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Cover Designer: Wiley
Cover Image: ©Jeremy Woodhouse/Getty Images, Inc.

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Published simultaneously in Canada

ISBN: 978-1-119-28052-1

ISBN: 978-1-119-28054-5 (ebk.)

ISBN: 978-1-119-28053-8 (ebk.)

Manufactured in the United States of America

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Library of Congress Control Number: 2016960612

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To Kate and Juliette, project managers in the making.

Acknowledgments

Thank you for buying the second edition of *CompTIA Project+ Study Guide Exam PK0-004* to help you study and prepare for the CompTIA Project+ exam. I believe this book is a good introduction to the in-depth world of project management and certification and will open up many opportunities for you.

I would like to thank all the great team members at Wiley who were part of this project: Kenyon Brown, senior acquisitions editor; Jim Compton, development editor; Dassi Zeidel, production editor; and all those behind the scenes who helped make this book a success. They are terrific to work with, as always, and I appreciate their keen eyes and insightful ideas and suggestions.

Special thanks go to Vanina Mangano for her work as technical editor. I appreciate her diligence and great suggestions that helped make the content stronger.

And a thank-you, as always, goes to my family for their understanding of my crazy schedule. Kate and Juliette, you're the best!

About the Author

Kim Heldman, MBA, PMP® is the 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, IT program management office, intelligent transportation systems, and data center operations.

Kim oversees the IT portfolio of projects ranging from small in scope and budget to multimillion-dollar, multiyear projects. She has more than 25 years of experience in information technology project management. Kim has served in a senior leadership role for more than 18 years and is regarded as a strategic visionary with an innate ability to collaborate with diverse groups and organizations, instill hope, improve morale, and lead her teams in achieving goals they never thought possible.

Kim is also the author of *PMP® Project Management Professional Exam Study Guide, 8th Edition*; *Project Management JumpStart 3rd Edition*; and *Project Manager's Spotlight on Risk Management*. She is the coauthor of *PMP® Project Management Professional Exam Deluxe Study Guide, 2nd Edition*, and the *PMP® Project Management Professional Exam Review Guide, 3rd Edition*. Kim has also published several articles and is currently working on a leadership book.

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. She personally answers all her email.

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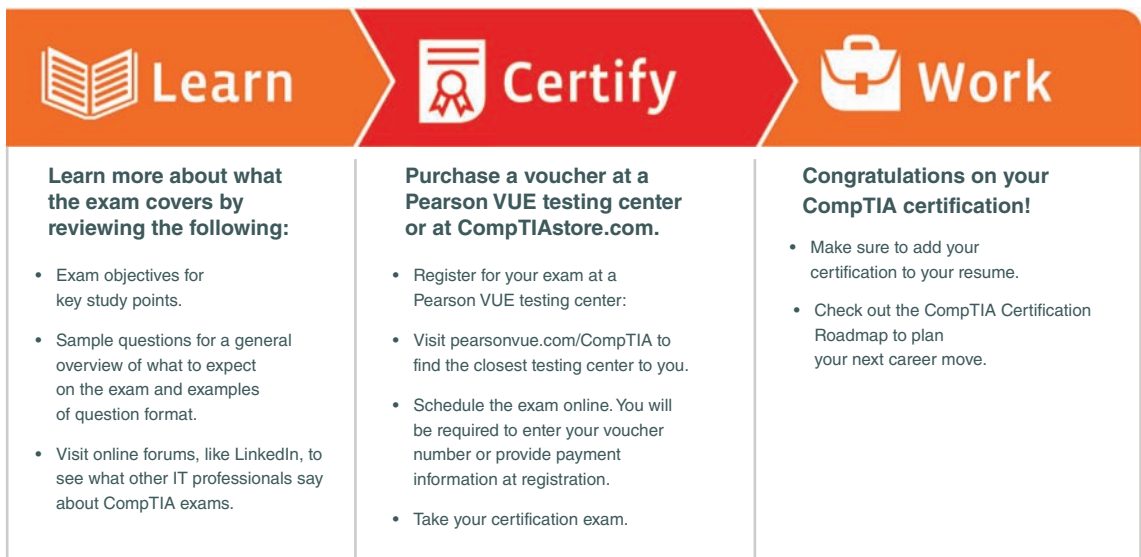
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Learn more: **Certification.CompTIA.org/projectplus**

* Source: CompTIA 9th Annual Information Security Trends study: 500 U.S. IT and Business Executives Responsible for Security

** Source: CompTIA Employer Perceptions of IT Training and Certification

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Introduction

Have you ever wondered how the pyramids were built? Or the Eiffel Tower? How did someone have the organizational skills to put all those people together and create such magnificent structures? Coming forward to recent times—how is Microsoft capable of putting together literally *millions* of lines of code for its latest operating system? The answer to all of these is project management.

The CompTIA Project+ exam will test your knowledge of the concepts and processes involved in project management. There are several project management methodologies you can follow, each with their own processes and procedures, but at the foundation of each one are sound project management principles and techniques. CompTIA Project+ is vendor neutral. It acknowledges other methodologies such as those published by the Project Management Institute® and PRINCE2 but doesn't follow them precisely.

In this edition of *CompTIA Project+ Study Guide*, you'll find plenty of discussion of project management concepts such as defining the requirements, creating the project charter document, creating the scope document, planning the project, assessing and managing risk, and closing out the project. You'll also find exam questions in categories such as team building and personnel management, quality management, status reporting, and more, and these are discussed as well.

The Project+ certification used to be centered on information technology (IT) projects and was called the IT Project+ exam. Many projects involve IT in one way or another, so you'll find references in this book to IT-related projects. I should also mention that my job-related experience is in IT, and many of my examples are drawn from real-life situations.

Where should you go beyond taking your Project+ test? If you find you're interested in all things project management, you should enroll in a good university-level class that takes you through the heavier stages of project management. This book and this test only touch the surface of project management techniques. You'll find there is much more to learn and that it's possible to make a career out of managing projects.



Don't just study the questions and answers in this book; the questions on the actual exam will be different from the practice ones included in the book and the online test bank at www.wiley.com/go/sybextestprep. The exam is designed to test your knowledge of a concept or objective, so use this book to learn the objective behind the question.

What Is the Project+ Certification?

CompTIA's mission is to create tests and certifications that aren't company-specific. For example, you can take a server test that deals with the elements of servers and server operation but doesn't ask you specifics about Dell, HP, or IBM equipment. CompTIA got its start with what is now an industry standard, the A+ exam. This is a test designed to quiz you on your understanding of the workings of a PC and its associated connection to a network. But there are other tests as well: Network+, Linux+, and others.

Why Become Project+ Certified?

Certification in project management has increasingly become a requirement for those interested in full-time careers in this field. It improves your credibility with stakeholders and customers. Becoming certified demonstrates your intent to learn the processes associated with project management and provides you with opportunities for positions and advancements that may not otherwise be possible.

Here are some reasons to consider the Project+ test and this study guide:

Demonstrates Proof of Professional Achievement Certification demonstrates to current and potential employers that you are knowledgeable and well-grounded in project management practices and have taken the initiative to prove your knowledge in this area.

Increases Your Marketability If you take a moment to browse job postings for project management positions, you'll often find that certification is either highly desirable or required. The CompTIA Project+ certification will help you stand out from other candidates and demonstrate that you have the skills and knowledge to fulfill the duties required of a project manager.

Provides Opportunity for Advancement You may find that your Project+ certification is just what you need to get that next step up the ladder. People who study and pass certification tests prove, if nothing else, that they have the tenacity to get through a difficult subject and to prove their understanding by testing on the subject.

Provides a Prerequisite for Advanced Project Management Training If you're considering a project management career, the Project+ exam is a great way to start. Studying for this exam gives you the background on what project management is really all about, not simply what one company or organization thinks it's about. After passing the exam, you should consider obtaining the Certified Associate Project Management (CAPM®) or Project Management Professional (PMP®) certification through the Project Management Institute. This study guide follows the principles and processes outlined by PMI® and is a great introduction to its certifications.

Raises Customer Confidence Because It Raises Your Confidence Customers who know you're certified in project management and who hear you speak and act with confidence are more confident in the company you represent. If you're able, for example, to identify and describe the four categories of risks to prepare for on a project, your customer gains confidence in you.

How to Become Project+ Certified

First, study the topics and processes outlined in this book, and make certain to answer all the end-of-chapter questions and take the extra bonus exams that are provided as part of the online test bank at www.wiley.com/go/sybextestprep.

Then go to the CompTIA website (www.comptia.org) to find the list of testing sites where the exam is currently conducted.



Prices and testing centers are subject to change at any time. Please visit CompTIA's website for the most up-to-date information: www.comptia.org.

You'll need a driver's license and one other form of ID when you arrive at the testing center. No calculators, computers, cell phones, or other electronic devices are allowed in the testing area. You're allowed 90 minutes to take the exam, and there are 90 multiple-choice questions. There are no prerequisites for this exam. You'll be notified of your grade as soon as you finish the test.

Who Should Buy This Book?

You should buy this book if you're interested in project management and want to learn more about the topic. The Project+ exam is an ideal way to introduce yourself to project management concepts and techniques, and this book will immerse you in the basics of those techniques.

If you've never taken a certification test before, you'll find that the Project+ exam is a pleasant way to get your feet wet. The test isn't overly complicated or riddled with trick questions; it simply covers the basics of project management. Once you pass the exam and gain confidence in your project management knowledge and skills, you'll be ready to progress to other certifications and be eager to learn the more in-depth topics involved in project management.

What Does This Book Cover?

This book follows that CompTIA Project+ exam blueprint and is divided into chapters that cover major topic areas. Each section is explained in sufficient detail to become a Project+ certified professional. Certain areas have been expanded upon, which are important concepts to know. However, they do not map directly to an exam objective.

You will learn the following information in this book:

Chapter 1: Initiating the Project provides a high-level overview of project management, introducing the basic terminology of project management, including the types of organization structures a project manager may work in.

Chapter 2: Project Team Roles and Responsibilities outlines the various roles involved in project management, from stakeholders and project champion/sponsors to project manager and project team members.

Chapter 3: Creating the Project Charter begins with a detailed discussion of the process groups defined by PMI®: Initiating, Planning, Executing, Monitoring and Controlling, and Closing. It then examines the elements of the project charter, whose definition is the most important Initiating process, and concludes with an overview of the kickoff meeting.

Chapter 4: Creating the Work Breakdown Structure moves into project planning, beginning with documenting the project scope and understanding project influences

and constraints and concluding with the decomposition of project tasks into a work breakdown structure.

Chapter 5: Creating the Project Schedule extends planning to creation of a detailed project schedule. It covers the entire schedule planning process, beginning with identifying and sequencing the tasks to be performed and allocating resources. You'll learn how to calculate task durations and the critical path through them, as well as determine milestones and set a baseline and obtain approval. Finally, you'll see how to establish a governance process.

Chapter 6: Resource Planning and Management continues project management into the execution phase with management of the project team. You'll learn about determining resource needs, personnel management, conflict resolution, and the role of the kick-off meeting in team building.

Chapter 7: Defining the Project Budget and Risk Plans covers cost estimating and cost budgeting and the risk activities and strategies for your project. You'll learn the basic techniques of estimating and then tracking costs, along with risk analysis and planning.

Chapter 8: Communicating the Plan covers the role of communication—with stakeholders, team members, and others—in project management. You'll learn what information needs to be communicated and how to do so most effectively.

Chapter 9: Processing Change Requests and Procurement Documents shows how to deal with changing project requirements, with a particular look at the Agile methodology devised for the rapidly evolving requirements of software development. It also looks at the types of organizational change that can affect a project and the specific documents used in dealing with vendors.

Chapter 10: Project Tools and Documentation looks at some of the project tools and documentation needed to inform stakeholders, to document action items and meeting minutes, and to analyze the performance and results of the work of the project. It also reviews the steps a project manager will take in closing out a project.



CompTIA periodically updates and revises exam objectives even after an exam has been released. Even if you have already downloaded the exam objectives, it's always a good idea to check and make sure you have the most current version. To get the exam objectives for the CompTIA Project+ certification, please go to <https://certification.comptia.org/certifications/project>.



Every question on the Project+ exam is a multiple-choice format. I used this same format for all the questions and practice exams in this study guide.



Many of the examples used to demonstrate practical application of the material in this book focus on IT projects because IT project managers were the original target audience for this exam. However, the techniques and concepts discussed in this book are not limited to IT projects. The information discussed in this book can be applied to projects in any industry.

Interactive Online Learning Environment and Test Bank

I've put together some really great online tools to help you pass the Project+ exam. The interactive online learning environment that accompanies the Project+ exam certification guide provides a test bank and study tools to help you prepare for the exam. By using these tools you can dramatically increase your chances of passing the exam on your first try.

The online section includes the following:

Sample Tests Many sample tests are provided throughout this book and online, 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 practice exams. Use these questions to test your knowledge of the study guide material. The online test bank runs on multiple devices.

Flashcards The online text bank includes more than 150 flashcards specifically written to hit you hard, so don't get discouraged if you don't ace your way through them at first! They're there to ensure that you're really ready for the exam. And no worries—armed with the review questions, practice exams, and flashcards, you'll be more than prepared when exam day comes! 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 provide last-minute test prep before the exam.

Other Study Tools A glossary of key terms from this book and their definitions are available as a fully searchable PDF.



Go to 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

If you want a solid foundation for the serious effort of preparing for the CompTIA Project+ exam, then look no further. I've spent hundreds of hours putting together this book with the sole intention of helping you to pass the exam as well as really learn about the exciting field of project management!

This book is loaded with valuable information, and you will get the most out of your study time if you understand why the book is organized the way it is.

So to maximize your benefit from this book, I recommend the following study method:

1. Take the assessment test that's provided at the end of this introduction. (The answers are at the end of the test.) It's okay if you don't know any of the answers; that's why you bought this book! Carefully read over the explanations for any question you get wrong and note the chapters in which the material relevant to them is covered. This information should help you plan your study strategy.

2. Study each chapter carefully, making sure you fully understand the information and the test objectives listed at the beginning of each one. Pay extra-close attention to any chapter that includes material covered in questions you missed.
3. Answer all the review questions related to each chapter. (The answers appear in Appendix A.) Note the questions that confuse you, and study the topics they cover again until the concepts are crystal clear. And again—do not just skim these questions! Make sure you fully comprehend the reason for each correct answer. Remember that these will not be the exact questions you will find on the exam, but they're written to help you understand the chapter material and ultimately pass the exam!
4. Try your hand at the practice questions that are exclusive to this book. You can find the questions at www.sybex.com/go/sybextestprep.
5. Test yourself using all the flashcards, which are also found on the download link. These are new and updated flashcards to help you prepare for the Project+ exam and a wonderful study tool.

To learn every bit of the material covered in this book, you'll have to apply yourself regularly and with discipline. Try to set aside the same time period every day to study, and select a comfortable and quiet place to do so. I'm confident that if you work hard, you'll be surprised at how quickly you learn this material.

If you follow these steps and really study in addition to using the review questions, the practice exams, and the electronic flashcards, it would actually be hard to fail the Project+ exam. But understand that studying for the CompTIA exam is a lot like getting in shape—if you do not go to the gym every day, it's not going to happen!

Tips for Taking the Project+ Exam

Here are some general tips for taking your exam successfully:

- Bring two forms of ID with you. One must be a photo ID, such as a driver's license. The other can be a major credit card or a passport. Both forms must have a signature.
- Arrive early at the exam center so you can relax and review your study materials.
- Read the questions carefully. Don't be tempted to jump to an early conclusion. Make sure you know exactly what the question is asking.
- Don't leave any unanswered questions. Unanswered questions are scored against you.
- There will be questions with multiple correct responses. When there is more than one correct answer, there will be a statement at the end of the question instructing you to select the proper number of correct responses, as in "Choose two."
- When answering multiple-choice questions you're not sure about, use a process of elimination to remove the incorrect responses first. This will improve your odds if you need to make an educated guess.
- For the latest pricing on the exam and updates to the registration procedures, refer to the CompTIA site at www.comptia.org.

The Exam Objectives

Behind every certification exam, there are exam objectives. The objectives are competency areas that cover specific topics of project management. The introductory section of each chapter in this book lists the objectives that are discussed in the chapter.



Exam objectives are subject to change at any time without prior notice and at CompTIA's sole discretion. Please visit the Certification page of CompTIA's website (www.comptia.org) for the most current listing of Project+ exam objectives.

The Project+ exam will test you on four domains, and each domain is worth a certain percentage of the exam. The following is a breakdown of the domains and their representation in the exam:

Domain	% of Examination
1.0 Project Basics	36%
2.0 Project Constraints	17%
3.0 Communication and Change Management	26%
4.0 Project Tools and Documentation	21%
Total	100%

Project+ Exam Map

The following objective map will allow you to find the chapter in this book that covers each objective for the exam.

1.0 Project Basics

Exam Objective	Chapter
1.1 Summarize the properties of a project.	1
Temporary	1
Start and finish	1
Unique	1
Reason/purpose	1
Project as part of a program	1
Project as part of a portfolio	1
1.2 Classify project roles and responsibilities.	2
Sponsor/champion	2
Project manager	2
Project coordinator	2
Stakeholder	2
Scheduler	2
Project team	2
Project Management Office (PMO)	2

Exam Objective	Chapter
1.3 Compare and contrast standard project phases.	3
Initiation	3
Planning	3
Execution	3
Monitor and control	3
Closing	3
1.4 Identify the basics of project cost control.	7
Total project cost	7
Expenditure tracking	7
Expenditure reporting	7
Burn rate	7
Cost baseline/budget	7
1.5 Identify common project team organizational structures.	1
Functional	1
Matrix	1
Projectized	1
1.6 Given a scenario, execute and develop project schedules.	4, 5
Work breakdown structure	4, 5
Scheduling activities	4
1.7 Identify the basic aspects of the Agile methodology.	9
Readily adapt to new/changing requirements.	9
Iterative approach	9
Continuous requirements gathering	9

Exam Objective	Chapter
Establish a backlog	9
Burndown charts	9
Continuous feedback	9
Sprint planning	9
Daily standup meetings/Scrum meetings	9
Scrum retrospective	9
Self-organized and self-directed teams	9
1.8 Explain the importance of human resource, physical resource, and personnel management.	6
Resource management concepts	6
Personnel management	6

2.0 Project Constraints

Exam Objective	Chapter
2.1 Given a scenario, predict the impact of various constraint variables and influences throughout the project.	4
Common constraints	4
Influences	4
2.2 Explain the importance of risk strategies and activities.	7
Strategies	7
Risk activities	7

3.0 Communication and Change Management

Exam Objective	Chapter
3.1 Given a scenario, use the appropriate communication method.	8
Meetings	8
Email	8
Fax	8
Instant messaging	8
Video conferencing	8
Voice conferencing	8
Face-to-face	8
Text message	8
Distribution of printed media	8
Social media	8
3.2 Compare and contrast factors influencing communication methods.	8
Language barriers	8
Time zones/geographical factors	8
Technological factors	8
Cultural differences	8
Interorganizational differences	8
Intraorganizational differences	8
Personal preferences	8
Rapport building/relationship building	8