

SECOND EDITION

IChemE

PROJECT MANAGEMENT TOOLKIT

The Basics for Project Success

DR. TRISH MELTON



Project Management Toolkit

The Basics for Project Success

Second Edition

Trish Melton

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Project Management Toolkit



About the author

Trish Melton is a project and business change professional who has worked on engineering and non-engineering projects worldwide throughout her career. She works predominantly in the chemicals, pharmaceuticals and healthcare industries.

She is a chartered Chemical Engineer and a Fellow of the Institution of Chemical Engineers (IChemE), where she was the founder Chair of the IChemE Project Management Subject Group. She is a part of the Membership Committee which reviews all applications for corporate membership of the institution and in 2005 she was elected to the Council (Board of Trustees)

She is an active member of the International Society of Pharmaceutical Engineering (ISPE) where she serves on the working group in charge of updating ISPE's *Bulk Pharmaceutical Chemicals Baseline® Guide*. She is the founder and Chair of the Project Management Community of Practice formed in 2005. She has presented on various subjects at ISPE conferences including project management, quality risk management and lean manufacturing and has also supported ISPE as the conference leader for project management and pharmaceutical engineering conferences. She is also the developer and lead trainer for ISPE's Project Management Training Course. In 2006 the UK Affiliate recognized Trish's achievements when she was awarded their Special Member Recognition Award.

Trish is the Managing Director of MIME Solutions Ltd., an engineering and management consultancy providing project management, business change management, regulatory, and GMP consulting for pharmaceutical, chemical, and healthcare clients.

Within her business, Trish is focused on the effective solution of business challenges and these inevitably revolve around some form of project: whether a capital project, an organizational change programme or an interim business solution. Trish uses project management on a daily basis to support the identification of issues for clients and implementation of appropriate, sustainable solutions.

Good project management equals good business management and Trish continues to research and adapt best practice project management in a bid to develop, innovate and offer a more agile approach.



About the Project Management Essentials series

The Project Management Essentials series comprises four titles written by experts in their field and developed as practical guidelines, suitable as both university textbooks and refreshers/additional learning for practicing Project Managers.

- Project Management Toolkit: The Basics for Project Success
- Project Benefits Management: Linking Projects to the Business
- Real Project Planning: Developing a Project Delivery Strategy
- Managing Project Delivery: Maintaining Control & Achieving Success

This first book provides a general overview with the subsequent titles supplementing the skills and knowledge gained and expanding the toolkit. The books in the series are supported by an accompanying website (www.icheme.org/projectmanagement), which delivers blank tool templates for the reader to download for personal use.



Foreword

This book has become a reality for a number of reasons:

- As an experienced Project Manager I realized that increasingly I was dealing with customers, sponsors and Project Team members who had no project management experience. *Project Management Toolkit* is a direct response to this. For many years I have used the material contained in this book to develop and train ‘line’ managers, in particular, those who needed the basic skills to successfully deliver a project they had just been ‘handed’.
- As the found Chair of the IChemE Project Management Subject Group (PMSG) and then more recently a part of the Continuous Professional Development (CPD) and Publications Sub-groups it was evident that there wasn’t a good entry-level book for those wanting to develop project management skills at the start of their project management careers.

Project Management Toolkit is an entry-level book and the first in a new series of project management books developed by members of the IChemE PMSG. The three subsequent books in the series are at a more detailed level to supplement the skills and knowledge developed in *Project Management Toolkit* (see page v for more information).

This second edition of *Project Management Toolkit* has responded to the excellent feedback from readers and reviewers and provides some more ‘real’ examples of how the toolkit has been used. Additionally these new case studies take the reader through every stage of the project and through every applicable tool.

Although this book is primarily written from the perspective of engineering projects within the process industries, experiences from both outside of this industry and within different types of projects have been used. Based on the feedback from some of the Project Managers who have used this book the two new case studies cover two very different types of project: the capital engineering project and the business change project (usually revenue expenditure) — demonstrating the generic use of the toolkit over a wide range of industries and project types.

The *Toolkit* is specific enough to support Engineering Managers in the delivery of projects within the process industries, yet generic enough to support

- the Research and Development Managers in developing or launching a new product;
- Business Managers in transforming a business area
- IT Managers in delivering a new computer system

Project management is about people, and this *Toolkit* emphasizes the criticality of the management of the ‘soft’ side of projects — the people whose lives may change as a result of a project, the Project Team members who are key to effective delivery and the sponsors and organizational stakeholders who ensure, with the Project Manager, that ‘no project is an island’.



Acknowledgements

When pulling together ideas and experiences into a ‘book’ you become really aware of all the friends, family and colleagues who have helped you along the way to a greater or smaller extent. You are equally aware that to individually acknowledge everyone becomes impossible; therefore, I have picked out a few key ones. . . .

To Andrew, my husband, without whom I would never eat! Life is a project and Andrew is, and will always be, my critical path.

To all my ‘test’ audiences over the years who have enthusiastically used the tools to challenge whether they are doing the ‘right’ project and then whether they are doing it ‘right’ — the fact that they have used the tools on a broad spectrum of project types and sizes within many different industries has reinforced my view that at some level project management is based on generic principles.

Every good Project Manager needs a team — I am fortunate in having a wide team of colleagues — particularly Gillian Lawson and Peter Iles-Smith, my Project Management Subject Group (PMSG) colleagues who, with me, are the IchemE Editorial Team for the Project Management Series of Books. I also want to thank Arnold Black and Mike Adams who have provided an invaluable ‘sounding board’ for my PM thoughts over the years we have worked together on the PMSG Committee.

Finally you always need ‘live’ Project Teams to test new project management ideas, tools and processes — AstraZeneca Transformation Projects Group (led by Paul Burke) provided this role during the development of the first edition. Without them I may have finished the book sooner; however, I just wouldn’t have had as much fun! I’m thankful for their challenge and their enthusiasm.

I also want to thank Paul Burke, Jeff Wardle and Bill Wilson for continuing to use and test the tools in this book and allowing me to use example data for the second edition based on their business change projects within the Strategy Planning and Change Management group within the AZ UK Business Services organization.

Author’s Note: Although all the case studies presented in this book are based on real experiences they have been suitably altered so as to maintain complete confidentiality.



How to use this book

When you pick up this book I am hoping that before you delve into the content you will start by glancing here.

The structure for this book is based on the concept that every project goes through four value-added stages — these are described in Chapter 1. Each stage then becomes the subject of its own chapter (Chapters 3–6).

Chapters 1 and 2 are general introductions and overviews to project management which can be read at any time to refresh basic concepts that apply to every stage of a project.

Chapters 3–6 are the ‘core chapters’ made up of the following generic sections:

- Introduction of basic concepts particular to a project stage.
- Presentation of new tools and how to use them.
- Demonstration of tool use through short case studies.
- Handy hints and further reading.

Each core chapter can ‘stand-alone’ allowing you to dip into any stage and within that stage, any tool or case study. For each tool the same structure is followed:

- The tool is introduced within the context of the stage.
- The tool is explained through use of a completed template plus additional notes.
- The use of the tool within a project context is detailed.

The blank tool templates are available, in pdf format, on a password protected area within IChemE’s web site: www.icheme.org/projectmanagement. The password allowing access to the tool templates is PMTOOLS. The actual format of the pdf cannot be changed but project data, as required by the tool, can be either input electronically or by hand on printed copies.

Some of the tools are more advanced than others and may be more applicable to larger, more complex projects. You need to decide what tools you want to use, how you want to use them and then adapt them for use on your projects.

At the end of each core chapter there is a brief section on further reading, which highlights the specific book in the PM Essentials series where the project stage is covered to a greater depth. Additionally the following web sites can be used as a source of further information on project management (see Footnote 1):

- IChemE Project Management Subject Group (PMSG) — www.icheme.org/pmsg — the vision of this group is to facilitate networking between Project Managers and aspiring Project Managers, of any discipline, within the process industries; to promote ‘best practice’ project management within the process industries and to be the ‘voice of project management’ for the IChemE.

Footnote 1: All information regarding project management associations and institutes is available to the public via their web sites and the author/publisher of this book does not take any liability for its veracity.



- The Association of Project Management (APM) — www.apm.org.uk — is an independent professional body based in Europe. APM's key objective are to develop and promote project management across all sectors of industry and beyond. A key resource within the APM is the APM Body of Knowledge.
- Project Management Institute (PMI) — www.pmi.org — is a global project management institute focused on the needs of Project Managers worldwide. It has over 200,000 members representing 125 countries and offers professional development support via its certification programme, education events and Project Management Body of Knowledge.
- International Project Management Association (IPMA) — www.ipma.ch — is the world's oldest project management association. It is an international network of national project management societies and is able to represent these national societies at international level. IPMA actively promotes 'the importance of efficient, enterprise-wide project management competencies to organizations' and has a certification programme supported by educational events, links to academia and research.
- International Society of Pharmaceutical Engineering Project Management Community of Practice (ISPE PMCoP) — www.ispe.org/pmcop — the aim of this group is to be a dynamic forum for professionals working within the pharma industry who have an active interest in promoting continuous improvement in project management and also to create a body of knowledge specific to the professional needs of its members. The group encourages discussion of areas of common interest and provides information of relevance to members through educational events.

Chapter 7 and 8 are new to this second edition and are provided as complete case studies taking the reader through every stage of two selected projects:

- The Pharma Facility Project — an engineering project example highlighting some of the challenges in delivering a capital project within a highly regulated environment.
- The Business Change Project — an organizational design project highlighting some of the issues associated with the delivery and sustainability of changes which impact the way in which the business operates.

And remember . . .

There are many ways to complicate project management – some valid and others not. This book introduces some basic tools so that at each 'value-added' stage the aspiring Project Manager can focus on delivering value.

- The greatest compliment made to me by a client was **'did we need you?'**
- The greatest compliment made to me by a project sponsor was **'why were there no problems?'**

It used to be that the best Project Managers were those that solved the big crises, like heroes putting out the fire whilst saving the business. . . . Today this is not success — a great Project Manager will not allow any inferno — he'll smell the smoke way before ignition and put it out with the help and support of his team and his stakeholders.



Contents

About the author	v
About the Project Management Essentials series	vii
Foreword	ix
Acknowledgements	xi
How to use this book	xiii
1 Introduction	1
Aims	2
Management by project	3
The Project Manager	5
2 The project life-cycle	7
What is a project?	7
What is the project life-cycle?	7
Why do projects fail?	8
The ‘hard’ and ‘soft’ side of project management	10
3 Stage One: why?	13
Why?	14
Tool: ‘Why?’ Checklist	15
Tool: Benefits Hierarchy	20
Tool: Benefits Specification Table	26
Tool: Business Case Tool (value-add or not?)	32
Case study A — if only the ‘Why?’ Checklist had been around then!	37
Case study B — using the ‘Why?’ Checklist to stop a project	40
Case study C — using the why tools to justify a project	42
Handy hints	50
Further reading	51
And finally . . .	51



4 Stage Two: how?	53
How?	53
Project delivery planning	54
Tool: 'How?' Checklist	56
Tool: Stakeholder Management Plan	64
Tool: Table of Critical Success Factors	70
Tool: RACI Chart	75
Tool: Control Specification Table	79
Case study D — if only the 'How?' Checklist had been around then!	84
Case study E — using the 'How?' Checklist to re-plan a project	89
Case study F — using the how tools to plan a project	94
Handy hints	105
Further reading	105
And finally . . .	106
5 Stage Three: in control?	107
In control?	107
Control strategy	108
Tool: 'In Control?' Checklist	109
Tool: Risk Table and Matrix	119
Tool: Earned Value	124
Tool: Project Scorecard	128
Case study G — if only the 'In Control?' Checklist had been around then!	130
Case study H — using the in control tools to stop a project	134
Case study I — using the in control tools to review a project	140
Handy hints	147
Further reading	147
And finally . . .	148
6 Stage Four: benefits realized?	149
Sustainability	150
Tool: 'Benefits Realized?' Checklist	152
Tool: Benefits Tracking Tool	156
Tool: Project Assessment Tool	160
Tool: Sustainability Checklist	165
Case study J — if only the 'Benefits Realized?' Checklist had been around then!	169
Case study K — using the benefits realized tools to redevelop a project	172
Case study L — using the benefits realized tools to review a project	177
Handy hints	184
Further reading	184
And finally . . .	185
7 Case Study One: the pharma facility project	187
Situation	190
Stage One – Business Case Development	192



Stage Two — Project Delivery Planning	199
Stage Three — Project Delivery	211
Stage Four — Benefits Realization	224
8 Case Study Two: the business change project	231
Situation	235
Stage One — Business Case Development	237
Stage Two — Project Delivery Planning	248
Stage Three — Project Delivery	264
Stage Four — Benefits Realization	274
Index	285



1

Introduction

Project Management Toolkit is a practical handbook for both career Project Managers and managers involved with projects intermittently throughout their career.

Organizations are realizing the impact that projects, and therefore project management, can have on their success.

A project used to be one mechanism that organizations used to deliver benefits, now organizations are managed by project; this has meant the development of project management competency within the organization, the Project Team(s) and the individual Project Manager(s).

This book provides a simple tool based resource for each key 'value-added' stage in a project and is intended for use by anybody involved in projects and could form a basis for an organizational project management system (Figure 1-1).

At the end of each chapter 'handy hints' are given as well as details of the specific book in the IChemE project management series where more information can be sought.

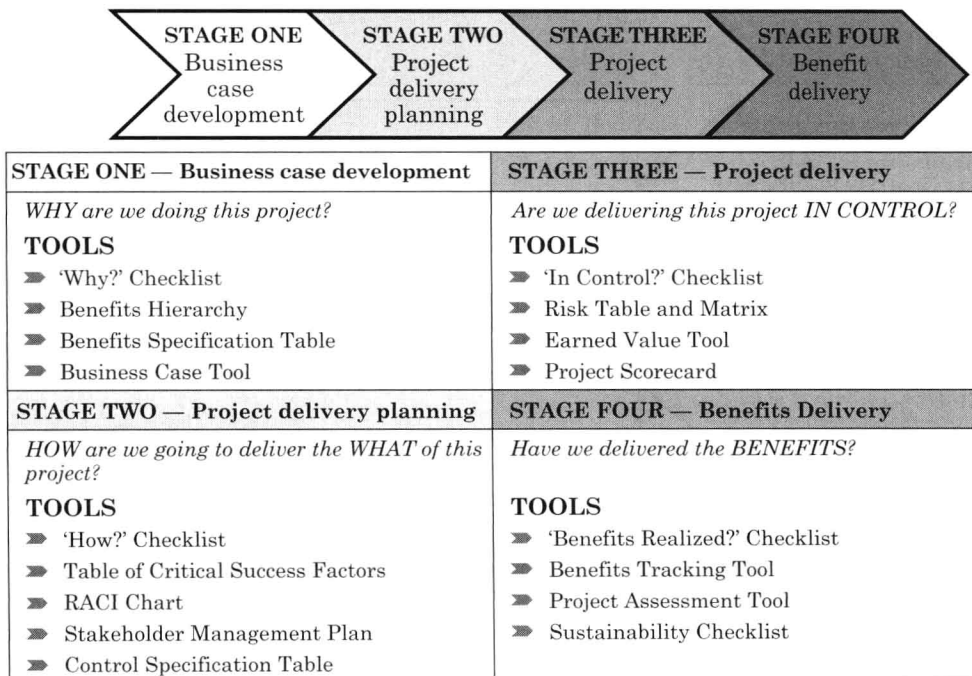


Figure 1-1 *Project Management Toolkit* overview



Case studies in each chapter illustrate the use of each tool. Blank tool templates are available via the internet at www.icheme.org/projectmanagement for the readers of this book to use.

Aims

The primary aim of this book is to develop a practical, usable resource which can be picked up and used on 'day 1'. It provides the reader with education, tools and the confidence to successfully manage projects.

Figure 1-2 shows an input–process–output diagram:

- Inputs — lists the inputs to the development of this book.
- Process — summarizes the contents of this book.
- Outputs — lists the outputs from this book from the perspective of the reader.

Project Management Toolkit introduces:

- Simple but effective tools which can be used to support the Project Manager in increasing the 'certainty of outcome'.
- A pragmatic process to the development of your project, from the early stages of idea development through to the delivery of the benefits.

Apart from the tools and the processes, this book also aims to define more clearly the role of the Project Manager in today's projects and the increasing importance of generic project management competency within an organization.

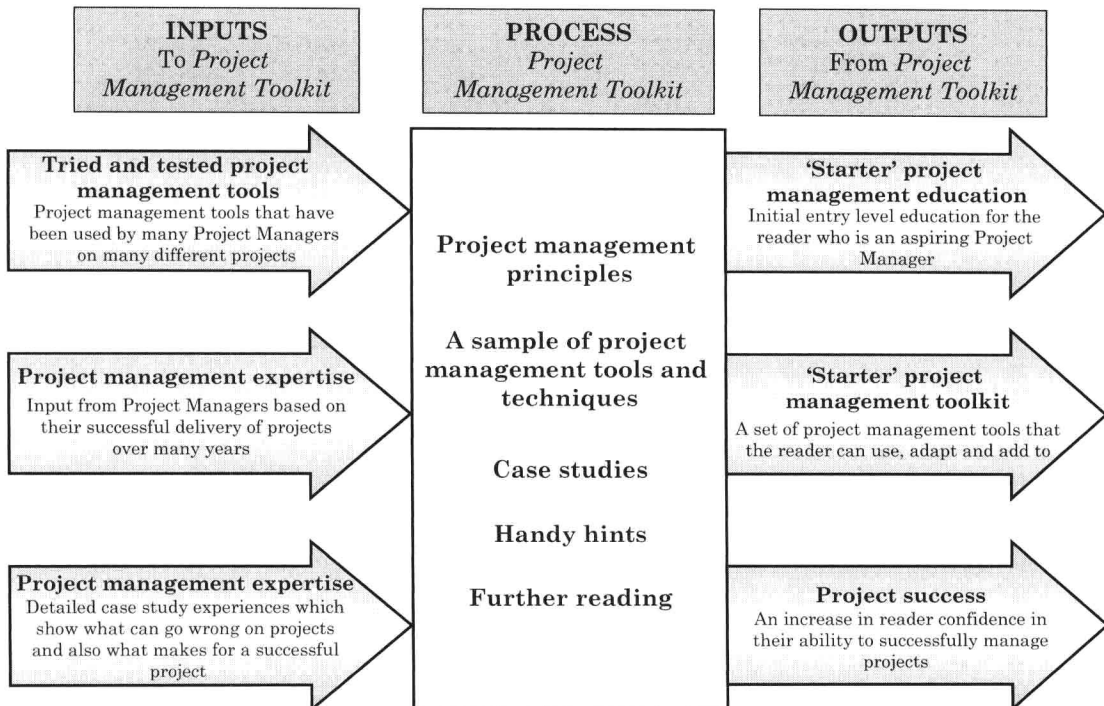


Figure 1-2 This book's IPO (input–process–output)



Although this book is primarily aimed at Project Managers within the process industries it is equally applicable to Project Managers in other disciplines because project management is a generic organizational competency which can be used:

- Within *any type* of project — by use of transferable project management skills and knowledge.
- Within *any type* of organization — by adding strategic business value to an organization.

Management by project

Each year millions of pounds are spent around the globe delivering projects. Therefore effective project management is critical for today's organizations.

Consider the organizational impact of:

- Delivering a project late.
- Delivering a project over budget.
- Delivering a project which doesn't meet scope requirements.

For some projects the impact of not delivering within these three basic parameters can have disastrous effects on an organization.

Delivering a project late

Some projects have a defined and fixed target completion date; if this date is missed then the organization may not be able to realize the benefits. For example a manufacturing facility which will support the launch of a new pharmaceutical product for the treatment of respiratory disease needs to be complete in time for the winter launch of the drug and certainly before the launch of a competitor drug.

Delivering a project over budget

A project budget is a key part of the 'organizational contract'; the benefits which will be realized are directly related to the investment monies approved. For example a project to automate a production process is approved so that the production capacity increases; if the investment is greater than budgeted then the organization will not realize the expected benefits.

Delivering a project that doesn't meet the scope requirements (quantity, quality, functionality)

A project delivers a specific amount of scope at a specified level of quality with certain functional requirements; if this is not delivered then the completed project may not be able to deliver the anticipated benefits. For example a project to improve production efficiency if not capable of enabling the business benefits to be realized, and for those benefits to be tracked, cannot be considered as successfully supporting the organization.

Organizational project management

Recent research by the Engineering Construction Industry Association (ECIA) was able to demonstrate the financial impact of good and poor project management:

- Effective use of best practice project management yielded an average cost saving of 5–10%.
- Poor use of project management gave an average cost growth of 10%.



Apart from showing that the use of best practice project management was able to decrease the average percentage cost growth, the data also showed a decrease in variability — the use of best practice project management increased the ability to forecast the outcome. It could be said that:

- Excellent Project Managers have the capability to bring projects in on time and within budget — average or poor Project Managers may not!

Recent management theorists, and project management practitioners, have proposed a new cultural paradigm that relies on project management competency as a core skill for an organization:

- Organizations are moving from *managing projects* to *management by projects*.

A change in the way these organizations do business relies on project management competence at all levels in the organization as a key success factor, that is to say within Project Teams and the business management team at all levels.

Organizations are realizing the impact that projects, and therefore project management, can have on their success:

- A project used to be one mechanism that organizations used to deliver benefits — now projects & project management are integral to normal business operation.

This has meant the development of two further facets of project management competency:

- Organizational project management excellence.
- Project Team excellence.

Therefore the competency of the Project Manager is not the only determining factor. It is suggested that if you have a project focused organization, with excellent technical ability and effective teamwork then you still need an excellent Project Manager to achieve an excellent outcome — to exceed your objectives.

Figure 1-3 outlines the various elements that a project-focused organization should consider:

- Organizational support system.
- Project Manager support system.
- Project management processes.

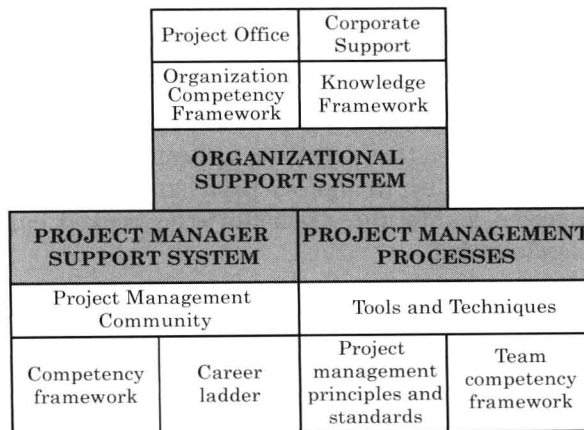


Figure 1-3 An organizational approach to project management

