

TABLE OF CONTENTS

PREFACE TO THE FOURTH EDITION.....	XXII
SECTION I - THE PROJECT MANAGEMENT FRAMEWORK.....	1
CHAPTER 1 - INTRODUCTION.....	3
1.1 Purpose of the <i>PMBOK® Guide</i>	4
1.2 What is a Project?.....	5
1.3 What is Project Management?	6
1.4 Relationships Among Project Management, Program Management, and Portfolio Management	7
1.4.1 Portfolio Management	8
1.4.2 Program Management.....	9
1.4.3 Projects and Strategic Planning.....	10
1.4.4 Project Management Office.....	11
1.5 Project Management and Operations Management.....	12
1.6 Role of a Project Manager.....	13
1.7 Project Management Body of Knowledge.....	13
1.8 Enterprise Environmental Factors.....	14
CHAPTER 2 - PROJECT LIFE CYCLE AND ORGANIZATION	15
2.1 The Project Life Cycle—Overview	15
2.1.1 Characteristics of the Project Life Cycle.....	16
2.1.2 Product vs. Project Life Cycle Relationships	18
2.1.3 Project Phases	18
2.2 Projects vs. Operational Work.....	22
2.3 Stakeholders.....	23
2.4 Organizational Influences on Project Management	27
2.4.1 Organizational Cultures and Styles	27
2.4.2 Organizational Structure.....	28
2.4.3 Organizational Process Assets.....	32

SECTION II - THE STANDARD FOR PROJECT MANAGEMENT OF A PROJECT	35
CHAPTER 3 - PROJECT MANAGEMENT PROCESSES FOR A PROJECT	37
3.1 Common Project Management Process Interactions.....	39
3.2 Project Management Process Groups	41
3.3 Initiating Process Group.....	44
3.3.1 Develop Project Charter.....	45
3.3.2 Identify Stakeholders	46
3.4 Planning Process Group	46
3.4.1 Develop Project Management Plan	48
3.4.2 Collect Requirements	49
3.4.3 Define Scope	49
3.4.4 Create WBS	49
3.4.5 Define Activities.....	50
3.4.6 Sequence Activities	50
3.4.7 Estimate Activity Resources.....	50
3.4.8 Estimate Activity Durations.....	51
3.4.9 Develop Schedule	51
3.4.10 Estimate Costs	52
3.4.11 Determine Budget.....	52
3.4.12 Plan Quality	52
3.4.13 Develop Human Resource Plan	53
3.4.14 Plan Communications.....	53
3.4.15 Plan Risk Management.....	53
3.4.16 Identify Risks	54
3.4.17 Perform Qualitative Risk Analysis.....	54
3.4.18 Perform Quantitative Risk Analysis	54
3.4.19 Plan Risk Responses	55
3.4.20 Plan Procurements	55
3.5 Executing Process Group	55
3.5.1 Direct and Manage Project Execution	57
3.5.2 Perform Quality Assurance.....	57
3.5.3 Acquire Project Team	57

TABLE OF CONTENTS

3.5.4	Develop Project Team	58
3.5.5	Manage Project Team	58
3.5.6	Distribute Information	58
3.5.7	Manage Stakeholder Expectations	59
3.5.8	Conduct Procurements	59
3.6	Monitoring and Controlling Process Group	59
3.6.1	Monitor and Control Project Work.....	61
3.6.2	Perform Integrated Change Control	61
3.6.3	Verify Scope	61
3.6.4	Control Scope.....	62
3.6.5	Control Schedule.....	62
3.6.6	Control Costs.....	62
3.6.7	Perform Quality Control	63
3.6.8	Report Performance.....	63
3.6.9	Monitor and Control Risks.....	63
3.6.10	Administer Procurements	64
3.7	Closing Process Group	64
3.7.1	Close Project or Phase	65
3.7.2	Close Procurements	65
SECTION III - THE PROJECT MANAGEMENT KNOWLEDGE AREAS.....		67
Introduction		69
Data Flow Diagrams		69
CHAPTER 4 - PROJECT INTEGRATION MANAGEMENT.....		71
4.1	Develop Project Charter	73
4.1.1	Develop Project Charter: Inputs	75
4.1.2	Develop Project Charter: Tools and Techniques	77
4.1.3	Develop Project Charter: Outputs.....	77
4.2	Develop Project Management Plan	78
4.2.1	Develop Project Management Plan: Inputs.....	78
4.2.2	Develop Project Management Plan: Tools and Techniques.....	81
4.2.3	Develop Project Management Plan: Outputs	81

4.3	Direct and Manage Project Execution	83
4.3.1	Direct and Manage Project Execution: Inputs	85
4.3.2	Direct and Manage Project Execution: Tools and Techniques	86
4.3.3	Direct and Manage Project Execution: Outputs.....	87
4.4	Monitor and Control Project Work	89
4.4.1	Monitor and Control Project Work: Inputs	90
4.4.2	Monitor and Control Project Work: Tools and Techniques	92
4.4.3	Monitor and Control Project Work: Outputs.....	92
4.5	Perform Integrated Change Control	93
4.5.1	Perform Integrated Change Control: Inputs.....	97
4.5.2	Perform Integrated Change Control: Tools and Techniques.....	98
4.5.3	Perform Integrated Change Control: Outputs	98
4.6	Close Project or Phase	99
4.6.1	Close Project or Phase: Inputs	101
4.6.2	Close Project or Phase: Tools and Techniques	101
4.6.3	Close Project or Phase: Outputs.....	101
CHAPTER 5 - PROJECT SCOPE MANAGEMENT		103
5.1	Collect Requirements	105
5.1.1	Collect Requirements: Inputs	106
5.1.2	Collect Requirements: Tools and Techniques	107
5.1.3	Collect Requirements: Outputs	109
5.2	Define Scope	112
5.2.1	Define Scope: Inputs.....	113
5.2.2	Define Scope: Tools and Techniques.....	114
5.2.3	Define Scope: Outputs	115
5.3	Create WBS	116
5.3.1	Create WBS: Inputs.....	117
5.3.2	Create WBS: Tools and Techniques	118
5.3.3	Create WBS: Outputs	121
5.4	Verify Scope	123
5.4.1	Verify Scope: Inputs.....	124
5.4.2	Verify Scope: Tools and Techniques	124
5.4.3	Verify Scope: Outputs	125

TABLE OF CONTENTS

5.5	Control Scope	125
5.5.1	Control Scope: Inputs	126
5.5.2	Control Scope: Tools and Techniques	127
5.5.3	Control Scope: Outputs.....	128
CHAPTER 6 - PROJECT TIME MANAGEMENT.....		129
6.1	Define Activities.....	133
6.1.1	Define Activities: Inputs	134
6.1.2	Define Activities: Tools and Techniques	134
6.1.3	Define Activities: Outputs	135
6.2	Sequence Activities	136
6.2.1	Sequence Activities: Inputs.....	137
6.2.2	Sequence Activities: Tools and Techniques.....	138
6.2.3	Sequence Activities: Outputs	141
6.3	Estimate Activity Resources	141
6.3.1	Estimate Activity Resources: Inputs	143
6.3.2	Estimate Activity Resources: Tools and Techniques	144
6.3.3	Estimate Activity Resources: Outputs.....	145
6.4	Estimate Activity Durations.....	146
6.4.1	Estimate Activity Durations: Inputs	147
6.4.2	Estimate Activity Durations: Tools and Techniques	149
6.4.3	Estimate Activity Durations: Outputs	151
6.5	Develop Schedule	152
6.5.1	Develop Schedule: Inputs	153
6.5.2	Develop Schedule: Tools and Techniques.....	154
6.5.3	Develop Schedule: Outputs	157
6.6	Control Schedule	160
6.6.1	Control Schedule: Inputs	161
6.6.2	Control Schedule: Tools and Techniques	162
6.6.3	Control Schedule: Outputs.....	163
CHAPTER 7 - PROJECT COST MANAGEMENT		165
7.1	Estimate Costs	168
7.1.1	Estimate Costs: Inputs.....	169

7.1.2 Estimate Costs: Tools and Techniques.....	171
7.1.3 Estimate Costs: Outputs	174
7.2 Determine Budget.....	174
7.2.1 Determine Budget: Inputs	175
7.2.2 Determine Budget: Tools and Techniques	177
7.2.3 Determine Budget: Outputs	178
7.3 Control Costs	179
7.3.1 Control Costs: Inputs	181
7.3.2 Control Costs: Tools and Techniques	181
7.3.3 Control Costs: Outputs.....	187
CHAPTER 8 - PROJECT QUALITY MANAGEMENT.....	189
8.1 Plan Quality.....	192
8.1.1 Plan Quality: Inputs	193
8.1.2 Plan Quality: Tools and Techniques.....	195
8.1.3 Plan Quality: Outputs	200
8.2 Perform Quality Assurance	201
8.2.1 Perform Quality Assurance: Inputs	203
8.2.2 Perform Quality Assurance: Tools and Techniques	204
8.2.3 Perform Quality Assurance: Outputs.....	205
8.3 Perform Quality Control	206
8.3.1 Perform Quality Control: Inputs.....	207
8.3.2 Perform Quality Control: Tools and Techniques.....	208
8.3.3 Perform Quality Control: Outputs	213
CHAPTER 9 - PROJECT HUMAN RESOURCE MANAGEMENT.....	215
9.1 Develop Human Resource Plan	218
9.1.1 Develop Human Resource Plan: Inputs.....	219
9.1.2 Develop Human Resource Plan: Tools and Techniques.....	220
9.1.3 Develop Human Resource Plan: Outputs	222
9.2 Acquire Project Team	225
9.2.1 Acquire Project Team: Inputs	226
9.2.2 Acquire Project Team: Tools and Techniques	227
9.2.3 Acquire Project Team: Outputs.....	229

TABLE OF CONTENTS

9.3	Develop Project Team	229
9.3.1	Develop Project Team: Inputs.....	231
9.3.2	Develop Project Team: Tools and Techniques.....	232
9.3.3	Develop Project Team: Outputs	235
9.4	Manage Project Team.....	236
9.4.1	Manage Project Team: Inputs.....	237
9.4.2	Manage Project Team: Tools and Techniques.....	238
9.4.3	Manage Project Team: Outputs	241
CHAPTER 10 - PROJECT COMMUNICATIONS MANAGEMENT		243
10.1	Identify Stakeholders	246
10.1.1	Identify Stakeholders: Inputs	247
10.1.2	Identify Stakeholders: Tools and Techniques	248
10.1.3	Identify Stakeholders: Outputs.....	250
10.2	Plan Communications	251
10.2.1	Plan Communications: Inputs	253
10.2.2	Plan Communications: Tools and Techniques	253
10.2.3	Plan Communications: Outputs.....	256
10.3	Distribute Information	258
10.3.1	Distribute Information: Inputs	259
10.3.2	Distribute Information: Tools and Techniques	260
10.3.3	Distribute Information: Outputs	260
10.4	Manage Stakeholder Expectations	261
10.4.1	Manage Stakeholder Expectations: Inputs	263
10.4.2	Manage Stakeholder Expectations: Tools and Techniques	264
10.4.3	Manage Stakeholder Expectations: Outputs	265
10.5	Report Performance	266
10.5.1	Report Performance: Inputs	267
10.5.2	Report Performance: Tools and Techniques	268
10.5.3	Report Performance: Outputs	270
CHAPTER 11 - PROJECT RISK MANAGEMENT		273
11.1	Plan Risk Management	276
11.1.1	Plan Risk Management: Inputs	278

11.1.2 Plan Risk Management: Tools and Techniques	279
11.1.3 Plan Risk Management: Outputs.....	279
11.2 Identify Risks	282
11.2.1 Identify Risks: Inputs.....	284
11.2.2 Identify Risks: Tools and Techniques.....	286
11.2.3 Identify Risks: Outputs	288
11.3 Perform Qualitative Risk Analysis	289
11.3.1 Perform Qualitative Risk Analysis: Inputs	290
11.3.2 Perform Qualitative Risk Analysis: Tools and Techniques	291
11.3.3 Perform Qualitative Risk Analysis: Outputs.....	293
11.4 Perform Quantitative Risk Analysis	294
11.4.1 Perform Quantitative Risk Analysis: Inputs	295
11.4.2 Perform Quantitative Risk Analysis: Tools and Techniques	296
11.4.3 Perform Quantitative Risk Analysis: Outputs	300
11.5 Plan Risk Responses	301
11.5.1 Plan Risk Responses: Inputs.....	302
11.5.2 Plan Risk Responses: Tools and Techniques.....	303
11.5.3 Plan Risk Responses: Outputs	305
11.6 Monitor and Control Risks.....	308
11.6.1 Monitor and Control Risks: Inputs	309
11.6.2 Monitor and Control Risks: Tools and Techniques	310
11.6.3 Monitor and Control Risks: Outputs.....	311
CHAPTER 12 - PROJECT PROCUREMENT MANAGEMENT.....	313
12.1 Plan Procurements	316
12.1.1 Plan Procurements: Inputs.....	319
12.1.2 Plan Procurements: Tools and Techniques	321
12.1.3 Plan Procurements: Outputs	324
12.2 Conduct Procurements.....	328
12.2.1 Conduct Procurements: Inputs	330
12.2.2 Conduct Procurements: Tools and Techniques	331
12.2.3 Conduct Procurements: Outputs	333
12.3 Administer Procurements	335
12.3.1 Administer Procurements: Inputs	337

TABLE OF CONTENTS

12.3.2 Administer Procurements: Tools and Techniques	338
12.3.3 Administer Procurements: Outputs.....	340
12.4 Close Procurements	341
12.4.1 Close Procurements: Inputs	343
12.4.2 Close Procurements: Tools and Techniques	343
12.4.3 Close Procurements: Outputs.....	344
REFERENCES	345
SECTION IV - APPENDICES AND GLOSSARY	347
APPENDIX A - FOURTH EDITION CHANGES	349
A.1 Consistency and Clarification	349
A.1.1 Consistency.....	349
A.1.2 Clarification.....	350
A.2 Process Changes	352
A.3 Chapter 4—Project Integration Management Changes.....	352
A.4 Chapter 5—Project Scope Management Changes.....	353
A.5 Chapter 6—Project Time Management Changes.....	353
A.6 Chapter 7—Project Cost Management Changes.....	354
A.7 Chapter 8—Project Quality Management Changes	354
A.8 Chapter 9—Project Human Resource Management Changes	355
A.9 Chapter 10—Project Communications Management Changes	355
A.10 Chapter 11—Project Risk Management Changes.....	356
A.11 Chapter 12—Project Procurement Management Changes.....	356
A.12 Appendices	357
A.13 Glossary	357
APPENDIX B - EVOLUTION OF PMI'S A GUIDE TO THE PROJECT MANAGEMENT BODY OF KNOWLEDGE.....	359
B.1 Initial Development.....	359
B.2 1986–87 Update	360
B.3 1996 Update	361
Standards Committee	365
Contributors.....	365

Reviewers	366
Production Staff	367
B.4 2000 Update	367
PMI Project Management Standards Program Member Advisory Group.....	369
<i>PMBOK® Guide</i> Update Project Team.....	369
Contributors.....	369
Reviewers	370
Contributions to Predecessor Documents.....	372
Production Staff	372
B.5 Third Edition Update	373
Structural Changes	373
Process Name Changes	373
Elimination of Facilitating and Core Process Designations.....	374
Writing Styles	374
Chapter 1 – Introduction Changes.....	374
Chapter 2 – Project Life Cycle and Organization Changes	375
Chapter 3 – Project Management Processes for a Project Changes	375
Chapter 4 – Project Integration Management Changes.....	375
Chapter 5 – Project Scope Management Changes.....	376
Chapter 6 – Project Time Management Changes.....	377
Chapter 7 – Project Cost Management Changes	377
Chapter 8 – Project Quality Management Changes	378
Chapter 9 – Project Human Resource Management Changes.....	378
Chapter 10 – Project Communications Management Changes.....	379
Chapter 11 – Project Risk Management Changes	379
Chapter 12 – Project Procurement Management Changes	380
Glossary	380
<i>PMBOK® Guide</i> – Third Edition Project Leadership Team	381
<i>PMBOK® Guide</i> – Third Edition Project Core Team.....	381
<i>PMBOK® Guide</i> – Third Edition Project Sub-Teams.....	381
Significant Contributors	382
<i>PMBOK® Guide</i> – Third Edition Project Team Members	382
Final Exposure Draft Reviewers and Contributors	386
PMI Standards Member Advisory Group (MAG)	388

TABLE OF CONTENTS

Production Staff	388
APPENDIX C - CONTRIBUTORS AND REVIEWERS OF PMBOK® GUIDE – FOURTH EDITION	389
C.1 <i>PMBOK® Guide</i> —Fourth Edition Project Core Team.....	389
C.2 <i>PMBOK® Guide</i> 2004 Update Project Sub-Teams	390
C.3 Significant Contributors	390
C.4 <i>PMBOK® Guide</i> —Fourth Edition Operation Team Members.....	390
C.5 <i>PMBOK® Guide</i> —Fourth Edition Project Content Contributors.....	391
C.6 <i>PMBOK® Guide</i> —Fourth Edition Project Content Reviewers	392
C.7 <i>PMBOK® Guide</i> —Fourth Edition Project Team Members	393
C.8 Final Exposure Draft Reviewers and Contributors	395
C.9 PMI Standards Member Advisory Group (MAG)	401
C.10 Staff Contributors	401
APPENDIX D - APPLICATION AREA EXTENSIONS	403
D.1 Need for Application Area Extensions	403
D.2 Criteria for Development of Application Area Extensions.....	404
D.3 Publishing and Format of Application Area Extensions.....	405
D.4 Process for Development and Maintenance of Application Area Extensions ...	405
APPENDIX E - ADDITIONAL SOURCES OF INFORMATION ON PROJECT MANAGEMENT.....	407
E.1 Professional and Technical Organizations	407
E.2 Commercial Publishers	409
E.3 Product and Service Vendors.....	410
E.4 Educational Institutions	410
APPENDIX F - SUMMARY OF PROJECT MANAGEMENT KNOWLEDGE AREAS	411
F.1 Project Integration Management	411
F.2 Project Scope Management	412
F.3 Project Time Management	412
F.4 Project Cost Management.....	413
F.5 Project Quality Management.....	413
F.6 Project Human Resource Management	413
F.7 Project Communications Management	414
F.8 Project Risk Management	414
F.9 Project Procurement Management	415

APPENDIX G - INTERPERSONAL SKILLS	417
G.1 Leadership	417
G.2 Team Building	418
G.3 Motivation	418
G.4 Communication.....	419
G.5 Influencing	419
G.6 Decision Making	420
G.7 Political and Cultural Awareness.....	420
G.8 Negotiation.....	421
G.9 References	421
GLOSSARY	423
1. Inclusions and Exclusions	423
2. Common Acronyms	424
3. Definitions.....	426
INDEX	455