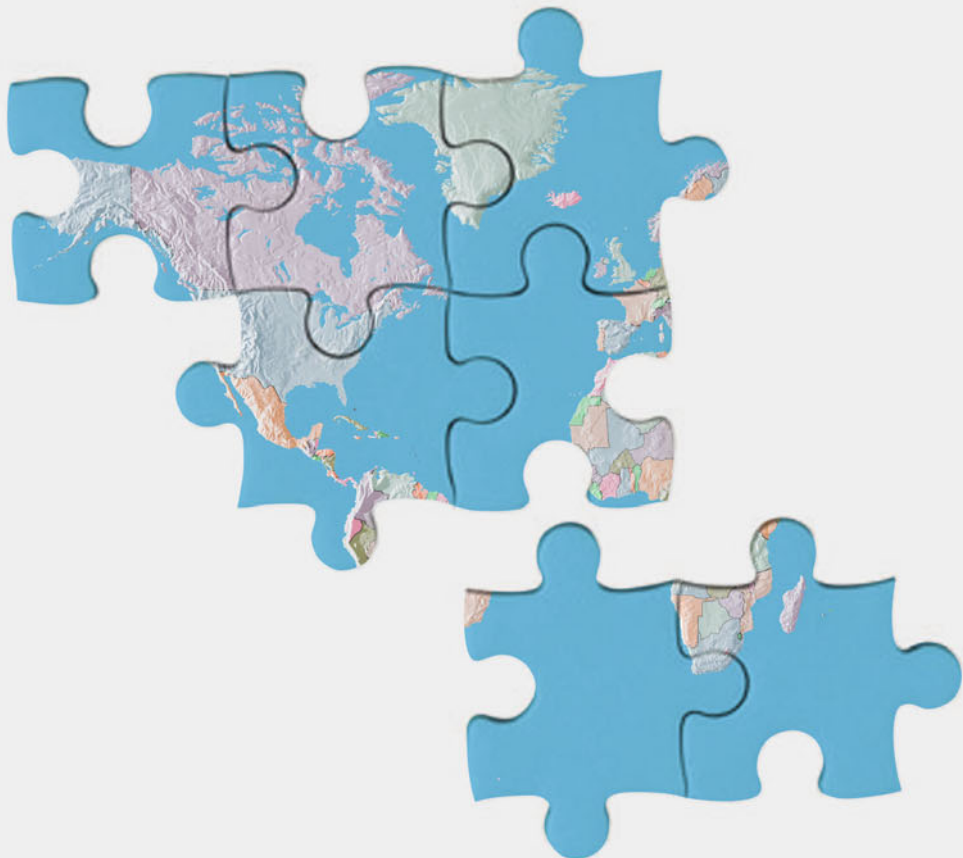


PAUL D. GARDINER

PROJECT MANAGEMENT

A STRATEGIC PLANNING APPROACH



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Companion Website

PROJECT MANAGEMENT

PROJECT Management

A Strategic
Planning Approach

Paul D. Gardiner

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Learning objectives

After reading this chapter you should be able to:

- understand the structure and purpose of the book
- plan and manage your own project management learning
- benefit from the special features in the book
- access the companion website and its resources

Why study project management?

The practice of project management is not an exact science and there are wide variations of method, approach and terminology, reflecting the ‘youthfulness’ of project management as a discipline. This book explores many of these differences and reveals something of the richness and continuing evolution of the subject.

Projects come in all shapes and sizes and involve many participants. At one end of the spectrum there is personal project management, the everyday juggling of meetings, calls and things to be done and managed so that the focus is always on the tasks with the greatest contribution to the desired goal. At the other end of the scale is the megaproject, involving international consortia, joint ventures and vast sums of money. These projects are highly complex and challenging to plan, budget and schedule. Most projects lie between the two extremes.

As organisations grow and adapt to their environment, they undergo change at all levels. The ability to conjoin vision, strategy and strategy implementation, using a robust, flexible and responsive delivery methodology, is essential. On this journey, organisations may need to manage stand-alone projects, those that are subprojects of larger projects and others that have been bundled into a portfolio of managed projects.

So who needs to know about project management? Is it the newly appointed project manager, the project champion, the client representative, the sponsor, the chairperson of a users’ committee, the spokesperson for an environmental action group, the project manager’s manager, the finance director, the team

leader, the consultant or independent advisor, the contractors or subcontractors? In fact, it is all of these. The experience and requirements of project management may be different in every case but the principles remain the same.

This book will help you to:

- select and apply the right balance of project management tools, techniques and theories to projects
- link individual projects to broader business strategy, IT and programme-level issues
- decide which techniques and methods are most relevant to who and under what circumstances.

Who should use this book?

Project Management: A Strategic Planning Approach is written with an international readership in mind – balancing the unique aspects of project management with the softer business strategy and people skills. It presents a comprehensive and integrated account of the theory and practice of managing projects for undergraduates, postgraduates and practitioners.

For the undergraduate degree student, this book will support compulsory or elective courses in project management. It provides a comprehensive approach, with many examples and illustrations, and a greater depth of knowledge than competing undergraduate titles.

For the MSc student studying for a specialist degree in management, engineering, science or medi-

cine, the book offers a practical, well-referenced and transferable approach to managing projects.

For the student studying for an MBA degree, the book provides critical discussion of contemporary issues and several in-depth, longer case studies, giving an integrated view of project management in practice and an opportunity for critical evaluation and analysis.

For executives and managers, there are best-practice examples and templates showing how to apply project management techniques in practice and a companion website providing access to a wide range of additional useful resources.

Key features

The book has many attractive features, including:

- a clear and well-structured style, with learning objectives and end of chapter summary points for clarity and learning efficiency
- learning aids throughout the text to illustrate key points, explain important concepts, provide insights from industry and show project management in action
- multiple choice questions for each chapter on the companion website for self-assessment against learning objectives
- alignment with published project management bodies of knowledge
- well-referenced critical discussions on contemporary topics such as critical chain project management
- a choice of longer case studies for analysis, interpretation and deeper learning
- a skills-oriented approach, with the academic rigour demanded from a study text
- simple tools and models that can be quickly learned and applied in practice.

Companion website

This is an essential complement to the book and is referred to frequently. It can also be browsed independently as a resource in its own right.

Visit the website

<http://www.macmillanihe.com/companion/business/gardiner>

- to access a wide range of supporting resources

Resources on the website include:

- multiple choice questions (MCQs) and answers
- suggestions for supplementary reading
- tools and templates that can be downloaded
- links to websites on key topics
- reference material that did not find space in the book
- selected additional case studies
- a matrix showing how the contents of the book map onto the elements of the Association of Project Management's *Body of Knowledge* (BOK) and the Project Management Institute's *Guide to the Project Management Body of Knowledge* (PMBOK), which can be used to help prepare for professional development and qualifications
- a form for feedback about the book and companion website.

Learning aids



These boxes engage the reader in reflective thinking and provide an invitation to test your understanding of a topic before continuing to the next topic.



Every chapter has a selection of fairly short and lively Insights from Industry stories and examples that demonstrate relevance.

CRITICAL CONSIDERATIONS

These develop critical thinking skills on important and contemporary topics.



These boxes supplement the text in places, helping to explain key terms and concepts.

PROJECT MANAGEMENT

in action

Longer case studies situated at the end of the chapters, with questions to aid understanding and discussion, some of which are quite long and lend themselves to rigorous analytical treatment, for example the cases at the end of Chapters 3, 7 and 8.

How to use this book

Project management is a science that integrates business, management and operational disciplines to deliver organisational benefits through projects and programmes which, in real life, are messy and unpredictable. In this book, the topics have been separated into discrete chapters with an accompanying Project Management in Action case for ease of learning and to help you stay focused on the links between individual topics.

Although the sequence of topics follows a logical structure, each chapter is self-contained and can be studied independently or in whatever sequence is appropriate to your course or individual interests, allowing a flexible approach to learning and teaching. As a guide, the following clusters of chapters and Project Management in Action cases may be studied together usefully.

Introduction to projects

- Chapter 1 Introduction to projects and project management *City technology college*
- Chapter 2 A systems view of project management *PC banking*

Commercial project management

- Chapter 3 Strategy and governance *Scottish Qualifications Authority (SQA)*
- Chapter 4 Investment decision making *'Roadkill' the movie*
- Chapter 6 Organisation and procurement *Virtual teamwork at BP and Maritime helicopter procurement process*

Planning and control systems

- Chapter 8 (part) Project initiation *DataSys knowledge transfer programme*
- Chapter 9 Estimating, scheduling and budgeting *Albion Sugar Company*
- Chapter 10 Control, closure and continuous improvement *The \$26 million 'Oops!'*

Integrated project management and meta skills

- Chapter 5 The project manager, sponsor and other stakeholders *Easy Finance Ltd*
- Chapter 7 Managing risk and quality *Taj Mahal cycle taxi project*
- Chapter 8 (part) Team building *DataSys knowledge transfer programme*

Each chapter has a set of multiple choice questions on the companion website to test your understanding of the learning objectives for that chapter. If you cannot answer these, you should revisit the relevant parts of the chapter. Use the questions at the end of the case studies to guide you through the logic of analysing the issues in the case. To develop your critical thinking skills, each time you analyse one of the case studies, start off by referring to and using the key themes below to help to structure your analysis.

Key themes

- *Systems analysis* – providing a systems-based understanding of the complexity of projects with inputs, outputs, mechanisms and constraints.
- *Project life cycle* – highlighting the unique aspects of the different stages in a project and how to exploit these differences to manage projects successfully.
- *Link to strategy* – providing a link to the relationship between strategy planning, strategy implementation and the realisation of benefits through projects and programmes.
- *Interdisciplinarity* – emphasising the tendency of projects to cross multiple functions and disciplines in an organisation and the consequent need for well-developed communication and integration strategies.
- *Internationalisation* – demonstrating the wide application of project management at a global level.

Resources for lecturers

The resource website for lecturers includes:

- web links to the companion website, for ease of reference
- example learning and teaching strategies
- PowerPoint slides for each chapter, fully customisable
- additional Project Management in Action case studies
- additional case studies not on the companion website
- example examination questions relating to each chapter
- a form for feedback about the book and resource/companion website.

Introduction to projects and project management

Learning objectives

After reading this chapter you should be able to:

- differentiate between a project and a programme
- compare and contrast the role of a project manager with that of a programme manager
- elucidate the characteristics of projects, including the three primary characteristics
- recount the historical development and evolution of project management
- discuss the importance of project management training, qualifications and associations

Introduction

This chapter introduces the concept of a project and the discipline of managing projects. Consideration is given to the wide variation of project size and the breadth of scope and application of project management. The characteristics of projects are compared to those of nonproject activities. A definition and overview of project management precedes a brief look at its key management functions and the difference between the so-called 'hard' and 'soft' aspects of project management. The relationship between project management and programme management is outlined.

The penultimate section gives a potted history of the development of project management; its origins, practice and development as a professional and academic discipline, followed by an introduction to project management associations and other useful resources, some of them web-based. Finally, consideration is given to the development of education and training in project management for those seeking further qualifications.

The Project Management in Action case at the end of the chapter about a city technology college challenges the reader to identify examples of good project management practice.

What is a project?

This may seem like an easy question to answer; most people probably think they can recognise a project when they see one. Actually, there is a fairly broad interpretation of the term. For example, the Project Management Institute defines a project as:

a temporary endeavor undertaken to create a unique product or service. (PMI, 2000: 6)

Another definition is given by the British Standards Institution:

A project is a unique set of coordinated activities, with a definite starting and finishing point, undertaken by an individual or organisation to meet specific objectives within defined schedule, cost and performance parameters. (BS 6079-1, 2000: 2)

Then again:

a project is a task with a beginning, a middle and an end, which you as a manager need to complete. (MacLachlan, 1996: 2)

And so the list goes on. One of the difficulties of defining a project arises from the enormous variation in size that is possible, ranging from the very small,

say, writing a letter, consisting of only a few tasks and basic materials, to the gigantic, such as creating the Anglo–French Channel Tunnel, involving thousands of tasks, hundreds of people and complex plant and machinery.

Whatever the size of a project, the same principles of project management apply. Of course the level of effort required to project manage writing a letter will be vastly different from that required to build the Channel Tunnel. The concept of scale is one of the challenges faced by anyone studying project management. Small personal projects can be managed by an individual with simple common-sense planning, while larger projects may require many contributors, sophisticated tools, techniques and management practices.

By considering how a project is defined, it is possible to discern the features and characteristics that are true for most projects. But be warned, the difference between projects and other activities is not always crystal clear.



Recognising projects

Use the definitions above to help you decide which of the following are projects:

- Building a bridge
- Designing an information system
- Planning an election campaign
- Swimming
- Making a television programme
- Solving a problem
- Doing a crossword puzzle
- Working in an office
- Writing an essay
- Getting a job

See shaded box for a suggested answer.

They are all projects except 'swimming' and 'working in an office' which are too general and nonspecific to be called projects. However, by simply replacing the term 'swimming' with the phrase 'win a swimming race' or 'learn how to swim', this too can become a project. Similarly, within an office environment, there may be several projects that need doing, for example create a new brochure or update a catalogue.



Characteristics of projects

There are three primary characteristics of projects that set them apart from other activities. Projects are temporary, unique, and require progressive elaboration. Like desert flowers that burst magnificently into bloom when the rain falls and then disappear, projects also have a season. The first primary characteristic of projects is that each one is a temporary endeavour that exists for a limited period only; although temporary does not imply of short duration and a project's end products may endure indefinitely. For example, the historic monument Stonehenge, in Wiltshire, England, has been around in its current form for over 1500 years. Getting from the beginning to the end of a project can vary from only a few days to a few years, depending on its size and complexity. In ancient civilisations, large building projects would often take longer than a decade to complete; it is estimated that Stonehenge was in various stages of construction for 3500 years before it was finally completed around 1500 BC (Britannia, 2002).

The duration of a project partly depends on how the beginning and end points are determined. For example, a manufacturer of mobile phones may wish to include design, development, operation and future

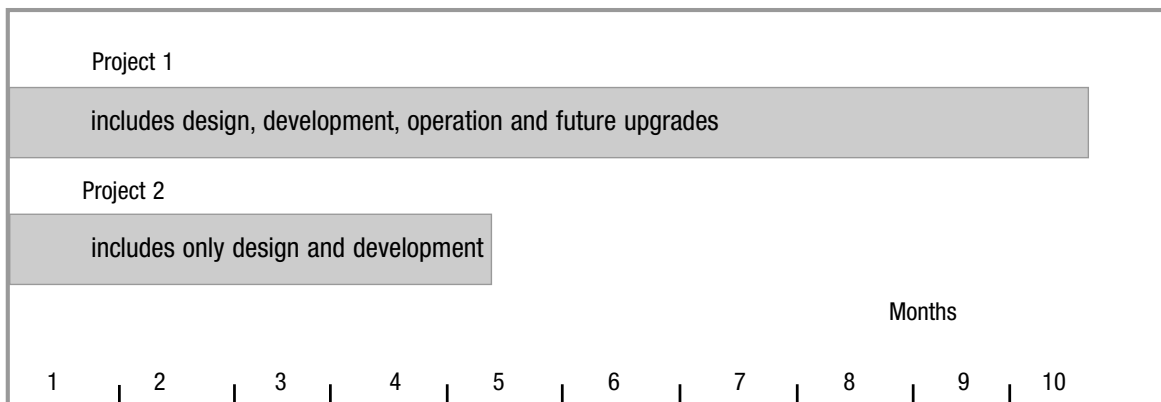


Figure 1.1 Project duration varies according to how a project is defined

upgrades in a project, resulting in a duration significantly greater than a project which included only design and development (see Figure 1.1).

Ideally, every project should have a clearly defined beginning and end, although in reality these boundaries can become rather fuzzy. In practice, the end is

reached when the project's objectives have been achieved and validated, or when it becomes clear that the project's objectives will not or cannot be met, and the project is terminated. Some of the difficulties of identifying and reaching the end of a project can be seen in the two Insights from Industry boxes below.

insights from INDUSTRY

THE ABSENT-MINDED PROFESSOR

Twelve years ago a language professor approached our development support office, seeking support for the development of a simple application to assist students learning new sounds. His idea appeared to have some potential, so a small amount of support was provided to help him develop some prototype lesson modules.

The prototypes were used with students and did accomplish what the professor had intended. Two years later he submitted a proposal for financial support for the acquisition of new hardware and the development of newer and more elaborate lesson modules. The professor was regarded by several committee members reviewing the proposals as what we would now call an 'early adopter' and although his ideas were now much more grandiose, they still appeared to have potential. The committee members approved financial support for the acquisition of some of the new hardware and the development of new modules. The new equipment was acquired and the new modules were developed.

Two years later the professor submitted another proposal seeking support for newer, more elaborate equipment and substantial help with enhancements to existing lesson modules. Limited funding was again provided. This cycle has gone on and on and on. Over

the years this professor has returned to the office six times, seeking and receiving financial support and consultation.

The process of development and consultation with the professor has not been easy. He has many characteristics of the absent-minded professor. When he decides, for example, that he wants to change something in his programme, he makes the change, forgets what he has done, and has to seek help to correct the digital chaos he has created. He also frequently forgets what has been determined to be the solution to the problem he has created and will return again and again with a look of hopeful expectation seeking assistance with the same problem. This has been his pattern for several years.

Two weeks ago, once again the door opened and in came the professor. All he wants this time is \$4,000 more, and he'll be able to finish the project ... or so he says.

Source: Frank Gillespie, College of Saint Benedict and Saint John's University

Questions

1. Will this project ever end?
2. Does the story describe a project or a programme?
3. What lessons will the professor learn?
4. What role did the support unit play?

insights from INDUSTRY

A MULTIMEDIA PROJECT FOR NURSING STUDENTS

Prior to 1992 I was neither computer-literate nor dependent – I am now both. Ryerson School of Nursing has not historically used computers as teaching tools. My interest in developing new teaching methodologies, and in how and with what effect the new technology could be used, led me to an opportunity in 1995 to develop multimedia courseware as part of a pilot project.

The construction of multimedia is dependent on a diversity of talents working on different parts of the

project. This project has involved professional experts and students in software programming, filming, nursing, communications, software design and graphics. While continuing to learn about the construction of software, my primary role is one of content developer and director. The director is limited, however, by a lack of experience in this medium, and the vision of the finished programme has undergone several permutations as new ideas have been integrated along the way. Unlike other projects that have clear timelines, expectations and outcomes, the development of multimedia is dependent on others' expertise and time and the hardware resources being available (and

working!). There is uncertainty about the timing of the deliverable and the 'how' of the delivery.

The project includes an evaluation of the multimedia courseware from both students and faculty on the value of the programme, the ease of use and suggestions for additions/changes. Since the programme has been developed over several months there is an ongoing need to update materials and information. Unlike making a quick change in a lecture note, overhead or handout, revisions in a multimedia programme require changes throughout the 'multi-media', that is, more time in the sound studio to redo audio portions as well as deletion and additions of new material in the text.

In the meantime, I still don't know what the final product will look like – the programme is in a constant state of change. There is always the fear when dealing with technology of whether it will work or not. 'Glitch'

has become a standard in my vocabulary. Will it live up to my and others' expectations? Will we have working workstations and how many? Where will they be located? Will they be accessible? Will this programme bore the students to death? Will this project ever be finished! I have decided that a sense of humour is key to the development of a multimedia project.

Source: Judy Britnell, Ryerson University

Questions

1. Does the story describe a project or a programme?
2. In what way do you think Judy's experience is typical for project managers?
3. What are the key challenges in this project?
4. How you would try to manage them?
5. What can be done to reduce uncertainty?

The finite and transitory nature of projects often appeals to individuals and businesses, encouraging them to adopt a project mindset. Once a specific need has been identified, creating and managing a project to completion can fulfil it. In a cost-conscious society, projects are seen as a means of increasing control over scarce resources. Many companies are adopting a 'management by projects' approach (discussed in Chapter 3) to conducting business as a way of shortening product development times, lowering costs, and increasing quality, reliability and profit margins (Meredith and Mantel, 1995: 9).

The second primary characteristic of projects concerns their uniqueness; one way or another projects are all different. For example, there are hundreds of McDonald's hamburger restaurants worldwide and although a hamburger purchased in Moscow may taste the same as one purchased in Manhattan, reflecting the standardised and repetitive processes used to make them, it does not change the fundamental uniqueness of each restaurant – whether it is different size, different design, different location or different features. Each new restaurant has the familiar McDonald's brand feel about it but remains a project in its own right, needing to be planned, executed and controlled; they do not simply roll off the assembly line the way electrical goods do in a factory.

The third primary characteristic is that projects take shape through a process called 'progressive elaboration' in which the work required is gradually defined, with increasing detail being added over time. The process of elaboration is more noticeable and

pronounced for larger and more complex projects. For example, in a project to build a new housing development, the number and size of the houses to be built will be determined at an early stage. The exact style of each house may be determined a little later. The layout and orientation of rooms may be fixed later still and the precise details of fixtures and fittings to be included may be decided after construction work has started, perhaps in consultation with potential buyers. Finally, decisions about the internal colour scheme and external landscaping of each house may be left until most of the building work is completed and a buyer has been found.

In addition to the three primary characteristics of projects, there are several other traits that projects often exhibit. For example, projects tend to:

- carry risk and uncertainty
- be organisationally complex, requiring the interaction of many people, departments and other organisations
- be managed against time, budget and human resource plans
- suffer conflict due to competition for resources required by other projects and nonproject work
- have single point responsibility provided by the project manager
- require teamwork and the ability of participants to use effective leadership skills.

Even the objectives of projects are fundamentally different from those of other activities (PMI, 2000: 5);

for example, whereas a project seeks to complete a well-defined set of objectives and then formally close, an ongoing activity seeks to continue by developing new objectives on a regular basis. For example, in the office environment mentioned earlier, individual projects come and go while general office activities continue indefinitely.

Project management explored

At its simplest level, project management can be defined as the discipline of managing projects successfully. (APM, 2000: 14). This is a reasonable starting point but we need to know more. What is involved? How are the different parts related to each other? Who is involved in the process? What are their roles? What is meant by the terms 'hard' and 'soft' project management skills? Why is a project life cycle important and how does viewing a project as a system help us? These questions will be answered in due course but first take a look at how the British Standards Institution defines project management:

Project management is the planning, monitoring and control of all aspects of a project and the motivation of all those involved in it to achieve the project objectives on time and to the specified cost, quality and performance. (BS 6079-1, 2000: 5)

This definition contains new information explaining the two key words from the earlier one which were 'managing', that is, to plan, monitor, control and motivate, and 'successfully', that is, achieving the project's objectives on time, to cost, quality and performance. Actually, the concept of project success is a well-debated subject and one we shall be returning to in Chapter 10.

Some organisations prefer to use their own definition of project management. For example, this one is taken from the *US Fish & Wildlife Service Manual* (1994: 1) for automated information projects:

[Project management is] The management process that establishes the standards, techniques, and tools used to ensure that requirements are well defined and reflect end-user performance needs; that the project satisfies the defined requirements; that the products are thoroughly tested; that development costs are properly managed; and that the criteria for implementation, training, modification, and documentation are well defined and appropriate.

Notice that none of the definitions say anything

about doing or managing the 'work' on a project. This is an important point. Project management is about managing a process and the people who participate in it. The project manager may or may not also be involved in doing the work to create the project's end products, whether goods or services. Project managers essentially manage people, resources and the delivery of products, not the work itself. The work of a project is done, and is managed, en passant by the participants (Turner, 2000a). The management task in project managing a project concerns four activities in particular:

- Planning
- Organising
- Controlling
- Leading and motivating.

Each activity is described briefly below, while the Project Management in Action case at the end of the chapter gives examples of them from a real project. Later chapters will examine each topic in detail.

Planning

Every project needs a plan explaining how it is going to proceed. The participants need to know the goal, the steps to achieve it, the order those steps take and when those steps must be complete. A major cause of poor project management arises from failures at the planning stage leading to a series of subsequent alterations and clarifications that increases cost and creates delays (BS 6079-1, 2000: 5).

At the start of a project, it is important to ask the right questions:

- What needs to be achieved and why?
- When should it be done by?
- How will it be done?
- What will be the order of cost?

Different people provide different parts of the answers:

- The people who pay (project sponsors)
- The people who benefit (end users)
- The technical experts (knowledge workers).

The answers to these questions can be used as the basis for a feasibility report, which gives an outline of the project and its formal justification, that is, the business case for the project. The project manager works out what needs to be done, and how to do it

within the constraints of time and cost. Everyone who is involved has got to agree on what the project is trying to achieve and be committed to it.

Any project has to satisfy three feasibility criteria:

- The *technical* criterion – is it going to work?
- The *business* criterion – are the cost and timescale right for the business as a whole? Is the return big enough to justify the risk?
- The *functional* criterion – will the result satisfy the end users?

Approval to go ahead with the project should not be given unless it satisfies these three criteria. Once it has been decided that the project is feasible, the rest of the planning activities can be carried out.

There are many planning documents in project management, including:

- the *activity plan*, showing the timescale of the project activities in each phase, with their resulting end products (deliverables)
- the *resource plan*, showing what skills are required, and thus who will be involved in the project
- the *budget plan*, detailing all the costs for the required resources.

A small project may only need a few planning documents, but more complex projects will require many different plans at various levels of detail. It is generally best to start by producing overall plans for the entire project, to provide the ‘big picture’, and then fill in the detail through a process of progressive elaboration, with the most detailed plans often progressing on a rolling-wave basis, that is, one or two time periods ahead of project execution.

Organising

Simply stated but not simple to achieve, organising is about arranging the people, material and support resources in a project to meet the project’s communication, integration and decision-making needs to achieve on-time project delivery. Organising includes identifying the project tools, methods and templates to use, the reporting relationships and even the types and frequency of meetings. Increasingly, projects cut across departmental boundaries and the appropriate organisation will often be a temporary arrangement, consisting of a project manager supported by a team of staff drawn from

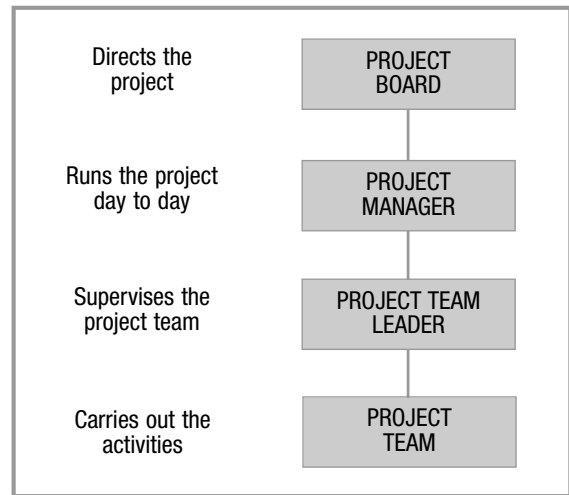


Figure 1.2 Simple project organisation structure

various quarters with the appropriate skills for the needs of the project (BS 6079-1, 2000: 5).

At the start of a project, an organisation structure should be set up which defines for everyone:

- what their role is
- their responsibilities
- who to report to.

The right structure is important to ensure that everyone:

- is committed to the project
- knows what is happening
- communicates effectively
- has common objectives.

A simple project organisation structure is illustrated in Figure 1.2. The responsibilities of the project board are to direct the project and make sure that everything is proceeding according to the plan. It is the project manager’s responsibility to run the project on a day-to-day basis and ensure that the objectives and milestones are met on time and within budget.

Controlling

Controlling means making sure that the project is managed as specified in the planning documents and that attempts at organising become a reality. In this way planning and organising are used to transform resources (inputs) into tangible deliverables (outputs), not just something jotted down on a piece of paper and forgotten.

The project manager should meet with the project team regularly, to review progress and sort out minor problems. If each activity is planned carefully, progress can be monitored and control maintained more effectively. Any problems will be easier to correct if they are detected early.

There should be an assessment by the project board at the end of each project phase (and also mid-phase if the phase is long or there are significant problems). A decision is made about whether or not to authorise the next phase of the project by confirming that all the end products of the current phase have been completed and formally signed off. This ensures that everyone is consulted and is clear about what is happening. These assessments, or 'stage gates' as they are commonly called, are also used to re-examine the project against the three criteria used during feasibility (technical, business and functional) by asking the questions:

- Are we still going about the project in the right way? Are we within schedule?
- Is the project still cost-effective? Are we within budget?
- Are we still going to get what we want? Is the scope still the same?

If one or more of these criteria is not satisfied, the board can consider three options:

1. Continue with the project.
2. Stop the project.
3. Delay the project and rethink it.

Leading and motivating

Without leadership, the other activities (planning, organising and controlling) would not be possible. Leadership guru Warren Bennis (1985: 21) said: 'Anybody can do things right, but it takes leadership to get people motivated to do the right things.' Management needs to consider the motivation of staff, especially if project work means they are taken out of their normal departmental roles. Tangible rewards related to the achievement of the project may involve money, but other rewards might include the kudos of being selected to work on a project or promotion to wider responsibilities. Where staff are deployed to a project on a full-time basis, there should always be an understanding that, as a minimum, a return to previous duties is safe (BS 6079-1, 2000: 5).

Leadership and team-building skills are critical to successful project management and hinge on having a sound knowledge and understanding of the human factors in a project. Project leadership involves shaping goals, obtaining resources, building roles and structures, establishing good communications, seeing the whole picture and moving things forward to a successful conclusion. Project managers need to be able to use the skills of communication, negotiation, team building, political influence and creating ownership, in addition to those of rational problem solving and participative management, and to move between them as the need arises. These activities do not describe a careful and methodical analyst, working out to perfection the best solution for a project. They are more akin to the activities of the entrepreneur, determined to get things done within an often hostile, indifferent or highly political setting. The people in a project often have their own interests to pursue. These skills are quite different from those that figured in the original training of most project managers, which is often of a technical nature.

Project managers need to get things done in situations where their authority is, at best, ambiguous in relation to people in different units, reporting to different line managers. In reality, many project managers have very little formal authority, and what authority is delegated to them needs to be quite clear and communicated throughout the organisation. Without this authority the project manager may be thwarted by departmental intransigence (BS 6079-1, 2000: 5).

Project management covers a wide spectrum of activities and overlaps with general management principles and other application areas (PMI, 2000: 9). It is an integrated discipline.

Hard and soft skills

When people talk about 'hard' or 'soft' project management skills, they are referring to the nature of the skills concerned. The term 'hard skills' generally refers to the mechanical and technical skills of planning, estimating, scheduling and controlling a project. Project management training courses often focus almost exclusively on teaching these hard skills, which reflects the historical development of project management as a discipline – see later in this chapter. Soft skills, on the other hand, are people skills, such as interpersonal communication, commitment to success, negotiation, consensus problem

solving, leadership and motivation. These skills deal with human factor issues and, until recently, have been less well discussed in project management literature. The Project Management in Action case at the end of the chapter illustrates many of these skills.

Ironically, it is the so-called 'soft' skills that are much harder to learn and use effectively. Our ability to learn and use hard skills, for example drawing Gantt charts and networks, is partly linked to our IQ, which is established relatively early in life. Soft skills, on the other hand, are more related to our EQ (emotional quotient) or emotional intelligence, which can continue to develop as we mature or through training. The Key Concepts below explains briefly the concept of emotional intelligence.

key CONCEPTS Emotional intelligence

Studies on emotional intelligence indicate that people who are intellectually the brightest are often *not* the most successful, whether in business or in their personal lives (Salovey and Mayer, 1990; Goleman, 1995). Over the past few years, EQ has become widely accepted as a short-hand expression for the emotional intelligence equivalent of IQ.

At the individual level, Salovey and Mayer (1990) define emotional intelligence as 'the subset of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions'. An emotionally intelligent individual is able to recognise and use his or her own and others' emotional states to solve problems and regulate behaviour.

Emotions have long been considered to be of such depth and power that, in Latin for example, they were described as *moutus anima*, meaning literally 'the spirit that moves us'. Contrary to most conventional thinking, emotions are inherently neither positive nor negative; rather they provide useful information all the time that can help spark creativity, keep one honest with oneself and help develop *trusting* relationships (Cooper and Sawaf, 1997).

It is not enough, of course, just to have feelings. Emotional intelligence requires that we learn to acknowledge and value feelings in ourselves and others and appropriately respond to them in our daily life and work. Emerging research suggests that a leader with a high EQ is someone who picks up more deftly, and more quickly than others, developing conflicts that need resolution, and team and organisational vulnerabilities that need addressing (Cooper and Sawaf, 1997).

Over the past decade, management initiatives have helped increase competitiveness in the West, but often with significant hidden costs, including crumbling trust, increasing uncertainty, greater distance between managers

and those they manage, stifled creativity, festering cynicism, increasingly volatile anger, and vanishing loyalty and commitment. Now, emotional intelligence is beginning to make a contribution to the understanding of successful leaders with respect to:

- decision making
- open, honest communication
- building trusting relationships
- teamwork
- customer loyalty
- creativity and innovation.

Sources: Cooper, R. and Sawaf, A. (1997), *Executive EQ*, Putnam, New York; Goleman, D. (1995), *Emotional Intelligence*, Bantam Books, New York; Salovey, P. and Mayer, J.D. (1990), 'Emotional intelligence', *Imagination, Cognition and Personality*, 9(3): 185–211

The following example illustrates the importance of soft skills:

I remember recently sitting with the senior vice-president of human resources in a large organisation. Three months ago she had hired what seemed to be the most qualified applicant for a particular project management role. Yesterday, she was terminating this same person's employment contract. Two other candidates in the past two years had suffered the same fate. She asked, 'Why is it that we keep hiring these bright, technically-driven people, who, on their résumés, have all the right stuff, and then shortly after, we have to let them go?' As I queried her reasoning she replied, 'They're lacking some of the key fundamentals like respect, courtesy, treating others with dignity, willingness to return email and phone calls, and, above all, they often have a disturbing sense of arrogance.' (Rock, 2004: 1)

In this situation, the 'hard skills' were in place but the 'soft skills' were underdeveloped. In modern project management there is an increasing awareness of the criticality of the people factor to project success (see for example Graham and Englund, 1997). The criteria and determinants of project success and failure are discussed in Chapter 10; the main issue here is to raise awareness that both hard and soft skills are necessary – hard skills set the goals and procedures while soft skills make sure that people can meet those objectives.

Project management, then, is the managerial task of accomplishing a project on time, within budget and to agreed technical and quality standards in order to meet or exceed stakeholder needs and expectations by using an appropriate mix of hard and soft management skills.

Where do projects come from?

For most projects, their origin is linked to the identification of a need (for example ‘a project responding to new government safety legislation’), a problem (for example ‘a project to install a new machine to remove a bottleneck’) or an opportunity within the organisation (for example projects originating from the creative ideas of individual employees or

improvement teams). In the case of project-driven organisations, projects originate from customer requests, orders for work or invitations to tender (discussed in Chapter 6). The Insights from Industry box shows six different sources of IT projects at a major UK bank.

In general, projects are usually authorised as a result of one or more of the following reasons (PMI, 2000):

insights from INDUSTRY

SOURCES OF IT PROJECTS AT A MAJOR UK BANK

1. **The mainstream project.** This project has (i) identifiable and quantifiable benefits, (ii) clearly defined start-up and running costs, (iii) a return on investment model (RoI) which shows that the project will exceed the company's hurdle for investment, (iv) project management processes in place that are known to work and which include adequate financial controls and reporting, and (v) a process for delivering the claimed benefits, measuring them and reporting on progress.
2. **The infrastructure project.** This project (i) benefits the company through the implementation of mainstream projects and/or growth in the utilisation of the service(s) provided, (ii) has an RoI model that shows that the savings made or value delivered to other projects jumps the hurdle mentioned above, (iii) has a process for delivering the claimed benefits, measuring them and reporting on progress.
3. **The regulatory project.** If you don't do this project, your industry's regulators and/or the courts force you out of business or your auditors get you fired.
4. **The speculative project.** This project occurs when (i) you have an idea that you believe is worthwhile, (ii) you can estimate what you need to spend to progress the idea, (iii) you can see how the benefit will be delivered but cannot provide adequate figures of the value for the creation of an RoI model.
5. **The incremental project.** This project includes all those projects whose total expenditure is below an agreed, small figure and which are generally changing or extending the function of systems already in use.
6. **The repair project.** It broke; you fix it.

Source: Personal communication with Stewart Stevenson, former IT manager at Bank of Scotland (now HBOS)

- *A market demand* (for example a supermarket chain opens a new store due to popular demand)
- *A business need* (for example a university authorises a project to develop a distance learning course to increase its revenues)
- *A customer request* (for example an electric utility authorises a project to build a substation to serve a new industrial park)
- *A technological advance* (for example a new computer chip spawns a project to produce the next generation of computers)
- *A legal requirement* (for example a paint manufacturer authorises a project to establish guidelines for the handling of hazardous materials as required by recent government legislation)
- *A crisis* (for example a market downturn forces a company to restructure itself)
- *A social need* (for example a nongovernmental organisation (NGO) in a developing country authorises a project to provide potable water systems, latrines and sanitation education to low-income communities suffering from high rates of cholera).

The next Insights from Industry box describes how a project for a charitable organisation was set in motion in response to an overload of paperwork.

Marketing, in its role of securing new business, is also a significant source of new projects (APM, 2000: 39). The relationship between marketing and other disciplines in new product development is well documented (see for example Hooks and Farry, 2000). Misunderstandings between marketing and other parts of an organisation can often result in poorly specified requirements and unrealistic expectations by the customer. These problems are often not discovered until quite late in the project life cycle, when it is particularly expensive to correct them.

It is also possible for a project idea to originate outside the organisation, for example from the results of a study carried out by a consulting firm. Other

insights
 from INDUSTRY

**JUNIOR ACHIEVEMENT
 FACES GROWING
 PAPERWORK MOUNTAIN**

Junior Achievement (JA) is a nonprofit economic education organisation that inspires young people to value free enterprise, business and economics to improve the quality of their lives.

The need, problem or opportunity

Before students can start learning, a lot of paperwork needs to be processed at the JA offices of the upper midwest, USA. Volunteers must telephone JA to submit their areas of expertise and review potential classes. New volunteers need to sign up for training prior to teaching their first class and with thousands of people involved, administration becomes an issue. Nichole Zack, information systems manager at JA (upper midwest) comments: 'We needed to find an alternative to telephone registrations or we would have to double our staff.' The amount of paperwork that needs to be processed is pulling staff time away from the volunteer recruiting process. When the national Junior Achievement office announced increased performance targets for servicing students,

Nichole knew they needed a plan to manage the workload and time was a key concern.

The project

In analysing the issues, the board of directors suggested a solution based on an interactive web-based approach, where volunteers rather than JA staff could enter much of the data needed. They envisioned a system that would eventually interconnect volunteers, participating schools and JA's back-end information systems. With this vision in mind, Nichole approached a JA volunteer company to help and a project was set in motion with four phases, the first phase being delivered in only 90 days.

Source: Shared Resource Management Inc., featured case studies, Junior Achievement of the upper midwest, 'Online registration system allows volunteers to register for classes on the web', http://www.srminc.com/case_studies/casestudies.htm

Questions

1. How would you classify the origin of this project – for example 'need', 'problem' or 'opportunity'?
2. What is the difference between these terms?
3. Why is it important to understand the origin of a project?

projects are born through the provision of grants and financial aid. Research councils and funding bodies have annual budgets to attract a selection of research project proposals. In countries that operate a national lottery, a proportion of the revenues generated are typically channelled into community and art projects. For example, awards for lottery-funded projects in the London arts region number 260 and are worth £230 million. Table 1.1 highlights a sample of them; notice the wide variation in project size – the amount of project management applied to these projects will vary considerably.

In many organisations the annual review of the business plan results in a list of projects aimed at implementing the organisation's strategy. To maintain a healthy flow of project ideas it is crucial that senior management keep staff informed of the strategic needs of the business and how these needs and business priorities may be changing over time.

Whatever its origin, a project should be more than just a good idea. It should always be possible to show how a project supports the strategic goals of the sponsor's organisation. This rule even applies to the so-called 'loss leader' project. These projects are

Table 1.1 Sample of lottery-funded projects for the London arts region

Organisation	Project	Award
African Caribbean Centre	Feasibility study	£90,000
Association for Jewish Youth	Purchase of a mini van	£16,000
British Film Institute	'IMAX' Cinema	£5,000,000
Chingford Parish Church Music	Improvement to electrical system of church organ	£54,000
Royal Albert Hall	Redevelopment of Albert Hall	£20,200,000

undertaken because of perceived future opportunities for business, or because they are expected to lead to other more profitable projects with some sort of competitive edge as a result of the first one. The value of the first project lies in the competitive advantage created or the increased market share generated (Hartman, 2000).

Programme management

By now you are probably realising that project management is not an exact science and that there are discrepancies of definition, method and approach. These differences demonstrate the ‘youthfulness’ of project management as a discipline and, as we shall see, they also apply to the term ‘programme management’.

Turner (1992: 345) defines a programme as a group of projects managed in a coordinated way to obtain benefits not available from managing them individually.

Some people differentiate between programme management and portfolio management, claiming that the latter concerns unrelated projects (BS 6079-2, 2000: 10). The UK Office of Government Commerce (OGC) definition, however, combines both terms:

Programme management is the coordinated management of a portfolio of projects that change organisations to achieve benefits that are of strategic importance. (Office of Government Commerce, 1999: 110)

This definition introduces the link between managing a programme and achieving benefits that are of strategic importance for the firm. Programme management provides a framework for implementing business strategies and initiatives and for managing multiple projects. The BT *Project Management Handbook* (1994, Chapter 2, page 3) reaffirms this in its definition:

A programme is a group of related projects which together achieve a common purpose in support of the strategic aims of the business.

Reiss (1996) identifies four different types of programme:

- the multiproject (multiclient) programme, where an organisation, for example a software house, contracts for work to many organisations
- the multiproject (single client) programme, in which an organisation has many projects for the same customer
- the megaproject programme, involving numerous highly interdependent projects aimed at delivering a superordinate goal, for example landing a man on the moon
- the programme management (or management by projects) organisation, consisting of a portfolio of

projects, carefully prioritised and selected to implement the organisation’s strategic plan.

Differences between programme and project management

Some people and organisations use the terms ‘project management’ and ‘programme management’ synonymously. I remember once arranging a guest speaker to present his experiences of programme management. He gave an excellent presentation about project management!

With such a diversity of meaning, it is perhaps not surprising that the Project Management Institute advise: ‘any discussion of *programme* management versus *project* management be preceded by an agreement on a clear and consistent definition of each term’ (PMI, 2000: 10). It is this lack of a standardised terminology in project management that has prompted many authors to write a glossary of terms. See, for example, BS 6079-2, 2000; ISO 15188, 2001 or the online Wideman glossary at <http://www.pmforum.org/library/glossary/index.htm>.

Programme management and project management are both about achieving change in a controlled manner. The difference lies in the level at which the change is controlled.

The manager of a project has a set of deliverables, which he or she is tasked to deliver, regardless of any other undertaking within the organisation. However, these deliverables form only part of an overall programme. A project has a definite beginning and end (although these are not always easy to pinpoint); a programme is an ongoing concern with new projects joining and existing ones finishing. A programme may be of fixed duration or may continue for an indefinite period of time.

As a grouping of projects, the programme bridges the gap between an inward-looking project management culture and a wider organisational context (Gray and Bamford, 1999). Programme management is particularly concerned with managing the dependencies between projects. These might be strategic, technological, resource or budget dependencies.

When conflicts between projects arise, it is the programme manager, or possibly the business manager or managing director, depending on the size of the organisation, who must prioritise to ensure that the trade-offs between projects give the best overall results for the organisation. For this to be done effectively, it helps if the individual projects are presented in a consistent format, allowing like for like comparison. The use of an organisation-wide project

insights
 from INDUSTRY

APPLIED IT
Programme management services and benefits

Our programme management services provide senior management with a strategic overview of all interdependent projects in progress within the company. To ensure that the structures for managing these projects are in place and they continue to support the objectives of the business. To provide a comprehensive management service including:

- programme definition
- programme management
- programme closure.

Programme management benefits can include some or all of the following:

- Provides a mechanism for prioritising projects to best achieve business objectives.
- Ensures that projects continue to meet business objectives and strategies.
- Allows better management of inter-project dependencies.
- Contributes to the optimisation of resources across projects.
- Provides visibility of delays or overspends early enough to allow correction.
- Reduces administration time of project managers by using structured templates and/or the services of a project office.

Source: Programme Management Services,
 Applied IT Limited,
<http://www.appliedit.co.uk/services/servicesprogrman.htm>

management methodology can help achieve this. The Insights from Industry box shows the programme management services and benefits advertised by a firm of consultants called Applied IT.

Programme management is discussed at greater length in Chapter 3.

History of project management

Champions of project management often laud the profession by recounting the visible accomplishments of mankind throughout history: the Egyptian pyramids, the Roman viaducts, the Great Wall of China, to name a few. Yet, while their artefacts may remain, for projects beyond even a couple of

centuries ago there is scant information on how they were managed, let alone how *well* they were managed. Given what we know about the history of civilisation, it is plausible to assume that thousands of captives and conscripts were used to populate the teams supporting these projects. They were often the handiwork of vast armies of tradesmen. We are told in the Bible, for instance, that 24,000 workers – stonemasons, woodcarvers and the like – were dispatched to build the original temple of the Israelites, while another 6000 served as ‘officers and judges’ (I Chronicles 23:4). To that extent, what we think of as project management today would have little in common with the methods used to manage projects in antiquity.

The history and evolution of modern project management is closely related to several major influences, each of which has helped to shape and form the discipline we now call project management. The five major influences are:

1. development of management thought
2. creation of special tools and techniques
3. development of information and communication technologies
4. socioeconomic and political influences
5. expanding scope of project management.

Development of management thought

Early management thinkers and philosophers, such as Thomas Owen, Frederick Taylor, Henry Gantt and Henri Fayol, have shaped the way we do business. The theories and approaches they proposed have continued to evolve to this day and have been a major influence on our understanding of project management. Since the nineteenth century, management thinking has moved through the cold, calculated efficiencies of scientific management, in which the system and its mechanistic needs were optimised at the expense of the human needs of its workers, to modern contingency theories of leadership, emphasising the individual needs of the worker in a changing environment.

Creation of special tools and techniques

The rise of project management as a distinct discipline is usually associated with the activities of the US navy in the late 1950s and 60s. This was the era of operations research and the development of new tools and techniques, including programme evaluation and review technique (PERT) and critical path

method (CPM). Even today, project management journals are peppered with articles about how to schedule project activities and resources to reduce uncertainty and increase productivity, reliability and quality (Themistocleous and Wearne, 2000).

Development of information and communication technologies

With the start of the IT revolution in the late 1960s and 70s, project management found a new impetus. The computer offered operational researchers massive new possibilities to improve project management by computational power. Over the next 20 years, tools and techniques moved from mainframes, to minicomputers, microcomputers and finally to PCs. Information technology has brought a wide range of operational tools and techniques within reach of anyone involved in any size of project, where previously skilled draughtsmen had to be employed to draw and plan project networks.

More recently, project tools have started to migrate away from the PC and onto the internet, reflecting the current globalisation and convergence of business, information and communication technologies (ICT). Today, technology enables diverse and geographically separated teams to work together on large and complex projects. Whilst there is little doubt that these huge strides in IT have contributed to the maturity of project management as a discipline, improvements in project management performance have not been able to maintain the same pace. There is a growing realisation that project management performance is more closely related to the softer skills of people management than the hard skills of operational research.

Socioeconomic and political influences

Project management has also been driven by political and socioeconomic forces. The development of the Manhattan project (the first atomic bomb) was a megaproject that required new techniques. Putting a man on the moon, creating new weapons and defence systems are huge projects that demand special techniques. Responding to natural and man-made disasters, such as the floods in Honduras, 1999, the release of toxic gas by Union Carbide at Bhopal, 1984 and the *Challenger* space shuttle explosion, 1986, have all put pressure on organisations and governments to deal with uncertainty in projects better and faster.

Expanding scope of project management

A fifth influence has been the changing scope of project management as a discipline itself. Early work by the US navy focused on probability and event management; cost control was less important. However, the construction industry was interested in cost and time trade-offs and the effective management of resources. The World Bank brought in life cycle costing in 1968, expanding the scope of project management to include operations, maintenance, decommissioning and disposal. Small differences in design were seen to be linked to significant financial implications over the life of a product. In more recent times, the scope of project management has also increased at the front end. Whereas, in the past, managers decided what products and projects to do and then handed the process over to others (for example project managers) to get on with it, today, the link between strategy and project management is increasingly seen as a part of the project management process. The cost-benefit analysis, prioritisation and selection of projects in line with the strategic goals and objectives of a business are now firmly on the project management agenda.

Visit the website

<http://www.macmillanihe.com/companion/business/gardiner>

- to view the supplementary section: 'Project Management – An Historical Perspective' for a fuller discussion of the role of management thought and the development of modern project management, together with a timeline of significant events

The future of project management

A discipline for professionals or an avowal of faith?

As a discipline and a profession, project management has matured over the past 50 years and is now represented by several associations and institutes. Thousands of people are joining these organisations every year from a growing range of sectors, disciplines and supply chains. Even so there are continuing debates over the future of project management, as shown in the next Critical Considerations box which contains a discussion of some of these issues by Alan Webb.

The project management associations and institutes are a testimony to project management as a vocation requiring higher learning; however, most academics generally agree that project management lacks a

CRITICAL CONSIDERATIONS

PROJECT MANAGEMENT – A DISCIPLINE IN ITS OWN RIGHT OR JUST ANOTHER MANAGEMENT APPROACH

Bodies of knowledge

Professionally, project management has come of age through the formation of national associations for project management and the formation of a body with worldwide recognition: the International Project Management Association. We might look to those associations to find a unifying philosophy but here one will be disappointed; although they have made great strides to bring together all the strands that make up Project Management it is significant that they have chosen to call their combined efforts The Body of Knowledge. There is no disagreement between the members on this name, for that is exactly what it is: a collection of techniques and theories but lacking an accepted unifying philosophy.

Can project management survive?

If project management, as it stands at the moment, is no more than an expedient set of tools and techniques that can be used in certain common situations, can it survive in the longer term as a separate discipline or is it in danger of being subsumed into the overall process of general management? The fact that practicing project managers are already debating this point must indicate a danger is perceived. This danger may actually be exacerbated by the current trend to change the emphasis of the process to one of management by projects. This change of emphasis contains the hidden implication that the project approach is a new methodology that can be applied to the process of general management, that is to say, all management actions can be constructed along the project model. That, of course, is a mistake as there are many management tasks that do not easily fit that model.

However, even without an overall philosophy, and in the wake of both successes and failures, project

management does provide a current solution to a particular type of problem that is quite distinct from those activities that are 'processes' and distinct again from the activities of 'commerce' or 'finance'.

How to ensure the success of the unique endeavour is a problem that is not going to go away and the project management approach looks likely to be the only one that will provide answers in the near future. However, the demands of the approach are becoming ever more deeply embedded in software tools which are increasingly seen as essential elements of the process. Those tools are becoming easier to use at an individual level but the interrelationship between them is becoming more complex as the process grows in sophistication. It may well be that for many of the smaller projects, the full rigours of the procedure will be seen as inappropriately complex or expensive which in turn will lead to a recourse to earlier methods or an abandonment of the 'project' approach altogether.

Project management gone mad

There is no doubt in this writer's mind that some firms have shown signs of 'project management gone mad' with every activity and initiative being labeled a 'project' with somebody, often in far too low a position, given the title 'Project Manager' however inappropriate to his or her real status or effectiveness. This only cheapens the project approach and hastens its demise as ineffective project managers will surely discredit the process more quickly than anything else.

The professional bodies probably provide the best assurance for the future of project management as a distinct discipline if only for the reason that as long as they exist they will emphasise its distinctiveness.

Source: Webb (1996) 8(5): 8–9, 'Project management – 40 years young and still looking for a philosophy', *Project Manager Today*, May

Question

1. What are the arguments for and against project management as a 'separate discipline'?

strong theoretical base. Even the various bodies of knowledge that have been published are not based on a series of premises, from which a strong consistent theory is derived, but more on conjecture. For example, the APM's *Body of Knowledge* (APM,

2000) is based more on empirical evidence than certain knowledge. Even the age-old triple constraints of time, cost and quality are increasingly viewed as incorrect or even 'dangerous' as determinants of project success (Morris, 1988). There is a

growing body of evidence that the single most important contributor to project success is to agree the success criteria with the stakeholders at the start of the project (Turner, 1999). Chapter 10 has further information on the determinants of project success and failure.

As a relatively young discipline, the challenge for the future of project management is to develop its theoretical basis. This does not mean continuing to develop and adding to the extensive list of tools and techniques already used by practising project managers, but rather developing a set of premises about:

- the purpose of project management
- the criteria and factors for judging and achieving success on projects
- what constitutes good project management practice.

Project management maturity models enable organisations to score themselves against key processes in project management. These models are developed by applying total quality management principles to best-practice project management. An organisation can use the results of a maturity model assessment to plan future improvements and enhancements to their project management practices. See also Chapter 10.

Associations, standards and journals

Project management associations and institutes

Associations and institutes exist to promote understanding and awareness of project management. They publish articles and books, create guides on the body of knowledge of project management, contribute to the further development of that knowledge by organising conferences and seminars, and they also provide certification against professional project management qualifications. A selection of associations and institutes are described below.

The Association for Project Management, UK
www.apm.org.uk

E-mail: secretariat@apmuk.demon.co.uk

The Association for Project Management (APM) exists to help its members and advance and promote the profession of project management, its skills and practice. It is the only UK-based organisation dedi-

cated to advancing the science of project management and the professional development of project managers and project management specialists. It is affiliated with the International Project Management Association (IPMA) based in Zurich, Switzerland.

International Project Management Association
<http://www.ipma.ch>

E-mail: ipma@btinternet.com

The International Project Management Association (IPMA) is a federation of independent national project management associations worldwide. IPMA is a non-profit-making, Swiss-registered organisation, with a secretarial office based in the UK. Its function is to be the prime promoter of project management internationally, through its membership network of national project management associations around the world.

Project Management Institute

<http://www.pmi.org>

E-mail: pmihq@pmi.org

The Project Management Institute (PMI), based in the USA, is a non-profit-making professional organisation dedicated to advancing the state of the art of project management. The PMI establishes project management standards, provides seminars, educational programmes and professional certification for project leaders. The PMI website contains many useful links.

Australian Institute of Project Management

<http://www.aipm.com.au>

E-mail: marisa@aipm.com.au

The Australian Institute of Project Management is the professional association for project managers and project management users in Australia.

For details of other project management associations visit any of the following links:

www.ctsolution.com.my/pmlinks.htm

www.ipma.ch/natassoc.htm

www.wst.com/library/pmlinks.html

Project management standards

There are several international and national standards that relate to project management in the UK and the USA:

- The International Organisation for Standardisation (ISO) (central@iso.org) has published two standards on project management, one about terminology and the other about quality guidelines:

- ISO 15188, 2001 *Project Management Guidelines for Terminology Standardisation*
- ISO 10006, 1997 *Quality Management – Guidelines to Quality in Project Management*.
- The British Standards Institution (www.bsi-global.com) has published a standard in three parts relating to project management:
 - BS 6079-1, 2000 *Project Management – Part 1: Guide to Project Management*
 - BS 6079-2, 2000 *Project Management – Part 2: Vocabulary*
 - BS 6079-3, 2000 *Project Management – Part 3: Guide to the Management of Business-related Project Risk*.
- The Project Management Institute Standards Program (www.pmi.org/standards) is a comprehensive approach to evaluating and developing project management standards which are useful and practical to the conduct, certification and understanding of the project management discipline. The mission of the Program is 'to assist in improving the understanding and competency of experienced and new project management practitioners and customers worldwide'. The PMI's *Guide to the Project Management Body of Knowledge* (PMI, 2000) is now approved as an American National Standard (ANSI/PMI 99-001-2000).
- Global Working Group on Project Management Standards (www.aipm.com/globalstandards) was established to facilitate communication between those committed to the development of project management as a global profession supported by globally accepted and relevant standards.

Visit the website

www.pmforum.org/prof/standard.htm

- for details of other standards relevant to project management

Journals

The following journals and magazines are useful for research and keeping in touch with the latest thinking about project management theory, tools and techniques:

International Journal of Project Management

www.elsevier.nl

This is a technical journal which focuses on the advancement of project management techniques and methodologies. It is the official journal of the International Project Management Association.

Project Management Journal

www.pmi.org/publictn/pmjournal/index.htm

The professional journal of the Project Management Institute. It aims to advance the state of the art of the knowledge of project and programme management. It covers both the theory and practice of project management.

Engineering News Record (ENR)

www.enr.com

ENR has a long history of being a resource to project managers with regular articles on project management.

PM Network

www.pmi.org/publictn/pmnetwork

This is the professional magazine of the Project Management Institute.

Project

www.apm.org.uk

The Magazine of the Association for Project Management. Contains short stories and articles related to project management.

Project Manager Today

<http://www.projectnet.co.uk/pm/pmt/pmt.htm>

A UK publication which keeps project managers up to date on project management techniques, tools and methodologies. The publication often includes reviews of the latest in project management tools.

Project Magazine

www.projectmagazine.com

Free online magazine dedicated to the practical side of project management.

Visit the website

<http://www.macmillanihe.com/companion/business/gardiner>

- for details of project management discussion groups and other information resources on the internet

Personal training and education

'The majority of project managers do not know that they are project managers' (Hartman, 2000). With this in mind, and the growing number of people who find themselves managing a project, the need for good quality education and training is clear. Statistics show that projects continue to come in late and over budget (Standish, 1995). Organisations continue to abandon projects before they are complete. Some of this can be attributed to the failure by some project managers (many of whom began their careers as professional

engineers) to realise that project management is first and foremost about people and then tools and techniques. Unfortunately, until recently, the majority of consultant-based training has been firmly focused on the latter, to the exclusion, or sidelining, of the former. Project management is a truly interdisciplinary and integrative subject (PMI, 2000; APM, 2000; Turner, 2000b). The range of subjects that effective project leaders need to be competent in is at least as broad as the academic syllabuses of many business and management degrees, including MBAs.

Although project management training cannot guarantee project success, it can help to avoid ignorant project managers. The huge increase in interest in the subject over the last few years means that there is a variety of training resources to meet a wide range of needs. Project management training can come in several forms:

- On-the-job experience. Project management is essentially a practical discipline and there is nothing like on-the-job experience to develop a project manager's skills
- Mentoring and work shadowing schemes giving one-to-one guidance
- Benchmarking studies; learning from the best practices of others
- Short courses
- Intensive courses
- A module in a degree programme (undergraduate or postgraduate)
- Professional certificates and qualifications, for example the PMI's Project Management Professional (PMP) certificate, the APM qualifications (APMP, MPMP, CPM), or the PRINCE Practitioner Certificate
- A diploma or degree by full- or part-time study at a university or other institution of higher education

- Competency-based qualifications. People with existing project management skills can work towards a competency-based qualification, for example the UK National Vocational Qualifications (NVQ) scheme. See also the Australian National Competency Standards for Project Management and the IPMA Competence Baseline (IPMA, 1999).

In many cases, training can be provided by distance learning, for example see the Insights from Industry box below, or via online registration, which can be very convenient for the full-time project manager. Some educational establishments and training providers are accredited by the relevant national project management association. This helps to maintain the quality of the training provided, and provides a measure of consistency and standardisation concerning the topics covered and the terminology used.

insights
from **INDUSTRY**

FUTURE LEARNING SYSTEMS

Future Learning Systems provide project management training by distance learning to large and small companies. For example, ICL have recently placed a contract for a product called Project Curriculum to enable staff throughout the UK to increase their knowledge through the flexible learning provided by distance learning modules. The courses chosen by ICL cover planning, cost management, risk and the newly launched module in resource management. The contract comes on top of other recent new orders from Costain, Dunlop Aviation and Mirror Group Newspapers.

Source: *Project*, 2001, 13(10): 8

PROJECT MANAGEMENT *in action*

The making of a city technology college

City technology colleges (CTCs) were conceived in the UK, based on the US model of 'magnet' schools.

We believe there is an urgent need to

create more choice in education provision to broaden the educational opportunity in urban areas. I have therefore decided, with the enthusiastic backing of the prime minister and my colleagues, to launch a pilot network of new schools in the urban areas including disadvantaged inner cities. These will be called city technology colleges. (Kenneth Baker, former UK education secretary)

The following dialogue was taken

from an interview with an architect about a project to build a new CTC. The project was one of several CTCs being built in the UK at that time.

The sponsor was a consortium made up of local businesses in partnership with the Department of Education and Science (DES). The architect telling the story was employed by the sponsor as an independent adviser. Most of the design work was done by a different

firm of architects working for the building contractor.

Question: How did the project begin?

Answer: The original proposal from the DES was to refurbish an existing school. The DES had identified a site and produced preliminary plans. But the sponsor didn't want a refurbished school. They wanted a new school. The scheme proposed would have resulted in ten different level changes to the original building. It was a mess ... a complete shambles. The sponsor threatened to pull out.

Question: Then what happened?

Answer: Finally, at the last minute, the DES said: 'OK, you can have a new school, but you still only get the same budget and timescale.' So the DES scrapped the initial scheme they had proposed and turned it into what they called a 'design and build' scheme. In fact it wasn't strictly design and build, more of a merger of two different types of contract: a management contract and a design and build contract.

Anyway, the DES presented the new scheme to the sponsor. By this time the sponsor had already chosen their project manager, a guy called David Wright. A particularly talented guy. I've got to say his drive and vision are outstanding. He's extremely good.

He had been given the preliminary documents for the new scheme and decided with the DES's blessing that he wanted his own professional team to advise him, and so he appointed ourselves as architects, and the XYZ Partnership as quantity surveyors (Qs).

Question: Were there any problems?

Answer: Time. David gave us the project documentation (nothing detailed, just preliminary plans) and said: 'We are about to go to tender on this.' We were given just two days, the QS and ourselves, to work through it and respond.

Question: How did you get on?

Answer: We went back to him two days later and said: 'If you build this you have got a disaster on your hands ... or build it without us.' It was a load of rubbish. He accepted our advice and so we went back to the DES saying: 'This doesn't work'. Then we rewrote the method.

We received educational input from the educational advisor that worked for the DES. He was already in place and had his own architects and his own QS. Between us we were able to produce a project charter that was capable of being achieved in design terms with a variety of solutions. There were a lot of specifications but we left the design open. That's the whole point of a design and build contract. You tell the contractor what your requirements are and give him the freedom to come up with the best design. That way there should be fewer problems building it. Even so, the project charter was really big. You're talking 500 pages. We tried to give the maximum range of options to the architects of the contractors that were invited.

While we were drafting the new documentation, we did an initial trawl of potential building contractors, checking them out. The tenders (including the project charter) went out to ... I think it was six contractors.

Question: How did you narrow it down to just one contractor?

Answer: We had question and answer sessions during the tender period because the speed of response needed from the contractors was very, very fast and it was much quicker to set up a whole series of meetings to answer any questions than to set up a heavy paperwork process. They were very much treated as a design team member right from the word go.

When we had received the final submissions we carried out interviews to assess their suitability. The QS, ourselves, the DES, and the educational advisor, in particular, all had very strong assessment criteria. We set up a matrix of what we felt were the important criteria, and measured each scheme against them. It was a robust method of measurement. Each of us went through it and then we brought our individual assessments together, and came to an agreement.

Question: Were the contractors aware of the criteria used?

Answer: Yes. The criteria we used were written into the invitation to tender documents. The contractors answered various questions as they went. Some of them were quantitative, to do with floor

area, for example. Others were more subjective, to do with, say, their understanding of the brief.

We asked questions such as: How well did the building adapt to change in education? How is cross-curricula activity catered for? Is the management of the school dispersed or centralised? What's the ability of the building to extend? What's the ability of the building to alter during the construction phases, because we knew that we had gone so fast, and that we were going to actually continue designing whilst we were building. The programme needed to be flexible.

We also assessed the contractors by the team they put forward. We insisted on seeing the team, the actual people running it.

Question: Before you appointed them?

Answer: Oh yes. We insisted on having the project manager, and one of the site foremen, they would put on the job right from day one. We weren't too interested in their marketing manager. We'd also insisted on their QS being there, their architect being there, and their services engineer. We felt, right from the word go, that the project manager was the key. If he didn't want it to work, it wouldn't work. I mean I must say several of the contractors have got very good project managers, certainly I can think of three who would probably have done it.

Question: Was anything else important?

Answer: The chemistry needs to work, between the individuals involved. The system has to be there, but if the chemistry is right it makes the system work.

Interviewing gives you a start. I wouldn't like to say that it's fully robust because if somebody has a nervous breakdown, his wife has a baby or the company goes into receivership in the middle, well, their characteristics may change.

Question: What happened next?

Answer: Once the tender was accepted, the contractor was involved in the detailed design. He had his own architect, who worked extremely closely with us. We had interface meetings with the contractor and the contractor was very open with the design team. The only way to work was to be able to say

between us, 'look, we can afford this by doing this', or, 'we've got money spare here but we haven't got enough money here'. So the design proposals and costings were constantly being renewed and refined. We are talking about less than every week.

The role of Dave Lynch, the educational advisor, was crucial. He is a former county education officer for various areas, and very well known and respected. He helped put together the curriculum. For example, when we did the design brief, we hadn't got any college staff, all we had was a headmaster who wasn't even in the post at the time. So Dave's role was vital to get the educational balance right. We then agreed to bring on board the head and the deputy on a part-time basis from Christmas ... sorry, from September, and then we brought some of the key staff on from Christmas. They did most of the educational development programme, resources and materials. They were doing a lot of that at the same time that we were building, so we were constantly able to expand our information base.

Question: In what ways would you consider the project as successful or unsuccessful?

Answer: The project was overwhelmingly successful. The reason it was successful was that everyone wanted it to work. And the criteria we had established helped solve all the problems. We knew how much money we'd got, we knew what time we'd got, and

therefore we agreed to make the best possible decisions in the time available.

We had no illusions that there was a perfect solution because there never is. We developed a phrase which basically was: 'Making a decision was sometimes more important than the quality of the decision.' If we were 85–95% correct, it would be there. Take the decision, get it built. And in fact it has been borne out, because the quality of decisions if we had waited longer would have been very little better if any better at all. For example, we could have waited for the DES to agree the design before contacting contractors. If we'd followed the conventional approval line, we'd have been waiting a very, very long time. They, inevitably, weren't capable of responding fast enough.

Question: Were there any problems regarding communication?

Answer: No, because when we started the project, we sat down with the project director and agreed what the communication lines were, and they were short. We had a project director reporting direct to the sponsor and the DES. We would attend as required to make presentations. There was a short link there. The sponsor's project director went to ourselves as architects on all technical aspects, QS on costing, and the educational advisor on education issues. If there was any major design or assessment to be done, it would be done by the four of us, at most. We would come to a conclusion and that would be the end of it. A lot of

it was done by minutes. We would have a meeting, decide something, and record and action it by minutes and that was it.

Question: Looking back, what is your impression of the level of harmony, trust and goodwill between participants?

Answer: Exceptional. You happen to have chosen the best project I have ever worked on for job cooperation.

We ran a day and a half project orientation exercise, before it even went to site, which the project manager, his leading foremen and the QSs and everyone else was invited to. It was fully attended. We did it so that they knew what we were trying to build and what its purpose was. They were told about national curriculum. They were told about the way of teaching. They were told about the concept of pupil assemblies. They were told about how children would use this space. So in fact they had a very clear view, not just of the bricks and mortar, but of the purpose and why the timetable was so tight and what they were being asked to achieve.

The project manager and others reckoned the orientation exercise gave them a major insight into the project, so they knew what they were trying to do. It wasn't just a lot of bricks and mortar. Right from day one, they knew what they were doing, which basically means, they knew what they were building, why and what it was all about. And that does give purpose to many of the operatives, particularly to the people that supervise the site operations.

QUESTIONS TO AID UNDERSTANDING AND DISCUSSION

1. There are several examples of good practice in this case. Which of the following can you find?
 - commitment to project success
 - communication and feedback
 - early assignment of the project manager
 - fast tracking
 - integration of different participants
 - leadership
 - risk management
 - scope change
 - short communication lines
 - team building
 - use of advisors with expert knowledge.

2. What impact would you expect each practice to have on the project?
3. Are there any examples of poor practice?

Summary points

- Project definitions vary widely, reflecting the huge variation in size of what people call projects.
- The same principles of project management apply whatever size a project is; the amount of project management resource required, however, varies with size and complexity.
- Every project should have a clear beginning and end; in reality these boundaries are often fuzzy.
- Three primary characteristics of projects that set them apart from other activities are that they are temporary, unique and require progressive elaboration.
- Other characteristics of projects are that they tend to carry risk, be organisationally complex, trade between time, cost and function, compete for scarce resources, have single point responsibility and require teamwork and leadership skills to succeed.
- Project management is the planning, monitoring and control of all aspects of a project and the motivation of all those involved in it to achieve the project objectives on time and to the specified cost, quality and performance.
- The management task in project management concerns four activities in particular: planning, organising, controlling and leading/motivating.
- Hard project management skills are generally technical skills such as planning and scheduling; soft skills are people-related skills, such as communication, leadership and emotional intelligence. Project managers require competence in both.
- Projects originate for a variety of reasons such as market demand, business need, strategy implementation, customer requests, new technology, new legislation, operations management, a crisis or a social need.
- Programme management is the coordinated management of a portfolio of projects to achieve a set of business objectives.
- Programme management is particularly concerned with managing dependencies between projects such as strategic, technological, resource and budget.
- Five major influences in the history of project management are development of management thought, creation of special tools and techniques, development of information and communication technologies, socioeconomic and political influences and the expanding scope of project management.
- Project management is still an evolving subject. Although it is not yet recognised as a scientific discipline, it boasts many associations and institutes offering services to hundreds of thousands of members worldwide and continuing debate on the future of project management.
- A key challenge for the future of project management is to develop a set of premises about the purpose of project management, the criteria and factors for judging and achieving success on projects and what constitutes good project management practice.
- Project management maturity models enable organisations to score themselves against key processes in project management and plan for future improvements.
- Project management training cannot guarantee success but can help to avoid ignorant project managers and business managers, so that both can use and apply project management resources more effectively.

Visit the website

<http://www.macmillanihe.com/companion/business/gardiner>

- to test your understanding of the learning objectives for Chapter 1 using multiple choice questions

In the next chapter we shall be considering projects as systems and introducing the life cycle of a project from generic and industry-specific perspectives. The importance of people in projects will be highlighted and the use of fast tracking and the PRINCE 2 methodology introduced.

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A systems view of project management

Learning objectives

After reading this chapter you should be able to:

- apply systems theory to explain the interrelations between project elements
- discuss the human factor and the role of feedback and feed-forward mechanisms in projects
- explain the effect of fast tracking on the project life cycle and its management
- characterise and interpret project life cycles in different industries
- use project classification tools to help select a project management approach
- explain the function and form of a project management methodology such as PRINCE 2

Introduction

An action, or failure to take an action, in one area of a project will usually affect other areas of the project (PMI, 2000: 29). In this chapter, systems theory is used to explain the project management life cycle. Breaking down a complete project into smaller inter-related parts enables more effective management of the project. The four major phases of a project, and their deliverables, considered here are: initiation and definition; planning and development; execution and control; and project closure. The use of feedback and feed-forward information, vital for all phases of a project, is introduced; and the myth of the 'fixed' project plan is exposed.

Project management has branched out from its early defence and construction roots to other industries and disciplines, such as software, banking, insurance, business transformation, new product development, event management, international development and the voluntary sector. Some of these have tailored the project life cycle to align it with their own way of working. This chapter considers several variations of the 'standard' project life cycle. Several approaches to classifying and comparing projects are also discussed.

A formalised project life cycle is often called a 'project management methodology' – a detailed guide for doing projects designed to bring consis-

tency and standardisation to managing projects in an organisation. An outline and discussion of PRINCE 2, a scalable project management methodology, is included.

The chapter concludes with a Project Management in Action case about home and office banking – a rapid development project in a competitive environment, with an early benefit designed into the life cycle.

A systems approach

Introduction to systems theory

The development of a general systems theory in the 1950s and 60s gave birth to a new approach to understanding complex situations and events (Hall and Fagen, 1956; Johnson et al., 1963). Systems theory brings structure and order to an otherwise chaotic and unpredictable environment. The uncertainties and complexities of the early large defence and aerospace projects were prime candidates for the application of this new theory. To this day, it is generally accepted that project management can be studied more effectively with reference to systems theory because of its analytic and holistic approach.

The universal systems diagram, shown in Figure 2.1, illustrates the relationship between the three main parts of a system: