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Rita Mulcahy's™

PMP® Exam Prep

Eleventh Edition

Aligned with the current ECO (*Examination Content Outline*) and the *PMBOK® Guide, Seventh Edition*



Proven study method



Exclusive exam prep tips and tricks



Interactive chapter quizzes with scoring



Essential info on plan-driven and agile approaches

Rita Mulcahy, PMP

with Margo Kirwin, CPLP, PMP, PMI-ACP, PMI-PBA

PMP® Exam Prep

Accelerated Learning to Pass the
Project Management Professional (PMP)® Exam

By Rita Mulcahy, PMP

with Margo Kirwin, CPLP, PMP, PMI-ACP, PMI-PBA

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Welcome to the eleventh edition of *PMP® Exam Prep*. We can't believe that it has been 25 years since Rita published the first edition of this book. RMC has come far since the publication of the first edition in 1998, as has the project management profession.

Back when the first edition was published, most project managers were in the United States. Now there are more international project managers than ever before. As a result of this industry growth, RMC's best-selling materials are now sold all over the world.

Project management is also a more complex profession than it used to be. Along with the processes, concepts, and methods added within the last few years, there are now just as many adaptive approaches to project management as there are predictive. The general methodologies and overall practices of project management have changed dramatically, which has increased the size of a project managers toolbox.

PMI has recently introduced *A Guide to Project Management Book of Knowledge (PMBOK® Guide), Seventh Edition* and the *Process Groups: A Practice Guide*. There is more to learn today than ever. This increased complexity is reflected in the eleventh edition of new book.

This book is vastly different than our previous editions. It's structure is aligned to the *Examination Content Outline (ECO)*. Previous editions of this book were built around knowledge areas. In this edition, sections directly relate to the ECO's three domains: People (Domain I), Process (Domain II), and Business Environment (Domain III). It is more important than ever to read and understand the ECO because it covers the domains and introduces adaptive approaches to project management and the PMP® exam.

Throughout this book, we will remind you to look at your copy of the ECO, and we provide opportunities to use it with some new exercises.

In this book, we bring together the terminology and concepts used in the ECO, the *PMBOK® Guide*, and the *Process Groups: A Practice Guide*. We synthesize the concepts in a way that makes it easier to understand and prepares you for the exam.

Rita's Process Chart™ has helped thousands of students comprehend and apply predictive project management. It remains in this edition and we also introduce Rita's Agile Process Chart™. We believe this chart will also help you prepare for the agile content found on the PMP® exam.

And, you can still play the Rita's Process Chart™ game and Rita's Agile Process Chart™ game on our all-new RMC Resources page. The digital RMC Resources page has additional content for a deeper dive into concepts found in the book, a searchable glossary for project management terms, access to more games and interactive eLearning modules, as well as a mini version of our *Hot Topics* book.

With this edition, you also get access to our new interactive tool, RMC Chapter Quizzes. With more than 100 questions, you will be able to test your knowledge and you will get exposure to how the real exam looks.

Finally, we present a case study that will be carried throughout the book. You will be able to apply concepts presented in the chapters based on this case study.

While these are significant changes, important aspects of our book remain the same. First, and most importantly, is the conversational tone of the book. The eleventh edition maintains its down-to-earth conversational style—explaining things simply and clearly. Students say that when they read this book, it feels like Rita is talking to them. In many ways, she still is.

Another thing that remains the same is our continued commitment to helping our students not only pass the exam but also become better project managers. That is what the book, and, in fact, our company, is all about.

As you read this book, know that our plan is not to have you memorize a bunch of rules and formulas just to pass the exam and then promptly forget them. For one thing, given the situational nature of most questions on the exam, we believe that such an approach would be unsuccessful. For another, it's not what we're about. This book is not just a prep guide—it's a learning tool. If you master the contents of our book, you will pass the exam, but it's more than that. After you learn what we have to teach, you'll be a better project manager. At the end of the day, that's what the world needs. Still, our goal with this book is to get you to pass the exam on the first try.

I couldn't allow this book to go out the door without acknowledging the efforts of the team at RMC that made this happen. In particular, I'd like to thank Margo Kirwin for her significant work in updating this book. I'd also like to thank Patti Frazee and Jason Craft for their dedication and hard work on this edition.

Margo was a student of Rita's, served as RMC's Director of Training, and has trained on RMC products for a number of years. She has the knowledge and clarity to capture Rita's vision. In addition to being an outstanding trainer, Margo has an extensive background in instructional design, which she brought to the development of this edition. She is also a talented writer who was able to maintain the conversational tone and feel of the book while working hard to explain all the elements of project management in a clear and easy-to-read way.

Patti served as the project manager and content editor for this book. Patti brought an incomparable set of skills that allowed her to help develop and edit content while also managing the constantly moving pieces of the project. Without her, this book would not have been published on time, if at all.

Jason was the talented designer of this book. With a keen eye to detail and his creative sensibilities, he made this book visually appealing and engaging. He also took our vision of the RMC Resources page and made it a reality.

When Rita created RMC, she did so to help people. That is still our goal and one of the driving values of this company. So enjoy the book, learn, and have fun.

What are you waiting for? Go get 'em.

Tim Mulcahy

President and CEO

RMC Learning Solutions and RMC Publications

Section I

Studying for the PMP® Exam

RMC has helped thousands of students worldwide pass the PMP® exam. In this section, we provide information on our proven study methods to help prepare you for the exam. We will also give you information on how to apply to take the exam and the requirements needed. In addition you will find the following:

- A self-evaluation checklist: Discover the knowledge needed to pass the exam
- How to use this book to maximize your studying time
- Some key definitions
- Other tools from RMC that can enhance your studies
- What the PMP® exam is like
- Important aspects of the exam
- Sample questions
- PMI-isms
- Study plans

You will find a list at the beginning of each chapter of key topics covered in the chapter. Use the Quicktest to test your knowledge of those topics and uncover your gaps in understanding.

1 Tricks of the Trade for Studying for the PMP® Exam

Preparing to take the PMP® exam is a journey. This journey can help you grow your career and develop your skills and abilities. This isn't just about passing an exam—you can become a better project manager. This opportunity to learn is one of the best reasons to get your PMP certification.

To pass the PMP exam, you need to truly understand project management processes, good practices, and the project manager's role and responsibilities. You also need to be able to tailor your tactics and strategies to the situations that different projects present—and to the different situations presented to you on exam questions. The PMP exam is designed to test your knowledge and experience in applying the art and science of project management.

In addition to the learning opportunity, there can also be financial incentives for passing the exam. According to Project Management Institutes' (PMI®) salary survey (2020), globally, PMP-certified project managers are paid on average 16% more than those without the certification. RMC has had students who received a bonus, a raise, or both when they passed the exam. Others have reported they landed a job ahead of other qualified candidates because they were PMP certified. Having a PMP certification can be the reason you get a job, keep your job, or are promoted.

Qualifying to Take the Exam

To take the PMP exam, you must meet the current requirements as summarized below and in the following table. Requirements are subject to change, so make sure you review the requirements at [pmi.org](https://www.pmi.org), or in PMI's *Examination Content Outline (ECO)*, where this information is published.

- Your experience leading projects cannot overlap. For example: If you managed two projects at the same time for six months, you may use your experience with only one of these projects for that six-month period.
- If you are a graduate of a PMI Global Accreditation Center for Project Management Education Program (GAC) program, you will receive a 12-month credit towards the required experience.
- Work experience must be professional experience. For example: Managing a project to build your own house cannot be counted toward the work experience.
- In addition to the educational background and professional work experience found in the table on the next page, you must have at least 35 contact hours of formal project management education, unless you are an active Certified Associate in Project Management (CAPM)® holder. Active CAPM holders do not need these 35 contact hours of project management training.
- Check PMI's site to ensure that these requirements are current as PMP requirements are subject to change.

Tricks of the Trade for Studying for the Exam ONE

Educational Background	Project Management Work Experience
<ul style="list-style-type: none">• Secondary degree (high school diploma, associate degree or global equivalent)	<ul style="list-style-type: none">• Minimum five years/60 months unique non-overlapping professional project management experience
OR	
<ul style="list-style-type: none">• Four-year degree (bachelor's or global equivalent)	<ul style="list-style-type: none">• Minimum three years/36 months unique, non-overlapping professional project management experience
OR	
<ul style="list-style-type: none">• Bachelor's or post-graduate degree from a GAC accredited program (bachelor's, master's or global equivalent)	<ul style="list-style-type: none">• Minimum two years/24 months unique, non-overlapping professional project management experience

This book will help you become familiar with the project management practices and terminology needed to pass the exam. If you don't meet the minimum requirements listed in the previous table, consider taking PMI's CAPM exam. You can find the requirements for the CAPM exam at pmi.org.

Applying to Take the Exam

Applications to take the exam must be submitted online to PMI. Here is what the process looks like after you submit your application:

- You must log into pmi.org to see if the status of your application is "accepted."
- Once your eligibility is verified, you will need to pay for your exam.* *
- After you pay for the exam you can schedule it at a testing center. Alternatively, there is an option to take the exam online from your home or office.
- Once you receive authorization to take the PMP exam, you must pass the exam within one year. You can take the exam up to three times within that year.
- If you fail the exam three times, you must wait one year to reapply for the exam.

*A percentage of candidates are selected at random for audit. If you are selected for an audit, you will need to provide to PMI a copy of your degree, verification of your experience by a manager, and proof of your 35 training hours (with exceptions to these 35 training hours for active CAPM holders).

There are specific rules and instructions for each type of exam (online or at a testing center). For online exams it is highly recommended to test your computer system with their testing system before exam day. In most cases, the confirmation of your scheduled exam will give you specific details. Consult PMI's certification handbook and visit pmi.org for the most detailed and up-to-date information about testing options, locations, and exam languages available.

Are You Ready for the PMP Exam?

In our experience, half of those who fail the exam do so because they have not had fundamental project management training, or experience and training that uses PMI terminology and concepts. This is a serious factor to consider in determining whether you are ready to take the exam. This *PMP® Exam Prep* book will help you understand project management from PMI's perspective; however, if you find that many of the concepts and terms presented in this book are new to you—or you do not use many of the methods discussed in this book (such as a charter, WBS or prioritized backlog, network diagram, and management plans)—you probably need fundamental project management training before continuing to study.

Other people who fail the exam do not have enough real-world project management experience and do not understand the range of possible project types and development approaches. Instead, they may be managing very small projects or repeatable processes. Some might not even be working as a project manager. On the exam, you will need to be able to recognize from the information in scenario-based questions what type of project the question is referring to, and to answer from that perspective. This could be a large project using a plan-based project management approach, a project using an agile approach, or an approach that is a hybrid of the two. The more experience you have with a variety of project management approaches, the better prepared you will be for the exam.

The following are examples of projects that are likely to use a plan-based approach:

- Building a bridge
- Designing and constructing a new building

The following are examples of projects that are likely to use an agile approach:

- Creating a new product that does not need to have all features before its first release but can instead be released with a set of defined, critical features
- Incremental delivery of a solution where scope is emerging

The following are examples of projects or programs using a hybrid approach:

- The construction of a new building uses a plan-based approach. Then, the division and finishing of the inside of the building into office suites is completed iteratively and incrementally as leases for suites are signed.
- An internal software product for a large organization is developed and tested using a plan-based approach. It is then rolled out to a small pilot group of end users. By the end of this predictive phase and pilot, the software installation and training have been field-tested. Installation and training for the remainder of the organization can be done iteratively by department and by office until the rollout is complete.
- A very large technology project may have several adaptive “feature teams,” each assigned to develop different software components. The project management work of integrating the features produced by the feature teams may be done using agile methods while development takes place. Predictive methods may be used for rolling out the solution to user groups.

What is the depth of your knowledge and understanding of project management? Think about your project management training and experience as you review the following self-evaluation checklist. Do you understand most of these topics, and do you currently apply many of the methods included in these lists when working on your projects?

This book will help you find and fill your gaps in the project management knowledge needed to apply to situational exam questions in order to pass the exam. However, the starting assumption is that with your project management experience and education, you are already familiar with many of these concepts. The more gaps you identify, the more effort you will need to apply to exam preparation. Most chapters in this book will provide a Quicktest, or list of concepts contained in that chapter. Use that and the other instructions we provide to be sure you are filling your gaps as you work through the material in this book.

Tricks of the Trade for Studying for the Exam ONE

Self-evaluation Checklist

The following checklist provides an idea of the breadth of knowledge and the application of skills required to pass the exam. If you understand a list item, mark it off so that you can pay attention to those items where you have gaps in your knowledge.

- Managing a project with the urgency needed to deliver the benefits and value for which the project was selected.
- Using a systematic, plan-driven project management process, and understanding why each step is necessary. Think about this as you review PMI's Process Groups model in the "PMP* Exam References in Context" chapter and elsewhere throughout this book. Plan-driven and agile methods will be identified and compared.
- Agile philosophy for project management, and good agile practices from a variety of agile methods, including Scrum, Lean, and Kanban.
- The roles of the project manager, sponsor, product owner, team, and stakeholders.
- The use of historical information from previous projects, including lessons learned.
- What a formal project charter is and knowing what it requires.
- Prioritizing project constraints sufficiently to balance and manage competing constraints.
- What a work breakdown structure (WBS) is and how to create it.
- Creating a product and project vision sufficient to create a high-level product roadmap.
- Using a prioritized, risk-adjusted backlog of product features to create stories for iterations of product development.
- Understanding the interconnected relationship of activities (dependencies) to create the network diagram for a plan-driven project.
- What the critical path is, how to find it, and what benefits it provides the project manager.
- Using a variety of estimating techniques, including rough order of magnitude (ROM), three-point estimating, or relative estimating such as affinity sizing and story point estimating.
- Doing earned value analysis and management.
- Carrying out schedule "what if" analysis and schedule compression (crashing and fast tracking).
- Managing project float and activities that do not have float.
- Creating a realistic schedule.
- Managing the quality of both the project and the resulting deliverables.
- Developing relationships with stakeholders, and keeping them interested and involved in the project.
- Using the meetings and feedback loops necessary to continuous progress and continuous improvement on agile projects—for example, daily standups, iteration review, and iteration retrospectives.
- Using information radiators to keep stakeholders informed and engaged.
- Understanding the process of risk management.
- Calculating reserves and understanding their relationship to risk management.
- Creating a realistic and approved project management plan that you are willing to be held accountable to achieving.
- Monitoring and controlling the project according to the project management plan.
- Managing change requests and controlling change.
- Planning and developing iteratively and incrementally for change-driven projects.
- Understanding the professional and social leadership responsibilities expected of a project manager.
- Ensuring that roles and responsibilities are clear and that team members are properly trained and oriented to the project and the selected life cycle and development approach.

How to Use This Book

First, be sure you have the most current materials. This edition of the *PMP® Exam Prep* book is in alignment with the *Examination Content Outline* (ECO) for exams taken after January 2021. It also uses concepts found in resources from PMI:

- The *PMBOK® Guide, Seventh Edition* (©2021)
- *The Standard for Project Management* (published with the *PMBOK® Guide*)
- *Process Groups: A Practice Guide* (©2023)
- *Agile Practice Guide* (©2017)

Does this mean you have to read all these resources? No! We have researched what you need to know for the exam and have provided that information in this book.

How Terminology Is Used

It's important to define some terms up front. We have listed these here. You will find other terms described in the chapter where they have the most context. If a term is not defined, we may have assumed that it is a fundamental project management term, and most people understand it as common knowledge. PMI provides a Lexicon of Project Management Terms in their list of standards and publications (on pmi.org).

Project Environments and Project Management Approaches

Project Environment Some organizations use a single type of project management approach, like plan-driven or agile. Other organizations use a variety of approaches across the spectrum from plan-driven to agile, and hybrid. This will depend upon a variety of factors, including the type of organization, the types of products or services the organization creates and supports, organizational governance, and the characteristics of the projects the organization needs to complete to achieve its strategic goals and deliver value to its stakeholders.

Project Approach (or development approach) This refers to a selective approach to project management and product development based on the type, size, priority, and complexity of a particular project. Among other considerations, the project approach is typically selected based on how possible it is to accurately define scope and other project constraints early in the project. There is a spectrum of approaches from *plan-based* to *agile*, and *hybrid*.

When we talk about *project environments* we are generalizing about the project management (or development) approach that an organization tends to use or is using for a variety of projects at the present time. In everyday language this terminology is used differently depending on the organization, project management office (PMO), or project team. For consistency and to avoid confusion in this book we use the following terminology to describe project environments and project management approaches:

- **Environments** We describe project environments as either *predictive*, *adaptive*, or *hybrid*.
- **Approaches** We describe project management approaches as either *plan-driven*, *agile*, or *hybrid*.
>/ A plan-driven approach is also known as *traditional* or *waterfall* (or *predictive*).
>/ An agile approach may also be known as *adaptive*. Some people use the terms *agile* and *Scrum* interchangeably, even though *Scrum* is a specific agile methodology.

Project Life Cycle

A life cycle is a progression through a series of developmental stages. The project development life cycle reflects the performing organizations' methodology for managing a project. It is a logical breakdown of what the project manager needs to do to produce the project deliverables, and is selected based on factors such as the type of product being developed, the industry, the organization's preferences, and the development approach.

A project life cycle can use a plan-driven or change-driven development approach, or a hybrid of the two. An example of a life cycle for new product development might include the following phases: research, design, build, test, and implement.

How This Book Is Organized

This book contains six exam content-related sections.

Section I Tricks of the Trade for Studying for the PMP Exam

This is the only chapter in this section.

Section II Foundations

This section of this book is where you will learn the base knowledge that you need to understand the rest of the content of this book and to begin preparing for the exam.

“**Exam References in Context**” This chapter provides foundational information about the:

- *Examination Content Outline (ECO)*—which exam question writers are directed to use when writing exam questions.
- **PMI’s Process Groups Model**—is found in PMI’s book, *Process Groups: A Practice Guide*. We refer to the content of *Process Groups: A Practice Guide* as the “Process Groups model” because we consider it a great learning model for plan-based approaches, which make up a large proportion of exam questions. Your understanding the Practice Groups model will also help you understand the tasks of the ECO, and it also informs many of the practices understood to be part of the plan-based components of hybrid project management approaches.
- **Rita’s Process Chart™**, a vital study tool that has helped many thousands of students prepare for the exam by summarizing the detailed plan-driven approach to project management.
- **Rita’s Agile Process Chart™**, another vital study tool that will help students prepare for the exam by summarizing an agile approach to project management.
- Agile Approach Overview.
- Hybrid Approach Overview.
- *PMBOK® Guide, Seventh Edition* Overview.

“**Project Management Foundations**” This chapter discusses basics like projects, programs, portfolios, and organizational and project governance. It also discusses organization types, project selection, and project roles and responsibilities.

“**Integration**” This chapter discusses arguably the project manager’s most important job, which is to provide the necessary leadership to bring the needs of many stakeholders and the work of team experts together into a cohesive whole to successfully deliver the business value for which the project was selected to the organization and its stakeholders.

The next three sections of the book discuss the information you need to know for the exam from the combined perspectives of the ECO domains, the Process Groups model, and plan-driven, agile, and hybrid practices. These sections are:

Section III: The ECO People Domain

Section IV: The ECO Process Domain

Section V: The ECO Business Environment Domain

Section VI: How to Pass the First Time

This section of the book follows up on what you have learned, with instructions for continuing your studies until you are prepared to sit for and pass the PMP exam. It includes the following chapters:

- “Tips for Passing the PMP® Exam the First Time”
- “Common Agile Methodologies”
- “Additional *PMBOK® Guide, Seventh Edition* Concepts”

Book Chapter Organization

Most of the chapters in this book have been organized the same way: an introductory discussion, a list of Quicktest topics, an overview of the process, and review materials. This PMP® *Exam Prep* book can be used alone, but it is also part of our PMP Exam Prep System that includes our PM FASTrack® Cloud exam simulator as well as our *Hot Topics* flashcards. With your book purchase you receive access to our new tool, RMC Interactive Chapter Quizzes.

Each of chapters four through nineteen contains:

- **Introduction and processes overview** The introductory discussion provides key information for understanding the material covered in the chapter and definitions of some key terms. The overview begins your understanding of the main concepts and processes.
- **Quicktest** The list at the beginning of each chapter indicates the key topics covered in the chapter. To test your knowledge of chapter content and to review what is most important, refer back to this list when you are finished with each chapter. Use the Quicktest to test your knowledge of those topics and uncover your gaps in understanding.
- **Graphic tables and process overview charts** These outline key ECO tasks as they relate to the Process Groups model, along with associated content from *PMBOK® Guide, Seventh Edition*. The process overview charts in the Process domain chapters will give you a high-level graphic view of each process.
- **Review materials and exercises** This book contains extensive review materials and exercises within each of these chapters, where applicable. These materials have been developed based on accelerated learning theory and an understanding of the exam content.

The answers are listed immediately following the exercises. We have found that it is most effective to place the answers right after the exercises rather than later in the book. Do not skip the exercises or go straight to the answers, even if their value does not seem evident to you. The exercises and activities are key benefits of this book and will help you pass the exam. Actively working with the information by doing the exercises on your own before checking the answers will better prepare you than if you just passively read the answers.

Exercise Notebook For the exercises, you'll be prompted to create and use an Exercise Notebook. While some people will have our *BMP® Exam Prep* book in a printed form, many others will have access to our digital book. Because of this, we encourage users to create a separate notebook (either physical or electronic) to record answers. The important thing is to actively produce the answers to the exercises in a place you can come back to for review, and to make any other notes that will help you review the material for the exam.

We have numbered each exercise and encourage you to record these numbers in your Exercise Notebook. Use this tool to keep track of any gaps in your knowledge. Pay attention to any patterns in gaps. At any time, you may review your notebook for any incorrect answers or retrv an exercise.



Included in the review material are tricks to passing the exam called Tricks of the Trade®. These tricks are designated by the image shown here to the left and will give you some extra insight about what you need to know about project management and how to study for the exam.



Think About It. This icon indicates a section where you will be asked to slow down and really think through a concept being presented. The “Think About It” sections will sometimes present a scenario and ask you to consider how it should be addressed; other times it may present more information on the topic at hand.



Agile Focus When we delve into the agile aspect of a topic, this icon will appear next to the text. Use it to easily find where agile concepts are being presented.

RMC Resources Web Page

New information about the exam is always emerging. RMC offers a web-based resource to help you stay up-to-date on materials. Our RMC Resources web page (mcls.com/rmc-resources or scan the QR code) is a robust study tool that provides supplemental material for you to work with as well as errata and other updates to this book. RMC Resources includes interactive games, more in-depth information on particular topics, a project management glossary, and more. As we observe trends relevant to exam prep, we will publish additional materials on RMC Resources. Be sure to review the materials at RMC Resources to see which items will be of most help to you in preparing for the exam. We will refer to RMC Resources throughout the book where appropriate and provide the QR code for easy access.



RMC RESOURCES

RMC Interactive Chapter Quizzes

The RMC Interactive Chapter Quizzes is an interactive tool with questions that pertain to chapters 2 through 15, which allows you to review the material and test your understanding. Refer to the “How to Study for the PMP Exam” section on page 22 to understand how and when to use these practice exams as part of your study plan. This tool will show you how you scored on the chapter quizzes as you work with this tool.

The questions in the chapter quizzes are representative of the knowledge and principles tested on the exam. Keep in mind that you cannot simply practice answering questions to prepare for the exam. The questions in the RMC Interactive Chapter Quizzes help you assess your knowledge and become familiar with the types of questions on the exam. Make sure to focus your study efforts on reading this book, doing the exercises and review activities, and filling gaps in your project management knowledge.

What Is the PMP Exam Like?

Keep in mind three important things about the PMP exam. First, the exam is not a test of the information in the *PMBOK* Guide*. Its questions are written by project managers with the PMP certification, based on real-world situations. Second, while your real-world experience is essential to helping you pass the exam, you cannot rely on it alone. Third, training in professional project management that is aligned with the ECO, the Process Groups model presented in *Process Groups: A Practice Guide*, and the *Agile Practice Guide* is critical for exam success.

The exam includes 180 questions, all of which are situational. The questions may appear in one of five different formats. These include multiple-choice, multiple responses, matching, limited fill-in-the-blank, and hot spot (e.g., you are asked to place identifying plots on a chart). See the Question Examples section in this chapter for examples of these question formats. The exam must be completed in 230 minutes, which is just under four hours. You will be given the opportunity for two 10-minute breaks during which the exam timer pauses.

You will be scored on 175 of the 180 exam questions (since five are newly written “trial” questions that will not be scored). PMI does not publish what it considers to be a passing score. Based on exam history, however, we estimate that it is somewhere between 61 and 64 percent (about 110 to 114 questions correct out of 180).

The questions are randomly generated from a database based on how many questions must be included from a particular content area (the ECO People domain, for example). One point is given for each correct answer, and of course, you must accumulate enough correct answers to exceed the passing threshold.

The following table shows the percentage of scored questions on the exam for each *Examination Content Outline* (ECO) domain.

Examination Content Outline (ECO) Domains Percentage of Questions

People	42%
Process	50%
Business Environment	8%
TOTAL	100%

The “PMP⁵ Exam Reference in Context” chapter contains more detail on ECO domains. PMI occasionally makes changes to aspects of the exam, including the qualification requirements, the application process, and the breakdown of questions in each domain. For the latest information, please visit pmi.org and read the ECO, the Certification Handbook, and your authorization notice carefully. Any differences between what is listed here and what is communicated by PMI should be resolved in favor of the latest information posted on pmi.org.

Tricks of the Trade for Studying for the Exam ONE

Additional Important Aspects of the Exam

- The exam tests knowledge, application, and analysis. This makes the exam more than a test of memory. You must know how to apply the information in this book and be able to analyze situations involving this information. Do not expect the exam to have a majority of straightforward, definition-type questions.
- The exam deals with practical experience. Questions are based on a situation, described in each one. For those who do not have the appropriate project management experience, these questions can be very difficult.
- There may be instances on the exam where the same data are used for multiple questions. You may also see data repeated in answer choices.
- Many questions focus on “what should the project manager do” in the given question situation. It is important not just to understand project management processes, but to understand the relationships of artifacts and methods related to these processes.
 - / As you recognize a process on an exam question you should be able to bring to mind what artifacts (sometimes referred to as inputs) and what methods you need as a project manager to carry out the process. For example, in order to carry out a Manage Stakeholder Engagement process properly, you need a stakeholder engagement plan (which is part of the project management plan for plan-based projects).
 - >/ You must also understand what artifacts you have as a result of a particular process once it is carried out (sometimes referred to as outputs). A process often results in updates to some of the same artifacts you needed to use to begin the process. For example, the stakeholder engagement plan (created during the Plan Stakeholder Engagement process) is used and followed during the Manage Stakeholder Engagement process, but the plan is also updated as a result of the Manage Stakeholder Engagement process.
 - / In addition to artifacts and methods for carrying out processes, you should understand the desired outcomes of processes. In the previous example of the Manage Stakeholder Engagement process, there are artifacts that result from the work, but you also have good relationships with your stakeholders, are able to manage their expectations appropriate to project conditions, and therefore achieve stakeholder satisfaction with the project and its results.
- Historically, there have been up to 6 or 7 formula-related calculations on the exam, but more recently there have been only 1 to 3.
- Expect 7 to 10 earned-value questions on the exam. Note that most earned value questions focus primarily on your understanding of the concepts behind earned value and not on performing calculations.
- Project management terminology often uses acronyms. Most acronyms will be spelled out (for example, the exam typically uses the full term “work breakdown structure” rather than “WBS”) Nevertheless, you should know both the acronym and the full term for the exam.
- Most people feel uncertain about only 36 or fewer of the 180 questions on the exam. Concentrating on understanding the concepts and being able to think holistically about these concepts will contribute to your confidence in answering questions.
- The exam software has tools helpful in processing questions. For example, you can use:
 - y Mark for Review to tag questions you are unsure of, to come back to later before you submit the exam,
 - y Highlight parts of a question you think are most important to the situation and to selecting the right answer,
 - y Strikethrough parts of a question you think are least important to the right answer or are “distractors” that will complicate your ability to correctly answer the question.

Question Examples

Questions on the exam are situational, meaning to answer them you must apply your knowledge and experience to the given scenario rather than just giving a textbook response. Many questions are ambiguous. Questions often seem like they have two or more right answers. Prepare for the following types of questions so you will not be caught off guard when you are taking the exam.

1. **Situational questions** These demonstrate why project management experience and knowledge of good practices are critical to passing this exam. Such questions require you to align your real-world experience with knowledge of the exam concepts. For example:

Question The project manager receives notification that a major item they purchased for a project will be delayed. What is the best thing for the project manager to do?

- A. Replan the project to accommodate this delay.
- B. Notify the project sponsor.
- C. Let the customer know about it and talk over options.
- D. Meet with the team and identify alternatives.

Answer D

2. **Questions with two or more right answers** Multiple choice questions that appear to have two or more right answers are a major complaint from test takers. These questions, which list several choices that could reasonably be done, require analysis and the process of elimination to find the best answer for the given scenario and question details.

As you go through questions and review the answers in the RMC Interactive Chapter Quizzes, look for questions you think have more than one right answer and try to figure out why you think multiple choices are correct. We have intentionally included such questions in the RMC Interactive Chapter Quizzes to give you exposure to these types of questions. We provide explanations to help you understand why your right answer may not be the best choice.

Let's look again at the previous situational question. Couldn't we really do all the choices? The right answer is D, but isn't it also correct to tell the customer? Yes, but that is not the *first* thing to do. This question is really saying, "What is the best thing to do next?" or "What should the project manager do next?" As you answer practice questions, keep in mind the concept of the "best thing to do next" to help you decide which answer identifies the project manager's responsibilities in the given situation.

Note: By "proper project management" we generally mean project management according to systematic and agreed-upon good practices. More specifically for the exam, if we are talking about the order of activities within a process, it should relate to how processes are described in the ECO domains, the Process Groups model, or the *Agile Practice Guide*. We know that processes can vary in their order of activities but as PMI has sometimes been specific on this, we will be specific as well. In other words, for the exam we mean "proper project management" according to PMI. Be careful—this will sometimes not align with your everyday project management experience.

3. **Questions with extraneous information** Not all information in a question will be relevant.

Question Your next project involves managing an agile initiative to distribute new driver management software to your firm's taxi fleet. At this point the project steering committee is debating whether to contract with a usability testing service for the project. They ask for your input on whether this would be cost-effective. You reply that while you don't have the specific data yet, as a general rule:

- A. The most economical time to test would be near the end of the project when the screens are done and less likely to change.
- B. Finding issues earlier is always preferable since it is likely to save a lot of money in the long run.
- C. Defects found by the developers are less costly to fix than those found in review or testing.
- D. Testing the screens near the end of the project will leave little time to incorporate changes.

Answer B

In this example, the type of system being developed (driver management) doesn't affect the answer. It is extraneous information meant to distract you.

Tricks of the Trade for Studying for the Exam ONE

4. Questions using made-up terms Many people taking the exam expect that all the terms used as choices should mean something. That is not the case. Answer choices sometimes include made-up terms. If you consider yourself well prepared and see a term on the exam you do not know, chances are it is not the right answer. For example:

Question The WBS, estimates for each work package, and the network diagram are completed. The next thing for the project manager to do is:

- A. Sequence Activities
- B. Develop Schedule
- C. Validate Scope
- D. Resource Simulation

Answer B

In this question “resource simulation” (choice D) is not a real project management term.

5. Questions where understanding is important. Let’s look at the following question:

Question The senior web designer on a project just came down with the flu in the middle of an iteration. What should the project manager do?

- A. Meet with the team to find out how much of the planned work will be done.
- B. Ask the two other designers to work overtime this week.
- C. Ask the product owner to postpone the product demo until the iteration goal is done.
- D. Call the web designer's functional manager and ask for a new designer for the rest of the iteration.

Answer A

In order to answer this question, you must understand iteration timeboxes and how agile teams work.

6. Questions with a new approach to a known topic There will be many instances where you understand the topic but have never thought about it as described. For example:

Question A product is being built iteratively on a new technology platform. When the project manager asks the team members about the quality of the early product increments, they say "They're fine." How can the project manager verify that the new technology is supporting the quality objectives of the project?

- A. Ask the team to present performance testing results showing the actual vs. expected measures.
- B. Ask the product owner how well the technology is delivering business value.
- C. Present the quality management plan to the team's coach and ask if the technology is supporting the plan.
- D. Bring in an auditor to assess the quality.

Answer C

Seeing the words “iterative” and “increments” should make you think this is an adaptive life cycle project but that might steer you away from an answer referring to a management plan. Management plans can be used on adaptive and hybrid project life cycles if the project manager sees value in the plan.

ONE Tricks of the Trade for Studying for the Exam

7. Questions with more than one item in each choice Let's look at the following example:

Question The seller has presented the project manager with a formal notification that the seller has been damaged by the buyers' activities. The seller claims that the buyer's slow response to the requested approvals has delayed the project and has caused the seller unexpected expense. The first things the project manager should do are:

- A. Collect all relevant data, send the data to the company attorney, and consult with the attorney about legal responses.
- B. Review the contract for specific agreed-upon terms that relate to the issue, see if there is a clear response, and consult an attorney if needed.
- C. Review the procurement statement of work for requirements, send a receipt of claim response, and meet to resolve the issue without resorting to legal action if possible.
- D. Hold a meeting with the team to review why the acceptances have been late, make a list of the specific reasons, and correct those reasons.

Answer B

These questions can seem hard until you apply this little trick. Use the process of elimination, one item at a time. Consider the first item listed in each choice and eliminate the choices that contain an implausible first item, if applicable. Then look at the second item in each remaining choice and eliminate any implausible choices. Keep going until you have one choice remaining.

Watch out! Sometimes the items in each choice show a flow or process. See the following example to think about how sometimes the items in each answer choice show a flow or a process:

Question A resource issue has come up on a construction project. Which of the following is the best way to deal with the problem?

- A. Go to the team, go to management, go to resources managers
- B. Go to resource managers, go to management, go to the customer
- C. Handle it yourself, go to the customer, go to management
- D. Resolve problems with resources you control, go to resource managers, got to the customer.

Answer D

In this case you need to look at each choice independently to see if the process listed is correct.

8. **Excessively wordy questions** Instead of saying "The project is behind schedule," the exam might use wordier phrasing such as "The project float was zero and has recently gone to negative 2." Instead of saying "The team is not reporting properly," the exam could say "The team has lost sight of the communications management plan." The first step in answering many questions is to determine what the question is really asking, and then to translate the wordy phrasing.

Questions in Different Format Types

Our examples so far have used a typical multiple-choice format to point out specific characteristics of the way questions are worded on the exam. Now take time to look at the other, newer question formats that are used on the PMP exam.

- Multiple responses answer Questions using this format ask you to choose two or three correct answers, as in this example:

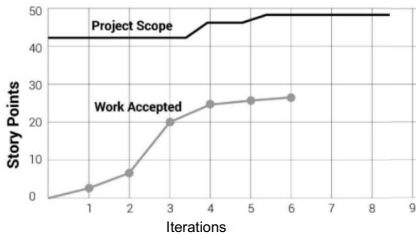
Question Several stakeholders have different opinions about the product requirements. Which two of the following techniques could the project manager use to bring the group to consensus?

- A. Facilitated workshop
- B. Interview
- C. Backlog refinement session
- D. Observation
- E. Survey
- F. Mind mapping

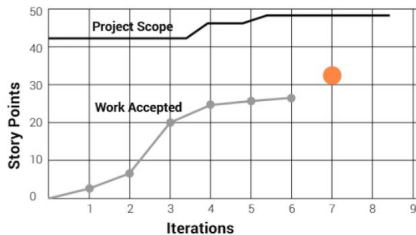
Answer A, C

- Hot spot questions These types of questions show you a graphic on which you will have to click a “hot spot” containing the correct answer:

Question Review the Burnup Chart. The team’s velocity has averaged 4.6 story points per iteration with 27 points completed. The project scope was increased during iterations 3 and 4 to a total of 48 story points. Management would like the project scope to be completed by iteration 9. What should be the team goal for iteration 7? Click on the diagram showing the next data point in the Work Accepted line.



To answer the question, click on a “hot spot” on the diagram as shown below.



3. **Matching question** Questions in this format will give you two columns of concepts to match. In the following example, the test taker would drag the cards in the “Action” column to to the center box that aligns with the “Order in which to perform” column.

Question During a team retrospective, the project manager senses a conflict. In what order should the project manager use the following actions to address the conflict?

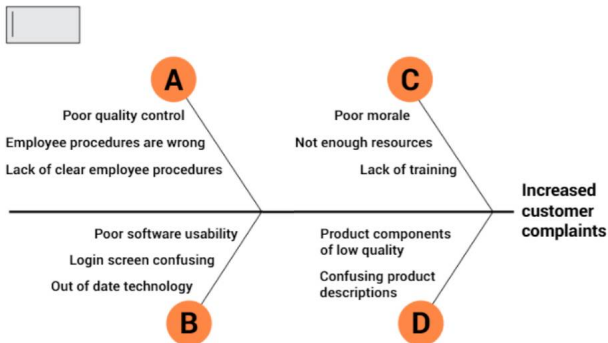
Action		Order in which to perform
Decide what, if any, intervention is needed		First
Determine the level of conflict		Second
Observe the situation and listen to both sides		Third
Assess the group’s energy, words and body language		Fourth

Answer

Action		Order in which to perform
Decide what, if any, intervention is needed	Observe the situation and listen to both sides	First
Determine the level of conflict	Assess the group’s energy, words and body language	Second
Observe the situation and listen to both sides	Determine the level of conflict	Third
Assess the group’s energy, words and body language	Decide what, if any, intervention is needed	Fourth

4. **Limited fill-in-the blank** These types of questions will ask that you type the answer (represented by a blank space in the question) in a box given:

Question Review the fishbone diagram for the problem: Increased customer complaints. Enter the letter indicating the area that includes the possible causes of the problem related to people.



Answer C

Recurring Themes—PMI-isms to Know for the PMP Exam

RMC has been helping people pass the PMP exam and become better project managers for more than 30 years. During that time, we have developed the following list of “PMI-isms” the exam assumes but many project managers do not know. We suggest you read it now and then remember to reread it along with the Tricks of the Trade in this book, before you take the actual exam. Assuming PMI-isms to be true (unless the question evidence says otherwise) will help you pick the best answer from what seems like more than one correct answer. Look for PMI-isms in the “Quality of Deliverables and Products” chapter as well. We have some there that are specific to quality. For the exam, assume that you have (or do) all the following and that these concepts are true for your projects. As you review these PMI-isms, think about which ones are true for your projects. If there are any that aren’t true for your projects, you may have a gap in your knowledge. It’s important to make note of any gaps you may have and review these gap areas as part of your overall study plan.

Important: PMI represents project management practices along a range of approaches that are predictive, adaptive, and hybrid (a combination of approaches). As you study these PMI-isms, keep in mind that a project manager should tailor the approach to fit the needs of the project.

General PMI-isms

- Without a skilled project manager, the vast majority of projects will fail. With a person educated in the skills of project management, regardless of title, a project has a high likelihood of success.
- The project manager puts the best interests of the project first—not their own interests.
- The project manager understands the value of the principles, methods, models, and artifacts of project management and knows how to adapt them to the type of project they are managing.
- The project manager is assigned during project initiating (or sooner), not later in the project.
- The project manager understands the process of project management (i.e., what to do first, second, etc., and why) and has the ability to make proactive tailoring decisions.
- Organizations have a formal project selection process, and they choose projects based on how well those projects meet the organization’s and its stakeholders’ needs and strategic goals.
- The project manager understands why their project was selected. They ensure while planning and managing the project that the project delivers the benefits and value for which it was selected.
- The project manager and team create a product and project vision and the project manager works throughout the project to foster a common understanding of the product and project vision.
- The project manager plans, manages, monitors and controls scope, schedule, cost, quality, risk, and resources, using projects to deliver value to the organization and its stakeholders.
- In an adaptive environment, the agile coach (or Scrum Master) ensures that the appropriate processes and tools and techniques are well understood and being followed.
- Agile teams are empowered to manage their own work according to objectives as prioritized by a product owner (or value management team).
- Teams are trained and coached by the project manager (agile coach, Scrum Master) for skills appropriate to the approach being used on the project on which they are working.
- Agile teams are coached to not just know agile processes but to “be” agile.
- Each project is approached holistically and managed and executed as a value delivery system for the organization and its stakeholders.
- Team members are motivated, empowered, and engaged, and come prepared with suggestions; they don’t require micromanagement from the project manager.
- Organizations have a project management office (PMO), and that office has important, clearly defined responsibilities regarding projects across the organization.
- Organizations have project management policies, which the project manager complies with on their project. These policies may include project management methodologies, risk procedures, quality procedures, and development approach preferences.

- Projects have a beginning and an end and are used to create unique solutions to solve particular business problems and serve particular business needs.
- A project may be part of a program or portfolio, and the projects relationship to other projects could significantly influence how the project manager works.
- Organizations keep records (e.g., historical information and lessons learned) from previous projects that include planning artifacts and artifacts of the project's actual results. The project manager uses these organizational process assets to plan their project. The project manager then feeds their own projects records and lessons learned back into the organizations knowledge base.
- Organizational governance includes policies related to safety, diversity, and inclusion and a variety of other social responsibilities meant to protect workers, stakeholders, the organization, and society at large. Project managers proactively learn these and use them on projects.
- Project managers and other organizational leadership are screened for and otherwise trained in, and practice, emotional intelligence in relationships with the team and project stakeholders, as part of their leadership skills.
- The project manager works within the existing systems and culture of a company (enterprise environmental factors), and one of a project's results is to provide input to improve those systems.
- Every project has a project charter, which authorizes the project and the role of the project manager.
- Every project has adequately planned and executed transition of the product of the project to the customer (or operations, for internal projects). The transition is an integral part of the Close Project or Phase process.
- A work breakdown structure (WBS) and WBS dictionary are used on all plan-based projects. An agile project manager uses a product backlog, a product roadmap, story maps, and stories.
- A project management plan is a series of management plans. The project manager creates a project management plan and other project artifacts tailored to the projects' development approach and life cycle, and other specific project characteristics.
- The project manager keeps all project artifacts current to help manage and control a project.

Stakeholders are involved throughout the project. Their needs are considered while planning the project and creating the communications management plan and the stakeholder engagement plan.

People must be compensated for their work and deserve a fair and positive environment in which they can contribute their best work.

Agile project stakeholders are represented by a product owner as part of the team. Team members can see stakeholder perspectives through the use of personas and other agile tools.

Agile team members engage daily with stakeholders either directly or through the product owner to design and build the product, conduct iteration reviews, and then use iteration retrospectives as part of their own continuous improvement process.

Gold plating (adding extra functionality) is not in the best interests of the project and should be prevented.

Projects are managed in a matrix environment in which tools and techniques are typically straightforward.

However, it's important to know that concepts and tools such as motivation theories and conflict resolution may become more complicated in alternate environments.

- The project manager has a professional responsibility to properly use and tailor tools and processes appropriate to the selected development approach and life cycle.
- Project managers practice servant leadership to facilitate success of the team and the project. They are trusted stewards of organizational and stakeholder resources and needs and carry out their responsibilities in the best interests of both.
- Stewardship for the project managers include holistic points of view and holistic practices to carry out their financial, social, technical, and environmental responsibilities to the organization, its teams and stakeholders, and the larger society.
- Project managers are knowledgeable about the business environment and carry out their responsibilities related to environmental factors affecting the project or factors that the project affects.

Planning the Project

- All projects must be planned using planning processes tailored to the project.
- In a predictive environment the project manager plans the project with input from the team and stakeholders. Adaptive environments include the whole team to do the planning.
- Planning involves selecting a project life cycle and development approach suitable for the project.
- Each project constraint plus other factors important to project success (requirements and scope, schedule, cost, quality, resources, communications, risk, procurement, stakeholder management) will be planned, managed, and controlled. Plan length and detail may vary by size, complexity, and priority of the project as well as by development approach.
- In agile environments a project manager uses guidelines from an appropriate holistic and formalized methodology established according to the performing organizations governance.
- The project manager, team, and other appropriate subject matter experts determine quality measurement metrics.
- The project manager plans for and practices continuous process improvement.
- The project manager creates and uses a recognition and rewards system appropriate to each project.
- The project manager clearly documents and assigns project roles and responsibilities with the help of the team. These include reporting responsibilities, risk management assignments, meeting attendance, and project work. Agile teams have generalizing specialists who are experts in one or more field but can and will help in other areas where needed.
- The project manager and team focus with rigor on identifying risks in alignment with the approach.
- Team members and other stakeholders participate in risk identification and risk management responsibilities.
- The project manager and team appreciate that managing risks saves the project time and money.
- Project cost and schedule cannot be finalized without completing risk management.
- Plan-based project management includes creating realistic schedules and budgets based on the project's defined scope. Agile project management entails being flexible with scope while keeping schedule and cost realistic and fixed.
- The project manager assesses whether a plan-based project can meet the end date(s) and other project constraints and objectives. They meet with management to resolve differences before project work starts. The project manager knows unrealistic schedules are their fault because they have tools and skills to help solve them.
- The project manager for an agile project establishes the minimally viable product (MVP) that can be delivered within the cost, schedule, and other project constraints. They provide plans for delivering the MVP in releases through iterative and incremental product building and delivery.
- The project manager plans when and how to measure performance against the performance measurement baseline, as documented in the project management plan. They plan for other methods, like value stream mapping, to be used to determine how the project and processes are performing while the work is being done.
- The project manager plans for stakeholder engagement at all levels and creates tactics to establish and maintain stakeholder engagement at the desired level for each stakeholder or group.
- The project management plan is realistic, and everyone believes it can be achieved.
- The project manager holds a kickoff meeting with the team.

ONE Tricks of the Trade for Studying for the Exam

While the Project Work Is Being Done

The project manager is responsible for facilitating documentation and knowledge sharing during the project.

The project manager measures against the project management plan to help determine project status throughout the life of the project.

Projects are re-estimated throughout the life of the project to make sure the end date(s) and cost objectives will be met. Therefore, the project manager almost always knows if the project can meet the agreed-upon end date(s) and budget.

The project manager has authority and agency. They can say no and work to control the project for the benefit of the organization and its stakeholders.

A change in scope must be evaluated for its impacts to the project's schedule, cost, quality, risk, resources, and customer satisfaction. The project manager has enough data about the project to do this analysis.

The project manager realizes that, over time, people associated with the project may have different understandings about what the project is and what could occur during the project life cycle. The project manager is continually facilitating a common understanding and appropriate expectations.

The project manager understands, and takes seriously, resource responsibilities on a project.

The project manager spends time on such activities as team building and ensuring high team performance.

The project manager is proactive, finds problems early, looks for changes, and prevents problems.

- Risk is proactively managed. Most issues that occur have risk response plans to deal with them. Agile teams work
- with a risk-adjusted backlog that includes risk response plans.
- Risks are addressed at every team meeting.
- Project meetings have planned agendas that are followed. Agile team meetings take the form of daily standup
- meetings that are short and follow their set agenda strictly.
- All changes to a project management plan flow through the change management process and integrated change
- control (or its agile equivalent).
-
- The project manager and team execute and control the project with the urgency needed to accomplish the goals
- and objectives for which the project was undertaken.
- The project manager ensures that the project is compliant with organizational governance and with any applicable
- laws and regulations external to the organization.
- The project manager recommends improvements to the performing organizations' standards, policies, and
- processes. Such recommendations are expected and welcomed by management.
- Quality should be considered whenever there is a change to any component of the project.
- Quality should be checked before an activity or work package is considered completed.
- The project manager works closely with the quality department in performing some of the quality activities
- discussed in *Process Groups: A Practice Guide*.
- The project manager is actively involved with the procurement process and assists in managing procurements.
- The project manager understands contract language.
- The project manager makes sure all the terms of a contract are met, including those that do not seem important.

Closing the Project

- No project is complete until the product is transitioned to the stakeholders, and training has been provided on use and maintenance of the product to realize its benefits, as needed.
- No project is complete until there has been final acceptance from the customer.
- All projects produce a final report that gives the project team a chance to announce the project objectives have been met.
- The project manager and team ensure that all project records are updated and archived.

Which items in this list seem different from the way you or your organization manages projects? Which of these items do you not understand? Review this list when you think you are finished studying. Pay particular attention to those items that aren't true of your projects. Are there any items you need to think about more to make sure you will remember them when you take the exam? Knowing these PMI-isms can make a significant difference. Most students have everyday project management experience that differs from a good number of these PMI-isms, making this a significant gap that students need to bridge before taking the exam.

How to Study for the PMP Exam

Some people believe you need to read every known resource available, watch lots of videos and spend as much time as possible preparing for the PMP exam. Do not make that mistake. You should not read everything you can find, as some resources are not well vetted. We recommend the approach outlined in the following sections.

The Magic Three Studies have shown that if you visit a topic three times, you are more likely to remember it. Read this book once and then skim through it two more times, focusing most on the activities you do not do in the real world and on the concepts you have trouble understanding or remembering. You should document these as you work through this book as they represent the gaps in your knowledge and understanding to fill before the exam.

Be in Test-taking Mode Get used to jumping from one topic to another. You'll also need to practice answering questions for four hours. You can do this by waiting to do any chapter quizzes until you feel ready to answer the questions. Then take all of RMC Interactive Chapter Quizzes in one sitting (see step 4 in plan B on page 24). Do not underestimate the physical, mental, and emotional aspects of taking an exam lasting that long. You can also get into test-taking mode using our PM FASTrack® exam simulator.

Your Step-by-Step Study Plan

We recommend that you use one of the following study plans. Follow Plan A if you own RMC's complete PMP Exam Prep System (This *PMP® Exam Prep* book, the PM FASTrack® Cloud Exam Simulator license, and *Hot Topics*). Follow Plan B if you own only the book and not the entire system.

Plan A: Using This Book with the PMP Exam Prep System

(*PMP® Exam Prep* book, PM FASTrack® Cloud Exam Simulator, and *Hot Topics*)

One common mistake people who purchase the PMP® Exam Prep System make is to spend most of their study time answering questions in PM FASTrack®. This approach won't work. As we mentioned earlier, focus your efforts on reading this book, completing the exercises and review activities, and filling the gaps in your applicable knowledge of proper project management practices for plan-based, agile, and hybrid projects. Use the following steps to study this book along with PM FASTrack® and *Hot Topics*:

Read this book for the first time and complete the exercises. Spend more time on the areas where you recognize you have knowledge or experience gaps; items you did not know or do prior to beginning this course of study. Refer to Rita's Process Chart™ and Rita's Agile Process Chart™ frequently (included in chapter 3 of this book). Be sure you understand all the efforts involved in the topics you are working on. Use the ECO as directed in each of the ECO domain chapters to become comfortably familiar with the ECO content by the time you are finished with this book.

1. As you finish each chapter, review the Quicktest at the beginning of the chapter. Make sure you know the meaning of each concept. Use *Hot Topics* to improve recall and test your knowledge of each chapter.
2. If possible, form a study group after you have read the book for the first time on your own. Your study time will be more effective. You will be able to discuss content together and the studying (and celebrating afterward) will be more fun. A study group should consist of only three or four people. (See How to Use This Book in a Study Group on page 25.)
3. Skim through this book again, reviewing areas where you are not confident with the content.
4. For these areas you reviewed because you had less confidence, answer a small sample of questions (no more than 20) using the Focused Test function in PM FASTrack*. Analyze why you answered questions wrong and continue to study these gap areas. PM FASTrack* helps with this by allowing you to download a spreadsheet of the questions you got wrong. It is called “Export Analysis Data” in PM FASTrack*.
5. When you feel you are prepared to do so, take a full exam simulation on PM FASTrack*. This step will give you a baseline against which to track your progress as you continue to study.

WARNING: Limit yourself to no more than two full exam simulations before you take the actual exam. Otherwise, you diminish the value of PM FASTrack* by memorizing questions and answers that will not be presented in the same way on the exam.

WARNING: If you do not score 70 percent or more the first time you take a full exam simulation (not just a shorter exam on a single content area or ECO domain), you may need a refresher in basic project management concepts. If you have taken a project management fundamentals class, review the materials you received from that class. If you have not had this class, consider taking one. Or you may need a PMP Prep class. Contact us using the information on rmcls.com/contact-us/. We can help assess your needs.

6. Review each question you got wrong in PM FASTrack*, recording the specific reasons for each wrong answer. Assess why the correct choice is correct and why the other answers are wrong. In PM FASTrack*, we explain the answers and give references to help you quickly return to the related content. Use the “Export Analysis Data” within FASTrack to download a spreadsheet of questions you got wrong.
7. Use your list of why you got each question wrong (from the previous step) to determine what to study further. This will help you determine how much more study time you need and which content areas to review more carefully. Continue to study this book, focusing on areas in which you have more gaps and skimming sections or chapters on which you did well. For chapters you need to review, always start by reviewing the Overview sections of the chapter, where we map the ECO to other PMI resources and point out important aspects of ECO domain tasks. And remember, think about good project management practices according to PMI as discussed in this book and based on approaches along the plan-driven, agile, and hybrid spectrum. Do this regardless of how you manage your projects in the real world.
8. For the topic areas where you had the most trouble, review these again. Then you may want to answer a small sample of questions (no more than 20) using the Focused Test function in PM FASTrack*. Analyze why you answered questions wrong and continue to study gap areas.
WARNING: You might be tempted to answer more than 20 questions, but this should be sufficient to assess your progress in the particular content area and whether you need to study more. Answering more than 20 questions in a particular area can diminish the value of PM FASTrack* and will not prepare you for the breadth of the exam experience.
9. Take your second and final PMP simulation exam. You should score over 75 percent before you take the real exam. You are overusing PM FASTrack* if you see many repeated questions.
10. Use *Hot Topics* and other materials to continue to review the content until you take the exam.
11. Create your test strategy (see the “Tips for Passing the PMP Exam the First Time” chapter).
12. PASS THE EXAM!

Plan B: Using This Book As a Stand-Alone

(PMP* Exam Prep book, RMC Resources, RMC Interactive Chapter Quizzes)

Read this book for the first time and complete the exercises. Spend more time on the areas where you recognize you have knowledge or experience gaps; items you did not know or do prior to beginning this course of study. Refer to Rita's Process Chart™ and Rita's Agile Process Chart™ frequently (included in chapter 3 of this book). Be sure you understand all the efforts involved in the topics you are working on. Use the ECO as we direct in each of the ECO domain chapters, to become comfortably familiar with the ECO content by the time you are finished with this book.

1. As you finish each chapter, review the Quicktest at the beginning of the chapter. Make sure you know the meaning of each concept.
2. If possible, form a study group after you have read the book for the first time on your own. Your study time will be more effective. You will be able to discuss content together and the studying (and celebrating afterward) will be more fun. A study group should consist of only three or four people. (See “How to Use This Book in a Study Group” on page 25.)
3. Skim through this book again, reviewing areas where you are not confident with the content.
4. Once you feel confident about the material, take the interactive RMC Interactive Chapter Quizzes in one sitting. This will give you a baseline to tell you how much you have learned. It will also help you determine how much additional study time you need and which chapters to read more carefully.
5. Review each question you got wrong in RMC Interactive Chapter Quizzes, writing down the specific reasons for each wrong answer. Assess why the correct choice is correct and why the other answers are wrong. Review each question you got wrong in RMC Interactive Chapter Quizzes, recording the specific reasons for each wrong answer. Assess why the correct choice is correct and why the other answers are wrong. In RMC Interactive Chapter Quizzes, we explain the answers and give references to help you quickly return to the related content. RMC Interactive Chapter Quizzes help with this by allowing you to download a spreadsheet of the questions you got wrong (it is called “Export Analysis Data” within the RMC Interactive Chapter Quizzes tool). Continue to study this book, focusing on the areas in which you have gaps in your knowledge and skimming the sections or chapters on which you did well.
6. Correct any errors in your understanding of the concepts discussed in this book.

WARNING: If you do not score 70 percent or more the first time you take the RMC Chapter Quizzes, you may need a refresher in basic project management concepts. If you have taken a project management fundamentals class, review the materials you received from that class. If you have not had this class, consider taking one. Or you may need a PMP* Prep class. Contact us using the information on mcls.com/contact-us/. We can help assess your needs.

7. Make sure you really know the material, and then retake the RMC Interactive Chapter Quizzes. As with step 5, use downloaded spreadsheet from the tool to identify the specific, not general, reason you got each question wrong.
8. Use your list of why you got each question wrong (from the previous step) to determine what to study further. This will help you determine how much more study time you need and which content areas to review more carefully. Continue to study this book, focusing on areas in which you have more gaps and skimming sections or chapters on which you did well. For chapters you need to review, always start by reviewing the Overview sections of the chapter, where we map the ECO to other PMI resources and point out important aspects of ECO domain tasks. And remember, think about good project management practices according to PMI as we discuss in this book and based on approaches along the spectrum of plan-based, agile, and hybrid. Do this regardless of how you manage your projects in the real world.
9. Create your test strategy (see the “Tips for Passing the PMP* Exam the First Time” chapter).
10. PASS THE EXAM!

How to Use This Book in a Study Group

To get started, pick someone to lead the discussion of each chapter (preferably someone who is not comfortable with the chapter, because the presenter often learns and retains the most in the group). Each time you meet, go over questions about topics you do not understand and review the hot topics on the exam using the *Hot Topics* flashcards if you have them. Most groups meet for one hour per chapter. Either independently or with your study group do further research on content you are not confident with questions you answered incorrectly in RMC Interactive Chapter Quizzes or PM FASTrack*.

Each member of the study group should have their own copy of this book, which can be used within the group to make study and discussion commitments for group sessions. (Please note that it is a violation of international copyright laws to make copies of the material in this book or to create derivative works from this copyrighted book.)

Section II

Foundations

In this section, you will learn the foundations of project management. First, we will guide you through key PMI references and how they relate to the exam. Then, we will discuss predictive, hybrid, and adaptive approaches to project management. You'll find out how projects are selected and what the roles are on a project. Here are some highlights of this section:

- Predictive and agile approach overviews
- Plan-based process groups: initiating, planning, executing, monitoring and controlling, and closing
- Agile processes: feasibility, initiation, release planning, iterations and product release, and closing
- Rita's Process Chart (a valuable study tool when learning about plan-based projects)
- Rita's Agile Process Chart (when learning about agile projects)
- How project management relates to the organization
- How projects are selected
- Project roles and responsibilities
- What integration means and how it is a key part of managing a project

2 PMP® Exam References in Context

QUICKTEST

- Rolling wave planning
- Progressive elaboration
- Examination Content Outline (ECO)
 - People
 - Process
 - Business Environment
- Process Group model
 - Initiating
 - Planning
 - Executing
 - Monitoring and Controlling
 - Closing
- Phase gates
- Rita's Process Chart™
- Agile process
 - Feasibility
 - Initiation
 - Release Planning
 - Iteration
 - Close-out
- Rita's Agile Process Chart™
- Personas
- Product release
- Hybrid project management
- Value delivery system

Introduction

In this chapter we provide an overview of the Process Groups model for plan-driven (or predictive) project management, an agile model overview for adaptive project management, and an overview of possible hybrid models of project management. This chapter also explains the relationships between groups of concepts presented in this book, and what you need to know about these concepts for the exam. We provide an overview of PMI's *Examination Content Outline (ECO)*, the *PMBOK® Guide, Seventh Edition*, and *Agile Practice Guide*. While PMI says the exam is based on the ECO, our research tells us there are also questions on the exam based on content in these references.

We will ask you to look at the ECO periodically in reference to something specific being discussed. If you have not yet downloaded a copy of the ECO from PMI's website, do that now. It will be a good reference tool as you read this book. Feel free to refer to it as you complete exercises too.

PMI publishes a copy of its suggested reference list on its website, and it is a long list of publications. Does this mean you have to read all these books? No! The good news is that we have done the research for you and the information you need to pass the exam is in this book. We suggest that you obtain copies of the *PMBOK® Guide, Seventh Edition*, *Process Groups: A Practice Guide*, and *Agile Practice Guide*. If you have a PMI membership, you can access electronic copies of these books for no additional charge on PMI's website. You can also purchase a hard-copy of the *PMBOK® Guide* on RMC's website.

You will not need to read these cover-to-cover. Instead, think of them as resource guides that you browse or open to a certain page to look up something specific. The most important information from each of those resources is summarized in this book.

Definitions Related to Planning

We will start with the following definitions to remind you, as you read this chapter and the rest of the book, that planning is iterative, regardless of what project life cycle and development approach you have selected with which to manage a project.

Rolling Wave Planning and Progressive Elaboration

Have you ever worked on a project that seemed to have too many unknown components to adequately break down the work and then schedule it? Or the project will have phases and it makes more sense to plan some later phases in detail at a later time? Even in a predictive environment, it is often better to not plan the entire project to the smallest detail in advance. Instead, it is sometimes better to just plan at a high level and then develop more detailed plans when the early project work is being done. This practice is called rolling wave planning. It is a form of progressive elaboration.

Progressive elaboration refers to the process of clarifying and refining plans as the project progresses and more information becomes available. With this common tailoring method, you plan activities in the detail needed to manage the work just before you are ready to start that part of the project.

Iterations of rolling wave planning during the project may result in additional activities being added, and in the further elaboration of other activities. Therefore, rolling wave planning may create the need for updates to the project management plan and other project artifacts. Since the earlier version of the project plan is usually already baselined, these changes often require formal change requests and integrated change control.

Examination Content Outline (ECO) Overview

This *Examination Content Outline (ECO)* organizes the exam material into three performance domains:

- People
- Process
- Business Environment

Each domain lists a number of tasks, which taken together, summarize the responsibilities of a project manager within that domain. The order of the performance domains and the tasks within them are not important. In this book we organize the domains and tasks in terms of where they most make sense for what you need to know and what part of the project management process we are talking about. We include domain and task numbers to make it easy for you to find them in the ECO.

The following overview will help you with a basic understanding of what the ECO includes. We will include specific content from it in proper context throughout this book.

The domain names will not be tested on the exam but you should understand their tasks and enablers as they relate to managing projects in both adaptive and predictive environments. You can use the domains to manage your study time since PMI states that 42% of the exam is based on the People domain, 50% of the exam is based on the Process domain, and 8% of the exam is based on the Business Environment domain. As you study, identify your gaps in each domain so you can focus your time on filling those gaps before the exam.

Domain I: People

The People domain concerns skills and methods that help you succeed as a project manager and that you can use to help others succeed on projects. These include servant leadership, team building, motivation, and conflict management. We will focus on specific tasks listed in the ECO, appropriate to each of the following chapters. To start, here is a good list of “people skills” a successful project manager needs:

- Active listening
- Adaptive leadership
- Coaching and mentoring
- Collaboration
- Conflict resolution
- Emotional intelligence
- Facilitation
- Individual performance evaluation
- Negotiation
- Participatory decision making
- Team development
- Personal integrity and trust building
- Rewards and recognition systems
- Team performance evaluation
- Understanding of motivation

Domain II: Process

The Process domain includes the technical project management skills, methods, and the activities needed to manage a project and deliver the benefits for which the project was undertaken. People work together in this effort—the project manager and team—so wouldn’t you expect to be using skills and abilities from the People domain? Of course! You lead the organization of the project and facilitate the development of its product with these skills alongside a balanced understanding of the business environment in which you are operating.

The tasks in the Process domain involve managing many of the processes you have probably already handled in your experience as a project manager. They include the management of the following project management processes, along with the integration of all aspects of the project and other related tasks:

- Communications
- Budget and Resources
- Quality
- Procurement
- Risk
- Schedule
- Scope
- Stakeholder engagement

Managing project governance, artifacts, issues, changes, the use and transfer of lessons learned, and product turnover to operations are also part of this domain. Once the project has been closed and turned over, a key measure of success is the continuation of the projects value and benefits (also part of the Business Environment domain).

Domain III: Business Environment

Projects occur within the larger organization and business environment. Let's say you have the skills associated with people and experience with project management processes. You also need to know how to navigate the internal and external business environments. You probably know this, but you may not have thought about it as a separate factor in your success.

The presentation of the business environment as a separate ECO domain helps you focus on understanding the organization in which you work and the environment in which it does business. Understanding the business and environmental factors are critical to accomplishing project objectives for the betterment of your organization and its stakeholders. Let's take as an example the task of evaluating and delivering project benefits. You can only accomplish this task if you use skills related to the People and Process domains together with a complete understanding of your organization's culture, processes, and practices, and of the external, cultural, and legal environments in which they operate.

As another example, let's say that as part of renovating a library, the project manager plans to work with the city on enhancing transit options for getting to the library. Then they hear that a new highway interchange will be built nearby with a major transit hub included. This will affect the project in a number of ways. Organizations evaluate the external business environment during project selection. Then the project manager continuously monitors the business environment as they plan, execute, and control the project to ensure that environmental changes do not negatively affect project objectives.

The Process Groups Model Overview

PMI recently released its *Process Groups: A Practice Guide*, to explain its Process Groups model. The Process Groups model content originated in previous editions of the *PMBOK® Guide*, so it is familiar to many project managers that have used previous editions of the *PMBOK® Guide*.

The Process Groups model describes a prescriptive or plan-driven approach to project management. Much of the information in the Process Groups model can be used as a learning model for project management in general. It is with good reason that the Process Groups model is so widely used today, and that we include it in this book. It is a good and comprehensive model for prescriptive project management. In addition, over many years, through PMI's propagation of it in previous editions of the *PMBOK® Guide*, organizations throughout the world have adopted it and tailored it to their own needs. So many thousands of project managers are familiar with some form of this model. More important yet: Understanding it will greatly enhance your ability to answer many of the 50% of questions based in predictive environments. In addition, this model is useful in many hybrid project management approaches across the approach spectrum. For these reasons we use it extensively in this book as a learning model.

Process Groups

The Process Groups model starts with five process groups that in a general way describe how a project is managed, from beginning to end. These process groups are:

- Initiating
- Planning
- Executing
- Monitoring and Controlling
- Closing

For now, you may draw the conclusion that to manage a project you would follow the process groups from initiating to planning, executing, monitoring and controlling, to closing, one after the other, from the beginning to the end of the project. You would be right—but only partly right. While the process groups generally lead you in order from the beginning to the end of a project, at the same time you carry out the activities associated with them in a very dynamic fashion, sometimes going back and forth between the process groups.

The real story is that project management is a very dynamic process that cannot be adequately described as a linear progression through these processes, although understanding its linear progression is useful. The process groups order the progression through a project. But at the same time, an activity belonging to one process group might cause a return to an “earlier” process group to respond to a request, carry out an activity, or solve a problem.

Understand the rest of this section and you will be well positioned to understand the Process Groups model and the processes within it, as we explain them further, especially in the Process domain section of this book. You will also understand how everything fits together to help you manage plan-driven projects successfully—and, of course, to answer related questions on the exam.

Figure 2.1 shows generally how the five process groups interact on a project. You have the overall initiating effort, followed by planning. Notice the double-arrows between planning, executing (where we are building the product), and monitoring and controlling (where we are observing and assessing activities to keep things on track). These double arrows are meant to indicate the dynamic, non-linear nature of much of project management work. For example, something that happens in executing and monitoring and controlling, like a change in product scope, may send you back to planning in order to replan to accommodate that change. Many changes like this occur on projects after initial planning is “complete.”

Now notice two more important things about figure 2.1. First, there’s a dotted line representing the directional arrow going from monitoring and controlling, back to initiating. This broken arrow is there to remind you that returning to initiating is not a given. In fact, once you leave initiating, it is only under limited circumstances that you would return to initiating. See figure 2.6, where we show those limited circumstances to you.

The second important thing to note right now is that there are two components in figure 2.1 representing “M&C,” or monitoring and controlling. The M&C inside the smaller circle represents monitoring and controlling as a process you carry out along with the others, roughly following the start of executing. The larger, shaded circle also labeled M&C signifies that you are monitoring and controlling throughout the project. No matter what other activities you are carrying out, from whatever process groups, you should also be monitoring and controlling the situation.

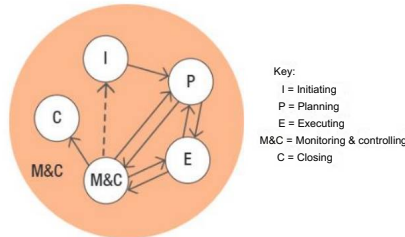


FIGURE 2.1 Project management process

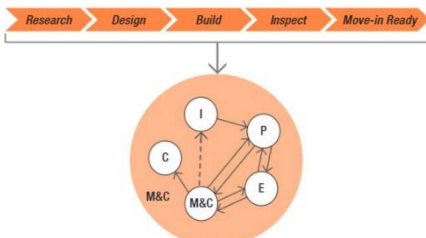


FIGURE 2.2 Small project with a predictive life cycle

The five process groups interact with the selected project life cycle, shown at the top of figure 2.2. Small projects following a plan-driven life cycle may be completed after going through all the process groups (initiating through closing) once for the entire project, although portions of the processes may be iterated or repeated throughout the project life cycle as shown in figure 2.2.

Large projects often require the project manager to manage each life cycle phase iteratively through the project management process groups.

The example illustrated in figure 2.3 is for a large construction project. In this large project, the development life cycle phases of feasibility, planning, design, construction, and turnover are all extensive, requiring revisiting the five process groups for each phase. For example, there would be an overall initiating effort in which the project manager helps create a charter and does high-level planning for the entire project to get charter approval. Then, a separate initiating process for the

feasibility phase would take place, followed by a planning effort for that phase, the execution and control of that work, and, finally, a closeout of the phase, which typically includes a handoff of deliverables—in this case, the results of the feasibility analysis. This would be repeated for each life cycle phase.

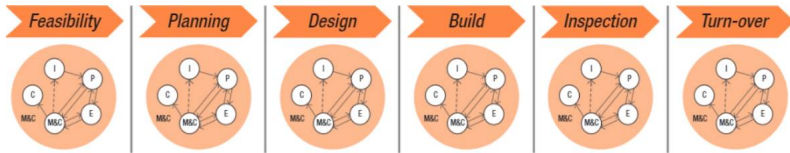


FIGURE 2.3 Large project with a plan-driven approach and phase gates (indicated by the vertical bars)

Phase Gates At the end of each phase, an event called a phase gate may take place. A phase gate involves analyzing the results of the completed phase against what was planned for that phase. Based on that analysis, options may include redoing the same phase, moving forward with the next phase, or choosing not to continue with the project. If the decision is made to move forward, the project would begin initiating work on the next phase and progress through the project management process groups for that phase.

Projects may also be broken into phases and then into smaller releases and iterations within those phases. The project management processes of initiating, planning, executing, monitoring and controlling, and closing are done for each phase. The level of detail and the time spent on each process group may vary, but the entire project management process is typically followed, as indicated in figure 2.4, which depicts the plan-driven process groups with an agile approach. This could be a project using a strictly agile approach, or a hybrid project using project management methods from both plan-driven and agile approaches.

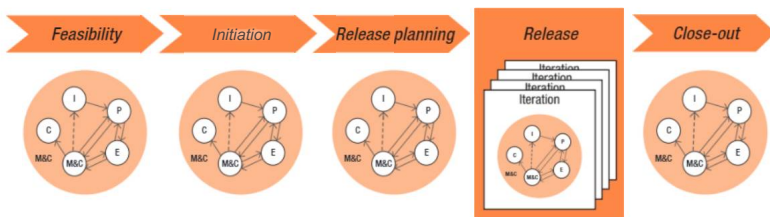


FIGURE 2.4 Large project with an agile approach

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Agile approaches usually don't include the use of the term "phase." The traditional "phase gate" system is different from an adaptive environment where iterations tend to be short and include product reviews (demos) and retrospectives. The overall process is usually more flexible and evolves throughout the project.

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Looking at figure 2.4 again, where in the life cycle do you think are opportunities for using a hybrid approach? While the entire life cycle may look adaptive, at the "release" level you can see an iterative approach is most obvious. It's most likely during feasibility, initiation, release planning, and close-out that you'd weave in predictive elements if you chose to do so.

The illustration that appeared in figure 2.1 is shown again here in figure 2.5 for your reference as you read the rest of this section and continue to understand the project management process through the process groups.

Start Here: Take time to fully understand figure 2.5 before continuing.

- Arrows move clockwise from Initiating (I). The process moves mostly in order from Initiating (I) through Planning (P), Executing (E), Monitoring & Controlling (M&C), and Closing (C).
- Double arrows between Planning (P), Executing (E), and Monitoring and Controlling (M&C) process groups show that you often move back and forth between them as you tailor to events taking place. New information becoming available in executing (E) may return you to planning (P).
- The single dotted arrow returning from monitoring and controlling (M&C) to initiating (I) indicates that only under limited circumstances you may enter initiating once you leave it (see figure 2.6).

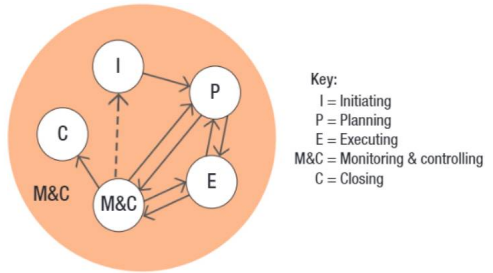


FIGURE 2.5 Project management process

Keep in mind that monitoring and controlling is carried out from start to finish on the project. Remember for the exam: Work in all other process groups takes place in the context of ongoing monitoring and controlling.

The following figures illustrate the reasons for entering the various process groups. Remember, project management is not linear. For example, project planning can be entered into because the results of project monitoring and controlling necessitates additional planning.

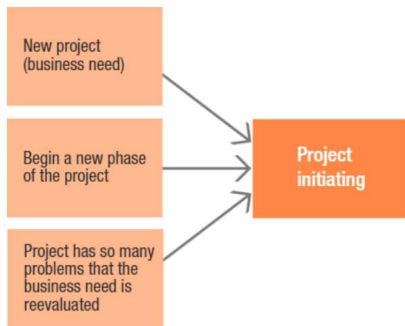


FIGURE 2.6 Reasons for entering project initiating

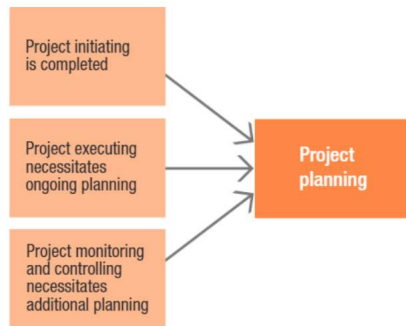


FIGURE 2.7 Reasons for entering project planning

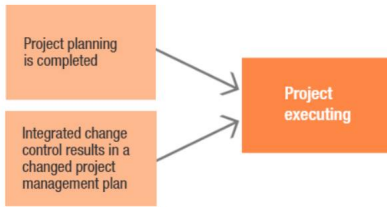


FIGURE 2.8 Reasons for entering project executing

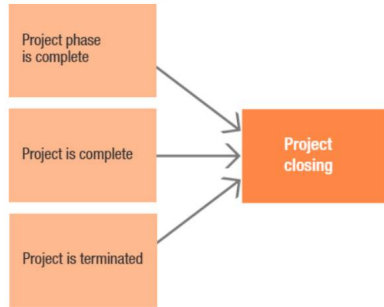


FIGURE 2.9 Reasons for entering project closing

Let's stop here for a moment to talk about the executing process in a predictive environment versus an adaptive environment. The plan-driven approach to executing is to "go do the items identified in the project plan" and update the project plan baseline if changes occur. These changes may be necessary due to unanticipated issues and risks in activity durations and resource productivity or availability, or for other reasons. We assume that to a certain extent planned activities are fully understood prior to starting work and are completed according to the plan, even though that is not always the case.



Agile methods employ an executing approach in which additional efforts may be made to replan some or all of a project. This is due to the nature of projects that may require a lot of change because project and product scope are emerging. We assume all aspects of work are not known in advance and learning with adaptation will be necessary to complete the project, either because of technical uncertainty or changes to requirements.

We are showing you monitoring and controlling last because its relationships to the other process groups are more intricate. Think about these relationships as you study for the exam. Many students struggle to define what happens during monitoring and controlling versus other process groups, especially executing. Figure 2.10 illustrates key project outputs (on the left) that trigger a focus on monitoring and controlling. It also shows (on the right) that you may tailor your processes to go from monitoring and controlling to any of the other process groups, depending on the situation.

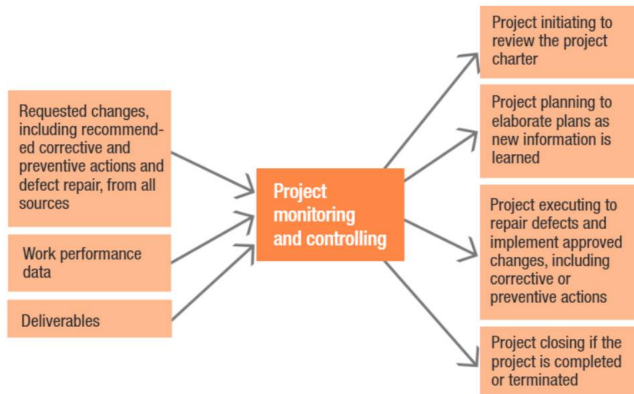


FIGURE 2.10 Key outputs that trigger monitoring and controlling, and potential next steps

One reason test takers often find monitoring and controlling to be particularly challenging is that you are expected to know how to observe, measure, evaluate, and analyze a project in a more complete and systematic way than many project managers have experience with.

Monitoring and controlling applies to both agile and plan-driven projects. However, it is useful to think in terms of plan-driven approaches to understand the work of this process group for now because agile practitioners tend not to use the language associated with the five process groups, like “monitoring and controlling.” Nevertheless, just as plan-driven project managers and teams do, agile practitioners measure project and team performance as the product is being built. They also adjust the plan or their actions to remain in line with the plan, as needed.



Agile approaches use different techniques for controlling, with more demos and feedback rather than tests to specification, but the goal of adjusting the product and processes as needed is the same. These environments, which have a high amount of change, usually handle evaluating and approving project changes through the role of a product owner. By putting the product owner in charge of the backlog, an agile team delegates the authority for local decision making to this team member to streamline the change control process.

The iteration review and the retrospective that follow an agile iteration are indicative of the experimental and learn-as-we-go nature of agile projects. These are “measure and control” efforts although the term “monitoring and control” is not used. Special iterations (sometimes called spikes) can be created specifically to try new technology or test new process changes. These short cycles provide important feedback on what is working and what needs further tuning.

Project Constraints and Other Management Areas

You will see a lot of discussion in this book about both the ECO and the Process Groups model. Both represent the processes you are managing in project management. Figure 2.11 compares the main content of the ECO Process domain with that of the Process Groups model, with a symbol between them illustrating their rough equivalence as we have mapped it. Take a moment now to open your ECO so you may read the integration-associated tasks.

ECO Process Tasks (Domain II)	Process Groups Model
Integration (Tasks 1,9,10,12,13,14 16,17)	Integration Management
Plan and manage scope	Scope Management
Plan and manage schedule	Schedule Management
Plan and manage budget and resources	Cost Management
	Resource Management
Plan and manage quality of products/deliverables	Quality Management
Manage Communications	Communications Management
Assess and manage risks & Manage project issues	Risk Management
Plan and manage procurement	Procurement Management
Engage stakeholders	Stakeholder Engagement

Note: The “budget and resources” Process domain task is comparable to cost and resource management in the Process Groups model. “Human resources” (or soft) skills are addressed in the People domain.

FIGURE 2.11 Relationship between ECO Process domain and Process Groups model

Rita's Process Chart™: A Vital Study Tool

We are here to help you really learn plan-driven project management with the Process Groups model! Since the first edition of this book, people all over the world have used Rita's Process Chart™ as a tool to learn this project management process in detail, quickly and effectively. Once you understand it, you can use Rita's Process Chart™ to initiate, plan, and run a plan-driven project, and many of its concepts can also be applied on agile and hybrid projects.

On the exam, although you may not have to identify specific process names from *Process Groups: A Practice Guide*, knowing where you are in the project management process when you read a question's scenario will help you get the right answer.

How to Use Rita's Process Chart™

Located on page 38, Rita's Process Chart's™ function is to state, simply and directly, the efforts involved in managing a project. Understanding these efforts will provide the context you need for the exam.

As you review Rita's Process Chart™, make sure you:

- Understand the overall project management process.
- Find terms you do not know and learn what they are by looking them up in this book.
- Know why each item is in the column (process group) it falls into.
- Understand the project management process groups of initiating through closing, including when each effort should be done on projects. The exam asks questions that present a situation and require you to know where you are in the project management process.
- Can replicate the specific order of the planning activities by understanding what happens when, how previous work supports what comes next and why. Use Rita's Process Chart™ Game (discussed later in this chapter) for this. Knowing Rita's Planning column in this order can help you get a large number of questions right on the exam because the exam often asks what should be done next. The work in the other process groups does not have a set order.
- Understand that project planning is an iterative process. Consider how you might go back and redo (iterate) some of the items in the Planning column to refine the plan. Think about how rolling wave planning (a form of progressive elaboration) would be used on a large project to refine and detail plans for each phase as you move through the project life cycle. Here, the earliest parts of the project are planned in sufficient detail for work to begin. Later phases of work are planned at a high level. As the project progresses, and more information impacting the work becomes available, plans are elaborated in sufficient detail to accomplish the work.
- Complete Rita's Process Chart™ Game at least three times. Repeating the game will re-enforce your understanding of the overall project management process and help you find your knowledge gaps. Focus your study on your gap areas so you fill those gaps before taking the exam.

Rita's Process Chart™

INITIATING	PLANNING (This is the only process group with a set order.)	EXECUTING	MONITORING & CONTROLLING	CLOSING
Select project manager		Execute work according to the project management plan	Take action to monitor and control the project	Confirm work is done to requirements
Determine company culture and existing systems	Determine development approach, life cycle, and how you will plan for each knowledge area	Produce product deliverables (product scope)	Measure performance against performance measurement baseline	Complete final procurement closure
Collect processes, procedures, and historical information	Define and prioritize requirements	Request changes	Measure performance against other metrics in the project management plan	Gain final acceptance of product
Divide large projects into phases or smaller projects	Create project scope statement	Implement only approved changes	Analyze and evaluate data and performance	Complete financial closure
Understand business case and benefits management plan	Assess what to purchase and create procurement documents	Continuously improve; perform progressive elaboration	Determine if variances warrant a corrective action or other change request(s)	Hand off completed product
Uncover initial requirements, assumptions, risks, constraints, and existing agreements	Determine planning team	Follow processes	Influence factors that cause change	Solicit customer's feedback about the project
Assess project and product feasibility within the given constraints	Create WBS and WBS dictionary	Determine whether quality plan and processes are correct and effective	Request changes	Complete final performance reporting
Create measurable objectives and success criteria	Create activity list	Perform quality audits and issue quality reports	Perform integrated change control	Index and archive records
Develop project charter	Create network diagram	Acquire final team and physical resources	Approve or reject changes	Gather final lessons learned and update knowledge bases
Identify stakeholders and determine their expectations, interest, influence, and impact	Estimate resource requirements	Manage people	Update project management plan and project documents	
Request changes	Estimate activity durations and costs	Evaluate team and individual performance; provide training	Inform stakeholders of all change request results	
Develop assumption log	Determine critical path	Hold team-building activities	Monitor stakeholder engagement	
Develop stakeholder register	Develop schedule	Give recognition and rewards	Confirm configuration compliance	
	Develop budget	Use issue logs	Create forecasts	
	Determine quality standards, processes, and metrics	Facilitate conflict resolution	Gain customers acceptance of interim deliverables	
	Determine team charter and all roles and responsibilities	Release resources as work is completed	Perform quality control	
	Plan communications and stakeholder engagement	Send and receive information, and solicit feedback	Perform risk reviews, reassessments, and audits	
	Perform risk identification, qualitative and quantitative risk analysis, and risk response planning	Report on project performance	Manage reserves	
	Go back—iterations	Facilitate stakeholder engagement and manage expectations	Manage, evaluate, and close procurements	
	Finalize procurement strategy and documents	Hold meetings	Evaluate use of physical resources	
	Create change and configuration management plans	Evaluate sellers; negotiate and contract with sellers		
	Finalize all management plans	Use and share project knowledge		
	Develop realistic and sufficient project management plan and baselines	Execute contingency plans		
	Gain formal approval of the plan	Update project management plan and project documents		
	Hold kickoff meeting			
	Request changes			

Study Notes for Rita's Process Chart™

Remember while this focuses primarily on plan-driven project management, many of the same concepts apply to agile projects as well. We continue to note the differences throughout the book.

INITIATING
Select project manager
Determine company culture and existing systems
Collect processes, procedures, and historical information
Divide large projects into phases or smaller projects
Understand business case and benefits management plan
Uncover initial requirements, assumptions, risks, constraints, and existing agreements
Assess project and product feasibility within the given constraints
Create measurable objectives and success criteria
Develop project charter
Identify stakeholders and determine their expectations, interest, influence, and impact
Request changes
Develop assumption log
Develop stakeholder register

Initiating

- You will read more about project selection in the following “Foundations” chapter of this book. Does it matter for you to know why your project was selected? Yes, of course. It will influence how you plan the project, what kinds of changes are allowed, and how the project scope is defined. The business case and the benefits management plan are inputs to developing the project charter (and the project charter is covered in more detail in the Integration chapter of the Domain II: Process section of this book.)
- Notice the phrase “Understand business case and benefits management plan.” This could be read as “Understand the reason the project is being done and the benefits the organization expects to gain as a result of it.” These business documents are created before the project begins and contribute to the project being selected by the organization among many project proposals. They will guide all project management activities to ensure the project is worth the investment and that it will return the expected benefits to the organization.

This is an exam concept that many project managers miss. As the project manager, you should understand why your project was selected and what benefits it is expected to deliver. Is the project being done so the organization can enter a new market? Is it intended to meet a regulatory requirement? Is it the result of a customer request? Is it a priority project for a company executive? Is it expected to dramatically improve the future of the company? If you lose sight of objectives, the project may finish on schedule and on budget but still fail because it does not achieve its objectives or does not deliver the expected value.

- Team building, risk identification, stakeholder identification, risk response planning, and many other activities primarily occur in the process groups in which they are placed on the chart, but these activities can start in initiating and continue until closing.
- Identifying and analyzing stakeholders help to align their expectations about the project and assess their potential involvement and influence on the project.
- The project manager determines whether the project objectives can be achieved and if it is likely to be completed within the given constraints. High-level planning is summarized in a project charter, which documents high-level estimates, measurable objectives, success criteria, milestones, and an initial budget. Initial planning may also include creating a high-level WBS and high-level risk identification.
- The charter, once formally approved by the sponsor, gives the project manager the authority to continue the project beyond initiating. It also provides a guiding vision of the project’s business case and benefits management plan, and the organizations strategic objectives.
- Besides an approved project charter, an artifact of initiating is the stakeholder register. Then, detailed planning can begin.

PLANNING (This is the only process group with a set order.)
Determine development approach, life cycle, and how you will plan for each knowledge area
Define and prioritize requirements
Create project scope statement
Assess what to purchase and create procurement documents
Determine planning team
Create WBS and WBS dictionary
Create activity list
Create network diagram
Estimate resource requirements
Estimate activity durations and costs
Determine critical path
Develop schedule
Develop budget
Determine quality standards, processes, and metrics
Determine team charter and all roles and responsibilities
Plan communications and stakeholder engagement
Perform risk identification, qualitative and quantitative risk analysis, and risk response planning
Go back—iterations
Finalize procurement strategy and documents
Create change and configuration management plans
Finalize all management plans
Develop realistic and sufficient project management plan and baselines
Gain formal approval of the plan
Hold kickoff meeting
Request changes

Planning

- In the planning column, note the first box: “Determine development approach, life cycle, and how you will plan for each knowledge area.” In plan-driven approaches, each knowledge area (scope, schedule, cost, etc.) requires a management plan. Additional plans are needed for configuration (or updating of project artifacts), change, and requirements management. The first thing you need to do is figure out how you will plan, execute, and control for each knowledge area. This will guide the rest of your planning efforts.
- The project manager and team perform a detailed analysis of whether the objectives in the project charter and the expected business benefits can be achieved. They determine what processes are appropriate for the needs of the project and tailor processes to those needs.
- Notice the phrase “Determine team charter and all roles and responsibilities.” Determining roles and responsibilities involves determining who is going to do which product-related work activities but also who will provide reports, attend meetings, help with risk identification, work with the quality department, etc. Roles and responsibilities may be documented as part of the resource management plan, in project job descriptions, or in the management plans for each area. This item may also include developing a responsibility assignment matrix (RAM) and a rewards and recognition system.
- Some projects may be organized by phases where detailed planning for the next phase is started as the previous phase nears completion. In agile planning only the first part of the project may be fully planned, while the later portions are planned at a high level and then progressively elaborated when more is information about the project becomes available.
- Remember when we said project management seems linear but is dynamic? The Planning column has a reminder that planning is the only process group with a set order. However, a planning process may require an input that isn’t available yet. The risk register, for example, is an input to several processes leading to the creation of the schedule. Initial risks are documented in the charter, so although the risk register will by no means be complete when the schedule is created, known risks can be factored into planning. Then, after performing risk management activities, the more complete risk register can be used to refine the schedule.
- Look at the phrase “Go back—iterations.” This is an important concept. Planning is iterative. When planning a project, the project manager and the team complete each item listed above this point to the best of their ability. But even a plan-driven project will evolve as the project progresses and earlier planning work is then modified. For example, it is only after completing risk management planning that the WBS and the other items can be finalized. A risk response strategy may be used to avoid a portion or all of a threat (see the “Risks and Issues” chapter). This will require adjusting the WBS for added scope (the risk response plans), the network diagram to redetermine the order of the work, the budget for added cost, and so on. The project manager might also work with discretionary dependencies to change the network diagram and thereby decrease some risk (see the “Schedule” chapter).
- Notice the term “procurement strategy and documents” in the Planning column. Also note the placement of “Finalize procurement strategy and documents” after “Go back—iterations.” The risk management process may generate risk response strategies involving contracts; through iterations the procurement documents can be created, refined, and finalized.

- The important thing to remember is that planning should lead to a realistic, bought-into, approved, and formal project management plan that is updated throughout the project to reflect approved changes.
- The distinction between predictive and adaptive approaches is worth thinking about here. The *Process Groups: A Practice Guide* planning processes describe all the traditional activities performed to define the total scope and courses of action for a project. It assumes that with sufficient analysis these are knowable, and development is then largely the execution of this course of action. Progressive elaboration and rolling wave planning are effective mechanisms to tune plans to emerging details, and they act as accepted adjustments to detailed initial planning.
- Although the project management plan is “finalized” in planning, items such as detailed estimates and product and project scope descriptions may be modified as the work is being done during the executing and monitoring and controlling processes.
- The project management plan and documents (also known as project artifacts) resulting from planning guide the execution and control of the project. After the plan is iterated and includes the appropriate detail for the project life cycle and development approach, the sponsor approves it.

Rolling wave planning and progressive elaboration exist within the predictive framework of project management as supporting elements. Agile planning is deliberately more incremental and iterates to discover and refine scope, making progressive elaboration a central rather than a supporting element.