INFORMATION TECHNOLOGY PROJECT MANAGEMENT

Seventh Edition

Kathy Schwalbe, Ph.D., PMP
Augsburg College



BRIEF CONTENTS

Preface	xix
Chapter 1	
Introduction to Project Management	1
Chapter 2	
The Project Management and Information Technology Context	43
Chapter 3	
The Project Management Process Groups: A Case Study	81
Chapter 4	
Project Integration Management	139
Chapter 5	
Project Scope Management	187
Chapter 6	
Project Time Management	225
Chapter 7	
Project Cost Management	271
Chapter 8	
Project Quality Management	311
Chapter 9	
Project Human Resource Management	359
Chapter 10	
Project Communications Management	405
Chapter 11	
Project Risk Management	439

Chapter 12	
Project Procurement Management	479
Chapter 13	
Project Stakeholder Management	509
Appendix A	
Guide to Using Microsoft Project 2010	A.1
Appendix B	
(Available on CengageBrain.com)	
Appendix C	
(Available on CengageBrain.com)	
Glossary	G.1
Index	Ι 1

TABLE OF CONTENTS

Preface	xix
Chapter 1 Introduction to Project Management	1
Introduction	2
What Is a Project?	4
Examples of IT Projects	4
Project Attributes	6
Project Constraints	7
What Is Project Management?	9
Project Stakeholders	10
Project Management Knowledge Areas	11
Project Management Tools and Techniques	12
Project Success	14
Program and Project Portfolio Management	16
Programs	17
Project Portfolio Management	17
The Role of the Project Manager	21
Project Manager Job Description	21
Suggested Skills for Project Managers	22
Importance of People Skills and Leadership Skills	24
Careers for IT Project Managers	25
The Project Management Profession	26
History of Project Management	26
The Project Management Institute	30
Project Management Certification	30
Ethics in Project Management	32
Project Management Software	33
Chapter Summary	36
Quick Quiz	37
Quick Quiz Answers	38
Discussion Questions	38
Exercises	39
Key Terms	40
End Notes	41
Chapter 2 The Project Management and Information Technology Context	43
A Systems View of Project Management	45
What Is a Systems Approach?	45
The Three-Sphere Model for Systems Management	46

Understanding Organizations	47
The Four Frames of Organizations	47
Organizational Structures	49
Organizational Culture	51
Stakeholder Management	52
The Importance of Top Management Commitment	54
The Need for Organizational Commitment to Information Technology	55
The Need for Organizational Standards	56
Project Phases and the Project Life Cycle	56
Product Life Cycles	59
The Importance of Project Phases and Management Reviews	62
The Context of Information Technology Projects	64
The Nature of IT Projects	64
Characteristics of IT Project Team Members	64
Diverse Technologies	65
Recent Trends Affecting Information Technology Project Management	65
Globalization	65
Outsourcing	66
Virtual Teams	67
Agile Project Management	69
The Manifesto for Agile Software Development	70
Serum	70
Agile, the <i>PMBOK</i> ® <i>Guide</i> , and a New Certification	71
Chapter Summary	73 74
Quick Quiz Quick Quiz Answers	75
Discussion Questions	75
Exercises	76
Key Terms	77
End Notes	78
Chapter 3 The Project Management Process Groups: A Case Study	81
Project Management Process Groups	82
Mapping the Process Groups to the Knowledge Areas	87
Developing an IT Project Management Methodology	88
Case Study 1: JWD Consulting's Project Management Intranet Site Project (Predictive Approach)	91
Project Pre-Initiation and Initiation	91
Pre-Initiation Tasks	92
Initiating	96
Project Planning	100
Project Execution	109
Project Monitoring and Controlling	114
Project Closing Project Closing	117
Case Study 2: JWD Consulting's Project Management Intranet Site Project	111
(Agile Approach)	120
Scrum Roles, Artifacts, and Ceremonies	121
Project Pre-Initiation and Initiation	123
Planning	124

Executing	127
Monitoring and Controlling	127
Closing	129
Templates by Process Group	129
Chapter Summary	133
Quick Quiz	133
Quick Quiz Answers	135
Discussion Questions	135
Exercises	136
Key Terms	137
End Notes	138
Chapter 4 Project Integration Management	139
What Is Project Integration Management?	140
Strategic Planning and Project Selection	143
Strategic Planning	143
Identifying Potential Projects	145
Aligning IT with Business Strategy	146
Methods for Selecting Projects	148
Focusing on Broad Organizational Needs	148
Categorizing IT Projects	148
Performing Net Present Value Analysis, Return on Investment, and Paybao	ek
Analysis	149
Net Present Value Analysis	149
Return on Investment	152
Payback Analysis	153
Using a Weighted Scoring Model	154
Implementing a Balanced Scorecard	156
Developing a Project Charter	157
Developing a Project Management Plan	161
Project Management Plan Contents	161
Using Guidelines to Create Project Management Plans	164
Directing and Managing Project Work	166
Coordinating Planning and Execution	166
Providing Strong Leadership and a Supportive Culture	167
Capitalizing on Product, Business, and Application Area Knowledge	167
Project Execution Tools and Techniques	168
Monitoring and Controlling Project Work	169
Performing Integrated Change Control	171
Change Control on IT Projects	172
Change Control System	173
Closing Projects or Phases	175
Using Software to Assist in Project Integration Management	175
Chapter Summary	178
Quick Quiz	178
Quick Quiz Answers	180
Discussion Questions	180

Exercises	181
Running Case	182
Tasks	183
Key Terms	184
End Notes	185
Chapter 5 Project Scope Management	187
What Is Project Scope Management?	188
Planning Scope Management	189
Collecting Requirements	191
Defining Scope	194
Creating the Work Breakdown Structure	198
Approaches to Developing Work Breakdown Structures	203
Using Guidelines	203
The Analogy Approach	204
The Top-Down and Bottom-Up Approaches	204
Mind Mapping	205
The WBS Dictionary	206
Advice for Creating a WBS and WBS Dictionary	207
Validating Scope	208
Controlling Scope	210
Suggestions for Improving User Input	212
Suggestions for Reducing Incomplete and Changing Requirements	212
Using Software to Assist in Project Scope Management	214
Chapter Summary	216
Quick Quiz	216
Quick Quiz Answers	218
Discussion Questions	218
Exercises	219
Running Case	220
Tasks	221
Key Terms	221
End Notes	222
Chapter 6 Project Time Management	225
The Importance of Project Schedules	226
Planning Schedule Management	229
Defining Activities	229
Sequencing Activities	232
Dependencies	232
Network Diagrams	233
Estimating Activity Resources	236
Estimating Activity Durations	237
Developing the Schedule	238
Gantt Charts	238
Adding Milestones to Gantt Charts	240
Using Tracking Gantt Charts to Compare Planned and Actual Dates	241
Critical Path Method	243
Calculating the Critical Path	243
Growing Grass Can Be on the Critical Path	244

	Table of Contents
Using Critical Path Analysis to Make Schedule Trade-Offs	245
Using the Critical Path to Shorten a Project Schedule	247
Importance of Updating Critical Path Data	248
Critical Chain Scheduling	248
Program Evaluation and Review Technique (PERT)	251
Controlling the Schedule	252
Reality Checks on Scheduling and the Need for Discipline	253
Using Software to Assist in Project Time Management	255
Words of Caution on Using Project Management Software	256
Chapter Summary	258
Quiek Quiz	259
Quick Quiz Answers	261
Discussion Questions	261
Exercises	261
Running Case	265
Tasks	265
Key Terms	265
End Notes	268
Chapter 7 Project Cost Management	271
The Importance of Project Cost Management	272
What Is Cost?	274
What Is Project Cost Management?	274
Basic Principles of Cost Management	275
Planning Cost Management	279
Estimating Costs	280
Types of Cost Estimates	280
Cost Estimation Tools and Techniques	282
Typical Problems with IT Cost Estimates	283
Sample Cost Estimate	284
Determining the Budget	289
Controlling Costs	291
Earned Value Management	291
Project Portfolio Management	297
Using Project Management Software to Assist in Project Cost Management	
Chapter Summary	301
Quick Quiz	301
Quick Quiz Answers	303
Discussion Questions	303
Exercises Running Case	304 305
Tasks	305
Key Terms	306
End Notes	308
Ind Notes	300
Chapter 8 Project Quality Management	311
The Importance of Project Quality Management	312
What Is Project Quality Management?	314
Planning Quality Management	316

xiii

Performing Quality Assurance

318

Controlling Quality	319
Tools and Techniques for Quality Control	320
Statistical Sampling	327
Six Sigma	328
How Is Six Sigma Quality Control Unique?	329
Six Sigma and Project Selection and Management	330
Six Sigma and Statistics	331
Testing	333
Modern Quality Management	335
Deming and His 14 Points for Management	336
Juran and the Importance of Top Management Commitment to Quality	336
Crosby and Striving for Zero Defects	337
Ishikawa's Guide to Quality Control	338
Taguchi and Robust Design Methods	338
Feigenbaum and Workers' Responsibility for Quality	338
Malcolm Baldrige National Quality Award	338
ISO Standards	339
Improving IT Project Quality	340
Leadership	340
The Cost of Quality	341
Organizational Influences, Workplace Factors, and Quality	343
Expectations and Cultural Differences in Quality	343
Maturity Models	344
Software Quality Function Deployment Model	344
Capability Maturity Model Integration	344
Project Management Maturity Models	345
Using Software to Assist in Project Quality Management	347
Chapter Summary	348
Quick Quiz	348
Quick Quiz Answers	350
Discussion Questions	350
Exercises	351
Running Case	352
Tasks	352
Key Terms End Notes	352 355
Elia Notes	330
Chapter 9 Project Human Resource Management	359
The Importance of Human Resource Management	360
The Global IT Workforce	360
Implications for the Future of IT Human Resource Management	361
What Is Project Human Resource Management?	363
Keys to Managing People	365
Motivation Theories	365
Maslow's Hierarchy of Needs	365
Herzberg's Motivation-Hygiene Theory	366
McClelland's Acquired-Needs Theory	367
McGregor's Theory X and Theory Y	368
Thambain and Wilemon's Influence and Power	368

Covey and Improving Effectiveness	370
Developing the Human Resource Plan	373
Project Organizational Charts	374
Responsibility Assignment Matrices	376
Staffing Management Plans and Resource Histograms	377
Acquiring the Project Team	378
Resource Assignment	379
Resource Loading	381
Resource Leveling	383
Developing the Project Team	384
Training	385
Team-Building Activities	386
The Myers-Briggs Type Indicator	386
The Social Styles Profile	388
DISC Profile	389
Reward and Recognition Systems	390
Managing the Project Team	390
Tools and Techniques for Managing Project Teams	391
General Advice on Managing Teams	393
Using Software to Assist in Human Resource Management	394
Chapter Summary	396
Quick Quiz	397
Quick Quiz Answers	399
Discussion Questions	399
Exercises	399
Running Case	400
Key Terms	401
End Notes	402
Chapter 10 Project Communications Management	405
The Importance of Project Communications Management	406
Keys to Good Communications	408
Focusing on Group and Individual Communication Needs	409
Formal and Informal Methods for Communicating	410
Distributing Important Information in an Effective and Timely Manner	411
Setting the Stage for Communicating Bad News	412
Determining the Number of Communication Channels	412
Planning Communications Management	414
Managing Communications	416
Using Technology to Enhance Information Creation and Distribution	416
Selecting the Appropriate Communication Methods and Media	417
Reporting Performance	420
Controlling Communications	420
Suggestions for Improving Project Communications	421
Developing Better Communication Skills	421
Running Effective Meetings	423
Using E-Mail, Instant Messaging, Texting, and Collaborative Tools Effectively	424
Using Templates for Project Communications	427
Using Software to Assist in Project Communications	430

Chapter Summary	433
Quick Quiz	433
Quick Quiz Answers	435
Discussion Questions	435
Exercises	435
Running Case	436
Key Terms	437
End Notes	437
Chapter 11 Project Risk Management	439
The Importance of Project Risk Management	440
Planning Risk Management	447
Common Sources of Risk on IT Projects	448
Identifying Risks	452
Suggestions for Identifying Risks	453
The Risk Register	455
Performing Qualitative Risk Analysis	457
Using Probability/Impact Matrixes to Calculate Risk Factors	457
Top Ten Risk Item Tracking	459
Performing Quantitative Risk Analysis	461
Decision Trees and Expected Monetary Value	461
Simulation	463
Sensitivity Analysis	465
Planning Risk Responses	467
Controlling Risks	469
Using Software to Assist in Project Risk Management	469
Chapter Summary	471
Quick Quiz	472
Quick Quiz Answers	474
Discussion Questions	474
Exercises	474
Running Case	475
Key Terms	476
End Notes	478
Chapter 12 Project Procurement Management	479
The Importance of Project Procurement Management	480
Planning Procurement Management	483
Types of Contracts	485
Tools and Techniques for Planning Procurement Management	489
Make-or-Buy Analysis	489
Expert Judgment	490
Market Research	490
Procurement Management Plan	491
Statement of Work	491
Procurement Documents	493
Source Selection Criteria	494
Conducting Procurements	495
Controlling Procurements	497
Closing Progurements	490

	Table of Contents
	400
Using Software to Assist in Project Procurement Management	499
Chapter Summary	502 503
Quick Quiz Quick Quiz Answers	504
Discussion Questions	504
Exercises	505
Running Case	505
Key Terms	506
End Notes	507
Chapter 13 Project Stakeholder Management	509
The Importance of Project Stakeholder Management	510
Identifying Stakeholders	512
Planning Stakeholder Management	516
Managing Stakeholder Engagement	516
Controlling Stakeholder Engagement	519
Using Software to Assist in Project Stakeholder Management	522
Chapter Summary	524
Quiek Quiz	524
Quick Quiz Answers	526
Discussion Questions	526
Exercises	526
Running Case	527
Key Terms	527
End Notes	527
Appendix A Guide to Using Microsoft Project 2010	A.1
Introduction	A.2
New Features of Project 2010	A.3
Before You Begin	A.4
Overview of Project 2010	A.5
Starting Project 2010 and Using the Help Feature	A.5
Main Screen Elements	A.7
Project 2010 Views	A.11
Project 2010 Filters	A.15
Project Scope Management	A.17
Creating a New Project File	A.17
Developing a Work Breakdown Structure	A.20
Creating Summary Tasks	A.22
Numbering Tasks	A.23
Saving Project Files with or without a Baseline	A.24
Project Time Management	A.24
Manual and Automatic Scheduling	A.24
Entering Task Durations	A.25
Establishing Task Dependencies	A.30
Changing Task Dependency Types and Adding Lead or Lag Time	A.33
Gantt Charts	
	A.36
Network Diagrams	A.38
Critical Path Analysis	A.40

xvii

Project Cost Management	A.42
Fixed and Variable Cost Estimates	A.43
Entering Fixed Costs in the Cost Table	A.43
Entering Human Resource Costs	A.43
Adjusting Resource Costs	A.44
Assigning Resources to Tasks	A.45
Assigning Resources Using the Entry Table	A.45
Assigning Resources Using the Resource Tab	A.46
Assigning Resources Using the Split Window	A.47
Viewing Project Cost Information	A.49
Baseline Plan, Actual Costs, and Actual Times	A.51
Establishing a Baseline Plan	A.51
Entering Actual Costs and Times	A.52
Earned Value Management	A.57
Project Human Resource Management	A.60
Resource Calendars	A.60
Resource Histograms	A.61
Resource Leveling	A.63
Using the New Team Planner Feature	A.65
Project Communications Management	A.66
Common Reports and Views	A.66
Using Templates and Inserting Hyperlinks and Comments	A.68
Discussion Questions	A.72
Exercises	A.72
Exercise A-1: Homework Assignments	A.72
HW1: Project 2010, Part 1 (100 points, 25 points for each item)	A.72
HW2: Project 2010, Part 2 (100 points, 25 points for each item)	A.73
Exercise A-2: Web Site Development	A.73
Exercise A-3: Software Training Program	A.75
Exercise A-4: Project Tracking Database	A.76
Exercise A-5: Real Project Application	A.79
Appendix B	
(Available on CengageBrain.com)	
Appendix C	
(Available on CengageBrain.com)	
Glossary	G.1
Index	I.1