Project Management Road Trip®

For the Project Management Professional[®]

Your Key to PMP Certification and Understanding the PMBOK® Fourth Edition

J. Alex Sherrer, PMP www.PMRoadTrip.com *Project Management Road Trip for the Project Management Professional: Your Key to PMP Certification and Understanding the PMBOK Fourth Edition*

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CHAPTER 1: PROJECT ESSENTIALS



Keywords

- \Box Constraints
- \Box Customer
- □ Deliverable
- □ Initiator
- \Box Operations
- □ Performing organization/enterprise
- \Box Phases
- \square Portfolio
- \Box Product life cycle
- □ Product scope
- □ Program

- □ Progressive elaboration
- □ Project
- □ Project life cycle
- □ Project management office
- □ Project management team
- □ Project manager
- □ Project scope
- □ Project team
- □ Sponsor
- □ Stakeholder
- □ Subproject

1.1 What is a project?



The PMBOK definition of a project is a *temporary endeavor undertaken to create a unique product, service, or result*¹. But within this definition are several other characteristics of projects that aren't immediately noticeable within it. An expanded definition building upon the PMBOK will help us more fully see and understand a project's characteristics:

A project is a temporary endeavor that is progressively planned, controlled, and executed by people, working within some constraints on resources, that results in a unique, product, service, or result that isn't possible for the organization to achieve through its normal operations.

First, a project is *temporary*. It does not go on indefinitely, and so it must have starting and ending points. Its temporary nature doesn't imply that the project is short-lived --some projects may last for many years, but rather the "temporary" characteristic of a project only means that its timeline is finite.

Second, a project is *planned, controlled, and executed*. A project requires initial and ongoing planning and work to accomplish its goals (executing), and it needs oversight to ensure that things run smoothly (controlling). Since there are few projects in which all objectives, needs, activities, requirements, and risks and are fully known up front, the planning, controlling, and executing processes are accomplished through **progressive elaboration**. This simply means that the project is developed in steps and further refined in increments. When a project is first initiated, its objective will likely be defined only at a high-level, but as the project gets going the project team becomes more involved, the objective is defined in finer and finer detail.

Third, projects are *performed* by *people* within time, cost, or other *limitations* on *resources*. Any limitation or boundary is a **constraint**, and all projects have some constraints on cost, time, quality, risk, and personnel, which restrict how much work can be undertaken. Balancing constraints is what project management is all about.



Fourth, a project results in something *unique*. In some way it creates something new. It's easiest to think of an objective that results in a tangible product, but a project objective can be, and often is, intangible,

such as a service or result. For example a project could be undertaken to reduce call center response times by 10% while another project might be undertaken to find trends within marketing data.

Project results can have a repetitive quality, for instance a construction company builds houses over and over, but each house is still unique, so we can't jump to the conclusion that a repetitive output automatically disqualifies an objective as a project.

Last, the project's objective is something that the organization *can't* achieve through normal operations. It's something beyond day-today processes. Producing a payroll check, though every check is technically unique, is something the organization accomplishes within its normal business functions. In a deli shop, filling a customer's order for a sandwich is just part of its business, even if each and every sandwich is made to order for the customer exactly as he or she desires. "The bottom line is that project management is about converting business strategy into business results."²

Judy Balaban, PMP, Director, Project Management Office, Dow Jones & Company

Defining characteristics of a project:

- It has starting and ending points;
- It is performed by one or any number of people;
- It has constraints on time, money, or other resources;
- It is progressively planned, controlled, and executed;
- It results in a unique product, service, or result for the enterprise.

1.2 Operations

It's easy to confuse projects with business operations because they share many similarities. **Operations** are the ongoing efforts an organization must undertake to sustain its core business. Just like projects, operational items have deadlines, are performed by people, and have some constraints on time and money. They are usually planned, controlled, and to some extent result in a unique product, service or result. But operational items are not projects.

So what are the characteristics of an operational item that exclude it from being a project? The first is that operations are ongoing and repetitive. Unlike a project whose goal is reached and then the project ends, an operational item continues to be performed in order to sustain the business. Also, its goal is usually not strategic in nature but rather part of the organization's core business or part of its day-to-day functions. Lastly, though the objective may be theoretically unique, such as no payroll check being exactly like any other payroll check, taken as a whole it's been done by the organization before and can be accomplished as part of the organization's core business.

All this differentiation between projects and operations does not mean that we can't approach and manage operational objectives as projects. In fact there can be many benefits by doing this, and many organizations adopt this approach called **management by projects** through which some operational efforts are approached and treated as if they were projects. This ensures that appropriate formalization, planning, budgeting, risk analysis, and communication are applied to these efforts that might otherwise go unmanaged. Here are some questions we might ask ourselves when determining whether to treat an operational item as a project:

• What is the impact of failure? If the objective of the operational item is not met, will it negatively impact the organization's ability to do business? Will senior management become involved? Will it impact customer service? If so, project management processes may help reduce these risks.

• Will cross-functional resources be needed? Will resources have to be involved whose job isn't directly related to the operational item? Will other departments be needed? Will other resources need to schedule and plan their time for tasks? Resource planning may be helped by project management processes.

• **Does the operational item need visibility?** Is the item in all other respects minor but important enough that others within the department or organization need to be aware of it? A project-based communication strategy may help keep the item prioritized.

• Who are the key stakeholders involved? Has past experience with the stakeholders shown they prefer a more formalized approach? Do they prefer to see written plans and schedules? Project communications planning can help with stakeholder management.

• Will the item result in materials that may need referenced in the future? Will there be process changes, system changes, procedural changes, known issues, or workarounds that need documented and to be available for future reference? If so then perhaps a project library is the best repository.

• Would the item benefit by applying project management processes to it? Any undertaking that would benefit by project management techniques can be approached as a project.

1.3 Why projects are started and why they end



Projects are the methods through which organizational strategies are implemented or special needs fulfilled. The organization performing the project work may be the enterprise itself or may only be the performing organization in a contract, forhire situation. Projects typically begin through one or more of the following:

Market demand: An opportunity or need exists within the marketplace for a product or service. For example, a pet products company is going to develop and introduce organic pet food or a not-for-profit organization wants to provide low cost day care.

Strategic or business need: In order to ensure the operating and competitive health of the organization, an improvement needs to be made to the organization's business processes or a new process needs

established. For example, a company desires to revamp its employee performance evaluation process to increase productivity by rewarding its employees for reducing inefficiencies.

Customer request: An organization is approached to perform work-for-hire. For example, an architectural firm is consulted to remodel a building into lofts.

Technological advance or obsolescence: An advance in industry, commerce, science, or technology provides additional opportunities not previously feasible, or an advance results in the obsolescence of an organization's product, service, or business processes.

Legal requirement: A law, regulation, or industry standard must be complied with. For example, the legal ramifications of HIPAA and Sarbanes Oxley spurred many projects in the United States.

Ecological impact: A project is undertaken to reduce an organization's negative impact on the environment.



Successfully meeting and delivering the project objective is the goal of everyone, but economic, organizational, political, and a myriad of other factors can change the landscape and make a project no longer needed or feasible. But one of the most preventable causes of a project ending prematurely is poor project management, which can cause morale problems, cost and schedule overruns, loss of stakeholder support, poor quality, or a product that doesn't meet the customer's expectations.

Successful projects are finished when they meet their objectives within established constraints. But projects can also end prematurely when it becomes clear that the objectives can't be met or that the need for the project no longer exists.

> Deborah Weiss, a senior analysts with the Gartner Group, said in a 2004 *ComputerWorld Today* article that 72 percent of all IT projects are either late, over budget, or are never delivered as planned. "The reason most IT organization projects fail is symptomatic of poor project management discipline."³

1.4 Deliverables

The most important part of any project is its final outputs –successfully delivering all the promised components, on time, and on budget. These outputs of the project are its **deliverables**. Most projects have multiple deliverables, though there's usually one that can be considered its final deliverable. For instance, a roadway construction project's final deliverable might be a 20-mile stretch of highway, but the project would also have to provide entrance and exit ramps, overpasses, signage, and drainage ditches.

Though also referred to as deliverables, **artifacts** are items that that support the creation of the deliverables. These items are necessary for the project to function well, but they're only indirectly related to the project deliverables. For instance, in a project whose final deliverable will be a vendor recommendation, a credit report may have been needed as part of the evaluation process. This credit report could be considered an artifact rather than a deliverable since it's not directly related to the vendor recommendation. In the PMBOK no differentiation is made between artifacts and deliverables. So when we discuss a deliverable, we're talking not only about its final product, service, or result, but about anything required of the project to meet its objectives.

1.5 Scope

Thus far we've used the term *objective* to refer to a project's purpose, but an objective describes the end result and not necessarily how it'll be achieved. At some point most of us have been asked to do something that we thought we understood, only to find out later that what we produced wasn't at all what the person really meant. Misunderstandings like that can't be allowed to happen in project management, so what the project needs to accomplish is called the **project scope**, and it's a detailed explanation that everyone has agreed upon of the work, *and only the work required* to produce the project's deliverables. For this reason we'll often hear that if it isn't explained in the project scope then it's not part of the project.

There's also a second type of scope –the product scope. And since projects produce deliverables that are the whole product or a component of the product, the project scope and product scope are closely related. The **product scope** describes the characteristics and functionality of the product, service, or result. It is more focused on explaining what the product will be and how it will be used. It's very easy to confuse the two scopes since they are so closely related, but they each serve different purposes. Let's look at a few scope examples.

	Marketing Warehouse	Awards Luncheon	Cost Reduction
Product Scope	A marketing data warehouse will be implemented so that analysis can be performed resulting in a) better forecasting for manufacturing, b) reduction in lead times for product design, and c) providing marketing analysts and product designers better tools to anticipate trends	An awards luncheon for our volunteers will be held at a downtown hotel on January 30, 2011. The total budget for this ceremony is \$15,000. Certificate awards will be given to the top five volunteers and will include a three to five minute introduction by our club president. Invitations will be sent to all 50 club members, who may bring one guest, so the facilities, food, and refreshments should accommodate a total of 100 people. In order to decrease costs, the food may be served buffet- style	The Human Resources department is going to aggressively pursue a 10-15 percent reduction in health insurance premiums for its employees, and in order to so requires a portfolio of options from which subsequent efforts and projects will be focused. An HR team will provide a variety of proposals that will be reviewed and the proposals most likely to meet the reduction goal will be fully planned for and enacted during 2013. Proposals can include any method to achieve this cost reduction goal, including a change in underwriters, vendors, service providers, or option plans. The CFO, HR Manager, and HR team will review proposals in December, 2012

	Marketing Warehouse	Awards Luncheon	Cost Reduction
Project Scope	The development of the data warehouse will be undertaken in phases, and these phases may change as the warehouse is developed. The first phase will be to identify the data components that will be summarized in the warehouse, and this will be accomplished by working with Marketing, Finance, and I.S. departments. The major deliverable of Phase I will be a database schematic. Phase II will involve developing the processes to populate the data, and the major deliverable of this phase will be populated warehouse data	The club's board of directors will serve as volunteers to arrange the luncheon. A selection of five potential venues available on 1/30/2011 will be presented to the board, along with recommendations and a variety of sample menus and costs. The board will then select a venue and menu. Invitations will be sent two months in advanceThe board will also preview the facility about one month prior to the event	The first step will to compose the HR team, which will be composed of members primarily from the employee benefits group. The second step will be to collectively brainstorm and identify a thorough list of options. This list will be split among 2-3 member subgroups, who will be responsible for further analysis to determine feasibility and probable cost savings. A report from each subgroup will be ready for the HR team's review in August, 2012. During this review, selection criteria will be applied

It's impossible to create an effective project scope without first knowing the product's scope, even if the project is producing only a minor component of the overall product, service, or result. Through the examples above, we can see that a modification to the product scope will almost certainly mean that the project scope needs reevaluated to see if any changes to it are needed. Conversely, a change to the project scope must be evaluated to ensure that it's still in line with the product scope.



The **product life cycle** compasses all the activities related to a product from inception until it is divested. This might include research and development, feasibility studies, product development, enhancements, training, upgrades, and ongoing maintenance. Even intangible products, like services or results, follow a similar generic life cycle.



For example, a pharmaceutical company might have a strategic objective to develop a new drug to treat high blood pressure. The product life cycle would begin with R&D, proceed to laboratory tests and clinical trials, and be followed by government testing and FDA approval. Next would be manufacturing processes, sales force training, literature for health care providers, and an advertising campaign. Patent protection, consumer information, and a toll-free hotline might continue once the drug is on the market, and the life cycle continues over many years until other alternative drugs might cause the cause the company to discontinue its production.

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The project life cycle is one element of the product life cycle since there are normally many projects involved over a product's life span. The project life cycle encompasses only those activities related to the project's purpose.

•				
Project X				
Phase A	Phase B	Phase C	Phase D	Phase E

1

We know a project has a beginning date and an ending date, and there are obviously a lot of activities that occur from start to finish. These project activities are categorized into **phases**, which collectively make up the project life cycle. These phases connect the start of the project to the end of the project, and are generally sequential, though it isn't uncommon for phases to be underway at the same time as long as the risk is acceptable.

Phases will differ from industry to industry, company to company, and even from project to project within the same organization. There is no single best-practice life cycle applicable across the board. In a software project, the phases might be design, development, testing, and implementation while the phases in a legal project might be discovery, pretrial, and litigation.

Phases often imply, if not specifically define, what technical work is involved and who participates in each phase. If one phase of software development is "testing" then that directly implies the kinds of activities that will be undertaken, and it even indirectly implies the personnel types who'll be involved in those activities.



Phases produce deliverables and those deliverables might even be approached as subprojects. Often the outputs from one phase serve as the inputs to other phases, and the conclusion of a phase will involve verification of that deliverable. For instance, the development phase of a software project might not begin until the specifications and requirements from the design phase are checked to make sure they fulfill the customer's need as described in the project scope. The ends of phases are sometimes called phase exits, phase gates, and kill points; this is because there is often a

review of the deliverable and the project as a whole, and this assessment may result in the project being discontinued if it's clear that the project objectives are not achievable within the project as it was defined.

Project phases follow a generic pattern. This pattern is similar regardless of the type of project, and though

Both [product management and project management] functions work in harmony in a cross-functional environment as they fulfill the goals of the organization. It is the responsibility of every member of the organization to understand these roles and how vital they are to the survival of the business in fiercely competitive, everchanging markets.⁴

Steven Haines, CEO, Sequent Learning Networks

phases often imply а sequential.

another



relationship, that's not always the case. Phases can overlap with each other or they may be iterative, meaning that the planning for subsequent phases depends upon work performed in prior phases.

Though we are primarily concerned about project management, we need to keep in mind the productproject dependencies because decisions and actions taken in one life cycle impact the other. For example, a change in the product specifications will impact projects involved in that component. Conversely, decisions made in projects can impact the product life cycle: choosing a lower-grade component that may save costs in the project could result in higher maintenance costs when the component needs more frequent replacements during the life of the product.



The flow of the project life cycle also gives us some insights into what can generally be expected. **Costs and staffing levels are lowest early in the life cycle, peak while the project work is underway, and then drop off as the project nears completion**. This behavior is because the bulk of the work required to develop the project's primary deliverables will take place in the middle of the project.





Risk is highest early in the project since uncertainty is high about the project's deliverables, resource needs, and work required. And all this uncertainty means that a project is most likely to fail early in its life cycle.

Stakeholder influence in the project and its deliverables is highest early in the life cycle but diminishes as the project proceeds because the cost of incorporating changes increases the further the project is into its life cycle. So one way of controlling unexpected project cost is to engage stakeholders early to prevent unnecessary and costly changes later in the project.



1.7 Subprojects, programs, and portfolios

A project exists within a larger collection of objectives in an enterprise Due to its size or complexity a project may need to be broken down into smaller, manageable elements. **Subprojects** are useful when the project is too large, involves many component deliverables, or has outsourcing elements. A subproject can be thought of as a "mini-project" within a larger project. By managing it separately but still linking it to the larger project, planning, monitoring, and controlling are easier.

Just as a project may need broken down into subprojects because of its size or scope, strategic objectives are often too complex to be achieved through only one or two projects. **Programs** are collections of individual projects that support a central objective. The projects are still managed individually, but the project manager will work with a program manager who oversees the collection of projects.

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Portfolios are collection of projects whose objectives are not related to are usually each other. They categorized in some method for overall management and prioritization, for instance by department or business unit. How projects get initiated into the portfolio, approved, or prioritized differ from company to company, and in some organizations this may be done through operational planning sessions, a committee, or a project management office.



1.8 Stakeholders

Stakeholders is a very broad category of people, and it includes everyone involved and negatively or positively affected by the project. It can include users, consumers, departments, groups, managers, organizations, unions, companies, and even communities.

Proper identification of stakeholders early in the project is essential to its success. This identification should also involve the stakeholder's interest, influence, expectations, and requirements because the ultimate success or failure of the project rests in how well the stakeholders accept the

Intervenors include any environmental, social, political, community-activist, or consumer group that can have an impact on a project's successful development and launch. To ignore the power of such stakeholder groups is foolhardy...⁵

Jeffrey Pinto & Om Kharbanda, How to Fail in Project Management (Without Really Trying)

project's product, service, or result, and how well the project manager engages the stakeholders in the project.

Stakeholders are sometimes subcategorized into other groups, such as:

Key Stakeholders: Those who have significant decision-making involvement in the project or with the activity taking place. Customers are key stakeholders.

Primary Stakeholders: Those who are directly impacted by the project's objective or through one or more of its deliverables.

Secondary Stakeholders: Those who are only indirectly affected by the project's objective or through one or more of its deliverables.

Reasons to engage stakeholders in the project processes are:

Their objectives, goals, and needs must be heard. This ensures that key functionality, deliverables, and expectations are included in the project. Failure to perform this can result in scope creep as needs or requirements are found out only later in the project.

The project manager needs to determine what reservations might be voiced. Their objections may provide opportunities for alternate approaches. If not given a chance to voice their opinions, negative stakeholders may later raise sufficient political obstacles that can cause the project to lose support. When given a chance to participate, stakeholders are more likely to feel they have an ownership stake in the project's objectives and that helps facilitate buy-in.

Stakeholders may identify risk factors that would otherwise have not been discovered until later.

Early involvement allows the project manager to determine their expectations about project communications. Some stakeholders may prefer to receive regular and detailed updates while others may only want occasional overviews.

1.9 Project roles

The actual roles involved in any project will depend upon the enterprise, industry, and type of project, but below are common project stakeholders.

Business partners, sellers, vendors: These are people or organizations external to the enterprise or performing organization supplying specialized expertise or component deliverables to the project.

Customer/client: This is the entity that will be the consumer of the project's product, service, or result. It could be a company, group, department, or individual. This is sometimes also called the *client, consumer,* or *user* in some industries.

Functional managers: Functional managers are the heads of organizational or business units and normally control the human resources.

Operational managers: Business unit or departmental managers oversee specific business areas. Operational areas are stakeholders and project team members for projects whose deliverables impact business processes or will be used by operational units.

Performing organization: This is the entity that is performing the project work and managing the project. In contracting or outsourcing situations, the performing organization may not be the customer's organization. **Portfolio Manager:** Many organizations have business units, committees, or boards that serve a project selection panel and may require formal project reviews at various checkpoints within the project.

Program Manager: If the project is delivering only a component of a larger enterprise initiative that is classified as a program then there will likely be a person charged with management of the overall program of projects. The project manager will work under the overall direction of the program manager.

Project initiator: The project initiator is the entity who initially proposes the project. From the PMBOK perspective, the initiator is someone outside the project team because at the time the project is initiated, it isn't yet formally a project.

Project Management Office (PMO): This is an organizational unit within some companies that provides a coordinated, specialized, and focused oversight of projects, portfolios, and programs. PMOs provide coordinated planning and prioritization of projects. PMOs also provide project management training, methodology development, templates, and guidance to project managers.

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Project management team: These are the people on the project team (along with the project manager) who are most actively involved in managing the project. The project management team may include people titled as project coordinator, project lead, lead contractor, lead developer, and so on.

Project sponsor/champion: The sponsor is the member of senior management who supports the project within the performing organization and ensures adequate funding and resources are made available. The sponsor typically leads the project while it's being initiated but not yet formally authorized. At the executive level of the organization, the sponsor may need to negotiate for project priorities, assist in scope clarification, and participate in strategies for negative stakeholders.

Project team: The group of people performing the project work. This group is sometimes referred to as the project staff.

Project manager: The one who's to ensure that the project is planned, executed, and managed properly. He or she is ultimately responsible for ensuring the project is successful and for balancing the competing demands of quality, time, cost, and scope.

Senior management: In the project management context, this is organizational management who has decision-making responsibilities higher than the project manager's. It could be functional managers, executives, officers, and directors.

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Chapter summary

A project is a temporary endeavor that results in a unique deliverable –a product, service, or result. Projects are planned, controlled, and executed through progressive elaboration, which means that the project is developed in steps and refined in increments. Projects have limited resources, and balancing those constraints is what project management is all about.

Projects begin as a result of a market demand, organizational need, customer request, technological advance or obsolescence, or legal requirement, and a project ends when the project objective has been met, ideally on time and on budget. Projects can be terminated when the need for the project no longer exists or it's clear that the objective can't be met.

Operations and projects are often confused because they have similar characteristics, but operational items are ongoing, and their goal is usually not strategic in nature but rather is part of day-to-day business. Management by projects is an approach by which some operational items are managed as though they were projects.

There are two dependent scopes that must be considered for a project. The product scope identifies the features and characteristics of the product while the project scope describes the work, and only the work required, to meet the project's objective. If it's not in the project scope then it's not part of the project.

The project life cycle is composed of phases, which connect the start of the project to the end of the project. Phases include the activities needed to produce deliverables, and the end of a phase always results in some kind of deliverable and formal or informal verification of that deliverable. The project life cycle also provides us some clues about what can be generally expected:

• **Cost and staffing levels are lowest early in the project**, peak while the project is underway, and then drop off as the project nears completion.

• A project is most likely to fail early in its life cycle because risk and uncertainty are highest in the beginning phases.

• Stakeholder influence is highest early in the project life cycle. But this influence diminishes throughout the project primarily because the cost of incorporating changes generally increases as the project moves through its life cycle.

Stakeholders include everyone affected by the project, including people and groups averse to the project. The major stakeholders on a project are:

• The customer, who's the entity that will be the consumer of the project's deliverable.

• The enterprise or performing organization, which is the entity performing the project work and managing the project.

• The project sponsor, who is responsible for establishing business objectives and ensuring adequate funding for the project.

• The project manager, who is responsible for ensuring the project is successful and that it's planned, executed, and managed properly.

• The project management team, which is those who have leadership responsibilities within the project.

• The project team, which includes everyone working on the project.

CHAPTER 1: PROJECT ESSENTIALS

Exam summary

- □ A project is a temporary endeavor undertaken to create a unique product, service, or result.
- □ Progressive elaboration means that the project is developed in steps and refined in increments.

 \Box Projects have limited resources to achieve their objectives. Time, cost, and scope (triple constraint) impact the overall quality of the project.

□ Deliverables are the outputs of the project.

- □ The project scope describes the work required to achieve the project's objective.
- \Box The project life cycle is composed of phases.
- □ Phases always result in some type of deliverable.
- □ Cost and staffing levels are usually lowest in the early phases of a project.
- □ Risk and uncertainty are highest in the early phases of a project.
- □ A project is most likely to fail early in its life cycle.

□ Stakeholder influences are highest early in the project.

 \Box A stakeholder is anyone affected by the project. Stakeholders can include groups, companies, and organizations.

 \Box The project initiator is the entity (considered to be outside of the project) who introduces the project into the organization.

□ The project manager makes sure the project is planned, executed, and managed properly.

 \Box The project manager is responsible for maintaining an appropriate balance of time, cost, and scope (triple constraint).

□ The customer is the consumer of the project's deliverable.

□ The project sponsor ensures the project is adequately funded.

□ The project management office provides coordinated support to projects, project management templates and training, and establishes project management methodologies for the organization.