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软件项目管理

（英文版 · 第4版）

SOFTWARE PROJECT MANAGEMENT

FOURTH EDITION

Bob Hughes & Mike Cotterell

（英）Bob Hughes
Mike Cotterell 著

机械工业出版社
China Machine Press

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Software Project Management

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藏书章

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出版者的话

文艺复兴以降，源远流长的科学精神和逐步形成的学术规范，使西方国家在自然科学的各个领域取得了垄断性的优势；也正是这样的传统，使美国在信息技术发展的六十多年间名家辈出、独领风骚。在商业化的进程中，美国的产业界与教育界越来越紧密地结合，计算机学科中的许多泰山北斗同时身处科研和教学的最前线，由此而产生的经典科学著作，不仅擘划了研究的范畴，还揭橥了学术的源变，既遵循学术规范，又自有学者个性，其价值并不会因年月的流逝而减退。

近年，在全球信息化大潮的推动下，我国的计算机产业发展迅猛，对专业人才的需求日益迫切。这对计算机教育界和出版界都既是机遇，也是挑战；而专业教材的建设在教育战略上显得举足轻重。在我国信息技术发展时间较短、从业人员较少的现状下，美国等发达国家在其计算机科学发展的几十年间积淀的经典教材仍有许多值得借鉴之处。因此，引进一批国外优秀计算机教材将对我国计算机教育事业的发展起积极的推动作用，也是与世界接轨、建设真正的世界一流大学的必由之路。

机械工业出版社华章图文信息有限公司较早意识到“出版要为教育服务”。自1998年开始，华章公司就将工作重点放在了遴选、移译国外优秀教材上。经过几年的不懈努力，我们与Prentice Hall，Addison-Wesley，McGraw-Hill，Morgan Kaufmann等世界著名出版公司建立了良好的合作关系，从它们现有的数百种教材中甄选出Tanenbaum，Stroustrup，Kernighan，Jim Gray等大师名家的一批经典作品，以“计算机科学丛书”为总称出版，供读者学习、研究及庋藏。大理石纹理的封面，也正体现了这套丛书的品位和格调。

“计算机科学丛书”的出版工作得到了国内外学者的鼎力襄助，国内的专家不仅提供了中肯的选题指导，还不辞劳苦地担任了翻译和审校的工作；而原书的作者也相当关注其作品在中国的传播，有的还专程为其书的中译本作序。迄今，“计算机科学丛书”已经出版了近百个品种，这些书籍在读者中树立了良好的口碑，并被许多高校采用为正式教材和参考书籍，为进一步推广与发展打下了坚实的基础。

随着学科建设的初步完善和教材改革的逐渐深化，教育界对国外计算机教材的需求和应用都步入一个新的阶段。为此，华章公司将加大引进教材的力度，在“华章教育”的总规划之下出版三个系列的计算机教材：除“计算机科学丛书”之外，对影印版的教材，则单独开辟出“经典原版书库”；同时，引进全美通行的教学辅导书“Schaum's Outlines”系列组成“全美经典学习指导系列”。为了保证这三套丛书的权威性，同时也为了更好地为学校和老师们服务，华章公司聘请了中国科学院、北京大学、清华大

学、国防科技大学、复旦大学、上海交通大学、南京大学、浙江大学、中国科技大学、哈尔滨工业大学、西安交通大学、中国人民大学、北京航空航天大学、北京邮电大学、中山大学、解放军理工大学、郑州大学、湖北工学院、中国国家信息安全测评认证中心等国内重点大学和科研机构在计算机的各个领域的著名学者组成“专家指导委员会”，为我们提供选题意见和出版监督。

这三套丛书是响应教育部提出的使用外版教材的号召，为国内高校的计算机及相关专业的教学度身订造的。其中许多教材均已为M. I. T.，Stanford，U.C. Berkeley，C. M. U. 等世界名牌大学所采用。不仅涵盖了程序设计、数据结构、操作系统、计算机体系结构、数据库、编译原理、软件工程、图形学、通信与网络、离散数学等国内大学计算机专业普遍开设的核心课程，而且各具特色——有的出自语言设计者之手、有的历经三十年而不衰、有的已被全世界的几百所高校采用。在这些圆熟通博的名师大作的指引之下，读者必将在计算机科学的宫殿中由登堂而入室。

权威的作者、经典的教材、一流的译者、严格的审校、精细的编辑，这些因素使我们的图书有了质量的保证，但我们的目标是尽善尽美，而反馈的意见正是我们达到这一终极目标的重要帮助。教材的出版只是我们的后续服务的起点。华章公司欢迎老师和读者对我们的工作提出建议或给予指正，我们的联系方法如下：

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Preface to the fourth edition

The risks of failure associated with development projects involving ICT (Information and Communication Technologies) are still of as much concern as they were ten years ago when the first edition of this book was published. The main concern of the book throughout its various editions has been to inculcate the fundamental practices of good project management needed by ICT practitioners as one of the foundations of their professional education. While it is hoped that current practitioners will find much that will be helpful, the main target audiences for the book are computing and information systems students on undergraduate and masters programmes.

The decision to write and adapt material for a new edition was triggered by developments in software project management which merited the expansion of some aspects of the book. Some of these developments are listed below.

- Advances in electronic communication have been exploited to support projects where the project team is geographically dispersed.
- Associated with the above, the practice of outsourcing software development to third world countries, particularly to India, has accelerated. It is significant that special Indian and Chinese editions of this book have appeared.
- A number of new and expanded international standards have appeared which address the assessment of the quality of both software products and the processes that create them. This needs to be seen in the context of the 'offshoring' because, where this happens, the quality of the software products being delivered will be a concern.
- The interest in agile methods has continued to grow, particularly extreme programming (XP). Once again this can be set in the context of the increasing move towards offshore development of software. Software developers in the West need to find ways of competing with low-cost developers and among these might be an increased responsiveness to client needs along with the improved speed of delivery that XP seems to offer.

In addition to responding to external developments, the old text was reviewed by a number of lecturers who had used the book on their courses. Wherever possible, their suggestions have been incorporated. One example is the material in Chapter 7 on Goldratt's critical chain management technique. In some cases we have been unable to incorporate ideas for additional topics as we have run out of both space and time, but hope to add the material to the supporting website.

Some topics that were previously covered in Appendices, such as the ISO/IEC 12207 standard and programme management, have now largely been made part

of the main text. It was also felt that the material on the various project management qualifications and 'bodies of knowledge' (BOK) would be better placed on the supporting website.

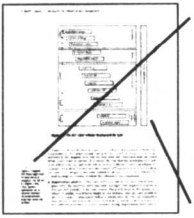
During the course of preparing the new edition we have made use of materials produced by Abdullah Al Shehab and David I. Shepherd in the chapter on risk. David also offered some advice on the developments in earned value analysis. Our thanks go to them and to our colleagues at Brighton, especially Marian Eastwood and Joe Wilkinson for their advice and support. Particular thanks go to our reviewers for the time and trouble they have taken in providing us with valuable feedback.

The previous editions were dedicated to those former students of ours who are now grappling with problems of IT development in the 'real world' and we would like to repeat that dedication – there must be a lot more of them now.

Guided tour

Learning objectives

Each chapter opens with a set of learning objectives, summarizing what the reader should learn from each chapter.

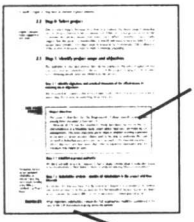


Margin notes

New ideas, terms and references are placed in the margin where appropriate. Margin notes also indicate the links to ideas and concepts covered elsewhere in the textbook.

Figures and tables

Each chapter provides a number of clear figures to show the various models, project planning tools and charts.

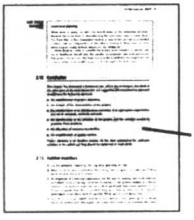


Case Study examples

Brief case studies run throughout the chapters to illustrate the application of project management techniques.

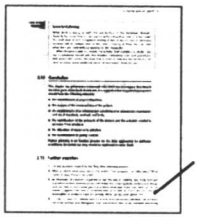
Exercises

Brief exercises are dotted throughout the chapters, to allow students to practise the techniques and apply the methodology to real-world situations.



Chapter conclusions

This briefly reviews and reinforces the main topics covered in each chapter to ensure that students have acquired a solid understanding of the key topics.



Further exercises

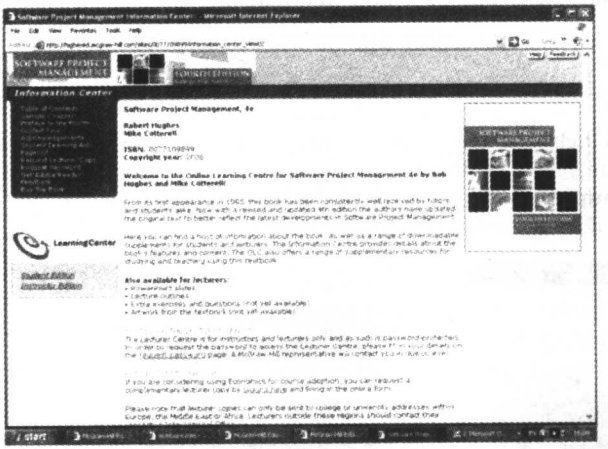
These questions encourage you to review and apply the knowledge you have acquired from each chapter and to explore further some of the ideas in the chapter.

Appendices and solutions

The Appendices at the end of the book explain PRINCE2 and BS 6079:1996. Appendix C, Answer pointers, provides guide answers to the questions and exercises set in the book.

Technology to enhance learning and teaching

Online Resources



It is intended that the Online Learning Centre will contain updates of information related to software project management, which is likely to change over time. This will include references to useful resources and links.

Lecturers can find a number of useful resources to support their teaching of software project management at www.mcgraw-hill.co.uk/textbooks/hughes

Available for lecturers:

- PowerPoint slides
- Lecture tutorials
- Extra exercises and questions
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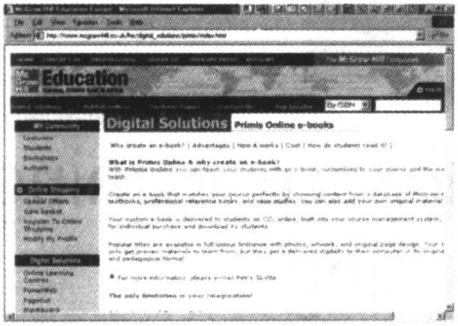

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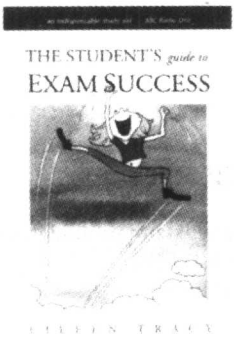

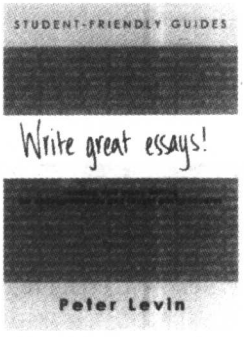

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During the course of preparing the three previous editions since 1995, we have received assistance from many people. These people have included: Ken I'Anson, Chris Claire, David Howe, Martin Campbell Kelly, Barbara Kitchenham (for permission to use a project data set shown in Chapter 5), Paul Radford and Robyn Lawrie of Charismatek Software Metrics in Melbourne, David Garmus and David Herron (the last four, all for material in Chapter 10), David Purves, David Wynne, Dick Searles, John Pyman, Jim Watson, Mary Shepherd, Sunita Chulani, David Wilson, David Farthing, Charlie Svahnberg, Henk Koppelaar and Ian McChesney.

We would also like to thank the team at McGraw-Hill. In particular we would like to thank Karen Mosman who has been a real gem as our editor and has provided a stable and sympathetic point of contact in the dynamic and (for academics) sometimes confusing world of textbook publishing. However, we have not forgotten Dave Hatter who was our former editor at International Thomson Press and then at McGraw-Hill and we hope he is continuing to enjoy retirement in the groves and glades of Essex.

Our thanks also go to the following reviewers for their comments at various stages in the text's development:

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Contents

Preface to the fourth edition vii
Guided tour ix
Technology to enhance learning and teaching xi
Acknowledgements xiii

1 Introduction to software project management 1

1.1 Introduction 1
1.2 Why is software project management important? 1
1.3 What is a project? 2
1.4 Software projects versus other types of project 4
1.5 Contract management and technical project management 4
1.6 Activities covered by software project management 4
1.7 Plans, methods and methodologies 8
1.8 Some ways of categorizing software projects 8
1.9 What is management? 9
1.10 Problems with software projects 10
1.11 Setting objectives 11
1.12 Stakeholders 13
1.13 The business case 14
1.14 Requirement specification 14
1.15 Management control 15
1.16 Conclusion 16
Annex 1 Contents list for a feasibility study 17
Annex 2 Contents list for a project plan 17
1.17 Further exercises 18

2 Step Wise: an overview of project planning 20

2.1 Introduction to Step Wise project planning 20
2.2 Step 0: Select project 24
2.3 Step 1: Identify project scope and objectives 24
2.4 Step 2: Identify project infrastructure 26
2.5 Step 3: Analyse project characteristics 28
2.6 Step 4: Identify project products and activities 30
2.7 Step 5: Estimate effort for each activity 34
2.8 Step 6: Identify activity risks 35
2.9 Step 7: Allocate resources 36

2.10	Step 8: Review/publicize plan	38
2.11	Steps 9 and 10: Execute plan/lower levels of planning	38
2.12	Conclusion	39
2.13	Further exercises	39
3	**Programme management and project evaluation**	41
3.1	Introduction	41
3.2	Programme management	43
3.3	Managing the allocation of resources within programmes	45
3.4	Strategic programme management	46
3.5	Creating a programme	46
3.6	Aids to programme management	49
3.7	Benefits management	51
3.8	Evaluation of individual projects	53
3.9	Technical assessment	53
3.10	Cost–benefit analysis	53
3.11	Cash flow forecasting	54
3.12	Cost–benefit evaluation techniques	55
3.13	Risk evaluation	61
3.14	Conclusion	66
3.15	Further exercises	67
4	**Selection of an appropriate project approach**	68
4.1	Introduction	68
4.2	Choosing technologies	70
4.3	Technical plan contents list	73
4.4	Choice of process models	74
4.5	Structure versus speed of delivery	74
4.6	The waterfall model	75
4.7	The V-process model	76
4.8	The spiral model	77
4.9	Software prototyping	78
4.10	Other ways of categorizing prototypes	80
4.11	Incremental delivery	82
4.12	Dynamic Systems Development Method	85
4.13	Extreme programming	87
4.14	Managing iterative processes	88
4.15	Selecting the most appropriate process model	89
4.16	Conclusion	89
4.17	Further exercises	90
5	**Software effort estimation**	92
5.1	Introduction	92
5.2	Where are estimates done?	94
5.3	Problems with over- and under-estimates	95
5.4	The basis for software estimating	97
5.5	Software effort estimation techniques	98

5.6	Expert judgement	100
5.7	Estimating by analogy	100
5.8	Albrecht function point analysis	101
5.9	Function points Mark II	104
5.10	COSMIC Full Function Points	106
5.11	A procedural code-oriented approach	108
5.12	COCOMO: a parametric model	109
5.13	Conclusion	114
5.14	Further exercises	114
6	**Activity planning**	117
6.1	Introduction	117
6.2	The objectives of activity planning	118
6.3	When to plan	119
6.4	Project schedules	119
6.5	Projects and activities	121
6.6	Sequencing and scheduling activities	125
6.7	Network planning models	126
6.8	Formulating a network model	127
6.9	Adding the time dimension	131
6.10	The forward pass	132
6.11	The backward pass	133
6.12	Identifying the critical path	134
6.13	Activity float	135
6.14	Shortening the project duration	136
6.15	Identifying critical activities	136
6.16	Activity-on-arrow networks	137
6.17	Conclusion	145
6.18	Further exercises	145
7	**Risk management**	146
7.1	Introduction	146
7.2	Risk	147
7.3	Categories of risk	149
7.4	A framework for dealing with risk	151
7.5	Risk identification	151
7.6	Risk assessment	155
7.7	Risk planning	158
7.8	Risk management	160
7.9	Evaluating risks to the schedule	162
7.10	Applying the PERT technique	163
7.11	Monte Carlo simulation	168
7.12	Critical chain concepts	168
7.13	Conclusion	172
7.14	Further exercises	172

8 Resource allocation 174

8.1 Introduction 174
8.2 The nature of resources 176
8.3 Identifying resource requirements 177
8.4 Scheduling resources 178
8.5 Creating critical paths 182
8.6 Counting the cost 183
8.7 Being specific 183
8.8 Publishing the resource schedule 185
8.9 Cost schedules 186
8.10 The scheduling sequence 188
8.11 Conclusion 189
8.12 Further exercises 189

9 Monitoring and control 190

9.1 Introduction 190
9.2 Creating the framework 190
9.3 Collecting the data 193
9.4 Visualizing progress 196
9.5 Cost monitoring 200
9.6 Earned value analysis 201
9.7 Prioritizing monitoring 205
9.8 Getting the project back to target 206
9.9 Change control 207
9.10 Conclusion 209
9.11 Further exercises 209

10 Managing contracts 211

10.1 Introduction 211
10.2 The ISO 12207 approach to the acquisition and supply of software 212
10.3 The supply process 215
10.4 Types of contract 216
10.5 Stages in contract placement 221
10.6 Typical terms of a contract 226
10.7 Contract management 229
10.8 Acceptance 230
10.9 Conclusion 230
10.10 Further exercises 230

11 Managing people and organizing teams 232

11.1 Introduction 232
11.2 Understanding behaviour 234
11.3 Organizational behaviour: a background 234
11.4 Selecting the right person for the job 235
11.5 Instruction in the best methods 237

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