

ROUTLEDGE REVIVALS

# **The Project Management A-Z**

A Compendium of Project Management  
Techniques and How to Use Them

**Alan Wren**



# The Project Management A–Z

For Sylvie, Sonia and Paul

With love and countless thanks to  
my first and best team.

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Techniques and How to Use Them

Alan Wren



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# Background

My journey into project management started in 1969 at Wellworthy Limited in Lymington, Hampshire, then world leaders in the manufacture of diesel engine components. I spent time as a computer operator, then moved into programming and systems analysis, before returning to the Computer Operations Department, which I then managed.

In July 1979, with some trepidation, I moved on to join a team of consultants at John Hoskyns Limited in Bournemouth, initially delivering Operations Management and Systems Analysis training courses. Hoskyns Training was a true pioneer in the field of 'management by projects', with almost every aspect of work conducted using project management principles and techniques. It was an unbelievably stimulating environment, combining the pleasures and rewards of teaching and learning on each new assignment.

Two projects in my later years at Hoskyns were of the life-changing variety. The first followed some well-received training I had conducted for Mobil in Australia over a number of years. The Hoskyns Group decided to establish a project management training business in the region. I agreed to conduct a feasibility study, but, on completion, recommended that the scheme should not go ahead.

On my return, I managed a series of business projects until the second life-changing project arrived unexpectedly, in late 1992. What turned out to be my last assignment for Hoskyns (by then called Cap Gemini), was as the Project Manager of a downsizing and outplacement project in the severe recession that gripped the UK economy by the throat. Many listed for redundancy were senior managers and directors, friends and colleagues. It was a heavy responsibility.

After all the shockwaves settled, the project proceeded smoothly, and by March 1993 I was able to close it and report a high degree of success in helping 'casualties' back into work. Having said that, they were a highly talented and much sought after group of people! I was offered a role in the Management Consultancy Division, but decided to fulfil an ambition and set up my own business, leaving the company in 1993, sad to go, but feeling well equipped to fend for myself. I then launched Alan Wren & Associates, and later incorporated it as AWA Project Management Limited.

Since those early days, assignments have been varied and stimulating, and – as always – provided excellent opportunities to meet new people, learn new approaches and develop skills. I have conducted successful projects and programmes for British American Tobacco, Cap Gemini, The British Council, London Electricity, Pfizer, Anglian Water, Glaxo Wellcome, Charles Schwab, Pirelli Construction, The Public Trust Office, The Official Solicitor's Office and The Public Guardianship Office. Some lasted a few months, some lasted years.

You may find little new or unique in this book other than its direct-access format and presentation. Initially, I was keen to write a series of checklists, but this evolved into an 'instant' reference text, with the topics supplemented by checklists where appropriate. It is difficult to identify many precise sources of information. Much is generic and in the public domain. In many cases, my learning was by doing – admiring the theories often came later! However, it is important to acknowledge the authors who have influenced my thinking. Fred Brook's *Mythical Man Month* (1975) first fired my imagination. I believe that his question, 'How does a project get to be a year late?' might usefully be tattooed on the back of a prospective project manager's left hand, with the answer, 'One day at a time' tattooed on the right hand. This question and its answer may well be the most important things to remember in our projects business.

Project managers will find a good selection of useful textbooks listed in the Bibliography. Over the years, I have made good use of Robert Buttrick's *The Project Workout* (Prentice-Hall, 2000), Anderson, Grude and Haug's *Goal Directed Project Management* (Kogan Page, 1995) and J. Davidson Frame's *Managing Projects in Organizations* (Jossey-Bass, 1995). My personal favourite is probably James Taylor's *A Survival Guide for Project Managers* (Amacom, 1998). To all these authors and many others, I offer thanks for their contribution to my education, and hope that I have not inadvertently broken any rules when writing on topics that they have covered previously.

For project management consultancy services and training, please contact <enquiries@awa-projects.co.uk>.

# Acknowledgements

I would like to express my thanks to all those who have contributed to the evolution and publication of *The Project Management A–Z*. This venture started informally, and with entirely different aims. Does this sound like any project that you have seen? Over some years, I had written checklists, prompts and methods for my own work, and had implemented variations in client sites. More in hope than expectation, I sent samples and the outline of a possible book to Jonathan Norman at Gower. Jonathan's early enthusiasm for the proposal was the spur I needed, and as soon as I had completed an existing client assignment, I took a sabbatical to work on the text full time.

It would be wrong to claim this as 'All my own work', similar to a street artist. I did not invent the methods, tools and techniques that appear here, but am simply presenting what I have learned, used and appreciated, in a direct-access format that I hope readers will find useful. I am indebted to the many authors, trainers, colleagues and clients who have influenced my thinking. In particular, my years in Hoskyns Education were inspirational and I am deeply indebted to many in that great team between 1979 and 1993. I was surrounded and awed by an impressively experienced group and absorbed much that has stood me in good stead ever since, greatly influencing the content of this manual. I have also been fortunate in working with, and learning from, many highly professional colleagues on subsequent contracts with Duhig Berry Limited and AMTEC plc.

Some individuals have been particularly significant or influential in my career. Early in the 1970s, Bill Gregory first gave me real responsibility and opportunities in the fledgling computer department at Wellworthy Limited. Later, when I joined Hoskyns, Ken Bowman, as my mentor, first introduced me to real planning. John Lamb was my manager, providing challenges, stimulating opportunities and real responsibilities from the outset.

When I became a freelance project manager in 1993, I worked on assignments with Duhig Berry Limited, another organization full of talented people. On my first project, I teamed-up with Chris Ferguson, now of Novare Consulting ([www.novare.com](http://www.novare.com)), who introduced me to PRINCE®. Chris kindly reviewed the PRINCE® topics in the book and contributed valuable feedback.

Dennis Lock, himself a project management author and lecturer of many years' standing, reviewed all the non-PRINCE® topics and made thorough, important and encouraging

contributions from his encyclopaedic knowledge of the subject and his expertise as an author. Jill Powell of Hildon Associates, an experienced project management practitioner, also reviewed the text and her perceptive feedback persuaded me that I needed to add some topics and expand others. Finally, many thanks to my brother Keith Wren for interrupting his plan to review my budget.

My daughter, Sonia, a relative newcomer to project management, read each topic as the ink dried, asking perceptive and searching questions, and convincing me of the need to amend several drafts. My wife Sylvia and son Paul looked at my drafts from a standpoint detached from the practical aspects of managing projects, helping me to clarify my thinking and my text, removing unnecessary or unhelpful jargon. However, the most important contribution made by all my family was their unreserved belief, lasting enthusiasm and total support, for which I am profoundly grateful.

# How You Might Use This Manual

*The Project Management A–Z* sets out to give you direct access to project management information, on a ‘need to know’ basis.

During a project, you will undertake some tasks on a daily basis, and others perhaps only once for each project. Whether you are an experienced project manager in need of a reminder about one of the less frequently used techniques, or a relative newcomer in need of advice about how and when to choose and use which technique, you may find the information you are looking for in this manual.

The manual started out as a personal set of checklists and prompts that evolved and expanded into what you now see. It does not set out to teach you how to manage a project, rather concentrating on how you might optimize techniques and ideas along the way, and cut through the jargon and mystery that sometimes inhibits understanding of project work.

You may encounter acronyms or pieces of jargon for the first time and wonder what they mean – there is a glossary of project management terms that you can refer to. This glossary has many cross-references, some of which will point you to topics in the contents list. You can then go directly to detailed accounts of relevant techniques. For example, you might need to know the meaning of the acronym BCWP, find that it belongs within Earned Value Analysis, then put it in context and understand how it applies by going directly to that topic.

The following list gives an indication of when you might consider some of the main techniques and ideas in this manual:

- **Pre-project**
  - Business Case
  - Feasibility Study

- Investment Appraisal for Projects
- Issue Management
- Project Life Cycle
- Project Opportunities
- Risk Management
- Sensitivity Analysis
- Small Project
- Stakeholders – Identification and Communication
- Terms of Reference

- **Planning and starting a project**

- Approval
- Authorization
- Back-scheduling
- Baselines and Baselining
- Budgets for Project Work
- Communications Plan
- Constraints
- Critical Success Factors
- Estimating
- Filing and Document Management in Projects
- Handover Options
- Issue Management
- Milestones and Milestone Plans
- Network Analysis and the Critical Path
- Objective(s)
- Planning Checklist
- Programme or Project?
- Project Life Cycle
- Project Opportunities
- Project Strategy
- Quality in Project Work
- Risk Management
- Scheduling
- Scope
- Stage or Phase
- Task Checklist
- Terms of Reference
- Tuning or Scaling a Project
- Two-level Planning
- Work Breakdown Structure
- Work Distribution Model
- Work Package

- **During a project**

- Budget Control
- Business Case Review

- Change Control
  - Controlling Against the Schedule
  - Decisions in Projects
  - Earned Value Analysis
  - Filing and Document Management in Projects
  - Impact Analysis
  - Issue Management
  - Lessons Learned
  - Project Health Checks
  - Quality in Project Work
  - Reports in Projects and Programmes
  - Request for Change
  - Risk Management
  - Stages – Start and End Procedures
  - Task Checklist
- **Closing a project and post-project**
    - Closing a Project
    - Handover Options
    - Lessons Learned
    - Post-project Review
- **Project organization**
    - Champion
    - Matrix Management
    - PRINCE® Project Board
    - Project Office
    - Responsibility Matrix
    - Sponsor
    - Steering Group
- **Project finance**
    - Authorization
    - Budget Control
    - Budgets for Project Work
    - Earned Value Analysis
    - Impact Analysis
    - Investment Appraisal for Projects





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# Introduction

**H**umans have conducted projects for thousands of years: erecting settlements, villages, towns and cities; building rafts, then boats, then ships for exploration, migration and warfare; building stone circles, pyramids, cathedrals and temples; constructing roads, railways, bridges and factories; assembling printing presses; and even going to the moon. Over those years, we have changed little in our urge to build, change, innovate and develop, though the pace at which things happen today has accelerated beyond the imagination of our ancestors. The human race has acquired millions of person-years of project experience, and developed approaches, techniques and tools that should help us manage our latest projects successfully. So why do projects continue to be so troublesome? Have we forgotten lessons learned from project history, or do we think we have nothing to learn? Do we run into trouble because we fail to recognize the true nature of projects, and the special skills needed to manage them successfully? What is so extraordinary about projects?

British Standard 6079-2:2000 describes a project as:

a unique process consisting of a set of co-ordinated and controlled activities, with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including constraints of time, cost and resources.

There are many other working definitions, which use different words to say similar things. Several significant words and phrases recur throughout these definitions.

These significant words include *unique*, which usually implies that something is a one-off. While an office software package may have been rolled out thousands of times, this will have taken place at different times, in different organizations, versions, combinations, countries and circumstances, each roll-out a unique venture. This 'uniqueness' differentiates projects from operations, as although each new operational business cycle, such as an accounting period, will bring some variations, the aims will stay the same – process the data for this period and update the year-to-date information. Even at the end of a financial year, the aims and routines will replicate those of previous year-ends.

Entries for *process* in a thesaurus might include such terms as 'course of action', 'development', 'method', 'procedure', 'progression' and 'route', all of which could suggest a

methodical approach along a predetermined path between a start and end point. In reality, projects are made up of many linked and often inter-dependent processes, all of which need to contribute to the final outcome. If any process does not advance, protect or otherwise support an enterprise, why do it?

When you *co-ordinate* a series of linked, dependent tasks, you may do one or more of planning, organizing, managing or synchronizing them. If you have a project team, you will find it difficult to direct work effectively any other way. Even when working alone, you should benefit from such an approach. Co-ordination, or planning, is a key factor in distinguishing between the use of the word 'project' in a loose sense, as in 'my next project will be the vegetable garden' and in a more structured and formal sense. The word 'formal' is uncommon in definitions of 'project'. Organizations need to select levels of formality and structure appropriate to size, complexity and risk in each of their projects. Not all projects need the same degree of formality. Proper co-ordination through appropriate planning and control is a fundamental element of professional project management – the essential difference between managed and makeshift projects.

The word *controlled* appears next in the definition and symbolizes the main aim of project management. Other practices are means to ends – delivery of what is needed, when it is needed, at or even below the estimated cost. 'Control' covers all the techniques available to you between the start and finish to help ensure that work is completed accurately, on time and within budget, so that all the ends are achieved.

What marks the *start and finish dates*, the limited and finite duration of a project? End dates tend to be very clear and very public. We often know them long before anyone has given a serious thought to starting. Unfortunately, days and weeks, which are often squandered while deciding when to decide to start a project and spend money, never return. The start date for a project should be confirmed when a project plan and an activity-based project budget have been approved and authorization has been given to implement the plan and spend money from the budget. It is a sad reality of the Project Manager's role that you can wait months for a go-ahead, but woe betide a delivery that is one day late! Do not forget to pay regard to the word *date*. If you are told to finish a project 'by August', 'before the end of the year' or, 'in the third quarter', ask questions that will pin down the requirement. Does 'by August' mean by 31 July, or 31 August, or something else? It might not appear to matter much at the start, but might become critical later!

An *objective*, or a defined goal, is vital even before you start a project, which is why pre-project work can make such an important contribution to your eventual success. Not only should your objectives be Specific, but if they are also Measurable, Agreed, Realistic and Time-based (SMART), you will avoid later delays while you try to resolve disagreements and seek clarification, quantification, arbitration and rectification. Note also that a single objective might be somewhat unusual, as they usually appear as part of a set. If this is the case, you would hope that any priorities are clear. You will always need to know what the hierarchy is, particularly if constraints are so tight that you might be unable to deliver everything on time. You can often break objectives down into three groups with a few straightforward questions. These groups should set out priorities in 'Must do', 'Ought to do' and 'Nice to do' ranking.

*Specific requirements* tend to denote those factors that help ensure that project outputs satisfy the objective(s) and will be acceptable to the customer(s). Various terms are used, such as 'Acceptance Criteria' or 'Quality Criteria'. It is essential that you know whether you are managing a project to deliver a rudimentary or a near-perfect solution, or something in between, as this will have huge influence on plans, risks and budget. When you know, you can use this knowledge to establish a quality strategy for your project and agree specific requirements for all the main outputs.

Project constraints of *time*, *costs* and *resources* are closely linked, and interact throughout projects. A 'triangle' analogy is often used to describe this triple-constraint interaction. For example, if you bring in more resources in an attempt to reduce time, you are likely to increase costs. If your budget is cut, you may have to reduce resources and thus increase the time it will take; alternatively, you might need to seek a reduction in the project's scope.

You manage *time* using a *schedule*, showing who needs to carry out which tasks to deliver outputs by what dates. Any schedule should also indicate the dependencies that exist and the outputs that must be completed before others can be started or completed. It should be the single most important type of document you use to control and communicate about any of your projects. You should always consider starting a project with two working schedules: one in outline for the project, and one in detail for the first stage. You can update the stage plan at suitable intervals as you proceed, and review and update the project plan at the end of stages or when significant variations occur or are forecast. Such major variations are often referred to as *exceptions*. You should also consider saving (baselining) the original approved versions of these two plans so that you can use them as a yardstick for assessing and reporting progress. If you try to track progress against plans that you are changing regularly, how will you ever know where you are in relation to where you should have been on a particular date? For example, if you are part-way through a stage and find that more work needs to be done than has been planned, you might add ten days to the stage duration. If you then finish on that tenth added day, are you on time or ten days late? What if you are working to meet an immovable final delivery date?

*Costs* are best planned and controlled using a dedicated project budget. Budgets and schedules record different units but tend to be closely related, particularly in projects that incur the majority of their costs because they are people-intensive rather than capital-intensive. You should normally derive your budget from your schedule and any supporting documents, so that your budget is activity-based. Again, it will make sense to use an outline budget for the project and a detailed budget for each stage, tracked with the same frequency as the schedule, and assessed against the baselined originals.

A project is likely to need several different types of *resources*, which term may or may not include capital investment. The single most significant resources are often the people who carry out the tasks to deliver the outputs. They usually need all sorts of equipment, materials and workspaces, most of which will incur costs. Your estimating and scheduling should reflect varied performance expectations for different team members, taking account of their knowledge, skills and experience, and their availability to undertake the project's work.

So, if you are about to run a project, where will you start? How will you organize yourself, and perhaps a team, to deliver a successful outcome? Is there a recipe or a cookbook that might help? Should it be highly regulated, or *laissez-faire*? How will you strike a balance between being prescriptive and being pragmatic?

This manual provides a selection of tried and tested techniques and tools, checklists and hints and tips for those who manage projects or who are about to be initiated into a project management role. It has been written from a belief that all projects are worth doing properly, with 'properly' meaning that levels of formality, structure, organization and pragmatism are appropriate to the size, complexity and risks of the project. This is fully explained under the topic heading 'Tuning or Scaling a Project'. You will also find that all the terms and suggestions in this Introduction are explained in the Glossary and amplified in the main text. The manual is arranged alphabetically by topic name and each topic is cross-referred to related topics.

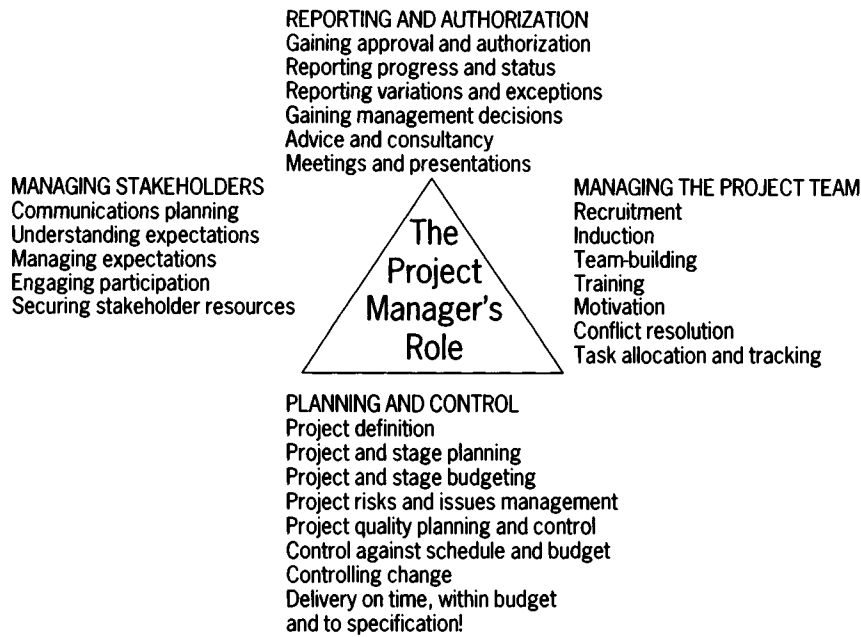
If any degree of formality is a concept that alienates or unsettles you, then you may find yourself uncomfortable managing projects. You may set out to deliver change or innovation using an approach that is 'unconstrained' by any standards, rules or procedures. You may decide that some short cuts are safe for your project, perhaps 'just this once'. If you do cut a corner or two in the perceived interest of making rapid progress, be aware that many who have tried this have found that a project can take control of them, rather than they taking control of the project! In Germany, there is a particularly apt saying: 'He who has burnt his mouth blows on his soup.' Most of these standards, rules, methods and procedures were developed in and graduated from the 'school of hard knocks' and, if used well, are assets rather than constraints. Choosing and using the right technique or tool is fundamental to success. This manual provides a 'toolkit', but you will need to choose and use those that best meet your specific needs.

## THE PROJECT MANAGER

As organizations face pressures for continual change and innovation, they need to plan and control projects properly and professionally in order to pursue cost-effective success. This is why there is such demand for skilled Project Managers. There is little room for casual change in modern government, commerce and industry: the stakes are usually too high. So what exactly is a Project Manager, and what does one do? Naturally, this will vary across projects and organizations, but in most cases he or she will be responsible for delivering what is needed, when it is needed, and within an approved budget.

Figure 1 shows a typical mix of tasks – though readers might feel tempted to add 'walking on water' and 'doing the impossible'!

One of the difficulties often faced by Project Managers is that of not having a level of authority to match the level of responsibility that often goes with the job. Whether you are an employee of an organization, or a contractor hired to do a job, you are likely to be engaged to make the right things happen at the right time. You may have heard that there are three basic types of people in workplaces:



**Figure 1** Typical tasks a Project Manager might need to perform

1. those who make things happen
2. those who watch things happen
3. those who have neither a clue nor an interest in what is happening.

If you are not predominantly type (1), with a sprinkling of type (2) and a complete absence of type (3), you will have a hard time in the Project Manager's role! Whether pragmatism is a quality, an aptitude or a habit, it is fundamental to your success and will earn you the respect you need to help overcome any authority gap.

Here are some other qualities and abilities that might help:

- ability to listen
- ability to see the big picture
- caring about details
- decisive
- determined
- good communicator, verbally and in writing
- inquiring mind
- integrity
- lead by example
- organized and a good organizer
- open-minded and receptive
- own up to mistakes – admit when you are wrong
- political sensitivity
- positive and enthusiastic ( a 'can-do' approach)
- problem-solver

- resilient
- stickability – see it through
- systematic
- thorough
- willing to learn
- willing to take direction.

If you have many or all of the above abilities, you should find that leaping over tall buildings in single bounds should be relatively trouble-free! If you do not, fear not – many are characteristics you can acquire and develop through self-discipline, training, coaching, studying and by learning lessons while you carry out your project management tasks.

Managing change and innovation has become a way of life for many people in government, commerce and industry, and thousands have been thrown in at the project management ‘deep end’. Survivors swear by it, though possession of experience and good knowledge of the business area in which a project will take place, or experience and good knowledge of project management techniques and tools, will always give a clear advantage. Possession of both business and project experience, coupled with a good range of the qualities and abilities above, ought to make you unstoppable!

Project management has been called ‘structured common sense’, and when you read many of the pages in this manual, you will see why. You do not need to be a visionary or a great innovator to manage a successful project. You do need to approach the challenge by gaining an understanding of the unique ‘big picture’ of a particular project, then by systematically breaking it down into manageable pieces of work, organizing them into a logical sequence, monitoring their progress and managing their risks, as described in this manual. If you have an experienced project management mentor to guide you through this, you are very fortunate – do not pass up the opportunity to ask plenty of ‘Why?’ and ‘How?’ questions. If you do not have such a mentor, look for answers in the pages that follow.

Project management has also been referred to as an ‘accidental profession’ that has either drifted or surged into the lives of many. As organizations have changed over recent years, many thousands of so-called ‘middle managers’ have been stripped out of organizations and millions of person-years of business experience have been written off in the interests of bottom-line performance. Survivors have seldom had time to feel the guilt that was formerly associated with their situation, simply because they did not then, and do not now, have the luxury of time to think much about it. Many now have the ‘day jobs’ previously done by two or three, while also making time to implement almost continuous change. Still, there are 24 hours in every day, and then there are the nights! If you have arrived in project management via this route, you may or may not have had time to receive any training. You may therefore have justified concerns about project management techniques and how to choose and use those most appropriate to a particular challenge. If this applies to you, I hope you can make time available to use some of the practical hints and checklists you will find in this manual.

If you are experienced in the ways of projects, you may be very familiar with many of the techniques and tools described in the pages that follow. You may also find some new ideas

and perspectives. Even if you are deeply engrossed in a project, it can still be valuable to discuss optional approaches, project problems and opportunities with a project management peer, or with someone who can give you experienced advice. Sometimes this can work out, sometimes not. For the occasions when it does not work out, you might find some of the advice you seek in this manual. It might not give you all the answers, but might prompt you with some useful questions and a few tips.

This manual should also be useful if you are a novice or relative newcomer to project management, which can be very daunting. You may feel vulnerable and somewhat exposed. Large numbers of us are expected to manage projects of all shapes and sizes, with little or no training, few sources of available advice, and minimal or no project management standards. If you are in this category, do not try to read the manual from cover to cover. It was not designed or written for such usage, but as an 'instant' reference by subject name. If you are new to the terminology, browse the Glossary, pick out the subjects that are of immediate interest, and take it gradually from there.

Finally, this manual concentrates on the use of techniques, tools and approaches largely specific to project management. Other than in the following paragraph, it does not attempt to cover 'soft skill' aspects, such as motivation, leadership, team-building, decision-making, interviewing, meetings and presentations, which can all make major contributions to success, but which are very well documented elsewhere.

Whatever other assets and resources are available, there is none more valuable to a Project Manager than a highly motivated team made up of people with an optimum mix of skills, knowledge and experience, 'can-do' attitudes and the willingness and ability to communicate clearly and openly. While you will often have to work with people assigned – sometimes unwillingly – to your team, unable to influence team make-up, your skill as a Project Manager can still have a major influence on a team's ultimate performance. You may already know some well-respected motivation theories, and you can put them to good use in getting the best out of whatever team comes your way.

For example, if you are familiar with Maslow's *Hierarchy of Needs* (Maslow et al., 1987), you may recall that base-level needs are likely include such job-related matters as knowing where the project is heading and what is expected of individuals, having the right tools to do the work, decent and safe working conditions, good policies and work practices, adequate support and supervision, and fair compensation. While you may not have control over some of these, particularly in a matrix management environment, you should have some influence over some factors through persuasion, lobbying, seeking the best for your team, and being seen by the team as someone who cares about their conditions and needs. At Maslow's higher levels, many aspects should be available to you as a Project Manager, such as your efforts to create a good team atmosphere and morale, enabling team participation in decisions, consultation on planning and estimating, allowing some self-direction within the plan, sharing out the interesting and challenging work, help with problem-solving, creating opportunities for development and growth and giving recognition for jobs well done. If you can also have some fun along the way and recognize that people need to 'chill out' occasionally, you will help to develop and sustain one of your greatest assets.





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# Glossary of Common Project Management Terms

This glossary contains many terms, along with cross-references to related topics, that you may encounter when managing or working on a project. Many cross-references will point you towards the entries for main topics in the manual where you will find a full explanation of a technique and can read about the term in its proper context.

<b>Activity</b>	Work to create or review a project output or deliverable. May also be known as a task in some organizations.
<b>ACWP</b>	Actual Cost of Work Performed – the cost of work done on the project. <i>See</i> <b>Earned Value Analysis</b> .
<b>AOA</b>	Activity on Arrow network diagram.
<b>AON</b>	Activity on Node network diagram. <i>See also</i> <b>Precedence Diagram</b> .
<b>Approval</b>	Formal acceptance that a deliverable or output is ‘fit for purpose’.
<b>Authorization</b>	Permission to start and incur expense on a project or stage, once you have gained approval for the plan and/or budget.
<b>Back-filling</b>	The provision of one or more temporary staff, normally to cover the work of those seconded to a project.
<b>Back-scheduling</b>	Calculation of latest finish and start dates, working backwards from an end date through latest to earliest tasks. Also referred to as a ‘backward pass’ through a network.
<b>Baseline</b>	An approved product that is ‘frozen’ and kept available for comparison with future statuses or positions. For example,

when a Project Plan is baselined, this version should be retained even though the plan may evolve and change, so that you can conduct progress reviews against an approved 'yardstick'.

**Benefits**

Statements of advantageous project outcomes, such as increased revenues, reduced costs, performance and efficiency improvements. Note that benefits should be quantified where possible, so that they are tangible and provide a basis for measurement. Note that less precise benefits may be intangible, or even indeterminable.

**Budget**

A budget sets out your plans in cost terms, for either a project (Project Budget) or a stage (Stage Budget), in order to gain authorization for the expenditure and to provide a basis for financial control of that work.

**Budgetary Control**

Procedures to track 'actual' and 'committed' expenditure against that planned and identify variances, which should trigger both investigation of any significant variances and any subsequent corrective actions.

**Budgeted Cost of Work Performed (BCWP)**

The extra dimension gained by using Earned Value Analysis, linking your original budget (Budgeted Cost) to actual performance (Work Performed) and expressing the result in currency terms or work hours. See **Earned Value Analysis**.

**Budgeted Cost of Work Scheduled (BCWS)**

The project or stage budget, showing costs and timing. See **Earned Value Analysis**.

**Business Case**

Documented justification for setting up and continuing a project, defining the benefits being sought, the likely investment, the constraints and the timescales to answer the question: 'Why should we do this project?'

**Business Case Review**

A review, normally at the end of each stage, to maintain the relevance and realism of your Business Case, and to assess its ongoing viability. You should also review it when any exception situation occurs or is forecast.

**Champion**

This is not a formal project role, but if there is a senior individual prepared to suffer considerable sacrifice to ensure that a cause (in this case, a project or programme) in which he or she fervently believes is communicated, promoted, supported and ultimately successful, you will have a great ally.

<b>Change Control</b>	Control of the status of a project's baselined deliverables, to ensure that change is justified, authorized and recorded.
<b>Change – Request for Change (RFC)</b>	A Request for Change (RFC) is used in PRINCE® and non-PRINCE® environments, when a stakeholder asks for a change to a product, or to one or more of its 'Acceptance Criteria'.
<b>Closure</b>	If your project is a set of co-ordinated activities with definite start and end points, there must come a time when you have to undertake 'close and dispose' tasks and bring it to an orderly end. Closing a project is also known as 'close-out' or 'shutdown'. 'Termination' tends to be used when a project is brought to a premature end, usually by a decision of the Steering Group.
<b>Communications Plan</b>	A scheme, based on the Project or Stage Plan, to help ensure that specified stakeholders know what is going on, when, and why, enabling feedback, questions and input from them.
<b>Configuration Library</b>	A central point for safe storage of baselined project outputs, whatever their form. The role of a Configuration Librarian, or that of the Project Office, might be to add items, make sure they are uniquely identifiable, store them, whether on paper, electronically or otherwise, control access to them, and maintain status records.
<b>Configuration Management</b>	The procedures used to take care of the products or outputs of a project and to ensure that each is uniquely identifiable, protected from harm or loss, that only the most recent approved version can be used, and that any proposed changes are authorized, managed and recorded.
<b>Constraints</b>	Confinements, limits or restrictions that may adversely affect a project.
<b>Contract Management</b>	Management of the external suppliers of products or services to the project. The project manager will also need to ensure that management procedures are established for any contract placed by the project for the operational supply of services or products.
<b>Control</b>	Control in a project is a continuous process which addresses such aspects as timing, spending, quality, project risks and issues.

**Control Against Budget** Tracking of 'actual' and 'committed' expenditure against that planned, identifying variances, and triggering both investigation of any significant variances and any subsequent corrective actions.

**Control Against Schedule** Control is a term for the collection of tasks that you undertake to help ensure that a project or a stage makes progress in line with its plan, or to spot any variances so that you can take prompt corrective action.

**Cost Performance Index (CPI)** How much value you have earned from the amount you have spent. *See* **Earned Value**.

**Cost Variance (CV)** The difference between budgeted cost and actual cost of work performed. (BCWP – ACWP). *See* **Earned Value**.

**CPM** *See* **Critical Path Method**.

**Critical Path** Any route all the way through a network diagram that has the longest duration, and where any delay is likely to extend the project.

**Critical Path Method (CPM)** A diagrammatic network technique to enable structured analysis and management of complex projects.

**Critical Success Factors** Factors identified to enable tracking of the business value of project or programme outputs, particularly when the benefits are largely intangible or indeterminable.

**Earned Value** A generic performance measurement term for the concept of representing physical work accomplished in terms of financial worth accrued. Earned Value is also known as Budgeted Cost of Work Performed (BCWP).

**Earned Value Analysis** Earned Value Analysis shows how much of the budget you should have spent to achieve the amount of work done so far, based on the budgeted cost of the task.

**Estimate** Preliminary statement of the possible duration or cost of a project, stage or task.

**Estimate at Completion (EAC)** Forecast of total project cost at completion. *See* **Earned Value**.

**Estimate to Completion (ETC)** Forecast of how much more a project will cost to complete from now. *See* **Earned Value**.

<b>Exception</b>	A variation between 'plan' and 'actual' that goes beyond a level deemed in advance as acceptable (falls outside agreed Tolerance), and which thus needs to be reported to management (escalated) for resolution.
<b>Exception Management</b>	A 'hands-off' management philosophy which allows Project Managers to get on with the work of delivering the project without the need for frequent authorization, provided that any variances being experienced or forecast are within a clear and pre-defined range set by the Project Board, Steering Committee, sponsor or other project authority.
<b>Feasibility Study</b>	An early, high-level assessment of whether it would be practicable, desirable and worthwhile to grasp an opportunity or solve a problem and, if so, how. It should identify and evaluate optional solutions, their viability, and how each might be implemented. The study needs to provide sufficient information to justify recommendations on whether to proceed and, if so, how.
<b>Financial Control</b>	<i>See Control Against Budget.</i>
<b>Gantt Chart</b>	A bar chart used to develop and illustrate project and stage schedules. Named after Henry Gantt (1861–1919), a pioneer American management consultant.
<b>Gateway Review</b>	An independent assurance review used in UK central government civil procurement projects at pre-identified key points, to help ensure that the procurement is in good order and to make confidential recommendations for any remedial work.
<b>Health Check</b>	Brief examination to determine how 'healthy' a project is, and to prescribe any treatments that might improve or avoid deterioration in its condition.
<b>Impact Analysis</b>	A forecast of the possible effects of risks, issues, events, changes or maintenance of the status quo on a project or stage, so that decision-makers can have the opportunity to consider implications before committing to any course of action.
<b>Implementation</b>	Putting a project's outputs into operation, making them available for whatever use or purpose they are to have.
<b>Investment Appraisal</b>	An estimate of the cost of a project and of the possible future costs and benefits that may flow from operational use of its

outputs, which should enable an organization to determine whether the investment will be worthwhile.

<b>Issue</b>	An existing situation or set of circumstances which is affecting the ability of a project, stage or even programme to arrive at its intended outcome.
<b>Lessons Learned</b>	An exercise to recognize and document any lessons that might help improve the running of future projects. The main users of a 'Lessons Learned' report will include the Steering Group or Project Board and Project Team. Such a report might also be circulated to: the Corporate Standards function, or those responsible for Quality Management Systems and Project Management Standards; the Project Office; and managers of future projects.
<b>Life Cycle</b>	The main stages, phases or steps that a project might progress through, from the time someone has an idea that, if progressed, would need a project to turn it into a reality until that reality has been delivered, the project that delivered it has been closed down, and final reports, disposals and evaluations have been completed.
<b>Matrix Management</b>	A term normally used to describe an approach that uses 'borrowed' project team members who report to the Project Manager on project matters, and to their line manager on all other matters, such as 'pay and rations'.
<b>Milestone</b>	A significant, measurable event during a project that can be used to monitor progress or assess status at that point.
<b>Non-conformance</b>	The status of a deliverable that does not meet its specification.
<b>Objectives</b>	Purposes, goals, aims, intentions, intents. Wherever possible, ensure that objectives are Specific, Measurable, Agreed, Realistic and Time-based (SMART).
<b>Off Specification</b>	A PRINCE® term used to describe a product that does not, or is forecast not to, match its specification, or that should have been, but has not been, produced and is not forecast to be produced.
<b>Opportunity</b>	A situation where a project might benefit from favourable consequences of future events, affecting one or more of costs, timescales, benefits and quality, if the opportunity is recognized and acted upon.

<b>PBS</b>	<i>See</i> <b>Product Breakdown Structure</b> .
<b>PERT</b>	<i>See</i> <b>Programme (or Project) Evaluation Review Technique</b> .
<b>PFD</b>	<i>See</i> <b>Product Flow Diagram</b> .
<b>Phase</b>	<i>See</i> <b>Stage</b> .
<b>PMBOK</b>	The Project Management Body of Knowledge.
<b>Post-project Review</b>	An appraisal to determine whether the expected benefits, as documented in the Business Case, have been achieved or are being achieved, normally planned after a settling-in period during which the achievement of benefits would be expected to become measurable.
<b>Precedence Diagram</b>	Activity on Node (AON) network diagram.
<b>PRINCE®</b>	A project management method, <b>PR</b> ojects <b>IN</b> Controlled Environments, established in 1989 by the Central Computer and Telecommunications Agency for Government projects. Because it concentrates on project management 'best practice', it is widely used on many different types of projects, both in the UK and abroad. PRINCE® is a registered trademark and all references to PRINCE® throughout this text acknowledge this trademark.
<b>PRINCE® Project Initiation</b>	At the end of the PRINCE® Process 'Initiating a Project' (IP) you will need to have drafted a vital product (document) known as a Project Initiation Document (PID), which will form the foundations on which you will gain authorization to develop and manage the remainder of the project.
<b>Procurement</b>	The purchasing of goods or services to satisfy a defined requirement that might include quality, quantity, availability and price, and usually with the aim of achieving best value for money.
<b>Product</b>	'Product' has a specific meaning in PRINCE® terminology, being a generic term for every project and stage input, deliverable, output or outcome.
<b>Product Breakdown Structure (PBS)</b>	A PRINCE® term for a hierarchical list or diagram, showing how the planned outcomes of a project are to be broken down into component products. Likely to be used in



	the creation of a Product Flow Diagram, showing sequence and dependencies.
<b>Product Checklist</b>	A list of the products to be delivered during a Stage Plan, showing relevant important dates.
<b>Product Description (PD)</b>	A PRINCE® term for a document that describes a product's 'purpose, composition, derivation and quality criteria'. You produce PDs during the planning process.
<b>Product Flow Diagram (PFD)</b>	A PRINCE® term for a network diagram showing the production sequence and dependencies of the products that you have identified earlier on a hierarchical Product Breakdown Structure (PBS) diagram.
<b>Programme</b>	A co-ordinated portfolio of projects.
<b>Programme (or Project) Evaluation Review Technique (PERT)</b>	A planning technique that uses time-based networks to show the relationships and dependencies between project tasks.
<b>Progress Control</b>	<i>See Control Against Schedule.</i>
<b>Project</b>	A unique set of co-ordinated activities, with definite start and end points, undertaken by an individual or organization to meet specific objectives within defined schedule, cost and performance parameters.
<b>Project and Programme Reports</b>	<p>There are a number of typical reports and major documents in and around projects, falling into two main categories. Here are some examples.</p> <ol style="list-style-type: none"> <li>1. <b>Action</b> – to identify the need for and to facilitate decisions: <ul style="list-style-type: none"> <li>● Feasibility Study Report</li> <li>● Project Start-up Document (or Project Initiation Document if using PRINCE®), including plans, the Business Case and budgets</li> <li>● Exception Report or other report of serious variance from plan or budget</li> <li>● Stage End Report.</li> </ul> </li> <li>2. <b>Information</b> – to keep stakeholders up to date, reporting progress and status: <ul style="list-style-type: none"> <li>● Progress or Status Report (or Highlight Report if using PRINCE®)</li> <li>● Lessons Learned Report, which may need some actions outside the scope of a project</li> <li>● End of Project or Project Closure Report.</li> </ul> </li> </ol>

**Project Board**

A PRINCE® Project Board has well-defined roles and responsibilities so that its members can represent the managerial interests of the:

- **business**, in ensuring there is a business need to satisfy and that the project will and eventually does satisfy it and provide value for money
- **user**, who represents the ultimate users of the final product in one way or another, who perhaps need the product to achieve a Key Performance Indicator or objective
- **supplier**, who is responsible for creating and/or delivering the final product and who may be internal or external.

**Project Brief**

A PRINCE® document providing foundation information prior to initiating a project. *See also* **Statement of Work**.

**Project Office**

A function established to supply project support within a project-based organization, or an organization that regularly runs several projects side by side.

**Project Owner (PO)**

A role in UK government projects similar to that of a Project Sponsor. *See also* **Senior Responsible Owner (SRO)** and **Sponsor**.

**Project Plan**

A relatively 'soft' outline plan for the whole project when you start, but which you will firm up with the delivery of outputs and knowledge gained from each stage. Your high-level plan might include the following:

- Work Breakdown Structure or Product Breakdown Structure
- Work or Product Flow Diagram
- Network Diagram with high-level estimates showing overall duration
- summary-level schedule (bar or Gantt Chart) with main milestones
- Budget
- Resource Plan.

**Quality**

Fitness for purpose (Juran). The totality of characteristics of an entity which bear on its ability to satisfy stated and implied needs. (The author's view is that there should be no room for implied needs in project work.)

**Quality Review**

A PRINCE® term for 'an inspection with a specific structure, defined roles and procedure, designed to ensure a document's completeness and adherence to standards'.

<b>Request for Change</b>	<i>See Change – The Request for Change (RFC).</i>
<b>Request for Proposal (RFP)</b>	Similar to an Invitation to Tender, where your organization formally asks suppliers to submit competitive tenders to meet a requirement.
<b>Responsibility Matrix</b>	A table identifying accountability and responsibility for project tasks.
<b>Risk</b>	A possible future event or situation that, if it happens, may affect the ability of a stage, project or programme to arrive at its intended outcome.
<b>Risk Management</b>	Whenever you are dealing with change or innovation, things may not always turn out as planned and expected. You will use Risk Management to put procedures in place to identify and record those things that might throw your project off course if they happen or fail to happen, and some measures ready to deal with such eventualities.
<b>Scaling (of a Project Management Approach)</b>	This important concept ought to be self-evident, but experience suggests that it is not. Projects of differing size, complexity and risk need different approaches in organization (Who is responsible for what?), structure (How many stages are needed?), planning (How many plans are needed, and at what level of detail?), risk and issue management, change and configuration control, and so on. If you use the same approach on large, complex projects as for small, simple ones, you will either fall dangerously short on some, create unreasonable overheads for others, or both. Scaling, also known as ‘tuning’, is the process of putting appropriate factors in place for each unique project, according to its importance, size and complexity. Many organizations provide project templates, setting out different approaches for projects of varying size and complexity.
<b>Schedule</b>	A timetable, plan, programme or scheme; an arrangement for something to happen at a specified time, normally presented as a Gantt or bar chart, showing activities on the vertical axis with horizontal bars opposite each, showing start, duration and end, related to dates across the top of the chart.
<b>Schedule Control</b>	<i>See Control Against Schedule.</i>
<b>Schedule Performance Index (SPI)</b>	Percentage of work complete. <i>See Earned Value.</i>

<b>Schedule Variance (SV)</b>	The difference between Budgeted Cost of Work Performed and Budgeted Cost of Work Scheduled. (BCWP – BCWS). <i>See <b>Earned Value</b>.</i>
<b>Scope</b>	The boundary defining the area in which a project or stage has to operate.
<b>Sensitivity Analysis</b>	A ‘What if ...?’ examination in which you analyse the consequences of variations in costs and benefits on the financial viability of a project.
<b>Small Project</b>	An undertaking below the threshold at which your company would usually wish to use formal project procedures, approaches and organization.
<b>SMART Objectives</b>	Acronym to help you remember that objectives should be checked to see that, as far as practicable, they are: <ul style="list-style-type: none"> <li>● <b>Specific</b> – clear and unambiguous</li> <li>● <b>Measurable</b> – numbers preferred to adjectives</li> <li>● <b>Agreed</b> – all main stakeholders have bought in</li> <li>● <b>Realistic</b> – achievable given available resources</li> <li>● <b>Time-based</b> – stated target date(s) for delivery.</li> </ul>
<b>Sponsor</b>	A senior individual in the organization, normally a person who will seek investment in a project, contribute to and endorse the Business Case justifying the project, in order for her or his part of the organization to benefit from the project’s outputs. This individual is often the customer-in-chief, without whose sponsorship there might not be a project.
<b>SRO</b>	Senior Responsible Owner – a role in UK Government projects similar to that of the PRINCE® Senior User. <i>See also <b>Project Owner (PO)</b> and <b>Sponsor</b>.</i>
<b>Stage</b>	A sub-division of a project to aid effective management, also known as a phase in some organizations. Note that technical divisions of a project are often referred to as stages or phases, such as the Analysis Stage or Analysis Phase, and so on.
<b>Stage Plan</b>	A hard and detailed plan for a Project Stage, which might include: <ul style="list-style-type: none"> <li>● Work Breakdown Structure or Product Breakdown Structure diagram</li> <li>● Work or Product Flow Diagram</li> <li>● Network Diagram with estimates showing duration</li> <li>● Schedule (bar or Gantt chart)</li> </ul>

- specifications or Product Descriptions
- Budget
- Resource Plan.

**Stage Start and End**

We create a series of opportunities, between stages, where those accountable for steering the project must check two important matters: that work from a previous stage has been satisfactorily completed; that the justification for the project is still valid; and that the plans and budgets for the next stage and for the remainder of the project are complete, clear and realistic.

**Stakeholder**

Any person or group involved in or likely to be affected by a project or its outcome, or its failure to deliver the required outcome.

**Starting a Project**

At the end of this stage, you will need to deliver documentation that:

- fully defines the requirements the project must meet, confirms their justification, and sets out a scheme for their delivery; these will normally consist of a Project Start-up or Project Initiation Document (PRINCE®) and a Project Justification or Business Case
- provides a baseline, or yardstick, against which you, as the Project Manager, and the Project Board can monitor progress
- provides an agreed basis for a Post-project Review.

**Statement of Work (SOW)**

Sets out the objectives, scope, organization, roles and responsibilities of a project, and identifies the constraints it faces, in a similar manner to a Terms of Reference document or a PRINCE® Project Brief.

**Steering Group**

A Steering Group's usual responsibility is to steer a project to a successful outcome. It needs to have an ultimate authority and decision-maker, who will normally chair any Steering Group meetings and may nominate the members and appoint the Project Manager. Note that terms such as Steering Group, Steering Committee and Project Board are normally synonymous, though Project Board has a specific meaning and make-up under PRINCE®.

**Task**

A piece of work to produce a pre-defined deliverable or output. May also be known as a task in some organizations.

**Task Checklist**

A list of the tasks to be completed during a stage, showing relevant important dates.

<b>Terms of Reference</b>	A structured guiding statement that defines the objectives, scope, constraints and reporting requirements of an investigation or assignment. It should also contain any assumptions, until these have been resolved.
<b>Tolerance</b>	A term for the range of permitted deviation from a project or stage plan or budget, without having to seek prior approval.
<b>Tranche (of a Programme)</b>	Usually a group of projects within a programme that will deliver a distinct outcome, capability or benefits to the sponsoring organization or its customers.
<b>Tuning (of a Project Management Approach)</b>	<i>See <b>Scaling (of a Project Management Approach)</b>.</i>
<b>Two-level Planning</b>	Use of a detailed plan for each stage, and an outline plan for the remaining stages. As you approach the end of a stage, you can plan the next stage in detail, and firm up the outline plan for the remainder of the project. These are known as 'hard' and 'soft' plans. Also known as 'rolling wave' planning.
<b>Variance</b>	Difference between that which a plan intended and an actual situation. Note that variances are almost inevitable in project work, so we need to define points at which variances become unacceptable and require correction.
<b>VFM</b>	Value For Money.
<b>Web Project</b>	Any project which includes the publication of pages on the Internet or an intranet among its outputs.
<b>Work Breakdown Structure (WBS)</b>	A planning structure, usually a list or diagram, showing how work to deliver a project is to be broken down into work packages, tasks and sub-tasks. <i>See also</i> Product <b>Breakdown Structure</b> .
<b>Work Distribution Model</b>	A high-level estimating model, based on the historical distribution of work across past projects. Used most commonly in organizations that repeat projects broadly similar in characteristics and structure, and which maintain project histories recording the effort and duration of projects and their stages.
<b>Work Package</b>	A group of work activities identified during WBS development in a Phase or Stage Plan, supported by an information set, normally relating to a key deliverable, with a named individual accountable for its delivery.



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**A-Z**