

Tenth Edition

# PMP<sup>®</sup>

## Project Management Professional Exam

# STUDY GUIDE

**2021 EXAM UPDATE**

Includes interactive online learning environment and study tools:

**4 custom practice exams**

**Over 500 electronic flashcards**

**Searchable key term glossary**

**KIM HELDMAN, PMP**

 **SYBEX<sup>®</sup>**  
A Wiley Brand



# PMP®

# Project Management Professional Exam

**Study Guide**  
**2021 Exam Update**  
**Tenth Edition**



Kim Heldman, PMP

 **SYBEX®**  
A Wiley Brand

Copyright © 2021 by John Wiley & Sons, Inc., Indianapolis, Indiana

Published simultaneously in Canada and the United Kingdom

ISBN: 978-1-119-65897-9

ISBN: 978-1-119-65899-3 (ebk)

ISBN: 978-1-119-65900-6 (ebk)

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as permitted under Sections 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 646-8600. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at [www.wiley.com/go/permissions](http://www.wiley.com/go/permissions).

**Limit of Liability/Disclaimer of Warranty:** The publisher and the author make no representations or warranties with respect to the accuracy or completeness of the contents of this work and specifically disclaim all warranties, including without limitation warranties of fitness for a particular purpose. No warranty may be created or extended by sales or promotional materials. The advice and strategies contained herein may not be suitable for every situation. This work is sold with the understanding that the publisher is not engaged in rendering legal, accounting, or other professional services. If professional assistance is required, the services of a competent professional person should be sought. Neither the publisher nor the author shall be liable for damages arising herefrom. The fact that an organization or Web site is referred to in this work as a citation and/or a potential source of further information does not mean that the author or the publisher endorses the information the organization or Web site may provide or recommendations it may make. Further, readers should be aware that Internet Web sites listed in this work may have changed or disappeared between when this work was written and when it is read.

For general information on our other products and services or to obtain technical support, please contact our Customer Care Department within the U.S. at (877) 762-2974, outside the U.S. at (317) 572-3993 or fax (317) 572-4002.

Wiley publishes in a variety of print and electronic formats and by print-on-demand. Some material included with standard print versions of this book may not be included in e-books or in print-on-demand. If this book refers to media such as a CD or DVD that is not included in the version you purchased, you may download this material at [booksupport.wiley.com](http://booksupport.wiley.com). For more information about Wiley products, visit [www.wiley.com](http://www.wiley.com).

**Library of Congress Control Number:** 2020938339

**TRADEMARKS:** Wiley, the Wiley logo, and the Sybex logo are trademarks or registered trademarks of John Wiley & Sons, Inc. and/or its affiliates, in the United States and other countries, and may not be used without written permission. PMP is a registered trademark of Project Management Institute, Inc. All other trademarks are the property of their respective owners. John Wiley & Sons, Inc. is not associated with any product or vendor mentioned in this book.

*To BB, my forever love.*



# Acknowledgments

Thank you for buying *PMP®: Project Management Professional Exam Study Guide, Tenth Edition*, to help you study and prepare for the PMP® exam. Thousands of readers worldwide have used previous editions of this book to help them study for and pass the exam. Because of their success and recommendations to friends and co-workers, we've been able to keep this study guide up to date to reflect the changes made in *A Guide to the Project Management Body of Knowledge (PMBOK® Guide), Sixth Edition* (PMI®, 2017).

I would also like to thank the countless instructors who use my book in their PMP® prep classes. Thank you for your continued interest in using it in your classes. A big thanks goes to all the PMI® chapters who use this book in their classes as well.

A huge thank-you goes to Neil Edde, former vice president and publisher at Sybex, for taking a chance way back when on the first edition of this book. I can't thank him enough for having the foresight at that time to believe in this little-known exam. Almost 20 years later, the exam is well known and instructors and readers all over the globe have used this Study Guide to help them pass the PMP® exam.

Publishing this book clearly fits the definition of a project, and the team at Sybex is one of the best project teams you'll ever find. I appreciate all the hard work and dedication everyone on the team put into producing this book. A special thanks goes to Kenyon Brown, the acquisitions editor, for giving me the opportunity to update the book and for his ideas on making it stronger.

Next, I'd like to thank John Sleeva, the project editor, for his diligent work in helping me make this edition the best it can be. A big thanks also goes to Christine O'Connor, the production editor, for all her help on the book. It was great to work with her again. And thanks also to Liz Welch, the copyeditor, for all her help.

There were many folks involved behind the scenes who also deserve my thanks, including Louise Watson, the proofreader, and Johnna VanHoose Dinse, the indexer.

Next, I'd like to thank Vanina Mangano, technical editor, for her wealth of suggestions and ideas for new topics I should add to the text. It is always a pleasure to work with Vanina. She is a true professional. Vanina is an instructor and consultant in project management. I highly recommend Vanina's classes and videos if you're looking for additional study materials for the exam. She has been a joy to work with and I so appreciate everything she brings to this book. Last, but always the first on my list, is my best friend for a few decades and counting, BB. I love you, and I would never have accomplished what I have to date without your love and support. You're the best! And I'd be remiss if I didn't also thank Jason and Leah, Noelle, Amanda, and Joe, and of course the two best granddaughters on the planet, Kate and Juliette, for their support and understanding.

# About the Author

**Kim Heldman, MBA, PMP®**, is the Senior Manager/CIO for the Regional Transportation District in Denver, Colorado. Kim directs IT resource planning, budgeting, project prioritization, and strategic and tactical planning. She directs and oversees IT design and development, enterprise resource planning systems, IT infrastructure, application development, cybersecurity, the IT program management office, intelligent transportation systems, and datacenter operations.

Kim oversees the IT portfolio of projects ranging from those that are small in scope and budget to multimillion-dollar, multiyear projects. She has over 25 years of experience in information technology project management. Kim has served in a senior leadership role for over 20 years and is regarded as a strategic visionary with an innate ability to collaborate with diverse groups and organizations, instill vision, improve morale, and lead her teams in achieving goals they never thought possible.

Kim wrote the first edition of *PMP®: Project Management Professional Study Guide*, published by Sybex, in 2002. Since then, thousands of people worldwide have used the study guide in preparation for the PMP® exam. Kim is also the author of *CompTIA Project+ Study Guide: Exam PK0-004, Second Edition*, *Project Management JumpStart, Third Edition*, and *Project Manager's Spotlight on Risk Management*. Kim has also published several articles and is currently working on a leadership book.

Most of the Real-World Scenarios in this study guide are based on Kim's real-life experiences. The names and circumstances have been changed to protect the innocent.

Kim continues to write on project management best practices and leadership topics, and she speaks frequently at conferences and events. You can contact Kim at [Kim.Heldman@gmail.com](mailto:Kim.Heldman@gmail.com). She loves hearing from her readers and personally answers all her email.



# Contents at a Glance

<i>Introduction</i>	<i>xix</i>
<i>Assessment Test</i>	<i>xxix</i>
<i>Answers to Assessment Test</i>	<i>xlix</i>
<b>Chapter 1</b>	<b>Building the Foundation 1</b>
<b>Chapter 2</b>	<b>Assessing Project Needs 49</b>
<b>Chapter 3</b>	<b>Delivering Business Value 103</b>
<b>Chapter 4</b>	<b>Developing the Project Scope 161</b>
<b>Chapter 5</b>	<b>Creating the Project Schedule 229</b>
<b>Chapter 6</b>	<b>Developing the Project Budget and Engaging Stakeholders 297</b>
<b>Chapter 7</b>	<b>Identifying Project Risks 359</b>
<b>Chapter 8</b>	<b>Planning and Procuring Resources 423</b>
<b>Chapter 9</b>	<b>Developing the Project Team 491</b>
<b>Chapter 10</b>	<b>Sharing Information 559</b>
<b>Chapter 11</b>	<b>Measuring and Controlling Project Performance 619</b>
<b>Chapter 12</b>	<b>Controlling Work Results and Closing Out the Project 683</b>
<b>Appendices</b>	<b>757</b>
<b>Appendix A</b>	<b>Answers to Review Questions 759</b>
<b>Appendix B</b>	<b>Process Inputs and Outputs 781</b>
<i>Index</i>	<i>839</i>



# Contents

<i>Introduction</i>	<i>xix</i>	
<i>Assessment Test</i>	<i>xxix</i>	
<i>Answers to Assessment Test</i>	<i>xlix</i>	
<b>Chapter 1</b>	<b>Building the Foundation</b>	<b>1</b>
Establishing the Foundation		3
Projects vs. Operations		4
Project Characteristics		6
What Is Project Management?		7
Programs		8
Portfolios		8
Organizational Project Management		11
Project Management Offices		11
Understanding How Projects Come About		13
Needs and Demands and Other Factors That Lead to Project Creation		14
Skills Every Good Project Manager Needs		17
Technical Project Management Skills		18
Business Management and Strategic Skills		18
Communication Skills		19
Organizational and Planning Skills		19
Conflict Management Skills		20
Negotiation and Influencing Skills		20
Leadership Skills		21
Team-Building and Motivating Skills		21
Role of a Project Manager		22
Understanding Project Management Process Groups		22
Determining a Project Methodology or Approach		28
Life Cycle Categories		29
Predictive Life Cycle Methodology		30
Agile Methodologies		33
Hybrid		38
Project Life Cycles		38
Understanding How This Applies to Your Next Project		39
Summary		40
Exam Essentials		41
Review Questions		43

<b>Chapter 2</b>	<b>Assessing Project Needs</b>	<b>49</b>
	Exploring the Project Management Knowledge Areas	51
	Project Integration Management	53
	Project Scope Management	56
	Project Schedule Management	57
	Project Cost Management	58
	Project Quality Management	59
	Project Resource Management	59
	Project Communications Management	60
	Project Risk Management	62
	Project Procurement Management	62
	Project Stakeholder Management	63
	Assessing Project Viability	64
	Using Project Selection Methods	65
	Assessing Project Needs and Creating the Project Charter	73
	Enterprise Environmental Factors	78
	Organizational Process Assets	78
	Tools and Techniques	81
	Formalizing and Publishing the Project Charter	82
	Pulling the Project Charter Together	83
	Key Stakeholders	84
	Project Charter Sign-Off	87
	Maintaining Project Artifacts	88
	Introducing the Kitchen Heaven Project Case Study	89
	Understanding How This Applies to Your Next Project	93
	Summary	94
	Exam Essentials	96
	Review Questions	98
<b>Chapter 3</b>	<b>Delivering Business Value</b>	<b>103</b>
	Understanding Organizational Structures	106
	Functional Organizations	108
	Project-Oriented Organizations	112
	Matrix Organizations	114
	Other Organizational Structures	118
	PMO	118
	PMO in an Agile Environment	119
	Project-Based Organizations	121
	Influences of Organizational Structure on Agile	
	Methodologies	122
	Identifying Stakeholders	123
	Discovering Stakeholders	124
	Stakeholder Analysis	126

	Categorizing Stakeholders	127
	Stakeholder Register	134
	Stakeholders on an Agile Project	135
	Six Sigma Adaptive Methodology	137
	Delivering Business Value	140
	Business Value Network	142
	Assessing Business Value	143
	Delivering Business Value Incrementally	145
	Examining Business Value	147
	Subdividing Project Tasks	148
	Understanding How This Applies to Your Next Project	151
	Summary	152
	Exam Essentials	153
	Review Questions	155
<b>Chapter 4</b>	<b>Developing the Project Scope</b>	<b>161</b>
	Developing the Project Management Plan	164
	Project Complexity	168
	Data Gathering and Interpersonal Skills	168
	Documenting the Project Management Plan	169
	Documenting the Project Management Plan Using a Predictive Methodology	172
	Plan Scope Management	173
	Alternatives Analysis	175
	Documenting the Scope Management Plan	177
	Documenting the Requirements Management Plan	178
	Collecting Requirements	178
	Gathering Documents for the Collect Requirements Process	180
	Gathering and Documenting Requirements	185
	Finalizing Requirements	189
	Defining Scope	192
	Writing the Project Scope Statement	194
	Managing the Product Backlog	199
	Creating the Work Breakdown Structure	201
	Decomposing the Deliverables	202
	Constructing the WBS	203
	Backlog	211
	Finalizing the WBS	212
	Understanding How This Applies to Your Next Project	216
	Summary	218
	Exam Essentials	219
	Review Questions	221

<b>Chapter 5</b>	<b>Creating the Project Schedule</b>	<b>229</b>
	Creating the Schedule Management Plan	232
	Defining Activities	233
	Creating the Activity List	234
	Breaking Down User Stories	235
	Understanding the Sequence Activities Process	237
	Precedence Diagramming and Leads and Lags	238
	Project Management Information System	243
	Project Schedule Network Diagrams	243
	Estimating Activity Resources	244
	How to Estimate Activity Resources	245
	Documenting Resource Requirements	246
	Estimating Resources in an Adaptive Methodology	247
	Estimating Activity Durations	247
	Project Calendars and Other Considerations	248
	Estimating Techniques	249
	Duration Estimates	253
	Estimating Activity Durations Using Adaptive Methodologies	255
	Developing the Project Schedule	257
	Gather Documents to Assist in Developing the Schedule	257
	Developing the Project Schedule	258
	Project Schedule and the Schedule Baseline	272
	Using a Kanban Board and Scrum Board	277
	Scrum Board	279
	Combining Techniques	280
	Agile Release Planning	281
	Applying Process Groups in an Agile Approach	281
	Understanding How This Applies to Your Next Project	286
	Summary	287
	Exam Essentials	289
	Review Questions	291
<b>Chapter 6</b>	<b>Developing the Project Budget and Engaging Stakeholders</b>	<b>297</b>
	Creating the Cost Management Plan	300
	Performing Plan Cost Management	301
	Creating the Cost Management Plan	302
	Estimating Costs	303
	Estimating Techniques	307
	Estimating Costs for an Agile Project	308
	Creating the Cost Estimates	309
	Establishing the Cost Baseline	311
	Techniques for Developing the Project Budget	313

Developing the Cost Baseline	314
Understanding Stakeholders	318
Analyzing Stakeholders	319
Stakeholder Engagement Plan	320
Mentoring Stakeholders	321
Engaging Stakeholders in an Adaptive Methodology	322
Communicating the Plan	323
Planning Communications	324
Determining Communication Needs	325
Documenting the Communications Management Plan	331
Communicating on an Agile Team	333
A Closer Look at Adaptive Methodologies	335
Other Methodologies	340
Combining Methodologies	345
Understanding How This Applies to Your Next Project	348
Summary	349
Exam Essentials	351
Review Questions	353
<b>Chapter 7</b>	<b>Identifying Project Risks</b>
	<b>359</b>
Understanding Risk	361
Creating the Risk Management Plan	362
Risk Attitude	363
Conducting Risk Meetings	364
Documenting the Risk Management Plan	366
Identifying Potential Risks	372
Data Gathering and Data Analysis Techniques for	
Identifying Risks	374
Documenting the Risk Register	378
Identifying Risks Using an Agile Approach	380
Analyzing Risks Using Qualitative Techniques	381
Performing Qualitative Risk Analysis	382
Ranking Risks in the Risk Register	390
Quantifying Risk	391
Performing Quantitative Risk Analysis	392
Updating the Risk Report	397
Developing a Risk Response Plan	398
Strategies for Creating Risk Responses	399
Documenting the Risk Responses Plan	404
Assessing Risks Using an Agile Approach	407
Planning for Project Compliance	409
Understanding How This Applies to Your Next Project	413
Summary	414
Exam Essentials	415
Review Questions	417

<b>Chapter 8</b>	<b>Planning and Procuring Resources</b>	<b>423</b>
	Procurement Planning	425
	Gathering Documents for the Procurement Management Plan	427
	Source Selection Criteria	433
	Procurement Management Plan	435
	Procurements in an Agile Environment	442
	Developing the Resource Management Plan	445
	Understanding Enterprise Environmental Factors	446
	Using Data Representation Techniques for Plan Resource Management	448
	Documenting the Resource Management Plan	451
	Resources on an Agile Project	455
	Quality Planning	456
	Preparing for Quality	457
	Developing the Quality Management Plan	458
	Documenting the Quality Management Plan	466
	Quality Planning for Agile Projects	468
	Project Planning Using Agile Methodologies	469
	Bringing It All Together	470
	Choosing a Life Cycle Methodology	473
	Understanding How This Applies to Your Next Project	480
	Summary	481
	Exam Essentials	482
	Review Questions	485
<b>Chapter 9</b>	<b>Developing the Project Team</b>	<b>491</b>
	Directing and Managing Project Work	494
	Direct and Manage Project Work Inputs	496
	Project Management Information System	499
	Deliverables and Work Performance Data	499
	Directing Project Work on Agile Projects	504
	Executing Practices for Delivering Project Work	508
	Acquiring the Project Team and Project Resources	510
	The Resource Management Plan	510
	Techniques for Acquiring Resources	511
	Project Team Assignments	515
	Developing the Project Team	517
	Generational Diversity	518
	Tools and Techniques to Develop the Team	520
	Developing Agile Teams	536
	Team Performance Assessments	539



	Managing Project Teams	543
	Emotional Intelligence and Other Tools for	
	Managing Teams	543
	Lessons Learned Managing Teams	545
	Understanding How This Applies to Your Next Project	547
	Summary	548
	Exam Essentials	550
	Review Questions	552
<b>Chapter 10</b>	<b>Sharing Information</b>	<b>559</b>
	Implementing Risk Responses	563
	Conducting Procurements	563
	Evaluating Proposals	564
	Creating Procurement Agreements	571
	Conducting Procurements on Agile Projects	573
	Laying Out Quality Assurance Procedures	574
	Managing Quality with Data and Audits	575
	Quality Reports and Test and Evaluation Documents	580
	Conducting Quality Assessments on an Agile Project	581
	Managing Project Knowledge	582
	Knowledge Management	583
	Information Management	583
	Managing Project Artifacts	583
	Managing Project Information	584
	Communication and Conflict Resolution Skills	585
	Project Communications and Elements of Communicating	594
	Communicating on Agile Projects	596
	Managing Stakeholder Engagement	597
	Observing and Conversing	598
	Agile Frameworks	599
	Agile Methodologies or Frameworks	600
	Scaling Frameworks	601
	Understanding How This Applies to Your Next Project	606
	Summary	607
	Exam Essentials	608
	Review Questions	611
<b>Chapter 11</b>	<b>Measuring and Controlling Project Performance</b>	<b>619</b>
	Monitoring and Controlling Project Work	624
	Forecasting Methods	625
	Work Performance Reports	626
	Controlling Procurements	627
	Procurement Documents and Approved Change Requests	629
	Monitoring Vendor Performance	631
	Closing Out Procurements	632

	Monitoring Communications	636
	Documents to Help Monitor Communications	637
	Monitoring Communications with Meetings	637
	Work Performance Information	639
	Performing Integrated Change Control	642
	How Change Occurs	643
	Change Control Concerns	644
	Configuration Control	645
	Change Control System	646
	Approved Change Requests	650
	Changes in the Business Environment	651
	Monitoring Stakeholder Engagement	654
	Controlling Resources	654
	Utilizing Control Quality Techniques	655
	Control Quality Tools and Techniques	656
	Verifying Deliverables	664
	Monitoring and Controlling Risk	664
	Monitor Risks Analysis and Meetings	666
	Monitor Risks Updates	667
	Monitoring Project Management Integrations	668
	Understanding How This Applies to Your Next Project	671
	Summary	672
	Exam Essentials	674
	Review Questions	676
<b>Chapter 12</b>	<b>Controlling Work Results and Closing Out the Project</b>	<b>683</b>
	Controlling Cost Changes	686
	Earned Value Analysis	687
	Variance Analysis	689
	Trend Analysis	692
	To-Complete Performance Index	697
	Earned Value Measures on Agile Projects	700
	Monitoring and Controlling Schedule Changes	702
	Burndown and Burnup Charts	703
	Performance Reviews	705
	Changes to the Schedule	706
	Validating Project Scope	707
	Controlling Scope	708
	Measuring Work Results on Agile Projects	710
	Formulating Project Closeout	713
	Characteristics of Closing	713
	Project Endings	714

Closing Out the Project	717
Administrative Closure Procedures	718
Regression Analysis	719
Close Project or Phase Final Report	719
Closing Out the Procurements	723
Closing Out an Agile Project	724
Celebrate!	725
Releasing Project Team Members	725
Balancing Stakeholders' Interests at Project Close	725
Competing Needs	726
Dealing with Issues and Problems	727
Balancing Constraints	727
Professional Responsibility	727
Responsibility	728
Respect	731
Fairness	734
Honesty	737
Role Delineation Study	739
Applying Professional Knowledge	739
Project Management Knowledge	740
Education Providers	740
Industry Knowledge	740
Understanding How This Applies to Your Next Project	746
Summary	748
Exam Essentials	750
Review Questions	752

## **Appendices 757**

<b>Appendix A</b>	<b>Answers to Review Questions</b>	<b>759</b>
	Chapter 1: Building the Foundation	760
	Chapter 2: Assessing Project Needs	761
	Chapter 3: Delivering Business Value	763
	Chapter 4: Developing the Project Scope	765
	Chapter 5: Creating the Project Schedule	767
	Chapter 6: Developing the Project Budget and Engaging Stakeholders	768
	Chapter 7: Identifying Project Risks	770
	Chapter 8: Planning and Procuring Resources	771
	Chapter 9: Developing the Project Team	773
	Chapter 10: Sharing Information	775

	Chapter 11: Measuring and Controlling Project Performance	776
	Chapter 12: Controlling Work Results and Closing Out the Project	778
<b>Appendix B</b>	<b>Process Inputs and Outputs</b>	<b>781</b>
	Initiating Processes	782
	Planning Processes	784
	Executing Processes	807
	Monitoring and Controlling Processes	821
	Closing Processes	836
<i>Index</i>		839

# Introduction

This book was designed for anyone thinking of taking the Project Management Professional (PMP®) exam sponsored by the Project Management Institute (PMI®). This certification is in high demand in all areas of business. PMI® has experienced explosive growth in membership over the last few years, and more and more organizations are recognizing the importance of project management certification.



---

Although this book is written primarily for those of you taking the PMP® exam, you can also use this book to study for the Certified Associate in Project Management (CAPM®) exam. The exams are similar in style, and the information covered in this book will help you with either exam.

This book has been updated to reflect the latest edition of *A Guide to the Project Management Body of Knowledge (PMBOK® Guide), Sixth Edition* (PMI®, 2017), and the new exam domains introduced in 2020. It assumes you have knowledge of general project management practices, although not necessarily specific to the *PMBOK® Guide*. It's written so that you can skim through areas you are already familiar with, picking up the specific *PMBOK® Guide* terminology where needed to pass the exam. You'll find that the project management processes and techniques discussed in this book are defined in such a way that you'll recognize tasks you've always done and be able to identify them with the *PMBOK® Guide* process names or methodologies.

PMI® offers the most recognized certification in the field of project management, and this book deals exclusively with its procedures and methods. Project management consists of many methods, each with its own terminology, tools, and procedures. If you're familiar with another organized project management methodology, don't assume you already know the *PMBOK® Guide* processes. I strongly recommend that you learn all of the processes—their key inputs, tools and techniques, and outputs. Take the time to memorize the key terms found in the Glossary as well. Sometimes just understanding the definition of a term will help you answer a question. It might be that you've always done that particular task or used the methodology described but called it by another name. Know the name of each process and its primary purpose.



---

The process names, inputs, tools and techniques, outputs, and descriptions of the project management process groups and related materials and figures in this book are based on content from *A Guide to the Project Management Body of Knowledge (PMBOK® Guide), Sixth Edition* (PMI®, 2017). The references to adaptive and hybrid methodologies, related materials, and figures in this chapter are based on content from the *Agile Practice Guide* (PMI®, 2017).

# What Is the PMP® Certification?

PMI® is the leader and the most widely recognized organization in terms of promoting project management best practices. PMI® strives to maintain and endorse standards and ethics in this field and offers publications, training, seminars, chapters, special interest groups, and colleges to further the project management discipline.

PMI® was founded in 1969 and first started offering the PMP® certification exam in 1984. PMI® is accredited as an American National Standards Institute (ANSI) standards developer and also has the distinction of being the first organization to have its certification program attain International Organization for Standardization (ISO) 9001 recognition.

PMI® boasts a worldwide membership of more than a half a million members with more than 200 countries and territories around the globe. Local PMI® chapters meet regularly and allow project managers to exchange information and learn about new tools and techniques of project management or new ways to use established techniques. I encourage you to join a local chapter and get to know other professionals in your field.

## Why Become PMP® Certified?

The following benefits are associated with becoming PMP® certified:

- It demonstrates proof of professional achievement.
- It increases your marketability.
- It provides greater opportunity for advancement in your field.
- It raises customer confidence in you and in your company's services.

## Demonstrates Proof of Professional Achievement

PMP® certification is a rigorous process that documents your achievements in the field of project management. The exam tests your knowledge of the disciplined approaches, methodologies, and project management practices as described in the *PMBOK® Guide*.

You are required to have several years of experience in project management before sitting for the exam, as well as 35 hours of formal project management education. Your certification assures employers and customers that you are well grounded in project management practices and disciplines. It shows that you have the hands-on experience and a mastery of the processes and disciplines to manage projects effectively and motivate teams to produce successful results.

## Increases Your Marketability

Many industries are realizing the importance of project management and its role in the organization. They are also seeing that simply proclaiming a head technician to be a “project manager” does not make it so. Project management, just like engineering,

information technology, and a host of other trades, has its own specific qualifications and skills. Certification tells potential employers that you have the skills, experience, and knowledge to drive successful projects and ultimately improve the company's bottom line.

A certification will always make you stand out above the competition. If you're a PMP® credential holder and you're competing against a project manager without certification, chances are you'll come out as the top pick. As a hiring manager, all other things being equal, I will usually opt for the candidate who has certification over the candidate who doesn't have it. Certification tells potential employers you have gone the extra mile. You've spent time studying techniques and methods as well as employing them in practice. It shows dedication to your own professional growth and enhancement and to adhering to and advancing professional standards.

## **Provides Opportunity for Advancement**

PMP® certification displays your willingness to pursue growth in your professional career and shows that you're not afraid of a little hard work to get what you want. Potential employers will interpret your pursuit of this certification as a high-energy, success-driven, can-do attitude on your part. They'll see that you're likely to display these same characteristics on the job, which will help make the company successful. Your certification displays a success-oriented, motivated attitude that will open up opportunities for future career advancements in your current field as well as in new areas you might want to explore.

## **Raises Customer Confidence**

Just as the PMP® certification assures employers that you've got the background and experience to handle project management, it assures customers that they have a competent, experienced project manager at the helm. Certification will help your organization sell customers on your ability to manage their projects. Customers, like potential employers, want the reassurance that those working for them have the knowledge and skills necessary to carry out the duties of the position and that professionalism and personal integrity are of utmost importance. Individuals who hold these ideals will translate their ethics and professionalism to their work. This enhances the trust customers will have in you, which in turn will give you the ability to influence them on important project issues.

## **How to Become PMP® Certified**

You need to fulfill several requirements in order to sit for the PMP® exam. PMI® has detailed the certification process quite extensively at its website. Go to [www.pmi.org](http://www.pmi.org) and click the Certifications tab to get the latest information on certification procedures and requirements.

As of this writing, you are required to fill out an application to sit for the PMP® exam. You can submit this application online at the PMI® website. You also need to document 35 hours of formal project management education. This might include college classes, seminars, workshops, and training sessions. Be prepared to list the class titles, location, date, and content.

In addition to filling out the application and documenting your formal project management training, there is one set of criteria you'll need to meet to sit for the exam. The criteria in this set fall into two categories. You need to meet the requirements for only one of these categories:

- Category 1 is for those who have a baccalaureate degree. You'll need to provide proof, via transcripts, of your degree with your application. In addition, you'll need to complete verification forms—found at the PMI® website—that show 4,500 hours of project management experience that spans a minimum of three years. You'll also need 35 hours of project management education/training.
- Category 2 is for those who do not have a baccalaureate degree but do hold a high school diploma or associate's degree. You'll need to complete verification forms documenting 7,500 hours of project management experience that spans a minimum of five years. You'll also need 35 hours of project management education/training.

As of this writing, the exam fee is \$405 for PMI® members in good standing and \$555 for non-PMI® members. Testing is conducted at Prometric testing centers. You can find a center near you on the Prometric center website, but you will not be able to schedule your exam until your application is approved by PMI®. You have one year from the time PMI® receives and approves your completed application to take the exam. You'll need to bring two forms of identification, such as a driver's license and a credit card in your name, with you to the Prometric testing center on the test day. You will not be allowed to take anything with you into the testing room and will be provided with a locker to store your personal belongings. You will be given a calculator, pencils, and scrap paper. You will turn in all scrap paper, including the notes and squiggles you've jotted during the test, to the center upon completion of the exam.

The exam is scored immediately, so you will know whether you've passed at the conclusion of the test. You're given four hours to complete the exam, which consists of 200 randomly generated questions. Only 175 of the 200 questions are scored. Twenty-five of the 200 questions are “pretest” questions that will appear randomly throughout the exam. These 25 questions are used by PMI® to determine statistical information and to determine whether they can or should be used on future exams. You will receive a score of Proficient, Moderately Proficient, or Below Proficient for each exam domain, as well as a Pass or Fail score. Because PMI® uses psychometric analysis to determine whether you have passed the exam, a passing score is not published. The questions on the exam cover three domains with roughly half the questions involving agile or hybrid methodologies. There will also be questions regarding professional responsibility. You'll answer questions on the following domains:

- People
- Process
- Business Environment





Questions pertaining to professional responsibility on the exam will be intermixed with questions for all the process groups. You won't see a section or set of questions devoted solely to professional responsibility, but you will need to understand all the concepts in this area. I've devoted a good portion of the last chapter of this book to discussing professional responsibility topics.

All unanswered questions are scored as wrong answers, so it benefits you to guess at an answer if you're stumped on a question.

After you've received your certification, you'll be required to earn 60 professional development units (PDUs) every three years to maintain certification. Approximately one hour of structured learning translates to one PDU. The PMI® website details what activities constitute a PDU, how many PDUs each activity earns, and how to register your PDUs with PMI® to maintain your certification. As an example, attendance at a local chapter meeting earns one PDU.

## Who Should Buy This Book?

If you are serious about passing the PMP® exam (or the CAPM® exam for that matter), you should buy this book and use it to study for the exam. This book is unique in that it walks you through the project processes from beginning to end, just as projects are performed in practice. When you read this book, you will benefit from the explanations of specific *PMBOK® Guide* processes and techniques coupled with real-life scenarios that describe how project managers in different situations handle problems and the various issues all project managers are bound to encounter during their careers. This study guide describes in detail the exam objective topics in each chapter and has attempted to cover all of the important project management concepts.

## Interactive Online Learning Environment and Test Bank

The interactive online learning environment that accompanies *PMP® Project Management Professional Exam Study Guide, Tenth Edition* provides a test bank with study tools to help you prepare for the certification exam—and to increase your chances of passing it the first time! The test bank includes the following tools:

**Sample Tests** All of the questions in this book are provided, including the **Assessment Test**, which you'll find at the end of this Introduction, and the **Chapter Tests** that include the review questions at the end of each chapter. In addition, there

are two **Bonus Exams** and two practice **CAPM Exams**. Use these questions to test your knowledge of the study guide material. The online test bank runs on multiple devices.

If you are interested in more practice exams, check out the *PMP Project Management Professional Practice Tests, 2nd Edition*, co-authored by me and Vanina Mangano.

**Flashcards** Questions are provided in digital flashcard format (a question followed by a single correct answer). You can use the flashcards to reinforce your learning and for last-minute test prep before the exam.

**Other Study Tools** Several bonus study tools are included:

**Glossary** The key terms from this book and their definitions are available as a fully searchable PDF.

**Bonus Questions** Supplement the topics in the book with bonus questions that'll help you test your knowledge and understanding of concepts.

**Audio Instruction and Review** With over two hours of audio instruction, you can listen to the author review essential concepts, helping you to increase your understanding and fine-tune critical skills.



Go to [www.wiley.com/go/sybextestprep](http://www.wiley.com/go/sybextestprep) to register and gain access to this interactive online learning environment and test bank with study tools.

## How to Use This Book and the Test Bank

I've included several study tools, both in the book and in the test bank at [www.wiley.com/go/sybextestprep](http://www.wiley.com/go/sybextestprep). Following this Introduction is an assessment test that you can use to check your readiness for the actual exam. Take this test before you start reading the book. It will help you identify the areas you may need to brush up on. The answers to the assessment test appear after the last question of the test. Each answer includes an explanation and a note telling you in which chapter this material appears.

Exam Essentials appear at the end of every chapter to highlight the topics you'll most likely find on the exam and help you focus on the most important material covered in the chapter so that you'll have a solid understanding of those concepts. However, it isn't possible to predict what questions will be covered on your particular exam, so be sure to study everything in the chapter.



Like the exam itself, this study guide is organized in terms of process groups and the natural sequence of events a project goes through in its life cycle. This is in contrast to other study guides, where material is organized by Knowledge Area (Human Resource Management, Communications Management, and so on); such organization can make mapping the processes in each Knowledge Area to process groups confusing when you're studying for the exam.

Review questions are also provided at the end of every chapter. You can use them to gauge your understanding of the subject matter before reading the chapter and to point out the areas in which you need to concentrate your study time. As you finish each chapter, answer the review questions and then check to see whether your answers are right—the correct answers appear in Appendix A. You can go back to reread the section that deals with each question you got wrong to ensure that you answer the question correctly the next time you are tested on the material. If you can answer at least 80 percent of the review questions correctly, you can probably feel comfortable moving on to the next chapter. If you can't answer that many correctly, reread the chapter, or the section that seems to be giving you trouble, and try the questions again. You'll also find more than 200 flashcard questions on the website for on-the-go review.



Don't rely on studying the review questions exclusively as your study method. The questions you'll see on the exam will be different from the questions presented in the book. There are 200 randomly generated questions on the PMP® exam and 150 on the CAPM®, so it isn't possible to cover every potential exam question in the review questions section of each chapter. Make sure you understand the concepts behind the material presented in each chapter and memorize all the formulas as well.

In addition to the assessment test and the review questions, you'll find bonus exams online. Take these practice exams just as if you were actually taking the exam (that is, without any reference material). When you have finished the first exam, move on to the next exam to solidify your test-taking skills. If you get more than 85 percent of the answers correct, you're ready to take the real exam.

Finally, you will notice various Real-World Scenario sidebars throughout each chapter. They are designed to give you insight into how the various processes and topic areas apply to real-world situations.

## The Exam Objectives

Behind every certification exam, you can be sure to find exam objectives—the broad topics in which the exam developers want to ensure your competency. PMP® exam objectives are listed at the beginning of every chapter in this book.



Exam objectives are subject to change at any time without prior notice and at the sole discretion of PMI®. Please visit the Certifications page of PMI®'s website, [www.pmi.org](http://www.pmi.org), for the most current listing of exam objectives.

# How to Contact the Author

I welcome your feedback about this book or about books you'd like to see from me in the future. You can reach me at [Kim.Heldman@gmail.com](mailto:Kim.Heldman@gmail.com). For more information about my work, please visit my website at [KimHeldman.com](http://KimHeldman.com).

# PMP®: Project Management Professional Exam Study Guide, 10th Edition

## Updated for the 2020 Exam

### Exam Objectives

#### PMP Exam Domains

Domain	Chapter
1. People	All Chapters
1.1 Manage conflict	10
1.2 Lead a team	1, 2, 3, 4, 5, 6, 9, 10
1.3 Support team performance	9
1.4 Empower team members and stakeholders	2, 3, 4, 8, 9, 11, 12
1.5 Ensure team members/stakeholders are adequately trained	9
1.6 Build a team	3, 4, 5, 6, 9,
1.7 Address and remove impediments, obstacles, and blockers from the team	9, 10

<b>Domain</b>	<b>Chapter</b>
1.8 Negotiate project agreements	8, 10
1.9 Collaborate with stakeholders	2, 3, 4, 6, 10
1.10 Build shared understanding	3, 4, 6, 8,
1.11 Engage and support virtual teams	9
1.12 Define team ground rules	10
1.13 Mentor relevant stakeholders	3, 6
1.14 Promote team performance through the application of emotional intelligence	9
<b>2. Process</b>	All Chapters
2.1 Execute project with urgency required to deliver business value	3, 5, 6, 8, 9
2.2 Manage communications	1, 3, 6, 10, 11, 12
2.3 Assess and manage risks	7, 10, 11
2.4 Engage stakeholders	3, 6, 11
2.5 Plan and manage budget and resources	6, 8, 12
2.6 Plan and manage schedule	5, 12
2.7 Plan and manage quality of products/deliverables	8, 10, 11
2.8 Plan and manage scope	4, 12
2.9 Integrate project planning activities	2, 8, 11, 12
2.10 Manage project changes	11
2.11 Plan and manage procurement	2, 8, 10, 11
2.12 Manage project artifacts	5, 6, 7, 10, 11, 12
2.13 Determine appropriate project methodology/ methods and practices	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
2.14 Establish project governance structure	2, 8
2.15 Manage project issues	7, 11
2.16 Ensure knowledge transfer for project continuity	12
2.17 Plan and manage project/phase closure or transitions	12

Domain	Chapter
Business Environment	All Chapters
3.1 Plan and manage project compliance	2, 3, 4, 7, 11
3.2 Evaluate and deliver project benefits and value	2, 3,4, 6, 8, 11
3.3 Evaluate and address external business environment changes for impact on scope	3, 11
3.4 Support organizational change	3, 4, 5, 8, 11