

Project Management

A Practical Approach



Noordhoff

Roel Grit

6th Edition

Project Management

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Noordhoff Groningen

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Preface

What is this book about? *Project Management* is about approaching work activities as a project. A project can be defined as a number of people working together on a temporary basis to reach a specific goal with predefined resources and timeframes.

More and more organisations are performing their tasks in a project-based fashion. Employees often have little experience with this type of working method. Students in higher education are being trained in project-based working methods.

Before a project gets under way, the project group or project team needs to put a lot of time into deciding on a uniform way of tackling the task. If this stage is rushed through, the individual project members will find themselves working in completely different ways, inevitably, with unsatisfactory results.

Website www.projectmanagement-english.noordhoff.nl

The website accompanying this book attracts many visitors. The book therefore clearly indicates what additional benefits can be gained from the website. This is made clear in the text with the help of the website icon.



The website assists you with checklists, spreadsheet and MS Word templates. Teachers can also find material on the website, such as PowerPoint presentations for an introduction lecture, ideas for possible projects and tips on how to structure lectures. An overview can be found in Appendix 2 of this book.

Project Management and the P6-Method

With the eight edition, an estimated 500,000 Dutch students have come in contact with the book *Project Management*. Some colleges even refer to the 'Roel Grit Method' when talking about the approach to projects, aiming specifically at the way in which to write a 'project plan' as it is described in *Project Management*. However, even though a project plan is a tool that lets you define in advance how a project is to be implemented, it isn't a project management method in itself.

My book, *P6-Methode, Projectaanpak in zes stappen (The P6-Method, A Project Approach in Six Steps)*, describes a six-step method and has the ambition to function as a complete, professional project management method targeted at project teams in companies, governments and institutions. In short, every organisation which wants to work with a project-based approach. This method can also be used by students who frequently work in projects during their study – and professionally later in life.

The six steps of the P6-Method are discussed briefly in Chapter 5 of this book.

Sixth edition amendments

This sixth edition of *Project Management* is improved based in part on user comments. In addition to a number of textual changes, the following changes have been made:

- New illustrations have been added.
- A number of sections have been arranged to correspond to my book *P6-Method*. We have done this to allow users to use the same terminology.
- The layout and structure of the book have been improved.
- In part 2, a new chapter (Chapter 7) has been added on applying Scrum and organising a project via Agile. Agile is a way of thinking, working and organising.
- In Chapter 2 a paragraph has been added about socially responsible project management.
- Chapter 2 pays extra attention to the integrity and code of conduct of project members.
- In Chapter 3, the section 'Root causes of project failure' has been adapted.
- Although the layout of a Plan of Approach has not been changed (Chapter 6), some parts have been clarified; Quality Assurance and Cost-Benefit Analysis in particular.
- The Light Action Plan was introduced in Chapter 6 for small projects.
- In Chapters 8 and 9, online meetings and online interviews are a new topic.

Who is this book for?

This book was written for students at institutes of higher learning and universities, though it is also a practical tool for use in non-educational organisations. It was written as a practical introduction to working on projects. More and more students of higher education are being lectured on the theoretical backgrounds of project management. This book emphasizes the practical aspects rather than the theory of Project Management. The central theme here is 'How do you do that in practice?' The imperative is therefore used in Part 2 of this book.

Project management in education

It is becoming increasingly more common in education to use a project-based approach in preparing for practical application. This includes detailed study assignments, internal projects, internship projects and thesis projects. A thesis project can – and perhaps should be – approached as a project. In higher vocational education and at universities, Part 1 can be covered during a number of classes or lectures. In doing so, it is important that the philosophy behind a project-based approach is emphasised to students. In this instance, the instructor is more of an inspirer and motivator than a teacher. Groups of two to three students can be formed and given the assignment of writing a project plan and management summary based on a simple case. Assignments formulated for this purpose can be found at the back of this book. These have been tested extensively in an educational setting.

Formulating a Plan of Approach

Alternatively or additionally, small groups of students can carry out a 'real' project assignment. If none is available, a detailed case can be used. Several cases are available on the website. The instructor can take on the role of sponsor, while the other students and/or other instructors can provide expertise on the subject matter. However, a 'real' assignment, whether within or outside of the organisation, is more realistic and



therefore preferable. The assignment should be carried out based on interviews with the sponsor or others and made concrete in a project plan.

Executing a project

To practice project skills as effectively as possible, a large project group can also be formed. Because of its size, it will be necessary to allocate group tasks, while the supervisor of the group dictates which tools and techniques from this book are to be used: setting up a project, holding a meeting, planning, presenting the results and so on. See the relevant chapters on tools in the second Part, as well as Final Assignment 3 at the back of the book. In this case, the supervisor takes on the role of 'manager of the educational process', rather than instructor. This book makes it much easier for a supervisor to monitor the quality of the project.

I wish you a lot of fun and success in organising and executing projects.

Roel Grit
Emmen, January 2023
www.roelgrit.nl

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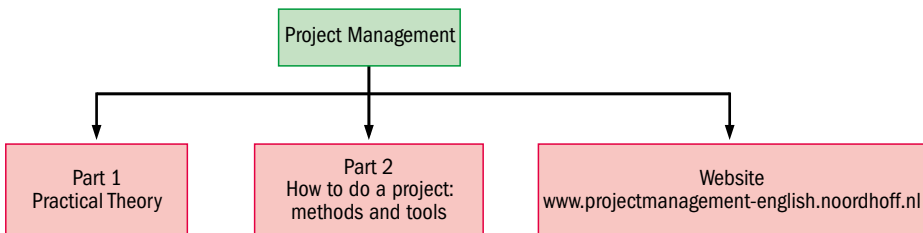
Additional course material on the site:
'Making a project tender' and 'Writing a letter'

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PowerPoint presentation accompanying Chapter 4	4
Drawing up a project tender	5
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Meeting Minutes Model	5
Project Model	5
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Week report Model	5
Admission Checklist	5
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Introduction

The aim of this book is to provide project management theory and practical tools to those who are not used to working in a project based manner. It also describes a number of practical tools for approaching project-based work activities.

Project Management components



The structure of this book

Part 1 Practical Theory

The first four chapters contain a short theoretical background on working in a project-based manner. This part describes what a project-based approach entails, when it is appropriate to take such an approach and how to make it work. Chapter 4 deals with the planning of activities.

Part 2 How to do a project: methods and tools

The second part of this book describes a number of the practical tools and skills needed to tackle projects, including how to organise and hold a project meeting, how to make an executive summary and how to write a report. An important aspect of the early stages of a project – how to approach a project in step-by-step fashion – is dealt with in Chapter 5. Chapter 6 explains how to write a project plan.

A number of the skills that are dealt with in this part – organising meetings, writing reports and holding presentations, for instance – are also useful in contexts other than those described here.

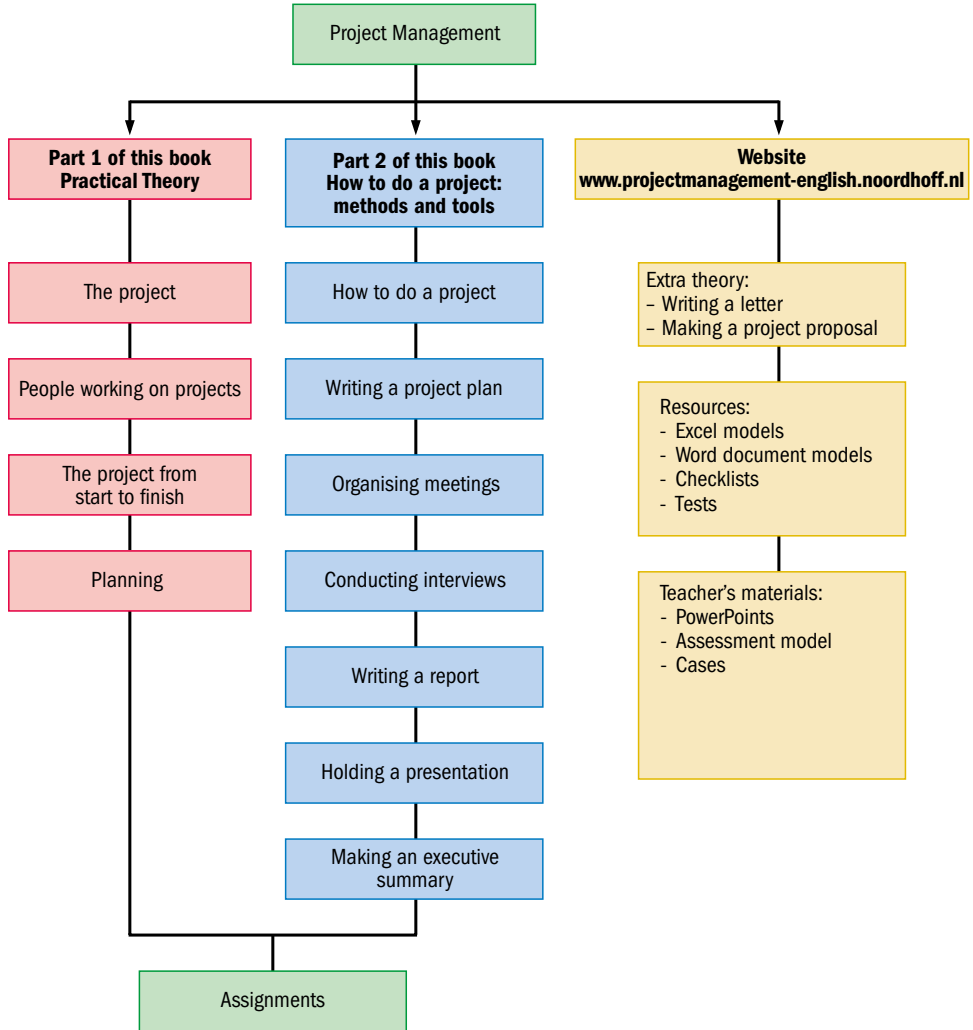
Website



There is a website with a range of different tools accompanying this book (www.projectmanagement-english.noordhoff.nl). An additional chapter can be downloaded via the site: 'Writing a project tender'.

Appendix 2 provides detailed information on the contents of the website. Two chapters that were omitted from earlier editions of the book, can also be downloaded from the website: 'Writing letters' and 'Making a project proposal'.

The structure of Project Management



PART 1

Practical theory

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- 4 Planning 101

Theoretically, there is nothing particularly difficult about project management. Projects nevertheless frequently fail to attain their objectives. Since project work is very dependent on the people involved in it, those involved need to be aware of the fact that there is a difference between ordinary ways of approaching work and working in a project-based manner. This part of the book deals with the theory underlying the project-based approach to work based on real-life situations.

The following questions will be addressed in this part:

- What is the difference between project-based work and other work?
- How do I organise the project?
- How do I start the project?
- How do I monitor the project?
- How do I plan the project?

agenda Agile blueprint chairman
contents **critical path** executive
summary expert flexible **initial**
meeting interview layout **milestones**
organisation P6-Method
phases plan planning
preparation presentation
project project group
project manager project meeting
project plan **project proposal** project
result **project sponsor** purpose
reasons recommendations report risk
analysis Scrum sprints structure

1

The project

- 1.1** Types of activities, types of work
 - 1.2** Examples of projects
 - 1.3** What is a project?
 - 1.4** Moving from improvised to project based to routine activities
 - 1.5** Types of projects
 - 1.6** Things to remember
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 - 1.9** The phases of a project: an illustration
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 - 1.12** Projects should be SMART
 - 1.13** Socially Responsible Project Management
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Jobs for life are a thing of the past. With our society caught up in a process of constant change, organisations are finding that they have to respond to each change while already anticipating the next one. Their responses often take the form of projects. Being able to manage projects effectively has therefore become a necessity. The important issues are not only when to take a project-based approach and how to tackle the project itself, but even what a project actually is.

This chapter describes how project-based work differs from 'regular' work.

1.1 Types of activities, types of work

All kinds of activities take place within an organisation. They may be characterized in the following three groups of activities:

- 1 Improvised activities
- 2 Routine activities
- 3 Project-based activities

This book deals with the last type. To show the special position that project-based activities occupy, all three types of activity will be described.

Improvised activities

Improvise

An improvised work approach to new activities is one option. People usually improvise when something unforeseen occurs that requires an immediate response. Their reaction will be an ad hoc one: not according to a laid down plan, but decided on as events unfold.

Ad hoc

Since there are no prior instructions about what to do that can be given before-hand, it is hard to predict the outcomes of working in an ad hoc manner with any accuracy. The advantage of not having any prior instructions is that the new situations can be met in a flexible manner. However, while the large amount of freedom may be welcomed by the improviser, it carries the risk of chaos and could put the organisation under a lot of pressure. Workers in an organisation in which there is a lot of improvisation going on are likely to be working under a certain amount of strain. Having to constantly adjust to changing working conditions is, after all, quite stressful.

Routine activities

Work procedures

Routine activities are activities that are repeated frequently and are relatively predictable. The work will be carried out according to predetermined patterns. Since there is a precedent, it is not necessary to constantly think about what has to be done next.

In order to be able to perform these routine activities efficiently, work procedures or instructions have to be developed. Most of the activities carried out within an organisation belong to this type. Production line activities, sales procedures, purchasing procedures and administrative activities are some examples.

Project-based activities

Project-based activities fall roughly midway between improvised and routine activities. They are non-recurring and have a limited duration, but are reasonably predictable (see Figure 1.1).

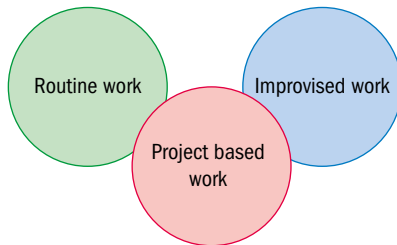
Plan

In order to increase this predictability, the work should be done according to a plan. Plans gradually illuminate each phase of the process. Before the activities get underway, some time needs to be spent on working out what the aims are and how to achieve them.

Phases

Project plan

For this to be effective, large projects are often divided up into a number of phases. After each of these phases, the aims and procedures may be adjusted. Before starting the project, a project plan is formulated, the instructions for which are given in Chapter 6. By working with a project plan based on fixed criteria, some degree of routine can be introduced to the project. In other words, 'you introduce routine to something you have never done before'. This greatly enhances the possibility of success.

FIGURE 1.1 Project based activities

Source: Noordhoff Groningen, 2020

Projects often have an organisation of their own, one created especially to deal with the needs of the project. People who do not normally work together may do so as part of the project group. Each will have their own specific tasks.

Project group

Some of the activities of businesses such as shipbuilding, aircraft construction and information technology are regularly carried out as project-based activities. In other businesses, project-based activities may be the exception rather than the rule. Such a project might involve a departmental reorganisation, moving into new quarters, or the introduction of a new computer network.

A project-based activity is not an objective in itself, of course. It is a way of structuring activities that are less predictable than others and that fall outside the scope of normal activities. These structured activities then become easier to manage and monitor.

Project-based activity

Types of activities

Table 1.2 contains a summary of the properties of the various types of activities.

TABLE 1.2 Types of activities

	Improvisation	Project-based	Routine-based
When?	Ad hoc (sudden), respond quickly	To be anticipated, once-only	Recurring
Result?	Unsure	Reasonably sure	Definite and efficient
Familiarity?	New, sudden	New, plan-based	Familiar
Freedom?	Great level of freedom, flexibility required	Thought through in advance	Barely any freedom
Method?	Chaotic, not according to procedure	According to procedure, fixed procedure	Clear, fixed procedure

1.2 Examples of projects

Below is a list of projects to gain a better understanding of what they are:

- *Construction projects*: building a shopping centre, a bridge, a new suburb, a nursing home or a factory.

- Projects involving developments by *companies* (such as developing a new product, merging two businesses, creating a new corporate style, moving to a new location or making changes to logistical operations); projects involving company plans (a marketing plan, an export plan, an information system, a sales plan or a personnel plan); and projects to do with company IT systems (such as introducing major financial software, logistical software or software for client management or e-commerce, including the website and management of logistical operations).
- Projects within the *healthcare sector*: for example, reducing waiting lists, systematising meal delivery, reducing the overall cost of medication and improving communication between hospitals and general practitioners.
- Projects within the *education sector*: for example, devising a new course, introducing an electronic learning environment or a new student information system. Postgraduate research projects fall within this sector.
- Projects within the *sport and recreation sector*: for example, doing a theatre production, organising a major expo or a large-scale pop festival, sporting event or trade fair.

Projects are by no means a modern phenomenon. In ancient Egypt, pyramids to house the Pharaoh's remains were already being planned and built while that Pharaoh was still alive. Wars were planned in detail: Napoleon was a successful general because he knew how to plan his campaigns (although he overestimated his ability during his campaign to conquer Russia). Columbus's preparations for his journey to the Indies constitute an excellent example of good project management (despite failing in the implementation of his plan and landing in America instead!).

1.3 What is a project?

This book is about project management, but what exactly is a project?

A project can be defined as a group of people, usually from various fields of expertise, collaborating temporarily with the aim of reaching a predetermined project result within a predetermined budget and timeframe.

Based on this definition, a number of project characteristics can be formulated (Figure 1.3):

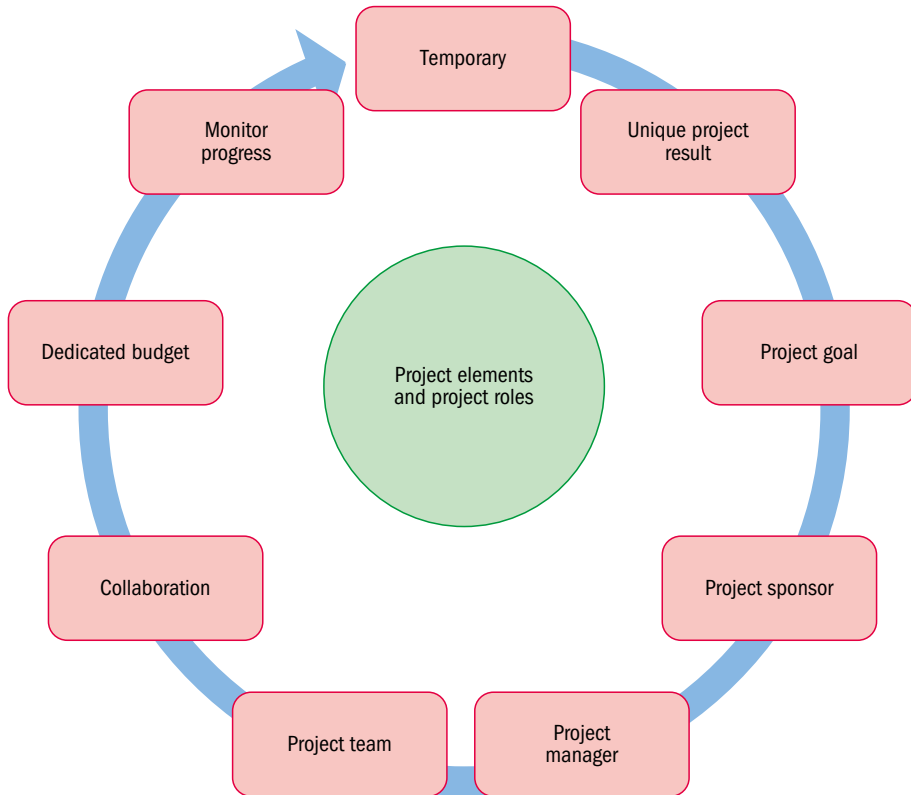
A project is temporary

Because a project is temporary, it has a start and finish.

Project start-up

The start is marked by a start date: this is also referred to as the project start-up. The start of the project is sometimes referred to in football terms: 'kick-off'. The end date is the agreed moment in time when the intended project results are delivered, any extra work is completed, the party has been held and the project team dissolved.

FIGURE 1.3 Project components



Source: Noordhoff Groningen, 2020

The intended project result is unique

At the end of the project, the delivered project result is unique and once-only. This means that the project has a unique character for the people working on the project and the sponsor. The project is outside normal work activities. The intended project result concerns the 'what' of the project: what is finished when we are done? This project result can concern many different things, for example a machine, a building, a factory, a research report or even an event or a working method.

Intended project result

Project goal

The project goal is the 'why' of the project and is the reason why the sponsor wants to implement the project and why he or she is willing to pay for it. The project results is the outcome of the project and contributes to the project goal. There may be various projects or measures which can contribute to this same goal.

Project goal

Project sponsor

A project has a sponsor who makes budget available in the form of money or capacity so that the project can be executed and the results be implemented. A sponsor may also be referred to as principal. In order to

Sponsor

Principal

realise the goals, a sponsor has to maintain a keen interest in the project result. He or she needs to provide clarity to the project. Some projects have more than one sponsor.

Project manager and project team

Project organisation

A project has its own project organisation. The sponsor appoints a project manager – also called a project leader – who has sufficient mandate, authority and skills to set up the project. The project manager has final responsibility for the project result and writes – together with his or her project team – in consultation with the sponsor, a project plan (Chapter 6) for the project.

The sponsor ensures that the project organisation enjoys a special position and status within the organisation. Project team members who have been (partly) freed up from their normal duties to work on a project team, have a temporary second ‘boss’: the project manager.

Working together on the project result

Multidisciplinary

A project has a certain level of complexity. Projects are often multidisciplinary, where people from different disciplines (fields) temporarily work together: the project team. The project team members come from different parts of the organisation (or from outside the organisation) and each has its own expertise. Disciplines can be: management, finance, economics, marketing and technology. Each speaks its own jargon and has its own view of the ‘world’. This makes project-based working interesting, but also difficult! Project team members often don’t work on a project full-time, but rather part-time.

Result-oriented

It is important that project team members are allowed to work in a result-oriented manner. After all, the project team was formed to deliver a specific project result! The project team members must be able to work together and must know what is expected of them. Agreements have to be made about the resources to be used and the planning to be made.

Project budget

Budget

A project has its own budget made available by the sponsor. The project team must in principle be able to implement the project within this budget. It consists of funds for the resources to be used and capacity of the people to be deployed. A project without a financial budget has an hourly budget for the team members to be deployed. By making a planning of the expected costs you can create a budget for a project. Through negotiations between sponsor, steering group and project manager, the level of the project budget is set.

Monitor progress

Planning Reporting

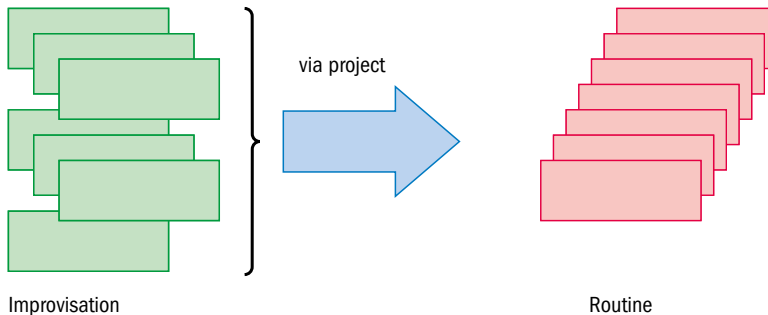
During the implementation of the project, progress and costs are being monitored through planning and reporting. To manage the project better, a project management method may be used.

1.4 Moving from improvised to project based to routine activities

Improvised activities, project-based activities and routine work can be part of the same work sequence. There is likely to be a lot of initial

improvisation when an organisation takes on a new task. As soon as it becomes obvious that the task will have to be repeated, a greater degree of organisation will become necessary. A project whose aim is to implement things properly could then be undertaken. By the end of the project, standard working procedures will have been developed. Improvisation will be a thing of the past; the activities can now be carried out as the standard routine. Figure 1.4 shows this process as a diagram.

FIGURE 1.4 From improvised activities to routine



1.5 Types of projects

According to their characteristics, projects fall into one of several different categories:

- 1 Technical projects
- 2 Social projects
- 3 Commercial projects
- 4 Mixed projects
- 5 Events

Ad 1 Technical projects

Technical projects are projects whose aim it is to effect some change in technology or to come up with a new product. These projects are usually relatively easy to plan. The end result is usually obvious. The construction of a building, a bridge, a road, a pipeline or a railway line are some such projects. These projects are also known as 'hard' projects.

Ad 2 Social projects

The outcomes of social projects are usually not quite as evident. In the business arena, their aim is very often to change the corporate culture or organisational structure of a company. They deal with the way in which people work together. Because people tend to resist changes, social projects are more difficult to execute than technical projects. Social projects include a reorganisation of a firm or an adaptation of work procedures. Social projects are also known as 'soft' projects.

Ad 3 Commercial projects

The ultimate goal of commercial projects is to earn money. Examples are conducting market research, developing a new product or introducing a new product on the market.

Ad 4 Mixed projects

Mixed projects combine some of the aspects of both technical and social projects. The design, programming and installation of an extensive computer program is an example of a mixed project. These kinds of projects can be especially complicated since the members of the project team come from a wide variety of areas of expertise and do not always 'speak each other's language'.

Ad 5 Events

Events are a special kind of project, as the end result only appears at a certain point in time. Examples of events are a computer fair, pop festival, home fair or car show.

Projects can also be categorized in different ways based on content, such as those with an internal sponsor as opposed to those with an external sponsor. Another possibility is to categorize projects into those that provide a service (course, event) and those that yield a product (building, railway line).

1.6 Things to remember

Later in the book an entire chapter will be devoted to planning and organising a project. This section will describe a few of the basic principles.

If you are the manager of a project, there are a number of things you will have to keep in mind. These are discussed below.

Request planning time from the sponsor

To work systematically, a project plan is essential. Make sure that the sponsor allows enough time for planning the project. The decision-making process can slow things down considerably, especially in large organisations. It could be weeks or even months before the definitive project comes up for discussion and is approved. When you draw up your planning, you should allow for the time needed to get the project approved. If not, you will have to deal with delays even before your project gets underway!

Planning time

In a small organisation, the opposite might be the case. People are often asked to start immediately. Nobody should expect a project manager to embark instantly on a task that has never been done before.

Consult everyone involved

Since there are likely to be people from various fields of expertise working together on the project, it is imperative that the project be talked over with all parties involved. Make sure you have enough enthusiastic people and enough formally approved funds for the project. Make good arrangements about the contribution expected of every worker.

Mistakes made in the early stages of the project are best rectified there and then. If not, the team's hard-working members may find that the work they have done has been for nothing. At the beginning of a project a mistake can usually be easily rectified, whereas later on in the project it might take ten times as long to do so.

A word of warning: if you think that a project is doomed from the start, you should make sure that you are not the project manager!

Work from the top down

Set out the main lines of the project first. Avoid getting bogged down in details: they should be dealt with later on. However, enticing it may be to commence with the more minor aspects of the project, make sure you avoid doing this. You may find that you have lost sight of the whole.

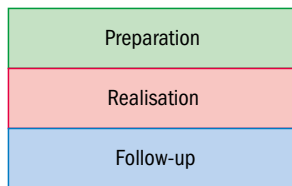
Dividing a project into phases is one way of keeping it manageable.

Projects can generally be divided into the following phases (Figure 1.5):

- Preparation (think)
- Realisation (act)
- Follow-up (maintain)

These phases will be described in detail in the following section.

FIGURE 1.5 The phases of a small project



Thinking things through: from start to finish and from finish to start

As the definition suggests, project work is work on a new situation. As such, you cannot rely on your experience. You need to determine what exactly needs to take place when carrying out the project. It is important not to overlook a single activity because your planning will otherwise not be reliable.

It is also important to look at a project from two directions: from start to finish as well as from finish to start. When a new bridge is built, it is not only the initial steps that need to be thought through. The official opening of the bridge by the queen's representative needs to be thought through too. There may be tasks associated with the concluding stages that could easily be overlooked. Remember: if you overlook it in the beginning stages, it will return with a vengeance later on!

1.7 Doing things in phases

It is often difficult to manage large projects. Staying within the budget, getting the job finished by the deadline, and achieving the project result can all present problems. It is the task of the sponsor to ensure that the project is manageable. Projects such as the Channel Tunnel between England and France and the Dutch land reclamation scheme were difficult to manage. On the whole, long-term projects are more difficult to manage than short-term ones. This is understandable in light of the changes constantly taking place within the world. The longer a project lasts, the more chance there is that the aims and goals of the project will have to be adjusted.

There are a number of measures that can be taken to keep a project manageable. First, a project plan (plan of approach) should be made at the

commencement of the project. This should contain a clear description of the project. It should also describe the project's objectives and the desired end products, and show the available funds and your planning of the activities (see Chapter 6).

Phases

A large project is often divided into a number of phases. Each phase will, naturally, be shorter in duration than the project as a whole. A phase can be regarded as a series of project activities that have a logical connection to each other. Phasing minimizes the risks associated with the project because it divides a project into smaller parts. After completing a phase there will be an evaluation and decision how to proceed.

The following are some traditional project phases:

Concept

- *Concept*: the idea that sparks it off. The concept phase of a project often results in a project proposal. If the proposal is approved by management (the sponsor), the next phase may commence.

Definition

- *Definition*: defining the end result of the project and what needs to be done to achieve it. The result of the definition is a project plan. With complicated projects, it is common to carry out various sub-projects, each with its own project plan.

Design

- *Design*: deciding what the project result will look like. What will the sponsor be getting for his money? This phase results in the design report.

Preparation

- *Preparation*: detailing how to do it. This phase results in a detailed design, such as a building plan.

Realisation

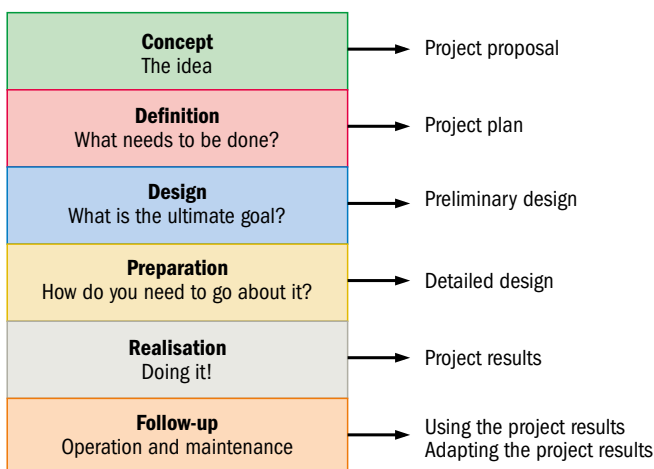
- *Realisation*: doing it. This phase results in the project result desired by the sponsor.

Follow-up

- *Follow-up*: making it operational and providing follow-up. The result is maintained by adapting it to new desires and resolving any problems.

Figure 1.6 summarizes the above.

FIGURE 1.6 Phasing and the products of every phase



The various phases will now be described. Each phase will be illustrated using the example of a house-building project (a technical project).

Traditional phasing carries the disadvantage of not being very flexible, unlike the P6-Method described in Chapter 5 ('How to do a project – the P6-Method'). This method follows the general lines of a traditional system but has much greater flexibility built into it.

Concept

At this stage, the project exists only as a problem or an idea in the minds of those who have thought it up. They (the project's initiators) believe that something needs to be undertaken. If a decision to proceed is made at the managerial level, a number of activities may be carried out:

- An investigation into the current state of affairs
- A rough estimation of the extent of the problem
- A determination of the aims or the desired results of the project
- A determination of the feasibility of the project. If required or desired, a feasibility study or a preliminary investigation could be carried out.

Idea

This phase could result in an authorized commission or project proposal in which the sponsor gives the go ahead for starting the project. Alternatively, it could be decided not to take any further action and to let the matter rest.

Definition

The project's objectives emerge during the definition phase. The project has been approved; the desired objectives must now be established. It is important to make a distinction between the project's formal objectives and the wishes of those involved. The project's objectives have to be met: this is mandatory. It is desirable that the wishes of those concerned be met, but there is no necessity about this. At the conclusion of the definition phase there should be a project plan in which the project is defined in detail. (The writing of a project plan is the subject of Chapter 6.) By the end of the definition phase there needs to be an answer to the following question: what will have been achieved when the project has been completed and the results have been implemented?

Objectives
Wishes

Design

The definition phase establishes what the project's objectives are. During the design phase, a way to attain the goals should be found. If the project is building a house, it is during this phase that a detailed construction drawing is made. This phase makes a demand on the creativity of the participants. It can be stimulated by holding brainstorming sessions with all the participants.

Brainstorming
sessions

In order to determine whether the proposed solution conforms to the requirements as laid down, one option is to make a prototype of it.

A prototype is a simplified version of the real thing, and it can be used to test the demands that are likely to be made of the design. For instance, when a new airplane is being designed, the prototype's properties are tested in a wind tunnel.

Prototype

At the end of this phase, there should be a design that does the following:

- Shows the sponsor exactly what he will be getting
- Shows those who will be actively involved in the next phase exactly what has to be produced.

Design

Preparation

During the preparation phase, the design that was prepared during the previous phase is made ready for production. Attention is now focused on

how the design can be produced. This could take the form of a detailed construction drawing that shows a metal worker exactly how to make a certain part, or assembly instructions showing exactly how certain parts should be fitted together. The product itself is not produced during this phase. The aim is to create the conditions to allow the production phase to take place without a hitch. The motto of this phase is look before you leap.

Realisation

After all the preliminaries, the actual work can now get underway. Depending on how thorough the preliminaries have been, there will be a proportionally less risk of unpleasant surprises during the production phase. During this phase, the objectives of the project are achieved and the product constructed. It does not necessarily have to be a technical product such as a machine: it could also be the reorganisation of a factory or the introduction of a new system for production planning.

Implementation

This phase is also the phase of implementation. Measures have to be taken to facilitate the introduction of the project's outcomes. In the case of a transition from an old to a new situation, these will take the form of conversion measures. If the project involves making a new computer program for the computerization of a production process, the employees will have to be trained to work with the program. When a manual system of personnel administration is computerized, all the personnel data will have to be fed into the computer. At the end of this phase the project's outcomes are delivered.

Conversion measures

Follow-up

In the implementation and follow-up phase the project's outcomes are used. Because circumstances alter as time goes on, the demands that are made of the products are likely to change as well. This may require making some adjustments to them. The finished products will also require aftercare. In the case of a technical project such as the building of a bridge, the aftercare should be provided by a maintenance crew set up for that purpose. In the case of a computerization project, any change in circumstances will mean that the program has to be updated. In short, after the project is finished the job is not yet over. It is important not to underestimate this phase. The costs associated with maintenance can sometimes be many times greater than the cost of the project itself.

Adjustments

1.8 Why do things in phases?

Opportunities for decision

Executing a large project in phases has the advantage that a number of opportunities for decision making are built into the project. At the end of each phase the sponsor has an opportunity to alter the project. The options available are as follows:

- continue as planned;
- continue with some alterations to the project or prioritise and split up the project into several smaller projects;
- termination of the project.

To terminate a project requires a great deal of courage. After all, a lot of time and effort has already been invested in it. The benefits must outweigh the costs during every phase of the project. The amount already invested in

the project should not be an argument to continue. If continuing the project has already cost half a million, then arguing that we cannot stop now makes no sense. Also see Section 3.16.

1.9 The phases of a project: an illustration

In building a house, we might come across the phasing process mentioned above. We use a detailed example to indicate the types of activities that take place during every phase.

Phasing process

Concept

A family with two children lives in a village in the countryside. The husband is a lecturer in a large city relatively close by; the children have reached the age of attending secondary school in the large city. The husband is fed up with being caught up in traffic jams before he gets to work every morning. Since they have inherited quite a large amount of money from an unexpected source, they could have a house built in a new housing estate on the outskirts of the city. They contact a real estate agent to investigate the possibilities.

Definition

The real estate agent and the couple look into a number of things:

- The financial possibilities. How much money does the couple have, what is the family's income and how much money could they borrow to build the house/how much money do they want to borrow?
- The availability of a suitable piece of land to build on. What are the municipal regulations relating to building a house?
- What sort of house they want. This family wants four bedrooms, a large living room, a garage and a large backyard.

After the couple has made up their mind, they and the real estate agent go looking for an architect to draw up a plan for the house.

Design

The list of requirements is talked through with the architect. On the basis of this the architect does some drawings of the new house: the design. While he is working on the drawings he frequently consults the couple about various details: for example, the colour of the bathroom tiles and where to put the power points in the living room. The house design as well as a description of how it will fulfil all the requirements, budgetary and otherwise, is eventually ready. The drawings should give the future owners a clear picture of what the house they are commissioning will be like.

Preparation

On the basis of the drawings, additional technical drawings are made. The drawing of the electrical wiring will show the electrician exactly where to put the cables during the construction of the house. Drawings are also made of the sewage system and the water and gas pipes. The capacity of the central heating system and the radiators is calculated. The drawings will give the builders and contractors of the next phase exact instructions on how to proceed. Now a building contractor needs to be found to do the actual building of the house.

Realisation

The building contractor makes a plan for the building of the house. Various tradesmen will be needed: bricklayers, carpenters, electricians and plumbers, for example. The technical drawings from the previous phase serve as a blueprint for the construction of the house. At the end of this phase the house is ready and the family can move from their old home to their new one. In a sense, moving house is the conversion from the old situation to the new.

Follow-up

After the new owners have been living in the new house for a while – putting the outcomes of the project to use – they will have to make sure the house is maintained. The woodwork will have to be painted, the backyard landscaped and any necessary repairs done (a door repaired, for example). Because the husband is now spending more time working from home and he cannot do so with adolescents around him all the time, they decide to have an extra study attached to the house. All these activities are aimed at maintaining the project's outcomes and adjusting them to changing circumstances.

1.10 When to do it as a project

You are probably expecting a book on project management to recommend adopting a project-based approach. But that is not the case here. There are certainly advantages to a project-based approach, but naturally also disadvantages.

Advantages of a project-based approach

There are a number of advantages to a project-based approach:

- The project is not part of your everyday work; time has been set aside especially for the project.
- Since the members of the project team are able to concentrate on the project at hand, there is a greater chance of better results.
- There is a sponsor for the project who can make decisions when necessary.
- If there is a clear project plan (see Chapter 6), all parties involved will know exactly what must be done.
- The responsibilities of the project manager, steering group, sponsor and members of the project team are clearly defined in the project plan.
- If the project is to be carried out in phases, it will be well organised.
- If the project team is well chosen, the members will complement and support one another, thereby increasing the productivity of every member.
- Since a project is started in order to achieve a specific end result, there is a smaller risk of failure.
- Working in a project team is a valuable experience and enables the members of the project team to develop and perhaps later on serve in a management position.

Disadvantages of a project-based approach

There are also a number of disadvantages to a project-based approach:

- Setting up and organising a project takes time and effort.
- A variety of individuals must be consulted and a project team has to be put together. It also takes time to formulate a good project plan.

- Since members of a particular department take part in the project, they leave behind a 'gap' in their department that must be filled.
- A project-based approach can also be complicated. Inexperienced members of the project team sometimes must be trained first.
- Although the project team learns from the experience, it has less of an effect outside of the group since the most complicated tasks are carried out within a limited project group.

When should a project-based approach be used?

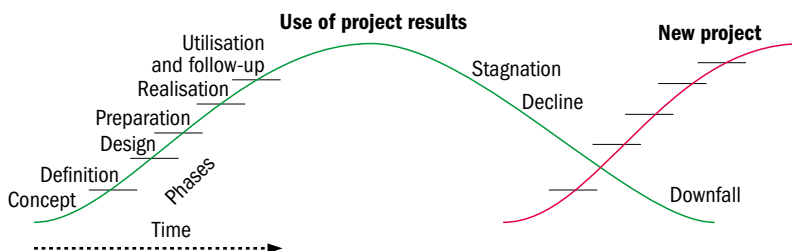
It is relatively time-consuming to set up a project organisation for a rather minor 'job'. For example, if this 'job' can be carried out in only a week's time, it would be unwise to use a project-based approach. A good rule of thumb is to only use a project-based approach if the duration of the project is at least two to three months. However, if a project is expected to take a year, it is worth considering whether it would not be better to divide it into several sub-projects.

1.11 Lifecycle of a project

The goal of a project is to achieve a specific goal. However, the end result is often only temporary. The results of reorganising a car factory or manufacturing a new car model, for instance, will lose their value in the long term. After a number of years, the car factory will start up a new project in order to manufacture an even newer car model. The entire process from start to finish of a project is called the 'project lifecycle'. Figure 1.7 illustrates this.

Project lifecycle

FIGURE 1.7 Lifecycle of a project



You can recognize the phases of concept, definition, preliminary design, detailed design and production at the start of the project. At the end of the production phase, the end result is accomplished and subsequently used. This latter phase is also called 'utilisation'. During the utilisation of the project result, follow-up and maintenance are required to maintain the results and keep them up to date. After some time, follow-up might be insufficient and stagnation will occur. With the case of the car factory mentioned above, for example, sales of the model start slowing down or the factory becomes obsolete from a technical perspective. A decline then follows and the project result is no longer useful. In the meantime, a new project might be started up to manufacture an even newer model or build a new factory, and the lifecycle of a new project begins.

Utilisation

1.12 Projects should be SMART

SMART

Projects are carried out in order to achieve the sponsor's goal. The result aimed for by the project group must meet the sponsor's objectives. A result and an objective could both be defined within a SMART framework, and if a project is involved, it is essential to do so. SMART stands for:

- 1 Specific S
- 2 Measurable M
- 3 Acceptable A
- 4 Realistic R
- 5 Time-driven T

Ad 1 Specific

The project result must be specific, i.e. described in detail. In other words, what exactly are we going to do? There should be no misunderstanding as to the end result. For example, 'We're going to improve the delivery of our products' is not specific enough. More specific would be to say 'We need to shorten the delivery time for our products'.

Ad 2 Measurable

The result must be measurable. This means that it should be possible afterwards to determine whether the result has been reached (or not) with regard to time, money, quality and quantity. Measurability is also important for determining when the result is actually reached: When am I finished?

For example, 'The delivery time of our products must be reduced from five to two days.'

Ad 3 Acceptable

A person or group must be responsible for achieving the result. So who will that be? The result must also be achievable for the person who must achieve it. For example, 'The logistics Department must agree that this is indeed a feasible option.'

Ad 4 Realistic

The intended project result must be feasible and realistic. Can we achieve this result? If the goal is not realistic, the project members will have little interest in pursuing it and will quit. For example, 'The logistics Department must reduce the delivery time of our product from five to three days' (since 'two days' was not realistic).

Ad 5 Time-driven

There is a specific deadline by which the result must be achieved. For example, 'The logistics Department must reduce the delivery time of our products from five to two days by December 31 of this year.'

The following are two examples in which goals have been defined according to the SMART principle.

EXAMPLE 1.1**A personal goal**

The goal 'I want to live a healthier lifestyle' defined according to the SMART principle: 'I (A) want to lose (S) five pounds (M) over the next three months (T).' The feasibility (R) of losing five pounds in three months is for you to determine.

EXAMPLE 1.2**A project goal**

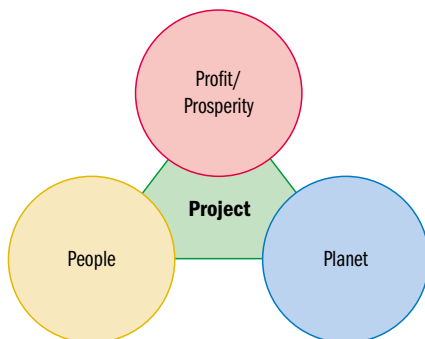
The goal of reducing waiting lists: 'The Surgery Unit (A) must reduce (M and R) the waiting lists for hip operations (S) by 20% by December 31 of this year (T).'

1.13 Socially Responsible Project Management

In order to 'survive' as humanity in this world, organisations must pay attention to sustainability. Sustainability means that an organisation meets its needs without compromising the needs of future generations. Sustainability means that future generations will continue to have access to things such as raw materials, energy and a healthy living environment. Many companies, governments and institutions aim to operate in a socially responsible manner. In corporate social responsibility (CSR), a company takes responsibility for the effects of its business activities on people, the environment and business operations. In this context, John Elkington (1994) has devised the three Ps: People, Planet and Profit. In a project environment you can expand this to four: People, Planet, Profit and the Project itself. You can think of this as socially responsible project management (see Figure 1.8).

Sustainability

Corporate social responsibility

Three Ps
Socially responsible project management**FIGURE 1.8** Socially responsible project management in four Ps

Project**Project**

The client, project manager or project team member is not alone in the world: his project is part of an organisation that – in turn – is part of society. You do not only have a social responsibility as an employee, but also as a ‘citizen’. Because projects are used to bring about change, you have to take sustainability into account – especially with a project. When implementing the project, you should include the aspect of social responsibility as part of all your plans. The organisation can carry out special projects with the aim of being socially responsible and sustainable, but it can also take them into account when carrying out any project. If you are working on a change, you can often take your social responsibility without much extra effort and expense.

People**People**

Socially responsible means that your project team not only takes those directly involved into account, but also groups outside of it. Within the company or project, you take the health and well-being of employees into account, but also their training and personal development. Employee participation, good manners and a pleasant working environment are also part of the P of People. Outwardly, you can take underprivileged groups into account, but you also offer internships. When purchasing materials for a project, you take into account the working conditions under which these materials are made and, for raw materials, how they are extracted, for example with child labour.

Planet**Planet**

As a ‘sustainable’ project team, you take nature and the environment into account. Within the project you try to save energy, separate waste and produce in an animal-friendly manner. You also try to deliver a project result that prevents pollution of water, air and soil and limits noise nuisance. You also ensure that the project result – or the project implementation – does not unnecessarily use many raw materials and that the processed raw materials are suitable for re-use. Particular attention should be paid to reducing emissions of greenhouse gases – such as carbon dioxide and methane – which are responsible for global warming, according to influential scientists. The emission of nitrogenous substances should also be carefully observed in areas where it could influence the flora and fauna of nearby nature reserves.

Profit**Prosperity****Profit or Prosperity**

In some projects, the benefits of the project consist of the delivered project result, for example a client who has a house built by a construction company. The client invests his budget to own the house and live in it. In other projects, the project must make a ‘profit’ and the financial benefits must be greater than the costs. For example, building a factory. For these projects you make a cost-benefit analysis in advance. A sustainable client is not looking for quick personal profit, but for profit and continuity in the long term. He strives for a healthy financial situation, invests in people and also regularly makes (financial) contributions to social goals. In a non-commercial environment, the P for Prosperity (Prosperity) is used instead of the P for Profit.

When drawing up all project plans and carrying out project activities, keep the four Ps in mind.

1.14 Carrying out the projects in this book

This chapter provides a brief introduction to project management. A more detailed theoretical explanation of project management can be found in the following three chapters:

- Chapter 2 People working on projects;
- Chapter 3 The project from start to finish;
- Chapter 4 Planning.

The second half of this book contains a number of practical tools, such as how to write a project plan, step-by-step instructions for carrying out a project, how to hold a project meeting and how to present the end result. To properly understand project management, it is advisable to closely read through the first four chapters of this book before getting started.

But if the project has been given the go-ahead and you are eager to get started on it right away, you can begin directly by formulating a project plan (Chapter 6). This plan is used to define the project before you begin carrying it out.

If you want to carry out a project from the very first step to the very last, it is best to start with Chapter 5 'How to do a project – The P6-Method'. This chapter will take you through the process, with each of the six steps broken down into individual tasks.

To write a project plan, please refer to the blueprint as described in Chapter 6.

Table 1.9 below provides an overview of the process (with the Chapter numbers between brackets) that can be used to carry out a project from start to finish.

TABLE 1.9 Chapters in this book and executing projects

INITIATING A PROJECT	EXECUTING A PROJECT	FINALISING A PROJECT
<ul style="list-style-type: none"> • Theoretical preparation (1, 2, 3) • How to do a project (5) • Conducting interviews (9) • Writing a project plan (6) • Project start-up (3) • First planning (4, 6) 	<ul style="list-style-type: none"> • How to do a project (5) • Execute and monitor (3) • Updating the planning (4) • Meeting (8) • Conducting interviews (9) • Presenting the intermediate results (11) • Writing a letter (website) 	<ul style="list-style-type: none"> • How to do a project (5) • Writing a report (10) • Presenting the end-result (11) • Making an executive summary (12)

Assignments

1

-
- 1.1**
- a** For which of the three groups of activity that have been mentioned in this chapter is it possible to draw up working procedures?
 - b** Give three examples of situations where activities could be carried out in an improvised manner.
 - c** Give three examples of routine work.
 - d** A vacation can be approached in a routine, improvised or project-based manner. Give an example of each.
- 1.2**
- a** Which six phases in a large-scale project are used in this book?
 - b** Describe in your own words the contents of each of these phases.
 - c** Which phases can be combined for a small project?
 - d** Explain why projects are broken down into phases.
 - e** Why should a project not take too long?
- 1.3** Name three projects in your own area of expertise.
- 1.4**
- a** Define a project.
 - b** Which persons participate in a project and what are their roles?
- 1.5** Examine Figure 1.6 and say something about the elements and roles in your own words.
- 1.6** Explain the following statement: 'Improvisation can be turned into routine using a project-based approach.'
- 1.7** What are the different types of projects? explain which type you believe is the most difficult to carry out.
- 1.8**
- a** Why is it advisable to work from the top down?
 - b** What does 'Projects are sometimes difficult to manage' mean?
- 1.9** In which phase of a project do the following belong?
- a** Design report
 - b** Project plan
 - c** Building plans
 - d** Project proposal
 - e** Project result
- 1.10** Suppose someone wants to start a copy shop.
- a** Which phases would you recommend?
 - b** List a number of activities for every phase.

- 1.11** Large 'jobs' are not always carried out as projects.
- List three advantages of a project-based approach.
 - List three disadvantages of a project-based approach.
- 1.12** Describe the following goals using the SMART principle:
- I want to be a journalist.
 - I want to use my time better.
 - I want to be a better student.
 - The cafeteria needs updating.
 - I want to improve my relationship with my sponsor.
 - The communication in my project group must be improved.
- 1.13** What is meant by:
- A discipline
 - Brainstorming;
 - A prototype
 - The implementation of a project
 - Conversion
 - A project plan
- 1.14** This assignment should be done in groups. Each group is assigned to list as many activities associated with the following projects as possible:
- Organising a big party
 - Organising an excursion to Brussels
 - Putting a new product on the market
 - Computerizing the financial administration system
 - Designing a mould
- The various groups working on the same assignment should then compare their results, paying special attention to the differences between them.
- 1.15** Should a final thesis project for an institute for higher professional education be regarded as a project? Comment.
- 1.16** Explain why projects are being carried out more frequently now than in the past.
- 1.17**
- Choose five of the examples given in Section 1.2. Ask your trainer or teacher for assistance if necessary.
 - Give a clear description of the outcomes of each of these projects.
 - Compare your answers to b with those of someone who has chosen the same examples.
- 1.18** Clothing manufacturer X is not doing well.
- List three possible causes.
 - For every cause, come up with a project that could resolve or turn around the problem.
- 1.19** Company Y never works with projects. Explain step by step how the company can implement a project-based approach.

- 1.20** Discuss the following statements in groups:
- a** Working in a project-like way is a trend that is likely to be short-lived.
 - b** Devising a project plan takes up a lot of time and is better left out, especially if it is a small project.
 - c** You cannot terminate a project that has already had 100,000 dollars invested in it.
 - d** Routine work makes you unhappy.
 - e** Working together in a project is a good opportunity to develop your own capabilities.
 - f** Carrying out a project in phases is not always necessary.
- 1.21** Describe in as SMART terms as possible and make your own assumptions.
- a** You have to carry out a survey with your group.
 - b** You have to organise a party.
 - c** You want to be a successful student.
- 1.22** The three Ps from section 1.13 were elaborated by the United Nations (UN) in 2015 in global goals to make the world a better place by 2030. These seventeen goals are laid down in the Sustainable Development Goals (SDGs). Look up these seventeen goals on the internet and consider to what extent each goal is directly applicable to a (or your) project.