SHORTCUTS TO SUCCESS

Project management in the real world

Second edition

Elizabeth Harrin

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SHORTCUTS TO SUCCESS

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1st Edition published as 'Project Management in the Real World.' 2007

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Published by BCS Learning and Development Ltd, a wholly owned subsidiary of BCS, The Chartered Institute for IT, First Floor, Block D, North Star House, North Star Avenue, Swindon, SN2 1FA, UK.
www.bcs.org

ISBN: 978-1-78017-171-5
PDF ISBN: 978-1-78017-172-2
ePUB ISBN: 978-1-78017-173-9
Kindle ISBN: 978-1-78017-174-6

Paperback available

British Cataloguing in Publication Data.
A CIP catalogue record for this book is available at the British Library.

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Typeset by Lapiz Digital Services, Chennai, India.
Printed at CPI Antony Rowe Ltd, Chippenham, UK.

Some short sections have previously appeared on ProjectManagement.com or GirlsGuideToPM.com and are reprinted with permission.

For my family

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FOREWORD

In an age where technology plays a protagonist role in our lives, the need to find and retain excellent project managers becomes more and more prevalent. The biggest issue facing companies these days is project failure, and there is the expectation that project managers can do more with less.

As a Six Sigma Black Belt, Certified Project Management Professional, and Industrial Psychologist, I've found that irrespective of what books or methodologies you use, the secret to project success is a simple but complex formula:

Project Success = (Scope + Cost + Schedule) + Soft Skills

Scope is basically what you are expected to deliver by the time your project is done. It's important to have that clearly defined up front, otherwise scope creep can happen – you wind up taking on more than you are supposed to. As tenured as I am in this field, I sometimes fall into this trap in the spirit of managing relationships.

Not too long ago, I had an internal client who asked for a simple solution. It was pretty straightforward and because I wanted to increase my profile with this internal client, I took on this work without doing the proper documentation (e.g., Project Charter, Business Requirements Document, etc).

My team and I were able to meet the tight turnaround time and deliver the outlined scope. However, once this person had the product in hand, all of a sudden this individual was saying, `can you add this.....can you change that....oh, we also need this'. What I thought was going to be a relationship enabler quickly became a sour disabler. Making sure you document and have full transparency on what you agree to deliver is critical not only to your relationship with your sponsor but also to your brand.

Although cost sounds straightforward, it can be very complex depending on the organisation you work for. Some organisations view costs as solely the resource cost to manage the project. Others count the total cost of ownership. The difference is in how the costs impact the actual profit and loss statement.

The other consideration when defining and managing costs is the return on investment. Irrespective of how your organisation tracks costs, it's critical for project managers to show some sort of output value such as cost avoidance or expense reduction.

Cost avoidance can easily be calculated, for example, by asking the client how many hours it takes him or her to do the work manually compared to with a technology solution. How you set up this metric is really up to you and your sponsor. Your goal for every project is to think of and calculate the return on investment.

Lastly, keeping to the schedule you outline is critical to how well you and the team are able to deliver the results defined in scope. Recently, many companies have been faced with regulatory driven timelines, which results in forced work acceleration and in post-implementation rework.

Keeping to a schedule provides clarity and transparency to all stakeholders about what outcomes are expected at a particular time on the project. What I've found is that if there aren't hard deadlines, project managers tend to move the deadlines just to make sure they don't appear as though they are delivering projects late.

Elizabeth has done a fantastic job in breaking down the concepts I've applied in a way that you can easily adopt for any project. As you progress in applying theory into application, keep in mind that these techniques and tools are meant to guide you through your process. Good luck and have fun.

Bernardo Tirado, PMP
Chief Executive Officer
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ACKNOWLEDGEMENTS

I am indebted to the many managers and companies who have generously given their time and offered their experience for these case studies, including Bernado Tirado who wrote the Foreword to this edition.

I am also grateful to Jutta Mackwell and Matthew Flynn at BCS for their patience and support throughout the process, along with the anonymous reviewer who provided comments on the preparation of this edition. The book has been extensively proof-read and reviewed, so any errors or omissions in it are strictly my own.

GLOSSARY

Actual cost of work performed (ACWP) The amount of money spent on the project activities up until a given date.

Assumptions Statements made during a project that are not based on known or certain facts.

Baseline A stake-in-the-sand view of a project schedule, budget or other moveable activity which provides a comparison of the actual situation against the expected situation.

Business-as-usual Day-to-day activity as distinct from project activity.

Change control The process of managing change in a controlled way.

Change management See change control.

Contingency Provision made within the project planning stages to allow for unforeseen circumstances; usually built into the budget or schedule.

Critical path The longest route through a project plan; collective name for the group of tasks that must be completed on time in order for the project to deliver to the planned end date.

Critical path analysis The process of establishing the critical path; can include drawing out the critical path diagrammatically.

Deliverable Something tangible delivered as a result of the project.

Dependency A relationship that links the order in which activities are carried out; Task B is said to be dependent on Task A if the start or finish date of Task A must be reached before Task B can start.

Earned value analysis (EVA) A method to establish the budget and schedule position of a project based on resource planning.

Estimate at completion (EAC) The total budget required to finish the project, calculated by adding together estimate to complete and expenditure incurred to date.

Estimate to complete (ETC) The budget required to finish the project calculated from a given date to the project end.

Ice-breaker An activity or short game used to introduce team members to one another; used in workshops, long meetings or at the beginning of projects.

Issue A risk that has actually occurred or another known circumstance that may impact the project's outcomes.

Issue log A document listing all the issues that are impacting the project; updated with the activities required to actively manage and resolve each issue.

Issue register See issue log.

Management reserve See contingency.

Milestone A date when a particular chunk of work is due to be completed.

Network diagram A visual representation of a project plan, showing the links between each task; used in critical path analysis.

Pilot phase/stage A project implementation in miniature to test and assess the impact of the deliverables before the project is fully rolled out.

Plan A document, or several documents, detailing exactly what the project needs to do in order to deliver the objectives; a practical analysis of what deliverable will be produced by whom and when.

Post-implementation review See post-project review.

Post-project review A meeting to evaluate the project's successes and challenges and record any learnings for future projects; a way of sharing corporate knowledge.

Programme A collection of projects with a common theme, sponsor or reporting process.

Project board See steering group.

Proof of concept A test of the project deliverables in a controlled environment; shorter and more lab-based than a pilot.

Requirements document A document that records all the things (requirements) the end user wants from the project; used as a basis for technical documentation.

Risk A statement of the possibility that something unforeseen will happen to the project that will have a negative or positive impact on the outcome.

Risk log A document listing all the risks that may impact the project; updated with the activities required to minimise each risk.

Risk register See risk log.

Risk response The approach to managing a risk; typically one of: avoidance, transference, reduction, acceptance.

Schedule A document listing all the tasks that need to be done to complete the project and the dependencies between them; the project calendar.

Scope statement A description of what is included in the project and what is not; covers deliverables but also groups of people impacted and the reach of the intended activity.

Sponsor The senior manager who heads up the project; the person who champions the work and to whom the project manager reports with project progress.

Stakeholder analysis An exercise to determine the interest and influence of stakeholders to establish their support for the project and what can be done to influence their position.

Stakeholder mapping See stakeholder analysis.

Stakeholders Those people who have an impact on, or who are interested by, the project.

Steering committee See steering group.

Steering group A group made up of the project sponsor, project manager and one or two other key stakeholders; this group is responsible for decision making.

Success criteria The standards by which the project will be judged at the end to decide whether or not it has been successful in the eyes of the stakeholders.

Test scripts Documents explaining the step-by-step method required to test a deliverable; given to testers to ensure testing is done in a methodical way.

Wiki A collection of web pages acting as a hyperlinked knowledge repository and data set.

Workstream Part of the project that can be managed as a discrete chunk; led by a workstream leader.

PREFACE

When I was asked to put together a second edition of *Project Management in the Real World*, I wondered how much of the wisdom I had gathered for the first edition was out of date. Surely the shortcuts hadn't changed that much in six years – good project management practice was still good project management practice. I was wrong.

In the last few years, lots of things have changed. A global recession forced businesses to rethink how they deliver more projects with fewer resources. Keeping ahead of the curve became more important. The job of a project manager morphed from someone who was paid to get things done to someone who contributed effectively to business strategy through delivery. Project Management Offices became a more mature part of many businesses, helping to standardise and improve practices, and stop the loss of organisational knowledge. The role of social media tools for branding and communication grew beyond my expectations – and I was an early adopter of many of them.

Consequently, it has been possible to fully revise and update this edition. *Shortcuts to Success: Project Management in the Real World* won't teach you how to be a project manager. It's not going to show you how to set up your first project, walk you through it and see you out the other end with all the benefits realised. There are plenty of other project management books that follow the project life cycle with chapters on project definition, initiation, execution, closure and so on. This book is different.

It's for people who already know that a project has a beginning, a middle and an end and want to take project management further. It's for people who know the theory and feel there must be an easier way to get things done. It's over 250 years of project management experience distilled into 241 pages so you can see how other people run their projects outside the management texts and research papers: how projects get done in the real world.

The book is organised into five sections: managing the project budgets, scope, teams, plans and yourself as project manager. Wherever you are in your project life cycle you should be able to easily find information relevant to the particular situation you find yourself in.

Each of the five sections is divided into short chapters which explore discrete elements of the business of project management. Each chapter includes an anecdote from a manager who has been there and done it or a case study from a project with a valuable lesson to be learnt. Some names and project settings have been changed or disguised at the request of interviewees, but many of them have given permission for me to share their details and those of their projects. In addition, each chapter covers one learning point which you can put into practice immediately. The idea is that from reading about other people's experiences and a little bit of theory you will understand both why and how things can be done. Think of the book as your personal mentor, and an opportunity to learn from others.

Dip into the chapters at random and pick a section or make your way methodically through the section most relevant to where you are in your project at the moment. If a topic particularly grabs you, flick through the further reading suggestions and references to find ways to take it further.

Throughout the book you will see icons in the margins to guide you to important information in the text. Here's the key:

HINT

A hint or tip to help you apply the knowledge in the chapter.

ANECDOTE

An anecdote or case study: real-life experiences from project managers who have been there.

GOLDEN RULE

The golden rule to remember, even if you don't remember anything else about the chapter.

DEFINITON

A definition of a project management term or principle.

DANGER

Potential trouble spots or project management pitfalls.

The chapters cover the elements that I feel are most relevant to modern project management but are frequently overlooked. It has not been possible to include everything that I wanted to, and I'm sure you'll have a favourite hint, tip or memory that you believe other project managers could learn from. Please email me with your ideas for another volume at elizabeth@otobosgroup.com.

Elizabeth Harrin
London, January 2013

SECTION 1: MANAGING PROJECT BUDGETS

INTRODUCTION

> *Know that with a farm, as with a man, however productive it may be, if it has the spending habit, not much will be left over.*
>
> Marcus Porcius Cato (234–149 BC), *De Agricultura*

More than one-third of projects have a budget of over £1 million so knowing how to handle the finances is an essential part of a project manager's repertoire. The initial budget is often just a starting point. An incredible 56 per cent of projects are affected by budget changes and that's not just a one-off financial revision. The average project, if there is such a thing, has its budget revised 3.4 times.[1]

Keeping on top of all this is not always easy, and it is made harder by the fact that project managers themselves don't always get control over the money. If that's the case, why should you care about the numbers? The answer depends on where you think a project manager's role ends. If you believe that your job is to deliver the project according to the scope and quality criteria set out by the sponsor, then it doesn't matter about tracking hours of effort or money spent. However, the project manager's role should cover far more than that. Your role is to deliver a project that is fit for purpose and adds some value to the organisation. Whatever you are working on should have a benefit, even if they are not financial benefits. There should be a purpose to what you are doing – someone who cares about the outcome enough to sponsor the project, and a business case that justifies why you and your organisation are bothering to work on this project at all. And that requires you to know a little about the finances of the project.

This section covers how to manage project variables over which you do not necessarily have authority, how to find out who has that authority, and how to manage the relationship with the budget holder. Many projects do not appear to have budgets at all and Chapter 9 looks at working effectively in that environment. This section also looks at reporting, tolerances and contingency.

1 CREATE A REALISTIC BUDGET

Even the smallest project will have overheads: your time as the project manager as a minimum. Nearly all projects will have more than that, so part of your role in setting up the project is to define and propose a budget for the work and get that approved.

PLANNING REALISTICALLY

Established in 1943, Hanford, a nuclear processing plant, produced plutonium for the world's first nuclear device. The facility, which lies along the Columbia River in Washington State, is now home to one of America's largest nuclear waste storage plants run by the United States Department of Energy (DOE). There are 177 waste tanks on site, storing about 56 million gallons of high-level radioactive waste underground – that's equivalent to an area the size of a football field over 150 feet deep.

The DOE launched an 11-year project in 2000 to build facilities at Hanford to treat and prepare the waste for disposal. Around the same time, the DOE launched a project management initiative designed to counteract the department's poor record of inadequate management of contractors. The initiative recommended that contingency funding be built into a project budget according to the project's degree of risk. Unfortunately at the time of signing a contract with the construction company in December 2000, the project management initiative had not been fully implemented. When an internal DOE assessment was carried out, it became clear that the department had signed a contract with a flaw: the cost baseline of $3.97 billion was so low that the project had only a 50 per cent chance of delivering against it.

The DOE took steps to address the gap in April 2003 and revised the cost baseline to include a $550 million contingency budget. They also set up a governance panel consisting of both DOE and contractor personnel to manage the additional funding and to monitor spending. The aim of the contingency budget was to counter unforeseen cost increases across the life of the project. The team also allocated an additional $100 million to be used to mitigate unforeseen technical and management risks.[2]

An audit in March 2005[3] highlighted that project reports were still showing that the clean-up work was on target to meet the approved baseline of $5.78 billion. However, by 2006 the construction project team was forecasting a final budget of $12.3 billion. The massive increase in cost was due to contractor and management performance problems, changes in scope and technical problems. As a result, the timescales had also slipped. The team had initially planned for the construction to be complete and for the treatment of waste to start in 2011. This has now been pushed out to 2019[4].

The Government Accountability Office, which audits major public sector projects in the United States, reported in 2009 that the DOE's estimates of how much it will cost to complete this project 'are not credible or complete'. They have also criticised how estimates have grown each time the work has been re-estimated. At the moment there is no way of knowing exactly how much this project will cost – or if it will finish successfully at all.

You might not be decommissioning thousands of tons of nuclear waste, but you can learn from the need to create a realistic budget. You can work out how much money you will be spending based on what you know needs to be done, just as you work out how much time the project will take based on the same information. Think of the budget as a shopping list of all the things you need to buy to make sure the project gets completed. Just like a trip to the supermarket, you might not end up spending exactly what you expected but at least the list gives you a reasonably accurate starting point. 'When planning, assume your budget will not be increased or decreased during the project,' writes George Doss in the *IS Project Management Handbook*. 'Budget changes…are adjusted through negotiations with the project sponsor based on circumstances at the time.'[5]

There are five steps to creating a project budget:

1. Identify the resources required for the project.
2. Estimate the cost for each of those resources.
3. Document the costs and calculate the overall figure.
4. Submit the budget to your steering committee or sponsor for approval.
5. Find out your budget code.

Let's take each of those steps in turn:

1 IDENTIFY THE RESOURCES REQUIRED FOR THE PROJECT

Review the schedule, project initiation document and any other documents you have to identify the activities that need to be completed. Draw on your stakeholders and project team to brainstorm anything else that might be required (like travel, accommodation, couriers, equipment and so on). Will your project have to pick up the costs incurred by other areas of the business that are impacted by the work you are doing? Ask other managers who have done similar projects to validate your list.

2 ESTIMATE THE COST FOR EACH OF THOSE RESOURCES

Every step, every task of the project will have associated costs. Projects that do not have full-time staff may avoid paying for the entire salary of anyone working on it, so ask the finance department if there is a list of standard chargeable rates per 'type' of employee. For example, your project might have to pay £1,000 per day for an expert manager, but

£650 per day for a junior marketing executive. Some of these costs may be just 'wooden dollars' – especially for internal resources. They are simply figures you plug into the business case but in reality money never changes hands. Check out your company's rules for charging for project team members' time and also check with each department head about their expectations. For example, if they are loaning you a person for the team, they may expect the project to fund a temporary resource to back-fill that person's day job.

A NOTE ON ESTIMATING

Given the flexible nature of budgets, and projects in general, it's very hard to pin down costs to an exact figure at an early stage of the project. And it's not a good idea either, unless you are absolutely 100 per cent sure that your estimate is spot on and will not change.

At this stage, present your estimates as a range rather than a fixed sum. This means that your overall project budget, once you have added up all your estimates, will be between £x and £y. It is this range that you present to your project steering group and sponsor.

Presenting a range gives you a little more flexibility later on. It also offers you the chance to start managing the expectations of your key stakeholders now – they will have to come to terms with vagaries and changes as the project progresses so now is a good time to start explaining the nature of project management.

3 DOCUMENT THE COSTS AND CALCULATE THE OVERALL ESTIMATE

Companies that carry out a lot of projects will probably have a standard template for submitting a budget, so find out if there is a form that already exists. Create your own in the absence of anything standard, using a method that suits you. Spreadsheets are the most effective way of recording and managing costs. The advantage with an electronic budget spreadsheet over using a word-processing package or a paper system is that you can include formulae to ensure that summary figures and column totals update automatically, reducing the risk of manual error and saving time. Software like Google Docs (if this is authorised for use by your company) allows you to share the spreadsheet in real time with your project team and stakeholders, wherever they may be, and have multiple people update it (although you may not want this, of course). Group similar costs together so you have sub-totals as well as an overall total and include a line of contingency for risk management. Compare your budget range to any amount given to you by the project sponsor and see below for what to do if the figures don't match.

4 SUBMIT THE BUDGET TO YOUR STEERING COMMITTEE OR SPONSOR FOR APPROVAL

Once you have your budget written down, it needs to be approved before the project can continue. Your sponsor or steering committee are the first point of approval. They will advise you on whether the budget needs another level of approval from finance, a central planning committee, an IT authorisation forum or another group, depending on where the funds are actually coming from.

More often than not, you'll be asked to kick off the project without budget authorisation. In the real world, there are deadlines to meet that won't wait just because the budget committee only meets on the last Tuesday of the month. If you're asked to start work without the relevant approvals – get on with it! But make sure you have something in writing to cover yourself against any expenditure incurred during the time you're working without an approved budget.

5 FIND OUT YOUR BUDGET CODE

Assuming all goes well, the budget will be approved and you will be given the go ahead to spend the money required. Any expenditure needs to be tracked back to the project so the budget holder can keep an eye on what is being spent. The project might be allocated its own 'pot' of money, ring-fenced from other budgets, in which case you will probably have a cost centre code of your own. Alternatively the project might be allocated a portion of the budget for a particular department. If this is the case ask your sponsor how they want you to identify project spending. A non-committal answer means you will have to invent your own code, perhaps the project number or a shortened version of its name. When you sign to approve an invoice or raise a purchase order, use the code to ensure the expenditure can be tracked back to the project: make certain that anyone else who has the authority to use the budget does this as well.

WHAT IF MY SPONSOR ALREADY HAS A BUDGET IN MIND?

Just because this is a sensible five-step approach, allowing you to analyse the work involved and cost it accurately, does not mean that it is followed by all project sponsors. For many reasons you could find yourself working on a project where the sponsor already has a set figure in mind. Some sponsors will knock off 10 per cent from your total because they believe the numbers are padded. Others may be compelled to halve the budget because someone higher up the chain expects cuts across the board.

If you put your mind to it, you can complete any project to a specified budget: at a hidden cost. Corners will need to be cut, quality might suffer and the customers may not get everything they thought they would. Present your steering group with a couple of options for reducing your proposed budget to their predefined figure, making the trade-off between quality, time, scope and cost. They may still tell you that it's their budget you need to follow, but at least you have explained the risks of delivering to a certain, abstract, budget figure and you have your planning documentation to back up your arguments.

To create a realistic budget, base your predicted expenditure on your project planning documentation and get the budget approved as quickly as possible to prevent any delay in starting work.

2 CALCULATE THE TRUE COST

The cost of your project is probably not as transparent as you originally thought. Digging into the detail will help you really understand how much the project will cost and help you avoid any nasty surprises later.

THE COST OF CARS

‘One early project I worked on required the consolidation of nine separate service desks into a central service desk,’ says Alison Marshall, a US project manager with 17 years’ experience. ‘The existing service desks were at different physical locations. During a team meeting someone asked where they should park when they began working on-site.’

This started a discussion about the cost of parking – and these costs had not been added to the initial budget. Staff members had free parking at their current work locations but the new site charged $120 per month for parking. Parking for over 60 people soon added a massive $90,000 cost to undertaking the project.

‘This indirect cost was significant,’ Alison explains, ‘whether the project paid for the parking, the organisation supplemented the difference via salary or absorbed the turnover cost of losing staff unwilling to pay the new fee.’

The organisation decided to supplement the fee by providing salary increases to the affected staff. ‘As project sponsors use final reported costs as a benchmark for similar future work it was important to review the original budget estimate against all true costs associated with the project,’ Alison explains. ‘The true cost variance from estimate when the parking fees were added was 3.75 per cent. In my experience a key to deriving true project cost is to place an emphasis on identifying and capturing indirect costs. Don’t be afraid to ask as many questions of as many people as you can. You can’t calculate what you don’t know.’

When finalising a project budget Alison combines the direct and indirect costs for owning an asset, project or system to provide the total cost of ownership with the cost of carrying out the associated project activities. ‘In an attempt to gather costs for the full project lifecycle I use a collaborative approach,’ she says. ‘I request feedback from the project team members regarding which activities and items are needed to execute the project. Once team members feel that they have had their individual input I bring the team back together for brainstorming. You will be surprised by what comes out of that type of team session. Something you perceived as a small issue or one you may not have thought of on your own can have significant cost implications.'

Shim and Siegel define a budget as 'the formal expression of plans, goals, and objectives of management that covers all aspects of operations for a designated time period'.[6]

There are two important elements here. The first is 'all aspects'. Figure 2.1 shows the two categories of expenditure you should consider in detail:

1. project management costs: the costs of doing the business of project management, and;
2. project deliverable costs: expenditure directly related to what the project is going to deliver.

Using these two categories will help clarify your thinking when you are analysing your budget to guarantee that it includes 'all aspects'.

You might be working on a smaller project and not trying to manage the consolidation of nine service desks and the knock on implications of 60 people's car parking fees, but the lessons from Alison's experience are worth implementing nevertheless. When you are trying to calculate the total cost of your project, brainstorm all the things that will cost money in both categories. Do this with your team so that collectively you have the best possible chance of identifying everything. Include paying for your team members (project management costs), buying software or consultancy and funding anything that will change as a result of your work like new stationery or user guides (project deliverable costs). Maybe you will have to provide training courses (project management costs which will include the costs of a trainer, room hire, refreshments, delegate transport and accommodation), host large meetings off-site (project management costs) or pay for documents to be translated (project deliverable costs).

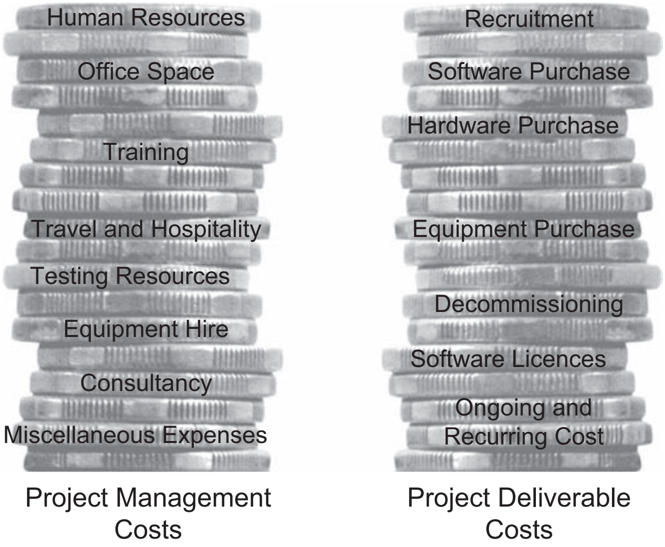
Once you have a comprehensive list, add to it all the things that you believe will not cost anything: the business users' time for testing, your time and so on. This gives you a documented list of 'free' things. These form project assumptions and will be validated as the project progresses. Your sponsor should verify this list, which can be included in the project initiation document. If at any point you find that you were wrong and that you do have to pay for items you believed were free, you can explain to your sponsor that the budget increase is due to these assumptions being incorrect. We'll see more about assumptions in Chapter 24.

Once you've worked out all the elements and likely costs, decide on how to report your budget. If your sponsor is only interested in cash out the door, it will not be necessary to report how many days the 'free' human resources have spent working on the project.

The second important phrase in Shim and Siegel's definition is 'for a designated time period'. The project does not necessarily end as soon as you have delivered whatever it was you set out to deliver. There could be (and are likely to be) costs incurred in the final stages; the 'grave' part of 'cradle to grave'. The budget should include adequate provision for any end-of-project expenditure. That means, for example, the charges for decommissioning any now-defunct system, product or literature, retraining for staff who now don't have the right skills and generally making sure the old status quo is not someone else's financial headache.

Michael Cavanagh, in his book *Second Order Project Management*, argues that you don't know the full cost of a project until it has been delivered. '[P]ost-delivery costs including fault correction, maintenance, support and disposal are all subject to the vagaries of implementation in the real world and should be addressed and included in the estimate process,' he writes.[7] It is very difficult to estimate these elements, as at the beginning of the project it's almost impossible to know what they could be. You can use the budgets of previous projects as a guide, and conversations with subject matter experts as well to see if you can come up with some appropriate estimates for the post-delivery phase.

Figure 2.1: Types of project expenditure[8]


Human Resources
Office Space
Training
Travel and Hospitality
Testing Resources
Equipment Hire
Consultancy
Miscellaneous Expenses
Project Management Costs
Recruitment
Software Purchase
Hardware Purchase
Equipment Purchase
Decommissioning
Software Licences
Ongoing and Recurring Cost
Project Deliverable Costs

The post-delivery phase signifies the end of your project life cycle. If the whole life cycle stretches over 12 months this can have another important impact on budget management. If your project stretches over two financial years you will have to apportion your budget appropriately and might have to navigate your way through the maze of year-end accounting and the accrual process. Get some advice from an old hand if you're facing doing this for the first time as the rules differ from one organisation to another – although it might take you a little while to find someone who can explain them clearly!

Don’t guess what your budget is supposed to pay for. Do your own research and work with your team to fully understand all the explicit and hidden charges to help you control costs more accurately over your project’s life cycle.

3 TRACK ESTIMATE TO COMPLETE

It is easy to track how much of your precious project budget you have already spent (assuming you keep copies of invoices and timesheets). It is also easy to assume that you will simply use up the rest of the available money evenly between now and the end of the scheduled work. However, this approach gives you a false impression of how you will spend the rest of your budget.

To give you an example, you could be 50 per cent of the way through the project and have spent 50 per cent of the budget. However, if a big purchase has not yet happened, such as buying and installing servers for a production software environment, having only half the budget left could be a sign of a trend towards overspending. Project costs are rarely distributed evenly throughout a project: some projects spend very little early on and then incur all the costs in the last few weeks.

'Estimate to complete' (ETC) is the amount of money that you predict will be required to finish the project. Tracking ETC gives you an accurate view of the projected budget you need to get everything done.

REAL-TIME BUDGETING

'The most important things I reported on projects were budget to date, actual to date and estimate to complete,' says Lonnie Pacelli, who worked at Accenture before setting up his own consultancy. His 20 years of experience at delivering projects and his previous role as Microsoft's director of corporate procurement overseeing $6 billion of expenditure have given him a clear insight into how to handle project budgets.

'One of the most overlooked components of budget management is a realistic estimate to complete,' he continues. 'Too many times a project manager will just subtract their actual to date figure from the total budget to calculate the estimate to complete.' Lonnie believes this gives an unrealistic view of the money needed to finish the work. He suggests a better route is to determine the estimate to complete based upon the tasks the project manager knows are still to do, and not on a vague hope that the project will come in on budget.

'A realistic view of estimate to complete is a major sniper in the weeds on projects. Too many project managers assume that everything will go perfectly for the remainder of their project even if the project to date has been difficult,' adds the Washington-based president of Leading on the Edge International, a management consulting and self-study leadership education firm. 'Don't just say "I have $1 million total budget, have spent $600 thousand so my estimate to complete is $400 thousand." Look at the remaining amount of work left to complete and realistically cost out the work.'

This approach is more robust and it will also allow you to highlight potential budget issues early. 'I reported budget status to the executive sponsor, steering committee and also the project team,' Lonnie says. His advice for project managers who find themselves reporting that their projects will go over budget on completion is to use a realistic ETC figure and ask for more money just once. 'Going back to the well more than once erodes management's confidence in the project manager and creates doubt as to whether or not there is another surprise waiting around the corner,' he explains. He cautions against holding back the information about the cost rise, and is clear that raising the issue early is a safer tactic. 'Don't assume some wonderful thing is going to happen which will cure all of your budget ills,' he says. 'Surprises are for birthdays, not for project budget management.'

Calculating the estimate to complete for your project is really straightforward. You already know how much of the work is done, so you know how much is left to do, based on the latest version of your plan. You can work out how much the still-to-do work will cost, based on your budget assumptions. That figure is your estimate to complete. It is more useful to express this figure as a financial amount rather than a number of hours or days of effort to be sure the ETC takes non-resource costs into account, such as buying equipment or leasing a property. Also bear in mind that you may not have all the invoices from third parties. Their charging patterns may mean they invoice a month in arrears, after the work is done. You could find yourself in a situation where the work is complete but not yet charged for. Just ask them for the relevant figures if you're not sure.

The ETC plus the figure you have already spent represents the budget you expect to have spent at the end of the project.

The budget already spent is known as actual cost of work performed (ACWP). Your estimate of the total amount spent on the day you close the project is known as estimate at completion (EAC) and this is the figure that will interest your sponsor. This calculation is summarised in Figure 3.1. Keeping track of EAC is a simple way to predict budget overspend. It provides an early-warning mechanism and allows you to plan how to tackle an increasing budget. In fact if you are working on a technology project it is highly likely that your monitoring will show escalating costs. Between 30 and 40 per cent of IT projects fail to stick to their original budget.[9] Studies show it is worse in other industries: 90 per cent of transport infrastructure projects overspend.[10]

The reasons for overspending are many and varied but the costs to be most aware of are those associated with your human resources. In fact, research shows that we are getting worse at managing the resources associated to the project: a study published in the *Project Management Journal* in 2010[11] showed that 26 per cent of people thought that they had enough resources allocated to their project in 2000 but only 16 per cent of people thought the same in 2008. The same study also showed that good cooperation with other teams and good work processes has a direct relationship to improving the chance that the project will complete on budget, so don't underestimate the role that people, following robust processes, can play in making sure you hit your budget. Fortunately, using ETC and EAC to track expenditure on your project can help you identify any trends towards extra costs at an early stage.

Figure 3.1 Calculating estimate at completion

ETC + ACWP = EAC

ETC, ACWP and EAC are components of a larger financial tracking method called earned value analysis (EVA). EVA is a tool that shows whether you are over or under budget, behind or ahead of schedule, at any given moment in the project.

There is not the space here to explain EVA in its entirety. If you are just starting out in project management and have a relatively small budget, calculating ETC and EAC are a good solid start. As EVA takes time and effort to do properly it adds limited value to small projects. With a larger project you may find the EVA method useful to help you understand where you are. *Project Management for Dummies* has an excellent appendix describing EVA and including worked examples so if you are interested in taking these measurements further, try that as a basic introduction.

Remember: any financial or mathematical calculation can only offer a numerical representation of a project's situation with regard to the overall costs and schedule. No figures like this will ever give you a narrative explanation of why your project has ended up here or why it appears to be going off the rails – you will have to work out the 'story' for yourself.

Tracking ETC and EAC will give you an early warning of possible project overspend and useful real-time information to report to your sponsor, but you will need to add the explanation of why the numbers look like they do for yourself.

4 AGREE A BUDGET TOLERANCE

A budget tolerance is a range within which you can spend without having to report back to your sponsor or ask for more money.

Budget tolerance is particularly useful at the end of a project as you near the delivery date. If you have a budget of £80,000 with a tolerance of 10 per cent and you complete the project for £85,000 you have still delivered within the parameters set by your sponsor. A budget tolerance of 10 per cent means you can deliver the project 10 per cent over cost without having to get special permission to do so.

NOT A PENNY MORE...

Peter McDonald, an engineer working in Wales, thinks back to his first project: 'It was quite small actually,' he explains. 'I was just starting out in project management and was working in a team improving the process for getting car parts off a distribution line more quickly. The project budget for non-resource spend was small and as no one else wanted to do it, I got put in charge of monitoring the expenditure.' The project manager delegated the responsibility for tracking the budget and ensuring the team did not spend more than had been agreed to Peter. 'I was really nervous and I watched every penny,' he adds. 'I suppose it was about £30,000, which considering what I manage now really wasn't that much, but at the time on my just-out-of-university salary it was massive.'

Peter's team had eight months to analyse the existing process, come up with a new one and implement the changes successfully. The analysis went well and within three months the team had got agreement from the factory management to implement their new process. There was no budget for buying new machines so the changes were subtle but effective. 'We ended up by streamlining the process in the warehouse,' Peter says. 'We couldn't make changes to the actual manufacturing part of the process as it was prohibitively expensive, but we cut out some of the admin steps.'

It was re-engineering the paperwork that used up most of the budget. The project manager consulted with Peter and purchased a system for hand-held scanning machines to remove the need for manual checking when boxes of the car parts were ready to be shipped out. 'The technology seems antiquated now, but it was revolutionary for us,' Peter says. 'But the problem came when the invoice dropped on to my desk.' He had forgotten to add the cost of delivery charges and the three-year warranty the company had purchased. With those additional amounts the budget was now running at three per cent over. Peter started to worry. 'There was no way I could pull the budget back in line, especially as I wasn't the project manager,' he explains. 'So I had to confess.'

Peter took the project manager to one side and informed him of the mistake. 'He asked me if we were still on track to deliver everything else within budget, and I said yes. Then he told me not to worry as he had agreed a five per cent tolerance with the sponsor!' Peter was relieved but annoyed. 'I should have been told that at the beginning when I was given the responsibility, but I didn't ask either,' he says. 'Since then I've made sure I know what the tolerance levels are for my projects so I'm aware if there is some degree of flexibility.'

At the beginning of the project discuss a budget tolerance with your sponsor. It is a way of minimising effort for them as you will not be bothering them with frequent change requests for tiny budget increases. Agree an appropriate tolerance and write it into the project documents. What is appropriate will depend on the size of the project, the size of the organisation and its maturity with regard to projects. The tolerance will not be 'used' until the end of the project but it will help you monitor performance and track how you are doing compared to your initial estimates. As soon as the project looks like it will fail to deliver inside the tolerances, you know you have a problem to address. Tolerances can be used like early warning systems: they give you a little bit of leeway but enable you to quickly tell how far you are from your targets if the project begins to stray off course.

HOW IS CONTINGENCY DIFFERENT FROM TOLERANCE?

A contingency fund is an amount of money set aside for project emergencies. It is a project's overdraft. The project manager needs permission and a good reason to spend it, but it is assumed that it will be used at some point or other through the project. Contingency can be for any amount, sometimes even 50 per cent of the original project budget. The project manager calculates an appropriate amount based on the project's risk factors and negotiates the final allocation with the sponsor.

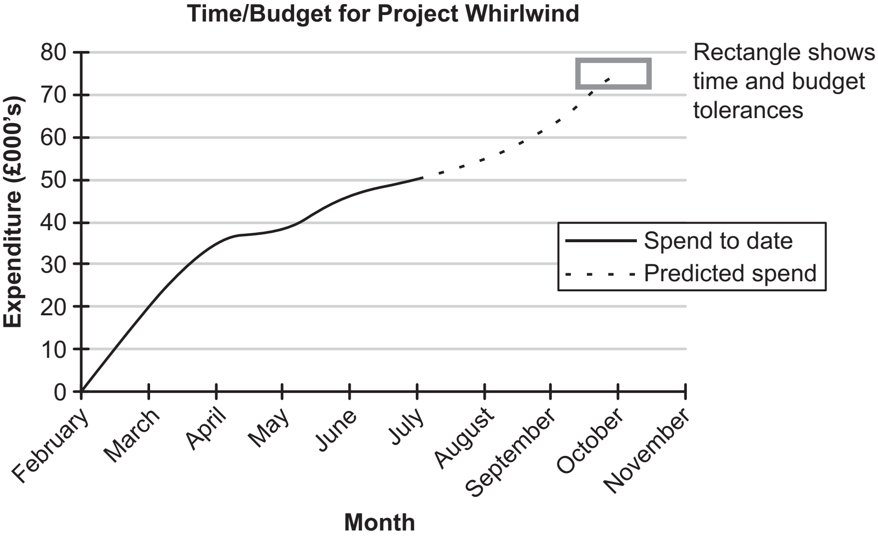
Budget tolerance is the amount by which the project can be delivered over (or under) budget without anyone being concerned. It's usually a small amount represented as a percentage. Tolerance is either calculated as a straight percentage of the core budget estimate or as a percentage of the core estimate plus the contingency fund. As you should assume the contingency will be spent, it's better to agree a tolerance based on the latter.

The amount of tolerance is set by the sponsor or main budget holder, based on your recommendation. It's an acceptance of the fact that you might need a little extra and that in the grand scheme of things, the overall company budgets can handle a little flexibility.

This type of tolerance relies on your sponsor agreeing to a degree of flexibility within the project budget. But what happens if they say no? If you are not allowed an explicit tolerance then the pressure is on to deliver on budget. A contingency fund becomes even more useful. But what if you can't get your sponsor to agree to one of those either? Consider padding your budget estimates a little so you give yourself a cushion of implicit contingency. It's sneaky but it will give you more flexibility with the finances later if you can get away with it.

Budget and time tolerances are often set together as part of the same conversation with a sponsor, which means they can be plotted graphically as in Figure 4.1. This graph shows that the sponsor is happy for Project Whirlwind to finish between mid-September and mid-October and cost between £71,250 and £78,750 although the target is to finish at the end of September and spend £75,000. The sponsor and project manager have agreed a budget tolerance of +/– five per cent.

Figure 4.1 Time and budget tolerances for a hypothetical project



If your project is part of a programme, you may find that the programme overall has tolerance levels set. Your project will be expected to operate within these. Let your programme manager know if you are no longer on track to hit your budget targets exactly – he or she will need to balance the needs of other projects in the programme and may need to adjust the forecasts at the programme level to account for the change in your project.

Minus tolerances are important too. If you bring a £75,000-project in on time and to the required specification but only spend £20,000 then someone will start asking questions. Tying money up in project budgets that could be put to better use elsewhere is not good business practice and will cause significant issues in small organisations. If you believe your budget will not be spent within the tolerance levels, study why, double-check and then raise a formal change to make your sponsor aware of the issue and adjust the budget according to your new calculations.

Agree a budget tolerance early on with your sponsor, even if you won't come to use it until later in the project.

5 HAVE A CONTINGENCY FUND

A contingency fund is money set aside at the start of a project to be used in case of need, for example to offset unforeseen increases in costs. The amount of this ring-fenced budget depends on the level of risk the project faces and also on the overall project budget itself. Contingency funds are sometimes called management reserves.

PLANNING CONTINGENCY BASED ON RISK

‘The contingency budget is the budget set aside to deal with identified and unidentified risks,’ explains Graham Inglis, a technical project manager with 20 years’ experience who is now based in Paris, France. ‘After quantitative risk analysis, a budget for the identified risks should be known. In addition to this it may be wise to set aside a provision for unidentified risks, especially if the budget for the identified risks seems small. Some organisations have rules of thumb which set the contingency budget at say 10 per cent or 15 per cent, but in general it’s sensible to modify this in light of the risk analysis.’

Graham was able to put this into practice on an electronics development project where the quality of certain design inputs was unknown. The team calculated the risk budget based on the cost of having to re-engineer these inputs and the impacts on staffing and on the schedule. Then they added a standard contingency budget for the later project steps based on previous experience on similar projects. ‘After checking the margin impacts of the worst case scenario, the contingency budget was set based on the most likely case scenario,’ says Graham.

As it turned out, the team did have to do some re-engineering. ‘Part of the sum allocated to this was used,’ Graham says. ‘The remainder was retained in the general contingency budget for possible later use. Much later in the project, a problem was found which required a small redesign charge and a large re-manufacturing charge. The contingency budget had to be used.’ Even so, there were still some funds left at the end of the project and these were released to general funds at the end.

‘It’s important that the project manager can easily access the contingency budget,’ advises Graham. In the case of his electronics project, use of the contingency budget was under the control of the project manager, but reported to the project board. ‘If the approval process is too complicated or lengthy there’s a real risk that the project manager will not initiate the corrective actions early enough to contain the overrun to a minimum.’

At the beginning of your project you will need to calculate the expected budget required in order to deliver the work. This budget figure is the first step to being able to work out a reasonable contingency. The project risk log will also be important, as your knowledge of the risks inherent in the delivery will inform your decision about how much contingency is required: the riskier the project, the higher the amount of contingency budget.

Calculating contingency is not really a science. Once you have a full understanding of the work the sponsor expects you to deliver you must take a best guess at the figure and ask them to approve it. Your company might use a formula for calculating contingency but as it depends so inherently on the risk factors for each individual project it is hard to give a one-size-fits-all equation. A project that has been run several times before, with experienced staff and solid estimates for both time and expenditure, will need little, if any, contingency. A project using new technologies or doing something that the company has never done before will require a large contingency fund to offset any unforeseen disasters.

'IT'S TOO HARD TO WORK OUT WHAT "REASONABLE" CONTINGENCY IS. I WON'T BOTHER.'

It is not a good tactic to avoid setting a contingency budget because it's too hard to work out what is reasonable. Add a contingency line to your budget of 10 per cent. This at least gives you a starting figure to begin negotiations with your sponsor and it will give you some leeway if it does turn out that your estimating has been a little wayward. The more experience you have with budgeting, and with projects, the easier it will be to predict what amount would make a reasonable contingency fund.

Whatever your chosen figure for the contingency budget, you will have to convince your sponsor you need this allocation. Explain that it will cover things like cancellation costs for training courses when your delegates are ill, unforeseen bills (small items soon mount up) or VAT on a supplier's quote that you took to be inclusive but was actually extra. Aside from these small expenditures that you may not have seen coming, it will also be used to deal with any plans to address risk factors. Remember that the contingency fund is there to help cover costs for work that is required to meet the original objectives. If the sponsor wants changes to the project scope, these should be costed and their impact analysed separately. The sponsor should find additional funds to pay for changes. For more on managing changes, turn to Chapter 15.

Sponsors aren't renowned for letting project managers have what they could see as a slush fund. It may help your case to explain to your sponsor that the money will be kept separate from the main budget. It will not be physically in a separate bank account but it is a separate line in your budget tracking. Also explain the situations in which you will call upon those funds and the approval process required to spend them. This process could be that you'll ask for their approval every time you dip into the fund, or that you'll control the fund as a separate budget from the main project budget. Fleming and Koppelman, in their book *Earned Value Project Management*, argue that the second approach is better, but if the project manager is in charge of the contingency fund, that this be put aside. If the contingency budget is left within the main project budget 'it likely will be consumed' they write.[12]

Once you've agreed the process of using the money with your sponsor, you can also explain that having the additional money set aside now will make dealing with any project changes or unforeseen events much less painful in the future – and if you do not use the budget it will always be there for another project.

Ruthanne Schulte from Welcom[13] outlines four steps to managing budget contingency:

1. Calculate the amount of contingency budget for each short phase or unit of work, not at a project level.
2. Hold the money separately and get management approval to move it across to the main budget.
3. Once management have approved the spending, increase your budget appropriately so you have an accurate idea of how much you have spent or are predicting to spend.
4. If contingency is not required, give it 'back' to the company so it is not included in any profit calculations at the end of the project.

The important point here is to make sure that you report the use of any contingency funds transparently. It will give your sponsor more confidence that you are acting in an accountable way and should also dissuade you from overspending irresponsibly.

A contingency budget allows you to react more quickly to any unforeseen events that plague your project. If you are able to convince your sponsor to let you have one, set the amount based on project risk and ensure you have a mechanism by which to authorise and monitor the use of the funds.

6 GAIN BUY-IN FOR COLLECTIVE BUDGET RESPONSIBILITY

A budget is the responsibility of everyone in the project team, whether or not the team members individually have anything to do with the administration or invoice handling on a day-to-day basis. Every member of the team incurs costs (for their time as a minimum) and therefore should appreciate their role in making sure the project stays within budget.

MANAGING THE MEADOW

Roffey Park Institute is a charitable trust which is internationally recognised for developing innovative learning approaches that enable individuals to achieve their full potential both at work and in their wider lives. Since it was founded in 1946 the training courses and research have shifted with the economy to concentrate less on the factory as a workplace towards the well-being of employees in businesses. The success of the Institute led its Board to consider expansion – a project they knew would be a huge undertaking. 'We set a project budget and as Roffey Park is a charitable non-profit making organisation without substantial free reserves there was no possibility that this budget could be exceeded,' explains Val Hammond, who was chief executive at the time.

Working with a professional project manager, the Institute appointed architects who worked closely with the initial project team to understand the requirements and constraints. The brief was complex: redevelop the site of the Roffey Park Institute to replace existing residential accommodation with double bedrooms of four star hotel standard, add a conference centre, provide additional dining and catering facilities and incorporate suitable landscaping to link and blend the new and old buildings (some going back to the 1850s) into a harmonious whole.

'The architects' design exceeded everyone's expectations in terms of meeting the brief and also took into account the environmental issues and the need to keep running costs and on-going maintenance as low as possible,' Val says.

But the project soon hit a major problem. Roffey Park is situated in the Sussex countryside in an Area of Outstanding Natural Beauty (AONB) – zones that are carefully regulated and subject to very rigorous planning requirements. 'AONBs also tend to arouse strong emotional responses with the community since, by definition, they are beautiful and rare places,' Val continues. 'In this case the pre-planning application consultation with local residents took considerably longer than foreseen.' In fact, the consultation process delayed the original opening of The Meadow complex by around two years.

'We have been supporting the local community, as well as delegates from around the world, for decades, so it was important to us to do the consultation and application properly,' Val says.

Once planning permission was achieved, a permanent project team was appointed and everyone was confident of their ability to build within the budget figure. The team produced a new schedule for the project and agreed the dates. However, the Meadow project hit another problem as soon as the detailed building drawings were available as the construction company quickly formed the view that it could not be built for the agreed budget. 'Prices had risen since the designs were developed and they estimated the project, as planned, would now exceed the budget by nearly half as much again,' Val explains. 'We were not able to increase the available funds, so this was a much more serious problem than the time delay.'

The project team presented many options to reduce the cost, including losing the conference room, and cutting the number of bedrooms, but the Institute was utterly committed to the flexibility the original design offered and the building in its entirety had become integral to the business plan. The Institute, renowned for its innovative approach to management research, applied some of those skills to come up with a new way of bringing the project back under budget.

Val continues: 'Diligent work and painstaking negotiation on the part of all involved brought the project back into line. No elements were cut entirely but some were reduced in scale. Elsewhere detailing was streamlined to simplify the construction but distinctive elements such as the "egg shaped pods" to be used as syndicate rooms, the environmentally sound construction and living roof over the conference centre were retained.'

In a project where there was no margin for error and very little in the way of a contingency budget, Val knew that keeping the budget on track for the duration was going to be a challenge. 'The principal actors: the Institute as the employer, the architect, the quantity surveyor, the construction company, the site and services engineers as well as the project manager accepted joint responsibility for the budget,' she says. 'We agreed that if any element went off track for any reason, there would be a collective effort to find a saving elsewhere, without compromising the quality of the building.' It was an approach that proved to be very successful. 'Sometimes it involved one discipline finding ways of offering more cost-effective solutions in their area to allow another to meet a necessary overspend that could not have been anticipated. On occasions, it meant the Institute had to compromise too.'

The project team worked extremely closely together with a high degree of trust and there was architectural support on site continuously to deal with design queries and develop cost-effective solutions. Working in this way, the whole team brought