Chapter 2
Understanding the PMBOK® Guide

Chapter Summary
This chapter examines:

- The PMBOK® Guide is a guide rather than a methodology and the difference is explored. This section also summarizes some important points which should be remembered when applying the PMBOK® Guide.
- The four section structure of the PMBOK® Guide is described and the reader learns how to navigate this large book.
- Chapter 1 of the PMBOK® Guide introduces project management and places it in the context of program and portfolio management. It is based on the experience of a large number of project managers globally and is therefore very practical. The different types of Project Management Office are mentioned.
- Chapter 2 of the PMBOK® Guide focuses more on the organization which executes the project and manages it through the project life cycle. When a project is finished, the team disbands.
- Chapter 3 of the PMBOK® Guide goes into more detail about the central theme; projects, although unique, are best implemented by using standardized processes. As experience increases the processes can be improved, to the benefit of future projects.
- Chapters 4–12 describe the nine Knowledge Areas and are followed by some useful appendices.

2.1 What the PMBOK® Guide Is

In this chapter we narrow our focus from all the possible project management standards to one: the PMBOK® Guide. In its own words: “This standard is a guide rather than a methodology.” (See Sect. 1.1 of the PMBOK® Guide.)

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1Figure and table references with hyphens are to the PMBOK® Guide.
What is the difference between a *Guide* and a *Methodology*? Simply stated, a *methodology* tells you exactly what to do, with specific methods and terminology. This is like a recipe for baking a cake, which tells you the exact amount of ingredients needed, which temperature to use and how long to bake. It details how to prepare the ingredients, so that what you cook is just like what is in the photograph.

On the other hand, a *Guide* suggests what to do. This is what we expect from the title of the PMBOK® Guide. Guides are less specific than methodologies in telling you how to do something, in this case how to manage projects.

The following points should help you understand the PMBOK® Guide:

- It is a complete reference model of project management, based on 42 processes, drawn from global experience in many sectors. As a result it is generic and is for general use in all types of projects and in different branches.
- It is a guide which “summarizes…..good practices on most projects most of the time” (see the introduction to Chap. 1 of the PMBOK® Guide). It does *NOT* give detailed instructions, nor does it mean that you have to use *ALL* of the processes *ALL* the time. The Project Manager together with the team should decide what and how much to apply in a particular situation (see the Introduction to Chap. 3 of the PMBOK® Guide). Its application is not uniform in all situations, but specific to each project.
- It is self-consistent and complete. If you read it from beginning to end, you will find that it is integrated and the internal references match.
- It combines the experience of thousands of project managers in different sectors around the world, so it is very practical. It is not “theoretical”.
- It does not replace your company processes but provides standard language and environment for them. This makes a unified approach to project management possible among all organizations which use it.

The PMBOK® Guide has been revised several times and each time it has become more mature. During the preparation of the 4th edition, much effort was made to improve consistency, both internally and with regard to the other standards of the Project Management Institute.

The PMI® has also developed so-called *Extensions* to the PMBOK® Guide for particular sectors. These describe in more detail the processes for specific sectors, such as the Construction Industry or (American) Government. Again they are guides and this makes them more generally applicable than a methodology which tells you exactly what to do.

In summary:

- The PMBOK® Guide describes projects in a unified way with standard vocabulary.
- It is based on *Project Processes*, which is a successful model for project management.
- The project manager and team must decide how and how much to apply these processes in each project according to the situation.
2.2 The Format of the PMBOK® Guide

Now we are ready to actually look at the PMBOK® Guide and understand its structure. To use a dictionary in alphabet-based languages, it helps to know the order of the letters. In the same way, the background ideas we have discussed help us to interpret the PMBOK® Guide. This is a good time to open your copy, so that you can refer to it in connection with the notes below. The basic structure of the PMBOK® Guide is four parts (sections) which use Latin numbers:

Table 2.1 The sections of the PMBOK® Guide

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2.2.1 Overview of Chapter 1: Introduction

The introduction to the PMBOK® Guide covers much of what we have already described about the purpose of the standard, what a project is and what project management is.

It also states that the standard focuses only on Projects, although it interacts with other important aspects of organizational work such as:

- *Operations Management*, which is repetitive in contrast with Projects which in principle are unique. Of course the main work of many organizations is the implementation of projects and they are often similar to each other. Under these
circumstances, the dividing line between projects and processes is not absolute. The better the processes, the less detail project managers must plan for each individual project.

- **Program Management**: management of groups of related projects. An example program is given at the end of Sect. 1.4.2 of the PMBOK® Guide: A new communications satellite system with projects for design of the satellite and of the ground stations, construction, integration and launch.

- **Portfolio Management**: management of projects or programs which are “grouped together ...to meet strategic business objectives” (See Sect. 1.4.1 of the PMBOK® Guide). One way to think of this is that all projects, or programs, funded from one high level budget form a portfolio. An example is that all the Asian projects of a company can form a Portfolio, whether or not they are related to each other technically or commercially.

Projects are one way of implementing strategic organization decisions. Several measures may be identified which will develop the organization in the selected direction. These measures can then be implemented as projects. Of course projects should be designed so that they also target program and portfolio objectives, as well as project level objectives.

Projects need to keep all the data they generate under control. This includes what activities are assigned, the contact details of all people involved, when purchases were paid etc. The organization or function that looks after the administration of the project is called the **Project Management Office**, the PMO.

Depending on the organization, there may be a PMO which has a project management role. For example, a PMO can employ project managers who manage projects for other departments. The PMO may also have a role supervising projects and ensuring **Compliance**, managing project resources, coaching project managers and maintaining organizational project management standards etc.

The detailed project information is stored in the **Project Management Information System, PMIS**. For any but the smallest projects, the PMO is responsible for maintaining this data.

This chapter also describes the role of the **Project Manager**, whose job it is to achieve the project objectives. The project manager is responsible for everything. Especially when the organization has less developed process and project management maturity, the project manager must ensure that proper project processes and organization are established.

In extreme situations, the **Project Management Maturity** in the organization is so low that the project manager must set up all the structure and define the processes himself. Unfortunately this often leads to the overloading of the Project Manager while the sponsor has unrealistic expectations; a dangerous combination. In situations like this, it may help the project manager to refer stakeholders to the independent authority of the PMBOK® Guide.

Finally there is a reference to **Enterprise Environmental Factors**, in other words all the background issues which could affect the project. The list provided in Sect. 1.8 of the PMBOK® Guide is very complete. In practice even more stressful
situations than those described there can occur. For example, the last project manager has just been fired and the expectations of management towards the new project manager are particularly high.

### 2.2.2 Overview of Chapter 2: Project Life Cycle and Organization

This chapter focuses more on the projects themselves, starting with the *Project Life Cycle*. This is the term for all the phases of a project, starting when the ideas are being collected, through the planning, executing and closing. Figure 2-1 shows in effect the level of activity at different stages. There is a view that the start can take much longer than in the graph, but the important point is that the level of activity varies and finally reduces to zero. A similar shape is used if the amount of money spent per month is shown, the so called *Burn Rate*, by analogy with the use of fuel by a rocket.

The Project Life Cycle must not be confused with the *Product Life Cycle*. For example the project life cycle corresponds to the development of a new product, such as a new model of a car. Then the car will go into production and may be made for years or even decades. Finally there may be a period when only spare parts are produced while no new cars are made. After this the product life cycle is finished.

Clearly the project life cycle forms only part of the product life cycle.

*Stakeholders* are the people who have an interest in the positive or negative effects of the project. They can be inside or outside the organization (See Sect. 2.3 of the PMBOK® Guide). It is extremely important for project managers to find out who the stakeholders are, because their attitudes have a big influence on the success of a project. The potential influence of stakeholders reduces as the project progresses because the project becomes more concrete and there is less that they can change. This is shown in Fig. 2-2.

On the other hand, the cost of project changes increases with time. It is easy to make changes on paper before plans have been fixed, but much more difficult and expensive later on when the project is being executed.

One of the most important stakeholders is the *Sponsor*. The PMBOK® Guide uses this term for the person who is responsible for assigning resources to or controlling the budget for a project. When this is shared by a number of people, we can talk of Sponsorship instead of a single Sponsor. The term Sponsor is preferred to Owner, Originator etc. that are sometimes used.

The concept of phases is widely known and used wherever project management is used. A *Project Phase* is a section of a project in which specific major deliverables are delivered. In principle, phases are completed one after the other. This allows the stakeholders, in particular the sponsor and project manager, to review the situation before moving on to the next phase. This review usually includes:

- A report about the progress of the project
- Detailed plans for the next phase
The high-level plan for all remaining phases
Assumptions, which may of course have changed
etc.

When everything is agreed, the project is authorized to continue to the next phase. This is an example that also defines how the project is controlled. This is called Project Governance. It is sometimes said: “Choose the right project, then execute the right project right, or correctly.” Choosing the right project is a governance issue. Doing it right is a project management issue.

The project execution may be divided into several phases. For example the design and construction of a ship could be divided into the following phases:

- Design the ship
- Build a model and test its performance
- Build the ship
- Fit (add in the equipment, furniture etc.)
- Commission (check that the engines and navigation equipment are in working order etc.)
- Handover to owner (final acceptance checks).

These are phases because they happen one after the other and each finishes with deliverables.

Working in phases reduces the risk that the project will either not deliver or deliver something which is not needed because the environment has changed. To see why this is so, imagine an experienced project manager who convinces management that everything is under control. All he needs is 12 months and $10 million to implement his project.

We can summarize the situation for the project manager like this:

Give me $10 million and a year to deliver the project – just let me do it.

Of course $10 million is a lot of money and a year is a long time. Anything can happen during this time, for example the exchange rate changes, a stock market crisis, an earthquake etc.

It is risky to plan long and expensive phases, not because the project manager is not good but because circumstances may change. The project manager can reduce the risks by dividing the project into shorter, less expensive and less risky phases. Setting Milestones along the way, in particular for the end of each phase, is much less risky. We now tell the project manager:

You have 4 weeks and $50,000 to plan the project, then you must come back with the updated plan for review before going further.
Dividing the project into shorter, less costly phases reduces the project risks significantly.

A project is an investment and the sooner it is delivered, the quicker the payback. How much this matters is particularly important in Product Development. The company which gets to the market first with a new product can charge high prices and pay back the development costs, until the competition catches up. Being late can mean lost potential income or even going out of business.

Depending on the sector and type of project, a phase can begin before the previous one is finished. This can increase the overall benefit, even if there is some rework and extra costs. Starting a phase before the last one is finished is a business decision. In such cases, the risks can be reduced by extensive communication between the various participants.

Long ago, before e-mail and mobile phones, project phases were often carried out with very little communication with other parts of the organization. In this environment it made sense to complete one phase totally before starting the next.

Depending on the industry this may or may not be possible. A new car design is checked thoroughly before it is put into production because the tooling costs are very high. A building should not be built until the design is complete and checked. In other sectors such as software development, overlapping the phases is much more common or even essential because it can actually reduce the overall risk.

The Organizational Environment has a big influence on projects. Much depends on the organization, such as how managers use their power, channels of communication, formality or informality etc. It is easy to see that the practice in a railway, a hospital and a software company are totally different. This affects how resources are allocated and decisions are made, how much power the project manager has and many other details of project management.

The technological environment is also relevant. For example the approach to the requirements identification in software development is different from that in an engineering company which builds bridges and highways.

As well as being influenced by organizational style, a project is very strongly influenced by the structure of the organization. For example, in a functional organization, line managers are powerful compared to project managers; projects will find it more difficult to get priority for resources. At the other extreme in projectized organizations, the organization structure matches the projects, which get priority as a result.

Figures 2-7–2-11 show a progression from Functional to Projectized Organization types.

The next section introduces a term which we will find often: Organizational Process Assets. This name emphasizes that the Processes of an organization are also assets. They take time and money to develop and contain the know-how of the organization, whether documented or not.

These assets are the processes that allow the organization to deliver projects and may include for example:
Procedures and guidelines which explain how particular processes should be used

Templates

Procedures for managing changes: Change Control Procedures

Corporate Know-How and experience from previous projects, such as risks, costs etc. as contained in databases, files and archives.

2.2.3 Overview of Chapter 3: Project Management Processes for a Project

This part of the PMBOK® Guide represents the project management standard. It expands the description of projects based on processes, as well as showing how these processes are related to each other.

Let us go back and look at the idea of project processes in more detail. In any project, the manager must use the resources and interactions to achieve the goals. However:

- Projects are unique, non-repetitive, once-off activities. This means that we cannot expect everything to go to plan, because some things are being done for the first time.
- When something does not go to plan, it often costs more money or delays to bring the project back on track.

It is not easy to control project costs, because nearly everything that does not go according to plan affects costs. This is especially challenging for project-based businesses. They cannot survive if project costs are consistently higher than planned. In the long term, these unplanned costs could threaten the viability of the business case.

To reduce negative effects, we can learn from previous similar projects. This results in more accurate and reliable project plans. This experience is incorporated in the project processes, which can be used repeatedly for different types of project. New experience can be used to continually improve the processes, making sure that it has a long term effect.

Even when projects are completely new, we can still apply some earlier project experience since they often follow similar patterns. For example, we know that it works better to use phases. We can design our new projects in phases, even if everything else about the project is new. This will make it less likely to fail because we are using previous experience.

Some people object to this and may say:

Our business is different from all others so we cannot learn from them – we have to do it our own way.
We answer:

Yes, of course the technology, methods, business etc. are special or unique. That is true of all projects. You can however use general project methods and so benefit from the experience of others.

We apply previous experience by using Project Management Processes. If we use the same method to divide a project into phases every time, this is a process. A Process is repetitive, just like Operational Work.

Although projects are unique, we can manage projects by using processes because this makes them much more likely to be successful. This approach is central to the PMBOK® Guide description of project management.

At the highest level the project processes do not depend on technology. For example “identifying who the stakeholders are” is human activity, not a technical task. The PMBOK® Guide details this top level of project management but also refers in outline to lower level technical processes, which each organization must then develop in detail for itself.

It makes sense to align these company-specific practices with the higher level PMBOK® Guide processes, because this gives a standard basis for communicating and cooperating with other companies, suppliers and organizations. Speaking the same “project language” reduces the chances of costly mistakes.

As an example, a company implementing the PMBOK® Guide could reword its processes so that they refer uniformly to “Sponsor”, instead of owner, originator, etc.

There are other advantages, for example we can benefit from a pool of experience when recruiting project staff – new recruits do not have to learn absolutely everything from the beginning if they are already familiar with the PMBOK® Guide.

Before global standards for project management existed, each company had to develop its own standard and train everybody, including suppliers. The benefit from external experience was generally limited.

Another way that processes are sometimes described is “learning from the mistakes of others”. It is clever to see where others have learned and to copy them. This can be very attractive for businesses, because others pay and we benefit! This is what the PMBOK® Guide does; it brings together project management experience from various industries so that we can use it. It is not “unusable theory”; it is “usable practice”.

To summarize some important conclusions:

- Projects are unique, once-off efforts.
- Projects are best managed by applying the same (or similar) processes to each one, in order to exploit the learning effect.
- At the highest level, these processes are generic to all project management and are not specific to a particular line of business or technology.
- We can always profit from the experience of others.
• Some of the process details at higher levels and everything at lower levels will usually be specific to a particular organization. They will reflect the particular environment and technology.

• There are strong advantages, particularly in a global economy, of using a standard scheme for project processes. The PMBOK® Guide is such a scheme.

The PMBOK® Guide processes all have the following features:

• **Inputs**: items that must be available to the process so that the Tools & Techniques can be applied.

• **Tools & Techniques**: Methods of working. This is much broader than just IT Tools and Techniques. For example the use of Phases is a technique, but it may be implemented without any supporting IT.

• **Outputs**: items that are delivered by a process.

Note that the Outputs of a process are very often the Inputs of other processes.

• Chapter 3 of the PMBOK® Guide describes how the 42 processes interact and fit together.

• Chapters 4–12 take one Knowledge Area at a time and describe the relevant processes.

### 2.3 Exam Aids

**Flash Card Terms**

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Overview of the PMBOK® Guide
Paving the Way for PMP® Certification
Ó Conchúir, D.
2012, XVI, 216 p., Hardcover
ISBN: 978-3-642-31802-3