Planning, Scheduling, Monitoring and Control

The Practical Project Management of Time, Cost and Risk
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Overview

Effective project management requires effective planning and control. Effective planning and control requires:

- the clear definition of the project;
- a robust approach to planning the project;
- selection and use of the appropriate scheduling techniques;
- rigorous monitoring that enables proactive control of the project;
- a sound basis for this is good record keeping, which also facilitates the virtuous feedback and learning cycle.

This book offers tried and tested techniques and principles covering these aspects of project management. It introduces some lesser-known and emerging practices, some of which will move into mainstream project management in the years to come.

The book is structured into five main sections reflecting these requirements, and a brief introduction to each section and chapter follows.

1.1 Part One: Definition

At a strategic level, there are a number of fundamental questions that need addressing:

- Why is the project required?
- What does the customer want the project to deliver?
- How will the success of the project be measured?
- How will the project be procured?
- What is the attitude of its customers (or its funders) to risk?
- Similarly, what is their attitude to quality (including scope)?
- When does the client want the capability delivered by?

Part One of this guide describes the principal processes that define the project, and answers these questions.
The first topic dealt with is the creation of the business case (Chapter 2). This is the starting point in the life of any project, and it is a vital step in ensuring that the project is viable, affordable and desirable. It sets the scene for all that follows – the planning, scheduling, monitoring and control, and, not least, the delivery of the project.

Assuming the business case is approved, the scope of the project must be defined and agreed with all stakeholders (Chapter 3). Defining the scope will begin the process of making key decisions about the project, defining and selecting from various options until a preferred solution is agreed and approved.

Once the scope has been agreed, the details of the requirements are determined. See Chapter 4 (Requirements management).

Stakeholder management (Chapter 5) is dealt with briefly, as the responsibility for this falls mainly on the project manager (see Soft Issues – Project Management Time in Figure 1.1).

Chapter 6, the final chapter in Part One (Project familiarisation), is a checklist of the project documentation that has been created during the definition stage. These are the key documents that must be read and understood to enable the planning – and subsequent processes detailed in the guide – to be carried out in an informed way.

Figure 1.1 The importance of planning and control in project management

### 1.2 Part Two: Planning

The planning phase of the project needs to answer some fundamental questions, such as:
• How much will the project cost?
• How long should the project take?
• Are there benefits to finishing early, and what are they?
• What are the costs of an earlier completion, and do they outweigh the benefits?
• On the other hand, how is funding released, and are there any limits on this?
• How will the performance of the project be measured, through all its phases?
• Can the project be delivered safely?

Chapter 7 introduces planning – the team approach to working out how to deliver the project. After discussing and defining the difference between planning and scheduling (a point worth making to help define the two terms) – these terms are often used interchangeably, but they are two very different processes and require different skill sets – the opening chapter of this section goes on to discuss the principal components that will make up the overall project plan – the various schedules and narratives. It is important to understand these at the planning stage, and, whilst they are introduced here, they will be covered in further detail in Part Four.

Chapter 8 defines and discusses the purpose of the various breakdown structures that are used in project management. We also propose a method of creating these structures. Chapter 9 introduces the concept of dependency management. This theme is returned to in Part Four, when the specifics of schedule dependencies are defined in greater detail.

A critical concern of all project management must be the highest standards of health, safety and environmental management (Chapter 10). We cannot do justice to this topic in a book aimed across all industries, but it is a very important aspect when planning any project. It will have a fundamental influence on the project – how it is planned, designed/engineered and constructed.

Finally, in Chapters 11 and 12, we discuss the cost-estimating process and the budgeting process that follows it. The former is an essential step in the definition and planning (and, indeed, scheduling) of the project. The latter is essential in the creation of targets and baselines that will form the basis of monitoring and control.

1.3 Part Three: Scheduling

A fundamental question is: who owns the schedule? The answer is, of course, that it is the project manager, with the support of the whole project team. The schedule is created by collating the thoughts of many people; the specialist
Part Two
Planning

‘Failing to plan is planning to fail.’

Alan Lakein
7.1 Definition of planning

Planning is the process of identifying the methods, resources and activities necessary to accomplish the project’s objectives. It achieves this by drawing on the expertise, experience and knowledge of organisations and individuals (including the lessons that it has learned from previous projects), and on external parties if appropriate, in order to:

- understand the need, problem or opportunity that the project will address and the benefits that it will deliver;
- define what has to be accomplished and delivered, typically stated in terms of scope, time, budgets and quality;
- develop a plan to deliver the project.

Planning is the activity of determining how raw materials and other resources are delivered into a desired outcome. It is also the process that will deliver a competitive edge to organisations competing to win contracts to deliver work.

7.1.1 Definition of the planning role

Planning is an art rather than a science; it is based on experience, industry or sector knowledge and technical skill, and a key ingredient is innovative thinking. Planning is the activity of a team working together to determine the strategy for delivering the project. To achieve this, the project team determines the method or methods that will be used to deliver the project as well as how the project is to be procured.
The best plans will be created by a team of project managers, engineers, production/design managers and commercial managers working together. Specialist planners may guide and facilitate the process. In principle, planning is an activity that precedes scheduling.

During the planning process, the main interfaces will be identified. It is important that during this process the assumptions made, the risks, opportunities and issues are identified and recorded.

At the planning stage of the project, it is important that the project control and reporting methodologies that will be used are defined so that decisions around the methods of planning effort and toolsets adopted will be adequate.

The outputs of planning are therefore:

• overall strategy for the project;
• overall methodology for the project;
• breakdown structures for managing the project;
• the identification of key dependencies;
• contributions to the project risk and opportunities register and issues log;
• the identification of interfaces.

### 7.2 Purpose of planning

Planning is used to determine how, when and which project deliverables must be achieved in order to deliver the products (or actions) needed for the project’s success. This includes recording any organisational or management approaches and processes that will be used. The planning discipline assesses how and when activities need to take place and defines the acceptable standard required for completion, as well as balancing standards and targets within agreed time, cost and quality parameters. The management approach information will be recorded within the project management plan (PMP) – also known as the project execution plan (PEP) – and the relevant timings for the activities identified will be recorded within a project schedule, included within the PMP/PEP.

Planning enables the project manager and their team to determine what methods and techniques they intend to use to deliver the required outputs, products and activities. Adding the activities to a schedule helps to understand the logical relationships between activities, the impact on resource distribution, the expenditure profile and reporting implications. In a well-planned project,
the means of achieving the well-defined outputs, to an agreed standard, have
been examined, thought about, optimised and recorded, and are regularly
reviewed.

Planning and scheduling are essential to the authorisation of the project
delivery stages. Without a robust and realistic PMP and schedule, advancement
through the project stages should not be approved. The approval at each stage
will look closely at the plan and schedule and consider whether the project is on
course to deliver its intended business benefits in accordance with the business
case.

Once agreed and authorised, plans and schedules are an essential mechanism
for communicating the project strategy and the deployment and tasking of staff,
contractors and other resources.

7.2.1 Benefits of planning

• A well-planned project will identify and document the right activities and
  products to achieve the outputs and will secure the optimum resource level to
  support this.
• Planning determines what activities and products need to be carried out,
  when, to what standard and using which resources, including monetary funds.
  Well-planned projects, where the tasks that need to be undertaken, how and
  when have been carefully considered, are much more likely to successfully
  deliver desired outcomes.
• Comprehensive scheduling ensures the optimal allocation and release of
  resource and the effective control of project activities within time constraints.
• Planning is central to the control of the project and early identification of where
  the project might be starting to fail.
• Planning is an integral part of problem solving at all stages of the project.
• The project schedule, risk and budget are used to form a baseline against
  which the position of the project in terms of cost, time and risk, and therefore
  the performance of the project, can be managed.
• Establishing a baseline enables the project team to check the progress of
  the project, to measure success, and to identify and assess the impact of
  deviation from the baseline. Early identification of deviation will allow the
  maximum time for corrective action and assessment of impact on other
  planned activities.
• With good planning, it is possible to predict whether the project remains on
  target to deliver its outputs within the time, cost or performance constraints.
Planning, Scheduling, Monitoring and Control is a comprehensive guide for anyone involved in planning, scheduling and controlling projects.

Written to be accessible to all levels – from student to senior project managers – it gives practical guidance on all planning aspects of preparing to undertake a project, executing a project, controlling its delivery to budget, time and quality, and delivering it safely.