challenge in process-focused organizations than in those that are project focused.

It is better to think of organizational structures existing on a continuum as described below. This is not only more realistic but it allows us to begin thinking about how exactly the organizational structure will impact a project in practical terms.

At one extreme are organizations in which employees are isolated within their functional divisions as shown.

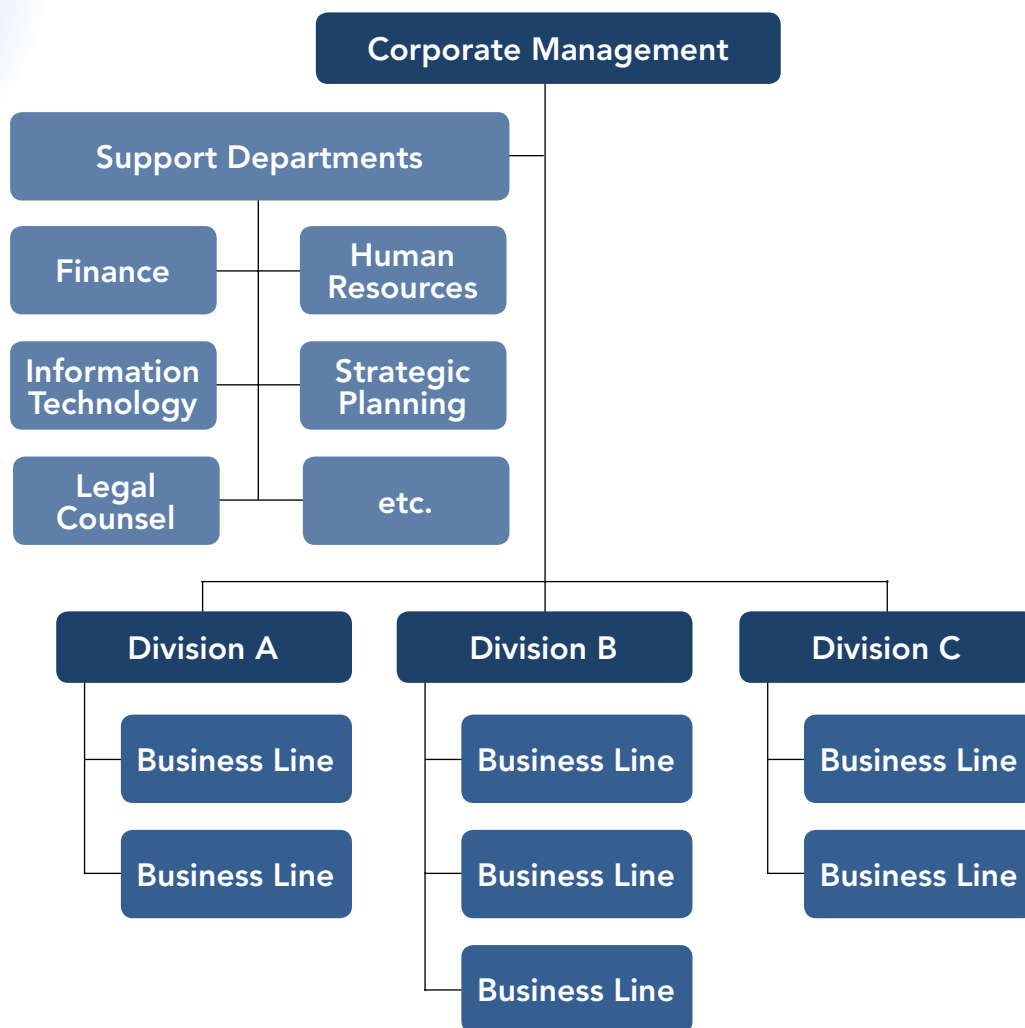


In this scenario, senior management allocate capital to each division, which then operate autonomously to return as much profit as possible. Each division is completely independent of the others and there is no mechanism to allow communication across divisions other than by going up the hierarchy to senior management who would then have to pass the decision down to the other divisions.

This type of structure makes producing a limited amount of products or services efficient and predictable, but would make it almost impossible to run a project that cut across divisional boundaries.

A refinement of this structure is shown below and is referred to as a weak matrix. This is because although each division operates independently, they no longer have direct control over support functions like IT, finance, and human resources.

This type of structure makes sense because these support functions do not need to be duplicated and can be shared between the divisions. This saves money and enables the support departments to be bigger and employ more specialist staff.



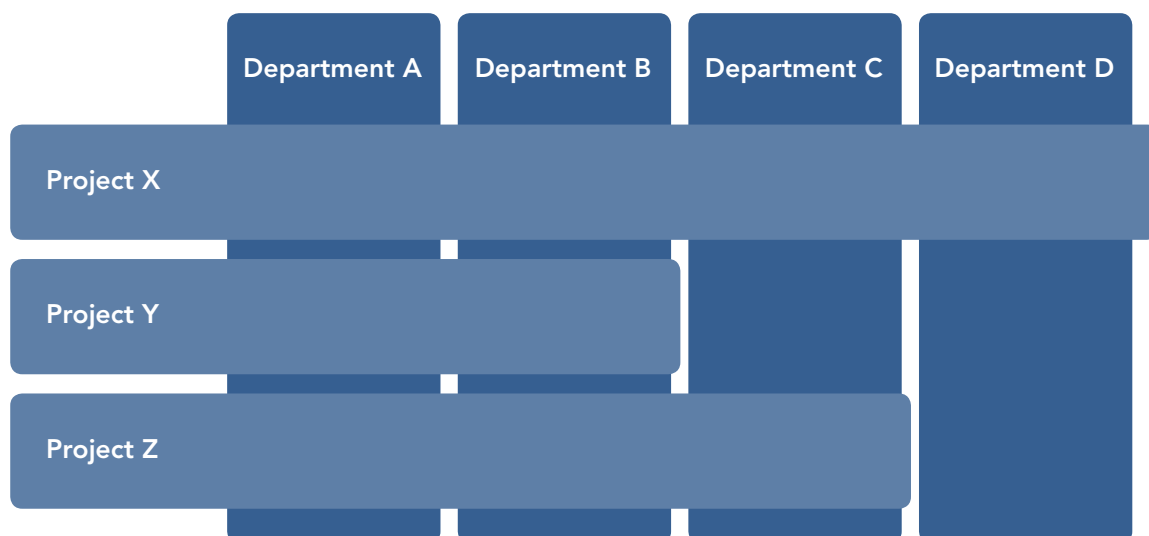
The implication for project management is that there will be mechanisms for communicating across divisions and that people will be more accepting of working with others outside of their own division.

KEY POINTS

- ✓ Project management can be thought of in terms of organizational, life cycle, and knowledge area perspectives.
- ✓ Organizations may be either process driven or project driven.
- ✓ Even the most process-focused organizations will run occasional projects and some organizations may have parts that are dedicated to project-based working.
- ✓ There are various ways of structuring the project environment depending on the type of organization.

Matrix-Management Environment

This type of structure can be taken further to give what is known as a pure matrix-management environment.



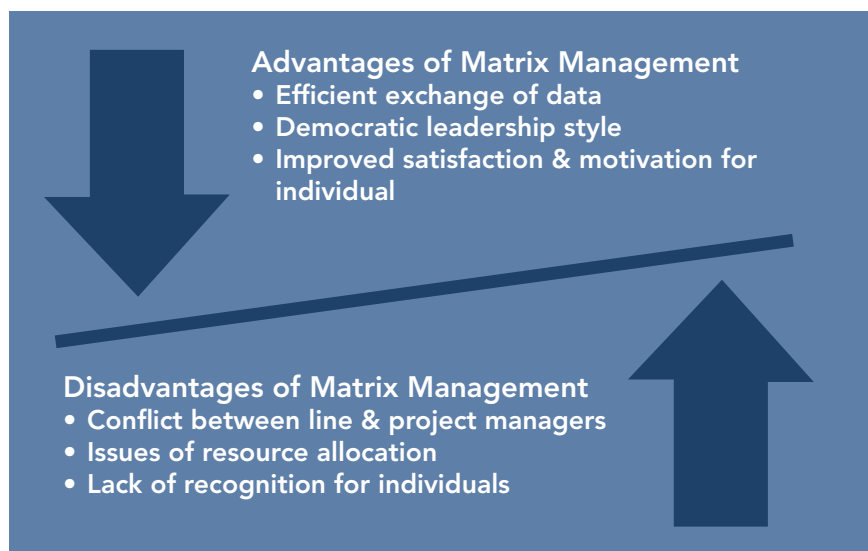
This is a type of structure in which even though an individual may 'belong to' a particular department, they will be assigned to different projects and report to a project manager while working on that project. Therefore, each individual may have to work under several managers whilst performing their role.

For example,

Someone who is working in Department C and who is assigned part-time to projects X and Z will find themselves reporting to three different managers, all of whom will have some degree of authority over them.

- *Their line manager (Dept C)*
- *Project Manager for project X*
- *Project Manager for project Z*

Matrix management is now fairly common and exists at some level in most large organizations, particularly those that have multiple business units and international operations.



One of the advantages of implementing a matrix structure is that it can lead to a more efficient exchange of information as people from different areas work closely together. This enhances overall productivity because it facilitates quick decision-making.

For example,

Individuals from the customer support and production departments may confer with one another to fix problems as soon as they appear.

Rather than the production department remaining unaware that there is a problem until it surfaces months later in a management report or memo.

The matrix structure also encourages a democratic leadership style that incorporates the input of team members before managers make decisions. The ability to contribute valuable information before decisions are made leads to employee satisfaction and increased motivation.

A disadvantage of the matrix structure is that it is a recipe for disagreement between the line manager and the project managers. This is because the latter will often try to minimize each department's billing to the project, whereas the departmental managers will usually try to secure as much of the project's budget as possible.

There can also be disagreements about resource allocation and prioritization. This occurs because project managers tend to view their own project as the most important activity and forget that the line manager may have other commitments that his department is expected to meet.

Firstly, line managers have finite resources at their disposal and often have to juggle these in such a way as to 'satisfy most of the demand for most of the time.' In addition, they often have numerous deadlines, relating to both departmental work-in-progress as well as to each project that they are supplying resources to.

Secondly, projects in progress may be subject to changes, following the agreement and commitment of the line resources required. This may result from a failure to achieve the expected progress in any area of work and is likely to have a knock-on effect on the ability of the line manager to supply the resources they are committed to. As a line manager, you may also have to accommodate unexpected resource shortages due to absenteeism and staff turnover.

All of these factors mean that conflict is unavoidable in organizations that are structured in this way and many of these issues described may be complicated further if staff are working on more than one project at a time.

Another feature of the matrix structure is that it can lead to staff members becoming concerned about the extent to which the efforts they expend on project-related work will be recognized and potentially rewarded financially. This problem may be compounded if they feel their project-related work will not be recognized within their own department and no matter how hard they work on the project it will not affect their chances of advancement.

This concern is primarily an issue with staff seconded to projects on a full-time basis as they may feel increasingly isolated and left behind in relation to their long-time colleagues and the departmental practices with which they are familiar. Also, individuals involved with long-term projects may have worries about what happens to them at the end of the project. Their fear could be that their department has learnt to cope without them, or developed new procedures whilst they were assigned to the project.

As a project manager you should ensure each individual's performance is recorded and reported to their line manager so that it can be assessed in their annual appraisal.

Projects are all about utilizing existing resources and expertise in an efficient and effective way to get things done. The downside of this, from a staff perspective, may be that projects are not seen as training-oriented environments in which to develop personal skills.

The questions raised by the problem of establishing a sound project management structure revolve around the creation of effective reporting lines. There are two organizational extremes that can be adopted:

1. All of the personnel working on the project remain in their normal situation, reporting to their line managers. In this case, the project management staff will need to coordinate the required project work through the line managers.
2. A project team is created and all personnel working on the project are drawn into a project team and report exclusively to the project manager.

In practice a combination of these approaches is often found to be the best solution, and is by far the most common method. However, this organizational framework risks breaking one of the tenets of good management—that of matching responsibility with authority. The project manager will be responsible for performance on the project but may lack sufficient authority where contributors report to their own line managers.

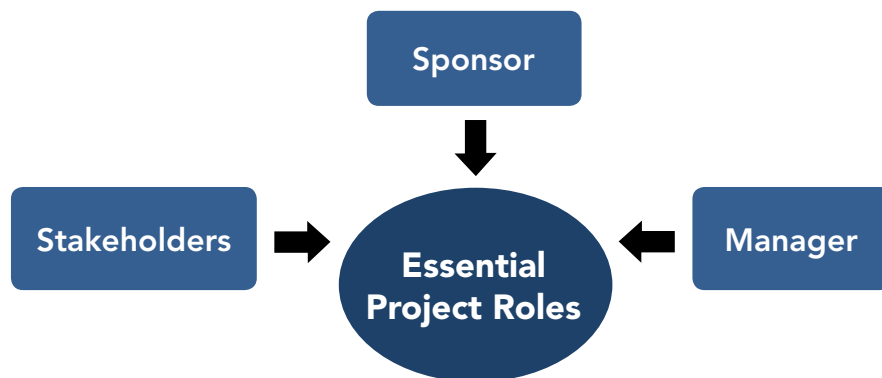
All of these factors mean that unless your organization is completely project focused then you can expect conflict, disagreement, and compromise to be an integral part of organizing a project.

KEY POINTS

- ✓ In a matrix environment, an individual may 'belong to' a particular department but they will be assigned to different projects and report to a project manager while working on that project.
 - ✓ An advantage of the matrix structure is that it can lead to a more efficient exchange of information as people from different areas work closely together.
 - ✓ A disadvantage of the matrix structure is that it is a recipe for disagreement between the line manager and the project managers.
 - ✓ Unless your organization is completely project focused then you can expect conflict, disagreement, and compromise to be an integral part of organizing a project.
-

Project Management Roles and Responsibilities

Irrespective of how the organization is structured, there are certain roles and responsibilities that are required in all projects. Different organizations may use different names for these roles but the responsibilities of each one will be the same. This eBook uses the definitions given in the PMBOK® Guide.



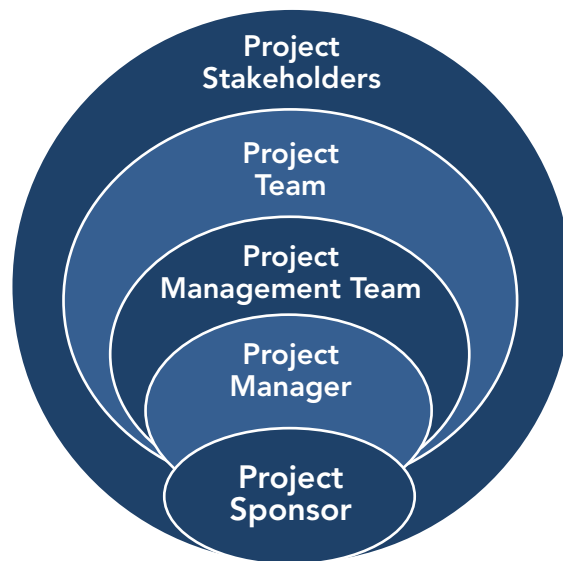
It is important that you understand the rationale for each of the roles in the project along with their responsibilities as these are used extensively throughout the Project Management Skills eBooks series.

The Project Stakeholders

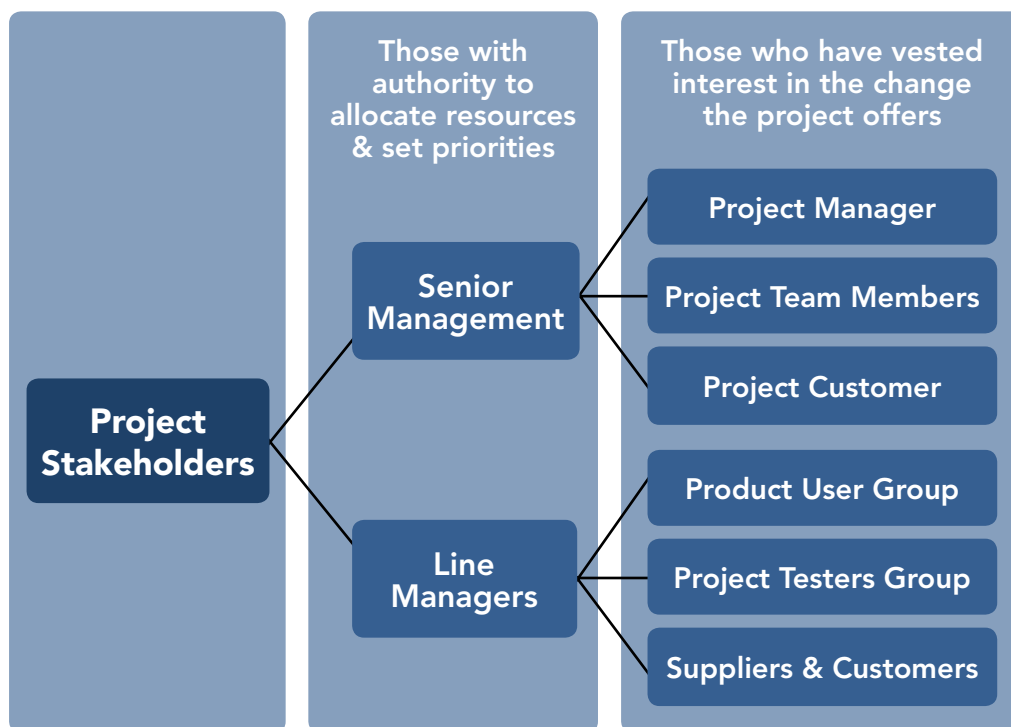
You will hear the term 'stakeholders' used with reference to a particular project and it is important to understand what this term means. Stakeholders are anyone who will gain or lose from the project.

The PMBOK® defines the project stakeholders as:

'Individuals and organizations that are actively involved in the project, or whose interests may be positively or negatively affected by execution of the project or project completion. They may also exert influence over the project and its deliverables.'



The project management team must identify the stakeholders, determine their requirements and expectations, and, to the extent possible, manage their influence in relation to the requirements to ensure a successful project.



There are narrower views of the term stakeholder, focusing on the influencers and decision-makers of a business or technological change. In this context, stakeholders are managers who have the organizational authority to allocate resources (people, money, services) and set priorities for their own organizations in support of a change.

If you intend to manage a project then you will need a detailed knowledge of these roles and their responsibilities. However, in order to understand the basic principles of project management there are only two roles that you need to know about in any detail.

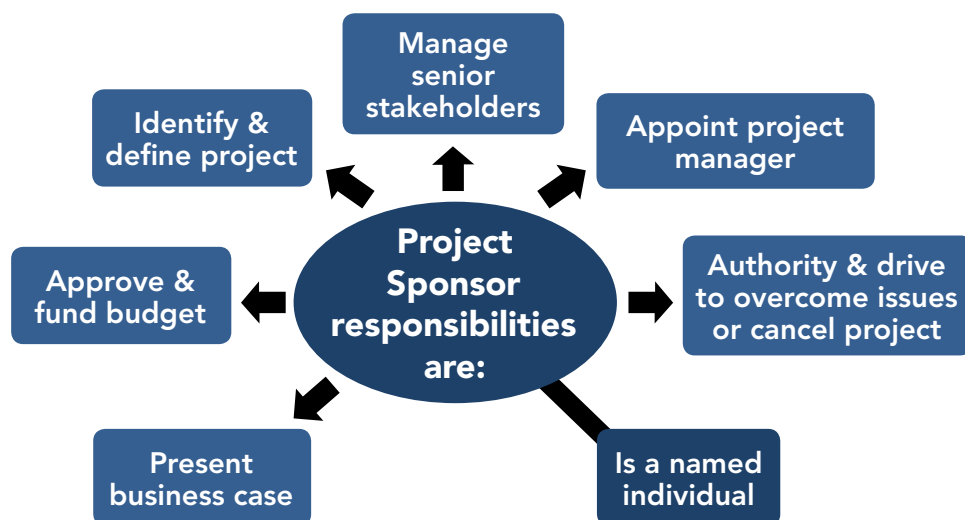
The Project Sponsor

The sponsor is responsible for securing the financing and overall resource budget approval and owns the opportunities and risks related to the financial outcome of the project. They may be referred to as the 'business sponsor,' 'project sponsor,' or 'executive' and are usually a senior manager with a direct interest in the business case behind the project.

The PMBOK® definition of a project sponsor is:

'The person or group with the financial resources in cash or in kind for the project.'

Even though this implies that the project sponsor can be a group of people, it is usually far better if there is one named individual who has been given this role. An effective sponsor will be someone with the authority and personal drive to overcome major obstacles to completing the project.



The sponsor does not concern himself or herself with the day-to-day running of the project (that is the responsibility of the project manager), but represents the 'buyer' of the project on behalf of the organization. It can be helpful to think about this in terms of the project manager working for the sponsor who is in turn working for the organization.

The project sponsor may be either internal or external to the organization that will be undertaking the project work. Many different permutations are possible—for example, an internal sponsor may commission a project that will call only on resources within the organization. Alternatively, the entire project may be outsourced to a third party.

The role of the project sponsor is to approve and fund the project, but not to get involved in day-to-day management or financial control. The project sponsor should appoint a project manager to take on the responsibility for delivering the project in accordance with its objectives.



There are two main differences between project sponsorship and project management. Firstly, project sponsorship includes the identification and definition of the project, whereas project management is concerned with delivering a project that is already defined, if only quite loosely.

Secondly, the project sponsor is responsible for the project's business case and should not hesitate to recommend cancellation of the project if the business case no longer justifies the project.

It is important for every project to have a sponsor to:

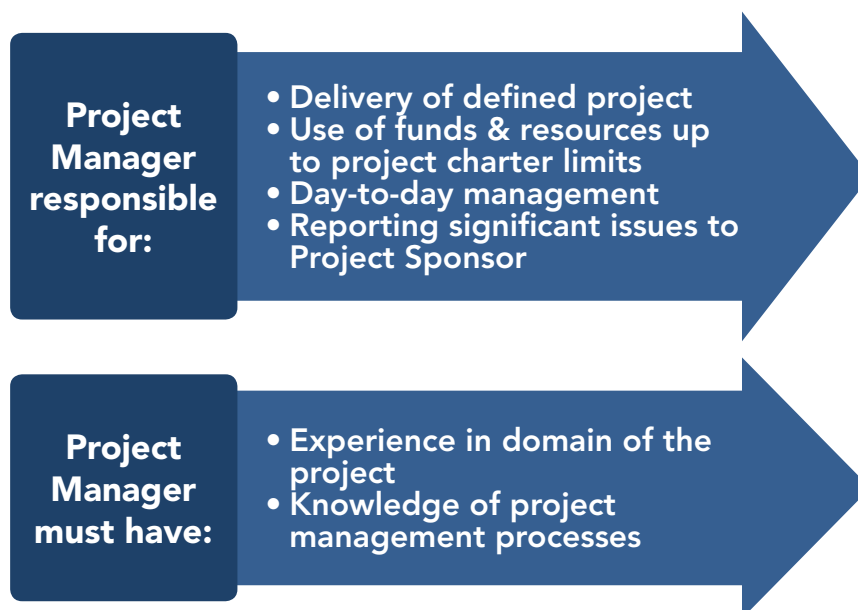
- Ensure separation of decision-making responsibilities between project manager and project sponsor
- Ensure accountability for the realization of project benefits
- Ensure oversight of the project management function
- Carry out senior stakeholder management

The Project Manager

The project manager is appointed to deliver the project as it is defined in the project charter or project plan. The PMBOK® definition is:

'The person assigned by the performing organization to achieve the project objectives.'

The project manager has the authority to use cash and other resources up to the limit set in the project charter. If they believe at any stage that the project cannot be delivered within the assigned budget and timescale then they must notify the project sponsor so that remedial action can be taken.



A project manager should have experience in the project domain and should also be familiar with the processes that make up project management.

You should now have an understanding of some of the problems involved when setting up a project that needs to run 'across' organizations, which tend to have vertical management structures. You should also be aware of some of the issues that are raised when assigning people to projects, particularly if they have continuing duties in their own department, and you can bring attention to potential issues before they arise.

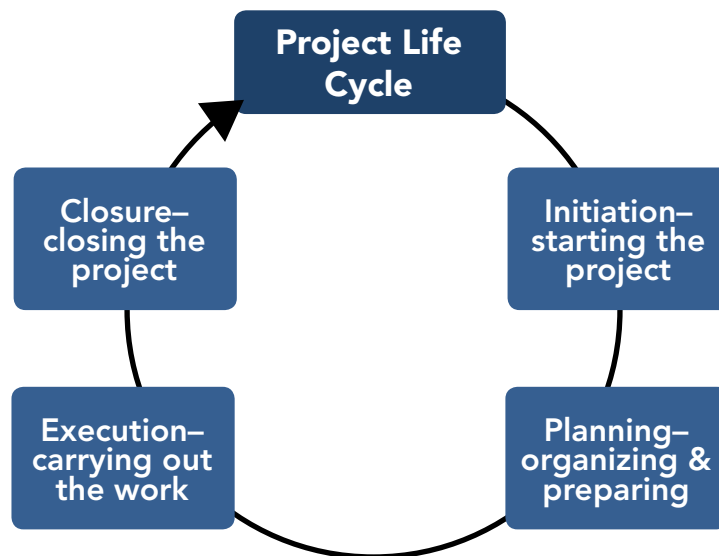
Finally, with the knowledge of the specific roles and responsibilities of the project sponsor and the project manager you can ensure that others within your organization are aware of these requirements when developing a project.

KEY POINTS

- ✓ Irrespective of how the organization is structured, there are certain roles and responsibilities that are required in all projects.
 - ✓ Project stakeholders are individuals and organizations that are actively involved in the project, or whose interests may be positively or negatively affected by execution of the project or project completion.
 - ✓ The sponsor is responsible for securing the financing and overall resource budget approval and owns the opportunities and risks related to the financial outcome of the project.
 - ✓ The project manager is appointed to deliver the project as it is defined in the project charter or project plan.
-

Understanding the Project Life Cycle

There is very little agreement about the life cycle phases of a project and many organizations have their own internal definitions and templates. This is understandable because of the complicated nature and diversity of projects, which can vary enormously in size and complexity.



Despite this, 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. Initiation
2. Planning
3. Execution
4. Closure

Each of these phases is made up of discrete activities, each of which has an associated definition and guidelines. The number of activities depends on the scope of the project.

A simple project will involve only a few activities while a more complex project may involve hundreds or thousands of individual activities. This model can be applied to a variety of project scenarios although the cost and duration of each phase will vary according to the particular project.

The PMBOK® defines the project life cycle as:

'A collection of generally sequential project phases whose names and number are determined by the control needs of the organization or organizations involved in the project.'

The remainder of this section looks at each of these aspects of the life cycle in greater detail.

The Initiation Phase

The aim of this phase is to answer the questions 'what is this project trying to achieve and why?'

The PMBOK® defines initiation as:

'Those processes performed to authorize and define the scope of a new phase or project or that can result in the continuation of halted project work.'

A large number of the initiating processes are typically done outside the project's scope of control by the organization, program, or portfolio processes and those processes provide input to the project's initiating processes group.'

At each phase of the life cycle there are certain outputs that must be produced before the project can move onto the next phase.



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.

Project Charter

Defines and outlines the expectations of the project

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.

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.

As well as the Project Charter (PID or Project Brief) it is a good idea to produce what the PMBOK® refers 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:

- Project owner, sponsors, and stakeholders
- Project goals and objectives

- Project requirements
- Project deliverables
- What is out of scope
- Milestones
- Cost estimates

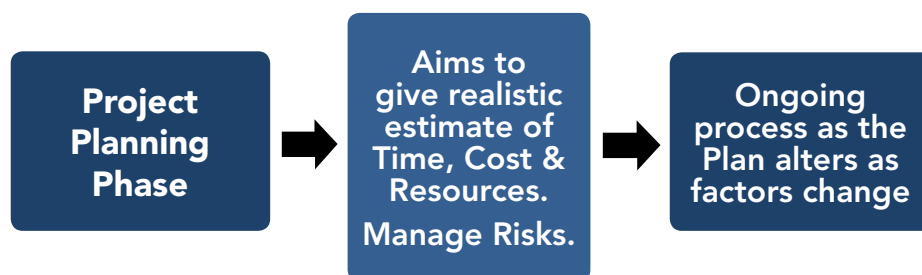
Work on the scope statement can begin before the project charter is completed and in the case of small projects it can be incorporated into the charter. However, irrespective of the size of the project, scope is absolutely critical in project management because of the impact it has on time, cost, and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

The Planning Phase

As its name suggests, the planning process aims to create a plan that can be used to manage the project. The PMBOK® defines it as:

'Those processes performed to define and mature the project scope, develop the project management plan, and identify and schedule the project activities that occur within a project.'

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 of 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 impres-

sion 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
- 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
- How to manage the information that is needed for this re-planning
- How to control changes to the plan
- How 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 updates. It also produces the management plans for the nine knowledge areas—scope, time, cost, quality, human resources, communications, risk, procurement, and stakeholder management.

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.'

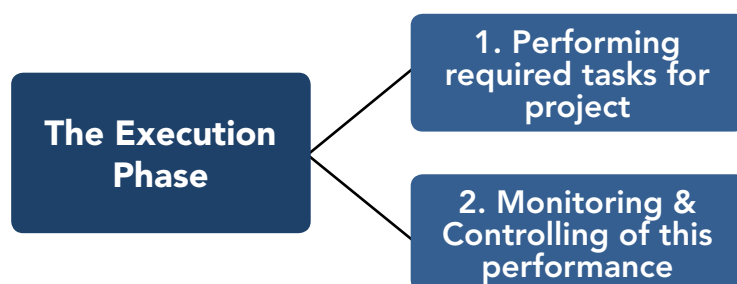
The project plan must also describe the execution, management, and control of the project and typically covers the following areas:

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

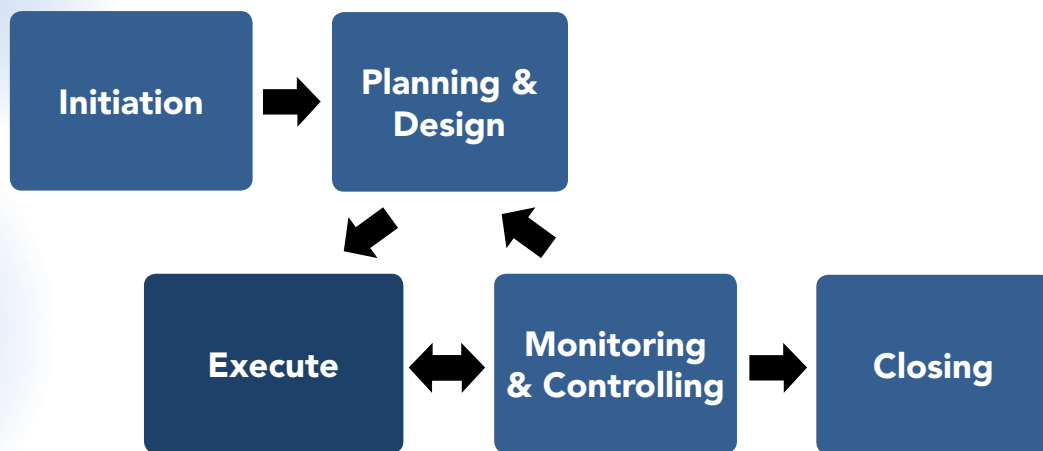
The emphasis of the planning phase is to develop an understanding of how the project will be executed and a plan for acquiring the resources needed to execute it. Although much of the planning activity takes place during the planning phase, it is important to remember that the project plan will continue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

The Execution Phase

The whole point of a project is to produce deliverables of some sort. 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 is how the PMBOK® views this phase of the project.



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 management plan.

The PMBOK® defines the executing process as:

‘Those processes performed to complete the work defined in the project management plan to accomplish the project’s objectives defined in the project scope statement.’

The main output of this process is the project deliverables and producing these will be the responsibility of the project team who will be working to the project plan.

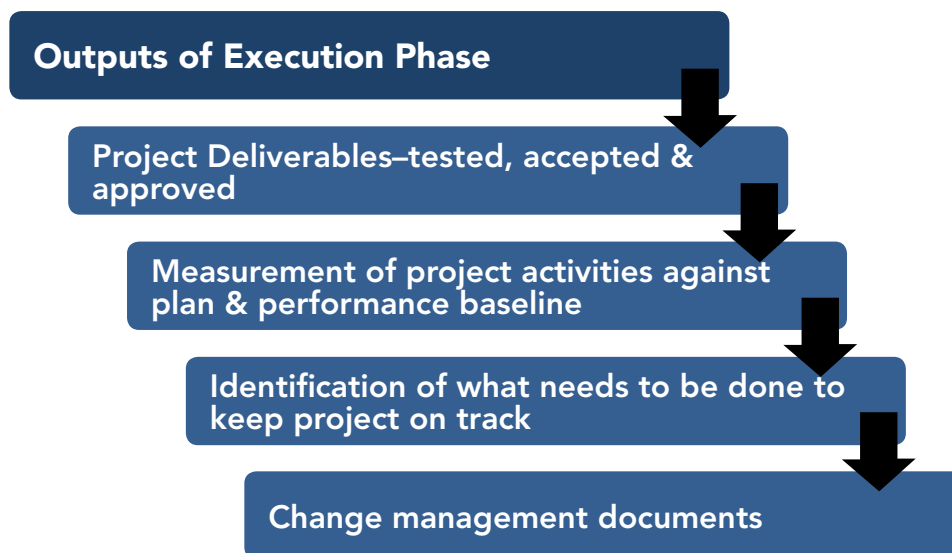
The PMBOK® defines the monitoring and controlling process as:

‘Those processes performed to measure and monitor project execution so that corrective action can be taken when necessary to control the execution of the phase or project.’

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 management 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.



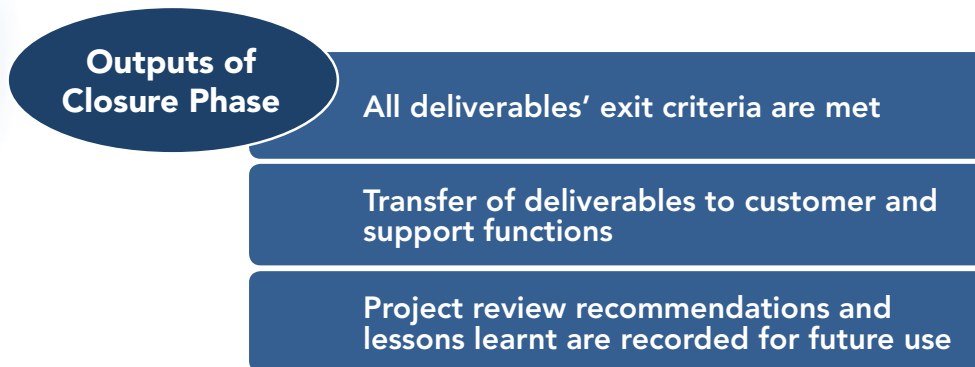
The change normally needs to be documented to show what was actually done; this is referred to as change management. This phase continues until all of the relevant parties acknowledge that all of the outputs delivered have been tested, accepted, and approved.

The Closure Phase

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.

The PMBOK® defines closure as:

'Those processes performed to terminate formally all activities of a project or project phase, and the transfer of the completed product to others or close a cancelled project.'



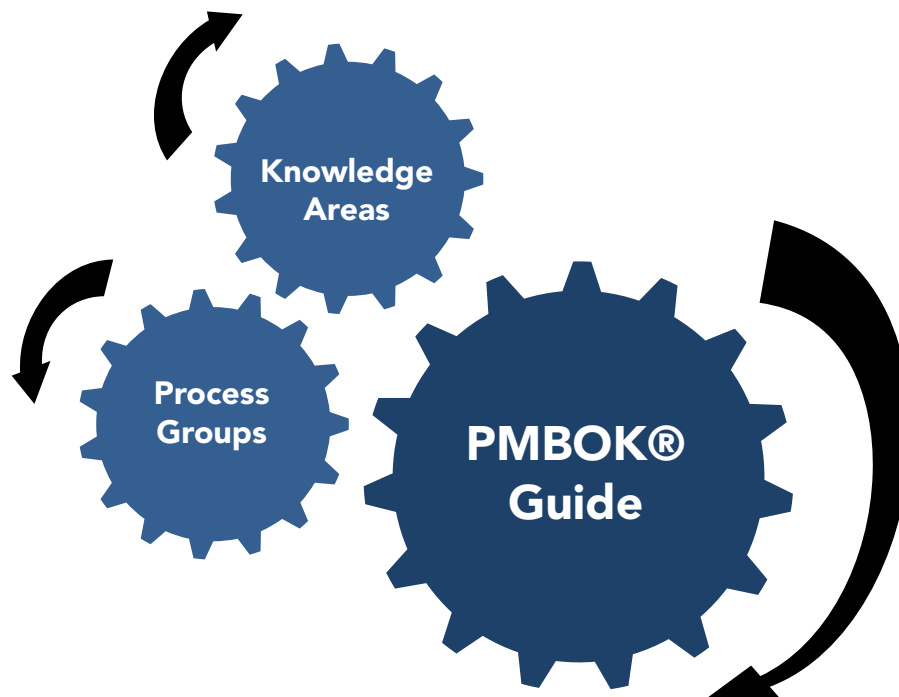
Project documents are usually archived so that they can be referred to if the organization takes on a similar project where the experience gained and the lessons learned in the current project would prove useful.

KEY POINTS

- ✓ All projects can be mapped to the following simple life cycle structure: 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: initiation, planning, execution, and closure.
- ✓ The aim of the initiation phase is to answer the questions 'what is this project trying to achieve and why?'
- ✓ The planning process aims to create a plan that can be used to manage the project.
- ✓ The execution phase is made up of two processes: the 'doing' process and the monitoring and controlling process.
- ✓ The closure phase represents the formal completion of the project deliverables and their transfer to the final beneficiaries.

PMBOK® Guide

So far in this eBook, we have dealt with the organizational aspects of the project (how it fits into the organizational structure and the responsibilities of the two key high-level roles) and the project life cycle.



Now we will outline how the PMBOK® Guide approaches the task of project management. The guide uses two frameworks:

Firstly, that of the process groups and,

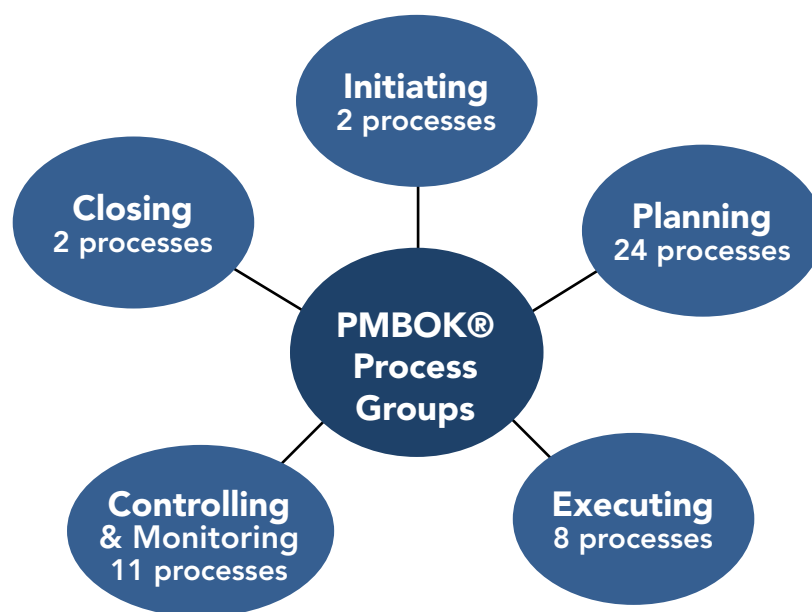
Secondly, from the knowledge areas and their individual processes.

Each of these aspects is explored in the following sections.

The PMBOK® Process Groups

This overview of the phases of a project is designed to give you an idea of a typical project life cycle in order to help you understand project management as a whole. The reason the PMBOK® Guide gives for categorizing processes into process groups is:

'Process groups and their constituent processes are guides for applying appropriate project management knowledge and skills during the project.'



The PMBOK® divides the project life cycle into five process groups:

Initiating—Setting up the project for success by identifying the right team and scope, as well as determining the relationship between the project and its alignment with the organization’s overall charter.

This group is made up of 2 processes.

Planning—Developing the relevant resources, timelines, and milestones, and mapping project delivery to business priorities (i.e. risk management, communications, quality, cost/budgeting, duration and sequencing, external dependencies).

This group is made up of 24 processes.

Executing—Assigning the project team and distributing information to ensure the proper activities are undertaken. This process also includes ensuring quality assurance methods are in place to address change management, organizational updates, possible changes to the plan, etc.

This group is made up of 8 processes.

Controlling and Monitoring—Ensuring the resulting product maps back to the original plan, and risk from uncontrolled external actions is mitigated.

This group is made up of 11 processes.

Closing—Making sure you have delivered everything expected of the project. Once you close, you need to review the project vis-à-vis the plan and likewise ensure contract closure.

This group is made up of 2 processes.

The PMBOK® Guide explains the characteristics of how these process groups are likely to work in reality. The five process groups (Initiating, Planning, Executing, Monitoring & Controlling, Closing):

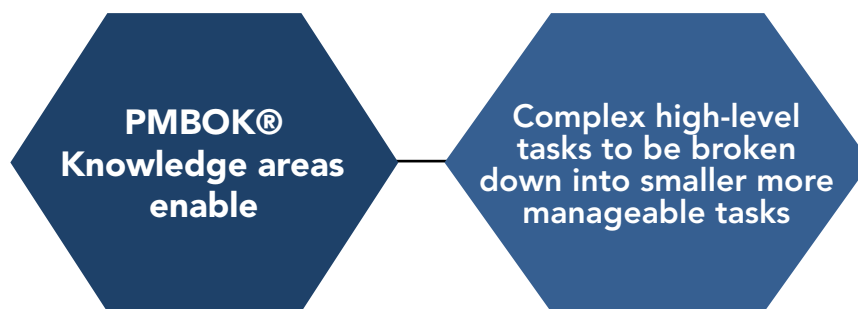
- Have clear dependencies
- Are typically performed in the same sequence on each project
- Are independent of application areas or industry focus
- Individual Process Groups and individual constituent processes are often iterated prior to completing the project.

The Guide makes it clear that the process groups are not meant to be prescriptive activities that are executed one after the other. It is very important that you understand that they are not phases in a life cycle that are completed in sequence. You do NOT perform project initiation, then do the planning, then do the execution, then monitor and control, and then close the project. Projects in the real world simply do not work like that.

However, when you are learning about project management it does make sense to think about things in this way because it makes what is often an apparently chaotic process easier to understand. Why this is so is described in detail in the eBook 'Project Management Process Groups' which you can download free from this website.

PMBOK® Knowledge Areas and Processes

So far in this eBook, we have dealt with the organizational aspects of the project and the project life cycle, which can be described in terms of the PMBOK® Process Groups. This way of looking at projects can help you to appreciate the principles of project management. However, you can also look at project management in the context of the individual processes involved. These processes are grouped into Knowledge Areas by the PMBOK® Guide.

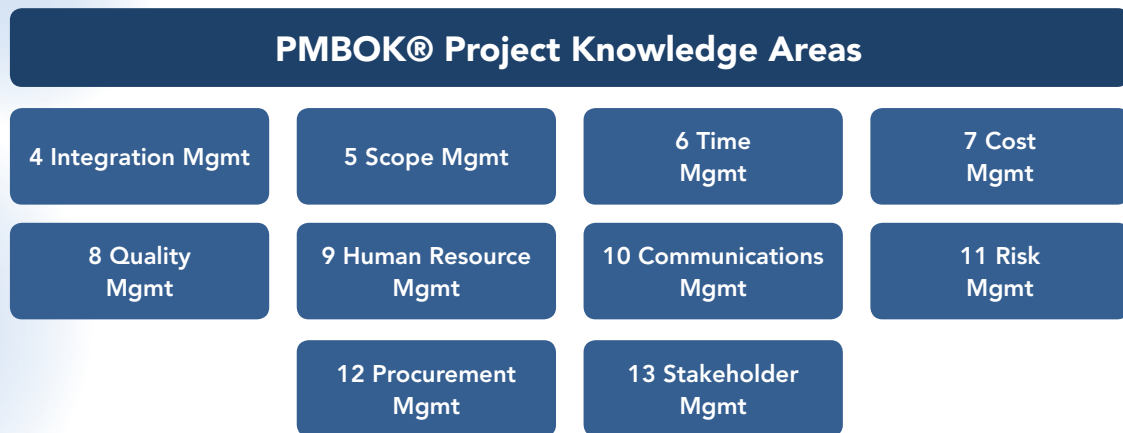


The reason for doing this is that it allows complex high-level tasks to be broken down into smaller tasks, a common practice when learning something new.

For example, when learning to drive you concentrate on specific tasks, such as gear changing, hill starts etc., before you drive on an interstate road or motorway.

Extending this approach to project management makes the smaller tasks easier to manage, resource, and control. Therefore, considering project management activities like scoping, scheduling, quality, and risk in isolation before trying to integrate them into a real/live project makes sense.

The PMBOK® Guide recognizes 47 processes arranged into ten supporting knowledge areas. These are numbered 4 to 13 according to their chapters in the PMBOK® Guide. These areas are defined by the specific knowledge requirements the project manager should be familiar with in order to do a professional job.



Each process has identified inputs and outputs along with referenced tools and techniques. The following descriptions outline the purpose of each knowledge area and the number of processes it contains.

4—Project Integration Management

This process coordinates the other areas to work together throughout the project. It contains all of the skills, tools, and techniques required to integrate all of the components so that everything is done at the right time, in the right sequence, and connected in the right way. There are 6 processes in this knowledge area.

5—Project Scope Management

This is the process by which the project manager defines the boundaries of the project and ensures that any changes to the original scope are carefully managed. It defines exactly what is included in the project and what is excluded. There are 6 processes in this knowledge area.

6—Project Time Management

This involves making sure that things happen on time and keeping the project on schedule. It includes techniques to estimate how long things will take, to plan accordingly, and then to keep everything on track. There are 7 processes in this knowledge area.

7—Project Cost Management

This involves keeping the project on budget and includes techniques for estimating costs planning and budgeting as well as monitoring and controlling the costs. There are 4 processes in this knowledge area.

8—Project Quality Management

This ensures that the project meets its requirements and that the deliverables do what is expected of them. There are 3 processes in this knowledge area.

9—Project Human Resource Management

This includes all of the processes used to put together, develop, and manage the project team. There are 4 processes in this knowledge area.

10—Project Communications Management

This includes identifying what information needs to be communicated and to whom it needs to be disseminated. It ensures that the right people get the right information at the right time. There are 3 processes in this knowledge area.

11—Project Risk Management

This involves the identification and evaluation of risk as well as planning responses to ensure that corrective action is taken if the risks materialize. There are 6 processes in this knowledge area.

12—Project Procurement Management

This group of processes is used to acquire the materials and services needed to complete the project. There are 4 processes in this knowledge area.

13—Project Stakeholder Management

This group of processes is used to identify the people, groups, or organizations that could impact or be impacted by the project. These processes also develop the appropriate management strategies to communicate with the stakeholders during the life of the project. There are 4 processes in this knowledge area.

KEY POINTS

- ✓ The PMBOK® Guide says: 'Process groups and their constituent processes are guides for applying appropriate project management knowledge and skills during the project.'
 - ✓ It divides the project life cycle into five process groups: initiating, planning, executing, controlling and monitoring, and closing.
 - ✓ The five process groups have clear dependencies, are typically performed in the same sequence on each project, are independent of application areas or industry focus, and are often iterated prior to completing the project.
 - ✓ The PMBOK® Guide recognizes 47 processes arranged into ten supporting knowledge areas. These are numbered 4 to 13 according to their chapters in the PMBOK® Guide.
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Summary

Project management is a complex activity that requires a structure and process that are appropriate to your project. The process groups ensure that you manage the inevitable changes that occur throughout a project's lifespan in a professional manner to ensure success. The descriptions of the knowledge areas explain what expertise and skills you will need for your project and what tools will assist you.

The question you must now consider is: 'Does the PMBOK® approach to project management suit your project's needs and your organizational structure?' After all, 47 detailed processes sounds like a lot to learn and you may be asking yourself if it's really necessary to take the time and effort to study the subject in that level of detail.

Before you make that decision, here are a few things that are worth considering.

1. You don't need to actually learn the processes in that much detail if you are not studying for the PMI exam.
2. You only need to know that the PMBOK® has a process for each project activity, and where to find it described when you need to do it. In this respect, the PMBOK® is more like a toolkit than a recipe.
3. You don't need to follow all of the instructions in sequence in order to have a finished project at the end. You can use the process groups as a basic framework and then pick and choose from the processes they describe based on the needs of your individual project.
4. Within the processes themselves you will rarely use every input, tool, and technique, or output.
5. For the majority of projects it will be rare to use everything offered. These things are specified so that you are aware of what could be input to the process, which tools and techniques could be used to perform it, and what could be output from it.
6. Some of these things will obviously be required in your particular project, but many will be entirely optional. This means that you can use the process descriptions as a checklist to make sure that you have covered everything even if you decide that there are elements that you don't need.
7. Even if the PMBOK® seems like overkill on your current project, that won't always be the case. Sooner or later you will be given responsibility for something where

your understanding of a proven project management framework will be the difference between success and failure.

8. Knowledge and experience of the PMBOK®, with or without the PMP certification, will improve your career prospects and your earning potential.

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 knowledge area.

- Process Groups
- Integration Management
- Scope Management
- Time Management
- Cost Management
- Quality Management
- Human Resource Management
- Communications Management
- Risk Management
- Procurement Management
- Stakeholder Management

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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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