

## Section VI

### *Pulling It All Together*

This section covers three very different but important topics. Here, we provide some important tips and tricks for passing the PMP® exam on your first try. While these tips have evolved over the years, Rita Mulcahy provided them based on her vast knowledge of the exam experience and they have helped thousands of our students ever since. We recommend that you revisit these tips the day before your exam because the information they provide is invaluable.

This section will also give you a deeper dive into agile methodologies. Knowing the principles behind agile will help you understand it better.

Finally, we give you more information about PMI's *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*. This important reference has gone through a transformation in the past few years and here we take a closer look at the current *PMBOK® Guide*.

# 1 Tips for Passing the PMP® Exam the First Time

## QUICKTEST

- Planning, predictive vs adaptive
- Contexts for formulas
- Tips for exam preparation
- Preparing for the exam environment

## Introduction

This chapter serves as a review of some of the key things you need to understand as you prepare for the exam. Now that you've studied each topic individually, let's put your knowledge and understanding all together. Rita's Process Chart™ and Rita's Agile Process Chart™ can help you connect the concepts found in this book. By now, you should understand the overall project management process, including all the efforts involved in it. You should also know the commonly occurring terms and concepts covered in the "Foundations" chapter. Understanding these terms and concepts will help you understand how each of these things relate to the overall project management process.

As you work through this chapter, take this as an opportunity to find remaining gaps in your knowledge so you can review content related to your gaps and are prepared to pass the exam on your first try.

## Review of Core Concepts

Over the next several pages, we review some of the frequently occurring terms and concepts you need to understand for the exam. This section reviews planning, working, and delivery concepts and artifacts. There is also a section on formulas and calculations, tips for preparing for the exam itself and for the exam environment, common project management errors and pitfalls, and several exercises to give you more interaction with the material.

## Planning, Working, Measuring, and Delivering

Planning is a key step in addressing the areas of requirements and scope, schedule, cost, quality, resource, communications, risk, procurement, and stakeholders, as well as plans for configuration management (or artifact version control), and change management. It is a crucial part of a project manager's job in a predictive environment.

These areas of planning occur within agile and hybrid environments but may be less formal or take different forms. Planning addresses the majority of questions and concerns that might come up throughout the life of a project, and it allows the project manager and team to spend more of their time completing the work of the project and less time dealing with issues and problems.

Review some of the forms that planning and artifacts take in predictive and adaptive environments:

Predictive Environment Plans and Artifacts	Adaptive Environment Plans and Artifacts
<ul style="list-style-type: none"> <li>• Project management plan (a plan for scope, schedule, cost, quality and other constraints as well as other important project management aspects like communications and stakeholder relationships)</li> <li>• Assumption log, change and issue logs, stakeholder and risk registers, lessons learned</li> <li>• Project life cycle and development approach, tailored to the project</li> <li>• Requirements documentation</li> <li>• Scope, schedule, and cost baselines (the performance measurement baseline—part of the project management plan)</li> <li>• Reporting templates and reports: Risk reports, EVM (earned value measurement), forecasts, quality reports</li> <li>• Project and team charters</li> <li>• Procurement statement(s) of work</li> <li>• Agreements and contracts</li> <li>• Quality control metrics</li> <li>• Assumptions and constraints analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Release map, release plan, iteration plan, product roadmap</li> <li>• Product and project backlogs (risk-adjusted backlog)</li> <li>• Features, stories, definition of done</li> <li>• Personas</li> <li>• Meetings: Release planning, iteration planning, iteration review, iteration retrospective</li> <li>• Information radiators: e.g., product roadmap, Kanban board</li> <li>• Value stream mapping</li> <li>• Burnup charts, burndown charts, team velocity</li> <li>• Reprioritizing the backlog</li> <li>• Negotiating change; expecting frequent change</li> <li>• Negotiating scope while keeping schedule and cost fixed</li> </ul>

## 16.1 Exercise

Here is a way to get more familiar with the project management processes from the Process Groups model perspective. In your Exercise Notebook, draw a chart with a header as shown here. For each process listed, fill in the appropriate information in each column. Do not worry if you do not get it perfectly correct. It is in the practice that you will be better at understanding these components on their own, and holistically.

Project Management Process	Process Group	What Does It Include?	What Process Comes Before?	What Process Comes After?
Define Activities				
Plan Procurement Management				
Monitor and Control Project Work				
Sequence Activities				
Collect Requirements				
Direct and Manage Project Work				
Develop Project Management Plan				
Develop Schedule				
Validate Scope				
Perform Qualitative Risk Analysis				
Identify Stakeholders				
Conduct Procurements				
Define Scope				
Perform Integrated Change Control				

## Answer

The answers to this exercise provide a description and the associated actions to the given process. These descriptions align with the required interpersonal skills as well as the project management and technical activity needed.

Project Management Process	Process Group	What Does It Include?	What Process Comes Before?	What Process Comes After?
Define Activities	Planning	Creating an activity list from each work package	Plan Schedule Management	Sequence Activities
Plan Procurement Management	Planning	Creating the procurement statements of work, bid documents, and the procurement management plan	None	Conduct Procurements
Monitor and Control Project Work	Monitoring and controlling	Measuring and analyzing performance against the project management plan and baselines	Manage Project Knowledge	Perform Integrated Change Control

## Tips for Passing the PMP® Exam the First Time

S I X T E E N

Sequence Activities	Planning	Creating a network diagram	Define Activities	Estimate Activity Durations
Collect Requirements	Planning	Documenting detailed requirements and creating the requirements traceability matrix	Plan Scope Management	Define Scope
Direct and Manage Project Work	Executing	Facilitating and producing work according to the project management plan	Develop Project Management Plan	Manage Project Knowledge
Develop Project Management Plan	Planning	Integrating all the individual management plans and baselines, and creating a project management plan that is bought into, approved, realistic, and formal	Develop Project Charter	Direct and Manage Project Work
Develop Schedule	Planning	Creating a bought into, approved, realistic, and formal schedule and schedule baseline	Estimate Activity Durations	Control Schedule
Validate Scope	Monitoring and controlling	Meeting with the customer to gain formal acceptance of interim deliverables	Create WBS	Control Scope
Perform Qualitative Risk Analysis	Planning	Analyzing the probability and impact of potential risks to determine which risks might warrant a response or further analysis	Identify Risks	Perform Quantitative Risk Analysis (don't forget, however, that some projects, or individual project risks, may skip this process and go straight to Plan Risk Responses)
Identify Stakeholders	Initiating	Identifying, documenting, and analyzing information about stakeholders on the project	None	Plan Stakeholder Engagement
Conduct Procurements	Executing	Selecting a seller and obtaining a signed contract	Plan Procurement Management	Control Procurements
Define Scope	Planning	Creating the project scope statement	Collect Requirements	Create WBS
Perform Integrated Change Control	Monitoring and controlling	Evaluating the impact of requested changes to the project and approving or rejecting change requests	Monitor and Control Project Work	Close Project or Phase

## 16.2 Exercise

If you found this exercise helpful, you may want to continue to test yourself on other processes not listed here, and review your answers against the process descriptions in this book. In this exercise for plan-driven projects, read each scenario and write down what process you are in when you are doing the activity.

### Scenario

1. When meeting with the customer to obtain acceptance of interim deliverables
2. When measuring project performance against the performance measurement baseline
3. When making sure people are using the correct processes
4. When evaluating whether performance reports are meeting stakeholders' needs
5. When working with the project team
6. When assessing stakeholder relationships
7. When you notice that there are many unidentified risks occurring
8. When evaluating a seller's performance
9. When evaluating team members' performance
10. When making sure deliverables meet quality standards
11. When communicating with stakeholders to resolve issues and manage their perceptions about the project

## Answer

### Processes Being Described (on Plan-driven projects)

1. Validate Scope
2. Control Scope, Control Schedule, Control Costs
3. Manage Quality
4. Monitor Communications
5. Manage Team
6. Monitor Stakeholder Engagement
7. Monitor Risks
8. Control Procurements
9. Manage Team
10. Control Quality
11. Manage Stakeholder Engagement

## 16.3 Exercise

Now let's switch it up for agile. For agile projects, read each scenario and write down what activity you are engaged in for the given scenario, or what tools or methods you would use to perform the activity. A variety of activities may fit the description for any one scenario.

### Scenario

1. When meeting with the customer to obtain acceptance of interim deliverables (from the iteration)
2. When performance is measured against the performance metrics
3. When making sure people are using the correct processes and how do they do it
4. When and where teams evaluate whether project performance is meeting stakeholders' needs
5. When working with the project team; helping the team
6. When assessing and ensuring good stakeholder relationships
7. When there are unidentified risks occurring (What to do?)
8. When evaluating a seller's performance
9. When evaluating and helping improve team members' performance
10. When making sure deliverables meet quality standards
11. When communicating with stakeholders to resolve issues and manage their perceptions about the project

## Answer

### Processes Being Described (on Plan-driven projects)

1. Product owner works with stakeholders to prioritize backlog items; iteration (or Sprint) review meeting
2. Average team velocity, burnup charts, burndown charts; retrospectives where team reflects on their own performance
3. The project manager (agile coach, team lead, Scrum Master) uses servant leadership to help the self-organized team to refine and follow their agreed-upon processes
4. Iteration review (Sprint review); communication on a daily basis with the product owner (customer); retrospective; face-to-face communication
5. Servant leadership; ensure teams are adequately trained; remove impediments
6. Face-to-face and other communication methods; product owner (customer representative) as integral team member; continuous delivery of value; iteration review meeting
7. Re-evaluate risk frequently; reprioritize the risk-adjusted backlog
8. Agile contract; control procurements; iteration reviews
9. Servant leadership; ensure adequate training; remove impediments; team retrospectives
10. Team organizes their own work; team controls quality, works with product owner; team checks their own work; avoid errors and ensure better design through paired programming
11. Working with product owner to assure stakeholder priorities are considered; ensure a common understanding; manage stakeholder engagement



## The Significance of Quantitative Measures on the Exam

The exam will not include a lot of questions requiring you to perform calculations. However, it is important to understand the contexts in which formulas are used in project management.



**Think About It.** There are few formula questions on the exam. You must choose whether or not to memorize all or some of these formulas for the few exam questions you may see that use calculations. Regardless, you should use figure 16.1 to review the chapters in this book in which the formulas appear. Knowing the contexts in which the formulas are used will help you get questions right. For instance, even if you are not asked to calculate SPI (schedule performance index) or CPI (cost performance index), or to calculate EMV (expected monetary value of a risk), you should know the answer. Here are two example questions to try.

**Example 1** The project manager is working for a pharmaceuticals company that is very cost conscious and is only slightly more flexible on schedule. The project manager prepares a monthly report and notices that the SPI is 1.3 and the CPI is .89. What should the project manager do?

Even before you look at the answer choices, you should know what these numbers mean for the project. Here is a possible multiple-choice answer set:

- A. Prepare options for getting the schedule in control.
- B. Nothing; schedule and cost are both under control.
- C. Prepare options for getting the schedule and cost in control.
- D. Prepare options for getting cost in control.

**Example 2** The project manager and team are analyzing new risks on a multimillion-dollar construction project. There are no safety issues involved. Which risk has the highest priority? Risk Z is that a supply item will be late, has an EMV of \$4500, and the least expensive contingency plan will cost \$4600. Risk X is that an activity along the critical path may finish early and the EMV for it is \$38,000. Risk Y is that an activity will be late, has an EMV of \$770, and the least expensive response will cost \$650. Risk W is that an activity will finish early, the EMV is \$2200 and it is not along the critical path.

- A. Risks Z and X have equal priority
- B. Risk W has the highest priority
- C. Risk X has the highest priority
- D. Risk Z has the highest priority

### Answers:

**Example 1** The answer is D. **Explanation:** For an SPI or a CPI, you should know that greater than one is good and less than one is bad. So you can see from these numbers that we are ahead of schedule (1.3 is greater than one) but over budget (.89 is less than one). This fact eliminates the other options.

**Example 2** The answer is C. **Explanation:** If we can finish an activity early along the critical path and save \$38,000, we should prioritize this contingency plan. Why? Risk Z has a least expensive contingency option with a slightly greater cost than the EMV if the risk were to occur. We can leave that contingency plan in place but there's not much more we can do there. Risk Y would not be a priority on a multimillion-dollar project, especially with so little difference between EMV of the risk and the contingency plan cost. Risk W would be good to do if we could save \$2000, but it is not worth much savings and is not along the critical path so would not have the highest priority.



## Formulas to Understand for the Exam

Name	Formula	PMP® Exam Prep Chapter Reference
Present value (PV)	$\frac{FV}{(1 + r)^n}$	Project Management Foundations
Expected activity duration (triangular distribution)*	$\frac{P + M + O}{3}$	Schedule
Expected activity duration (beta distribution)*	$\frac{P + 4M + O}{6}$	Schedule
Total float	LS – ES or LF – EF	Schedule
Cost variance (CV)	EV – AC	Budget and Resources
Schedule variance (SV)	EV – PV	Budget and Resources
Cost performance index (CPI)	$\frac{EV}{AC}$	Budget and Resources
Schedule performance index (SPI)	$\frac{EV}{PV}$	Budget and Resources
Estimate at completion (EAC)	AC + Bottom-up ETC	Budget and Resources
Estimate at completion (EAC)	$\frac{BAC}{CPI^c}$	Budget and Resources
Estimate at completion (EAC)	AC + (BAC – EV)	Budget and Resources
Estimate at completion (EAC)	$AC + \frac{(BAC - EV)}{(CPI^c \times SPI^c)}$	Budget and Resources
To-complete performance index (TCPI)	$\frac{(BAC - EV)}{(BAC - AC)}$	Budget and Resources
Estimate to complete (ETC)	EAC – AC	Budget and Resources
Variance at completion (VAC)	BAC – EAC	Budget and Resources
Communication channels	$\frac{n(n - 1)}{2}$	Communications
Expected monetary value (EMV—Cost)	P × I	Risks and Issues
Expected value (EV—Schedule)	P × I	Risks and Issues

\*Remember that these formulas can be used for costs as well as activity durations.

**FIGURE 16.1** Formulas that may appear on the exam

If you decide you want additional practice with earned value measurement (EVM) concepts and formulas, return to the Earned Value Management section of the “Budget and Resources” chapter. You could do the Fence exercise again to help you feel more comfortable with the concepts. Also remember that we have additional exercise on EVM as well as on other topics, on the RMC Resources page.



RMC RESOURCES

## More Tips for Exam Preparation

Many people fail the exam because they do not properly prepare. You can avoid that mistake. Read the following tips slowly, and honestly assess how each item applies to you:

- ☐ Know the material thoroughly, but do not approach the exam assuming it tests facts that you must memorize. The exam also tests application and analysis. Be prepared to apply the concepts and methods in a variety of scenarios, including how they work in combination with each other.
- ☐ Have real-world experience using the major project management methods. Try to gain experience with methods with which you have gaps. Where gaps remain in your experience (we all have them), practice making the methods a reality for you by applying them and creating the associated artifacts using a case study from your job or the library case study used in this book.
- ☐ Make sure you can quickly visualize how tools and processes would be used on a project. Practice visualization especially with tools and methods you were most unfamiliar with when you started this course of study. This visualization will help you prepare for situational questions on the exam.
- ☐ When answering predictive questions on the exam, think in terms of large projects. This will help you remember the importance of processes and methods that you may not be using in your real-world project management. It is easier to scale down than to scale up.
- ☐ When answering adaptive questions on the exam, remember that scope is evolving as project work takes place and that change is common.
- ☐ When answering hybrid questions on the exam, look for clues as to whether the specific answer requires methods from an adaptive or predictive approach. Hybrid projects use both.
- ☐ Understand the areas that PMI emphasizes (PMI-isms, explained in chapter 1 and in the “Quality of Deliverables and Products” chapter).
- ☐ Be familiar with the types of questions you can expect on the exam, but do not be alarmed if you see new types of questions when you take the exam.
- ☐ Be prepared to see situations on the exam that may be ambiguous or wordy. Practice interpreting these types of questions using RMC Chapter Quizzes or FASTrack® (if you have it). Practice using analysis to select the best answer from what appears to be two or more “right” answers.
- ☐ Deal with stress before you take the exam. If you are a nervous test taker, using PM FASTrack® can give you an opportunity to practice stress control.
- ☐ Plan and use a strategy for taking the exam. This may mean you will take a mental break after every 50 questions, or that you will answer all exam questions as quickly as possible and then take a break before you review, and potentially adjust, your answers.
- ☐ Expect that there will be questions you cannot answer or even understand. This happens to everyone. Be prepared so you do not get anxious or doubt your abilities during the exam.
- ☐ If you go to an exam testing site, do not expect it to be quiet. Use FASTrack® to practice answering questions in an environment that is not 100 percent quiet.
- ☐ If you take an online proctored exam, make sure you have a testing area that is free of interruptions (including pets). Set up your space so that it is comfortable, but make sure you carefully read the instructions PMI sends regarding taking the online exam. Don’t let taking the exam in your home or office become an additional stressor.
- ☐ Do not overstudy. You cannot get an A on this exam. Getting completely comfortable with all the material in this book is just not possible. It is not worth studying for hundreds of hours. It is a waste of time and will not guarantee you’ll pass the exam.
- ☐ Do not study the night before you are scheduled to take the exam. Instead, do something relaxing and get extra sleep. You want to be fresh and well rested.

## Preparing for the Exam Environment

This book has presented what you should do and know before you take the exam. Now, let's prepare you for the big day. The following are some tips for taking—and passing—the exam (at a testing center).

1. You must bring your **authorization** email from PMI to the test site, as well as **two forms of ID** with exactly the same name you entered on the exam application.
2. Make sure you are comfortable during the exam. Wear layered clothing so you can remove outer layers if you become too warm. (Note, however, that you may encounter specific requirements regarding removed clothing while taking the exam.)
3. **Have something to eat or drink** available in case you need either during the exam. You will not be able to access these items while taking the exam but you will be able to take a break, and you may be thirsty or hungry and you'll want to get rid of that distraction.
4. You will be given **something on which to make notes** during the exam. This may be something physical, such as paper and a pencil or a small white board, or it may be electronic. (Note: If you are taking the online exam, you will not be allowed to have a physical white board or paper and pencil. You will have access to the electronic white board.)
5. After you start your exam, consider taking no more than five to seven minutes of your test time to create your **"download sheet,"** which is where you write down anything you have trouble remembering. It will free up your mind to handle exam questions once the information you are most concerned about is written down.
6. You will likely have one or two technology and/or computer **tutorials** (general testing tutorial and PMP test-specific) to complete prior to the start of the exam. This will help you become familiar with the computer-based test functionality. You need to start and complete those tutorials within their allotted time. Then you can start your four-hour exam.
7. You will have access to a **calculator** during the exam. The computer will have a calculator function and the tutorial will show you how to use it.
8. **The exam does not adapt to your answers.** This means 180 questions are selected when your exam starts, and those 180 questions will not change.
9. Use **deep-breathing techniques** to help you **relax and focus**. This is particularly helpful if you are very nervous before or during the exam and when you notice yourself reading the same question two or three times. Breathing techniques can be as simple as breathing deeply five times, to provide more oxygen to your brain. Many people also find it helpful to close their eyes when they do this.
10. **Smile** when taking the exam. This may sound hard to do when you are stressed and taking an exam for four hours, but studies show that smiling relieves stress and makes you feel more confident.
11. **Use all the exam time.** Do not submit your exam early unless you have reviewed every question you skipped or marked for review.
12. Everyone has their own unique **test-taking quirks and style**. When you work through the exam simulation in PM FASTrack®, pay attention to your quirks. You may have to create a plan to work through any that may negatively impact you while taking the exam.
13. **Control the exam; do not let it control you.** How would you feel if you read the first question and didn't know the answer? And then the same thing happened after you read the second and third questions as well? This may happen because your level of stress is not allowing you to think. So what do you do? If you do not immediately know the answer to a question, leave it blank, or use the Mark for Review function and come back to it later.
14. **Control frustration and maintain focus on each question.** You might dislike or disagree with some of the questions on this exam. You might also be surprised at how many questions you mark for review. Make sure you stay focused on the current question. If you are still thinking about question 20 when you reach question 120, there will have been 100 questions not given your full attention.

15. Answer each question using your knowledge of project management good practices. **Be prepared to separate your experience from PMI's perspective** (which often matches "textbook" practices more than real-life). Many people who fail the exam try to answer questions from their real-world experience. Your experience will help you but don't forget to rely on your training.
16. First, **identify the actual question in the words provided** (it is often the last sentence), and then read the rest of the text. Note the topics discussed in the question and in the descriptors. This should help you understand what the question is asking.
17. Carefully consider each answer choice listed and choose the **best** one of the choices given. Don't read too much into the answers. We often make mistakes when we make automatic assumptions because as adults our experience leads to assumptions. Take the questions and answer choices literally.
18. Do not make this mistake. One common reason people answer questions incorrectly is they do not **read all four answer choices**. Make sure you **read each question and all four choices**. This will help you select the best answer. If you find yourself forgetting to read all answer options, start reading the choices backwards (choice D first, then C, etc.).
19. There may be **more than one seemingly correct answer** to each question. But there will only be one **"best"** answer. Make sure you are looking for the best answer.
20. There will be answer choices that are meant to distract you from the correct answer. They present more than one plausible choice. Such choices make it appear as though some questions have two or more right answers. It often seems there are only shades of difference between the choices. As noted earlier, make sure you look for the **best answer**, and think about the situation in terms of project management good practices.
21. Be aware that questions may also include **irrelevant information**.
22. Look for words and phrases such as "still," "yet," "first," "last," "next," "except," "not," "most likely," "less likely," "primary," "initial," and "most." Make certain you **clearly read the question** and **take note** of these words so you will answer the question correctly.
23. Watch for choices that are **true statements but do not answer the question**.
24. Watch for choices that contain **common project management errors**. They are intentionally there to determine if you really know project management. You can combat this by looking for errors in your knowledge and correcting those errors as you go through this book and work with RMC Chapter Quizzes and/or FASTrack®. (See the "Common Project Management Errors and Pitfalls" section in this chapter.)
25. Options that represent broad, **sweeping generalizations tend to be incorrect**, so be alert for words such as "always," "never," "must," "completely," "all," and so forth. Alternatively, choices that represent **carefully qualified statements tend to be correct**, so be alert for words such as "often," "sometimes," "perhaps," "may," and "generally."
26. You may see some **poorly worded or grammatically incorrect** questions or answer choices on the exam; don't let this distract you.
27. Look for **answers that support the value of project management and that proper project management has been done** unless evidence in the question tells you otherwise.

The exam will not be scored until you indicate you are ready, or after four hours have passed. You will also be asked if you are certain you want to score your exam after you submit it. You will receive a summary of your test results. If you do not pass, PMI will send you information on retaking the exam. You will have to pay an additional fee to retake the exam.



## TRICKS OF THE TRADE

Are you ready for some very important tricks to keep in mind when you take the exam? Pay careful attention:

- Recognize that “rules” (what we think should be best) are meant to be broken. Rules, such as what to do when there is a conflict, can change depending on the situation. This drives some people crazy—especially those who expect the exam to just test facts. You need to be able to read and understand the situations on the exam and then be able to figure out the best thing to do in that situation.
- Unless stated otherwise, assume proper project management was done. If you answer a question thinking about real-world projects that do not use proper project management, you might miss the correct answer. If the question makes it clear that proper project management has not been done, you’ll likely need to think about what is missing, how to solve the root cause of the problem, and how to make sure proper project management is carried out going forward on the project.
- For each question notice which part of the project the scenario is occurring in. If the situation described is taking place in planning, your answer may be different than if it was occurring during executing.
- Be prepared for questions with multiple problems. A question may describe a situation with various problems and ask you to determine which one to address first. Here is an example:

*Two stakeholders are disagreeing via a series of emails as to whether a deliverable meets the acceptance criteria. The cost-benefit analysis done in planning did not support delivering a higher level of performance, and the stakeholders agreed. A team member has just informed you that a problem with his work has occurred. The deliverable he is working on must be shipped today or there will be a project breach. One of the stakeholders having the email disagreement comes to you to complain about the other. What should you do?*

The following tips will help you focus on the most important problem in order to select the best answer. It is important to note that all these tips will not apply all the time, and they do not have an order of importance.

- Determine the immediate problem to address.
- Deal with the root cause first.
- Deal with the problem with the greatest negative impact first.
- Solve the problem that occurred the earliest.
- Look for a proactive solution.

## Common Project Management Errors and Pitfalls

As mentioned at other points in this book, the exam often includes common errors in project management as possible answers. Read the following summary of some of the major errors even highly experienced project managers make, and make sure you understand why these are errors.

Common project management errors include the following:

- Focusing primarily for activity status on percent complete
- Holding “go around the room” status meetings
- Spending most of your time micromanaging team members by constantly checking on them
- Asking team members to cut 10 percent off their estimates
- Thinking a bar (Gantt) chart from scheduling software is a project management plan
- Not attempting to obtain finalized requirements
- Not getting real resource commitments
- Not having a rewards and recognition system
- Not focusing on quality
- Not having a change control system
- Not having management plans (in a predictive environment)

- Not measuring against the project management plan (in a predictive environment)
- Not creating metrics to measure and evaluate performance
- Not spending time finding and eliminating root causes of problems or deviations
- Not implementing corrective actions to keep the project in line with the project management plan
- Not reevaluating the effectiveness of the project management plan
- Not reevaluating the accuracy or completeness of scope, schedule, or cost
- Not keeping the project management plan and project documents updated to reflect changes and revised information about the project
- Ignoring resource managers' responsibilities to manage ongoing business operations in addition to responding to project needs (team and physical resources)
- Not realizing the project can affect the reputation of team members
- Not realizing the project manager has resource responsibilities; these can include responsibilities to the project team (such as creating project job descriptions, evaluating individual and team performance on the project, and adding letters of recommendation to team members' human resource files) as well as responsibilities related to physical resources
- Blaming unrealistic schedules on management instead of realizing that developing a realistic schedule is the project manager's responsibility

## A Day-in-the-Life

The following exercise provides one last opportunity to test yourself to see if you really understand what a project manager does.

### 16.4 Exercise

Many people do not practice the breadth of project management practices described in the ECO and other PMI references on their real-world projects. This exercise is designed to help you uncover what you might be doing that represent differences between your real-world experience and project management practices from the PMI perspective.

In your Exercise Notebook, list which activities a project manager should spend the most time doing, on average during a typical day, and what they should spend the least amount of time doing. This would be after planning is complete (to the degree needed for the current phase, iteration, etc.) and the team is working on building the product.



## Answer

There are a number of ways this question can be answered correctly. Let's review some of the items that should not be taking up most of your time, and what should typically be included during the course of a day. Think through the items listed here and identify whether you have any misconceptions about what you should be doing as a project manager. If you do, clarify and fix these misconceptions before you take the exam.

### How you should NOT be spending most of your time

- Dealing with problems and unexpected changes (rather than preventing them and having risk contingency plans)
- Schedule and other items related to schedule management
- Meetings
- Micromanaging
- Completing work activities
- Dealing with problems that arise from unhappy stakeholders
- Clearing up communications issues
- Managing team member conflict that they could manage on their own

### What should typically be included in your day

- Using artifacts like a WBS or product backlog, and a project management plan
- Measuring and evaluating
- Being of service to the team
- Removing impediments to team progress
- Recommending and taking corrective and preventive actions
- Implementing risk responses or communicating with risk owners about them
- Coaching, mentoring, and team building
- Continually communicating the vision with the team and stakeholders
- Communicating and using active listening
- Managing by exception to the plan
- Interacting with stakeholders to maintain and improve stakeholder engagement
- Looking for possible changes

# 17 Common Agile Methodologies

## QUICKTEST

- Lean
- Kanban
- Scrum
  - Scrum and agile terms
- Product backlog
- Project backlog
- Sprint backlog
- Daily Scrum
- XP
- Spike
- Architectural spike
- Crystal
- DSDM
- SAFe®
- FDD
- Agile values

## Introduction

We have discussed agile practices throughout this book. In this chapter, we will look closer at the foundation for agile through the Agile Manifesto and examine some of the different methodologies. These methodologies include:

- Lean
- Kanban
- Scrum
- XP (eXtreme Programming)
- Crystal Family of Methodologies
- DSDM (Dynamic System Development Method)
- FDD (Feature Driven Development)
- SAFe® (Scaled Agile Framework)

Although agile seems new to many people, it actually has been around a long time, and the ideas used by agile practices are certainly not new. What we call “agile” is a compilation of practices people have experimented with and then taken what has worked. This collection of good practices has become systematic.

Practitioners often use the terms agile and adaptive interchangeably. In reality, agile is a practice and adaptive is a more general term. To review, in adaptive environments scope cannot sufficiently be defined at the beginning of a project and will remain largely unstable throughout the project. Scope is emerging.

Before continuing, review the following sections of the “PMP® Exam References in Context” chapter:

- **Agile Process Overview**
- **Rita’s Agile Process Chart™ Game** You should have played this game once when you first read that chapter. It is a good time to play this game again for review.

## Overview

Following are the common agile methodologies that have given agile practitioners a set of practices to combine and customize, depending on the needs of the organization, its products and projects, its teams, and its stakeholders. We discuss Lean and Kanban first since they are not agile methodologies. Instead, both Lean and Kanban are independent methodologies (originally related to manufacturing) from which agile has integrated many ideas.

As you read you will also find a bias toward software development. This is because it was among software developers that various methodologies were synthesized and the agile philosophy was organized and spread. If you are not in the software development field, think about how these methods can be applied in your organization. As we have mentioned before in this book, agile methods are now used with a variety of projects that are a good fit for an adaptive development approach.

The last sections of this chapter describe the common agile influences and agile philosophy, also known as agile’s four values and twelve principles (found at [agilemanifesto.org](http://agilemanifesto.org)).

## Lean

Lean product development is an approach that has its history in manufacturing but has been adapted over time to many areas of business, including agile project management. For the exam know that agile methods ascribe to Lean principles.

Here are the fundamentals of Lean's seven principles:

- **Eliminate waste** Examples of waste in product development include wait time (and motion, or the time required to take action), incomplete work, extra processes or features, task switching, and defects. A helpful Lean tool for eliminating waste concerns the value chain and value stream mapping. As discussed in the "Compliance and Delivering Value" chapter, value stream mapping maps out and analyzes all steps in a product (build and) delivery process to see where the team can eliminate waste.
- **Amplify learning** Examples of this Lean principle show up in agile's constant feedback loop facilitated by iterative planning (e.g., product visioning, release and iteration planning). The daily standup meeting, iteration reviews, and retrospectives are additional examples of built-in opportunities to amplify learning.
- **Decide as late as possible** Since in adaptive environments so much information is not available at the beginning of a project, agile teams make decisions about each next stage or each next iteration (or sprint). However, in contrast to predictive environments where there is "big planning up front" and many decisions are made early, agile teams defer decisions about anything beyond the next stage (be it the release plan, the iteration plan, etc.) to the "last responsible moment."
- **Deliver as fast as possible** The iterative and incremental delivery of agile means that teams are delivering value continually and as quickly as possible. This is a Lean concept and all agile methodologies use it.  
*Example* While doing value stream mapping, if the team uncovers a process that is no longer needed, it can be eliminated immediately.
- **Empower the team** Built into agile—and into the ECO—are the principles of using people skills, trusting in team members' skills, providing training where needed, and trusting the team to make the decisions about their own work.  
*Examples* A belief in employee self-determination and an understanding of how motivation enables good servant leadership for empowering the team.
- **Build integrity in** This refers to product integrity, which includes not only a product that works well for its intended use but is also easily usable by the customer.  
*Example* Agile teams use *personas* to make customers real people in their minds. For example, if they are building an online movie rental site, personas allow them to ask: "Is this going to be quick and easy for 'Harried Henry' to use?" These kinds of questions can lead the team to remove suboptimal usability factors from the product, streamlining it for the end user.
- **See the whole** Do you remember when we discussed systems thinking? Look to the "Compliance and Delivering Value" chapter to review this information as needed. Think about a product as a system with interacting parts that are also interdependent. You must think holistically about the product, and agile teams are encouraged to do this with this principle, as with others related to systems thinking.



**Think about it.** Do you ever find yourself doing something while thinking "This is a waste of my time"? Do you think about how you could streamline the process or eliminate it? If so, you are thinking Lean.

## Kanban

Derived from Lean, Kanban is a Japanese word meaning "signboard" (think sidewalk signs outside cafés advertising the daily specials). There are two things you need to know about Kanban for the exam. First, a Kanban board is an information radiator, or highly visible and graphic display of project information. In agile, Kanban boards were meant to be low-tech and high-touch. They were created with sticky notes on white boards or flip charts. Now, there are many electronic tools that allow teams to share Kanban boards collaboratively from dispersed locations.

In the Communications chapter, we showed the following example of a Kanban board:

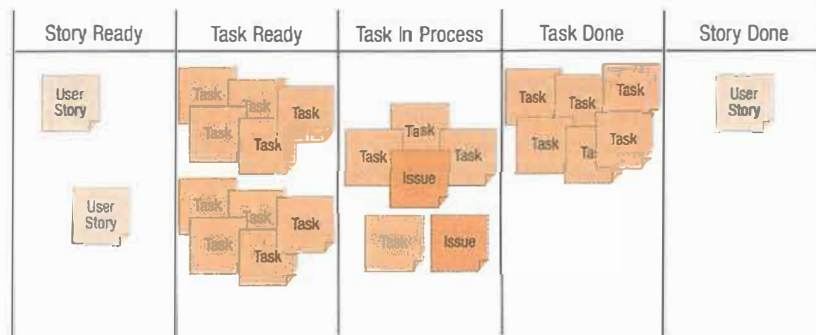


FIGURE 17.1 Kanban board

The second thing to know about Kanban for the exam is that there are five core principles. Looking at figure 17.1, can you see how the Kanban board supports the first three principles listed below?

Kanban's five core principles are:

- **Visualize the workflow** The team and any other project stakeholder can see the status of tasks in progress, at any time.
- **Limit WIP (work in progress)** Iteration backlogs are an example of limiting work in progress. On a Kanban board, tasks are coded or colored for the person responsible for completing them. In the example given in figure 17.1, a new task will not be added to the Task in Process column for a team member until their current task moves to the Task Done column.
- **Manage flow** By doing the first two principles and by focusing on the unfinished task before another task is added, the project manager is managing flow.
- **Make process policies explicit** The entire team must know the entire product and process at least at a high-level and not just the component they are building. This way they can understand their own contribution holistically and practice systems thinking.
- **Improve collaboratively** Collaborative work and continuous improvement are critical for agile teams. Improving collaboration is encouraged in Kanban and facilitated by the Kanban board as an information radiator that is discussed regularly among the team.



**Think About It.** Look again at the Kanban board example in figure 17.1. Can you see why Kanban, if used as a product development method, is called a *pull system*?

- A team member pulls a task from Task in Process and moves it into Task Done when it is completed.
- Only then will they pull a task from the Task Ready column and move it into Task in Process.
- Limiting how many stories (which are broken into tasks) go into the Story Ready column helps control flow and limits work in progress.
- This distinguishes Kanban from other agile methods that use iteration cycles to control work in progress.

Note: *Importantly*, there is a difference between agile methodologies that use Kanban ideas and Kanban as a methodology. Kanban is a distinct methodology and can be used to manage a project. Kanban as a methodology doesn't require iterations. However, *Kanban boards* (i.e., signboards) are used in many agile methodologies that are not using the previously described pull system. Kanban boards are often, in fact, used in combination with iteration cycles.

## Scrum

Scrum started with software developers and has the distinction of being the most well-known and popular agile methodology, and is therefore the most influential for many agile teams. Many people use agile and Scrum terms interchangeably. In fact, on the exam, in agile and hybrid questions, you are likely to sometimes see Scrum terms used interchangeably with so-called generic agile terms. For example, many people recognize “iteration” as a generic agile term (even though it came from XP) but if they hear the term “sprint” they think specifically of Scrum. The terms mean the same thing—a time-boxed period of building the product—and are used similarly and often interchangeably.

### Scrum and Agile Generic Terms

The below table shows the generic agile terminology and its Scrum equivalent:

Category	Scrum Term	Generic Agile Term
Activities	<ul style="list-style-type: none"> <li>• Sprint</li> <li>• Sprint planning</li> <li>• Daily scrum (ceremony)</li> <li>• Sprint review (ceremony)</li> <li>• Sprint retrospective (ceremony)</li> <li>• Backlog refinement</li> </ul>	<ul style="list-style-type: none"> <li>• Iteration</li> <li>• Iteration planning</li> <li>• Daily standup (meeting)</li> <li>• Iteration review (meeting)</li> <li>• Iteration retrospective (meeting)</li> <li>• Backlog prioritization</li> </ul>
Team Roles	<ul style="list-style-type: none"> <li>• Product owner</li> <li>• Scrum Master</li> <li>• Development team</li> </ul>	<ul style="list-style-type: none"> <li>• Product owner (or customer)</li> <li>• Agile coach, team lead</li> <li>• Development team</li> </ul>
Artifacts	<ul style="list-style-type: none"> <li>• Product backlog</li> <li>• Sprint backlog</li> <li>• Potentially shippable product (increment)</li> </ul>	<ul style="list-style-type: none"> <li>• Product (or project) backlog</li> <li>• Iteration backlog</li> <li>• Minimally viable product (MVP) (increment)</li> </ul>

Note the following about the terms in the table above:

- You can see from the number of analogous terms here that generic agile has borrowed a lot of practices, like the concept of the backlog, from Scrum.
- Generic agile teams may adhere to a custom mixture of these practices, depending upon organizational and PMO governance. Organizations using a generic form of agile may have a customized approach to team training.
- Organizations that have implemented Scrum adhere more strictly to specific Scrum practices and Scrum teams. Scrum teams are likely to have to be trained specifically in Scrum by certified Scrum trainers contracted from outside the organization.
- There are several different backlogs, be careful when reading exam questions.
  - ✓ The *product backlog* represents all the known product scope. Features are continuously added and removed as the customer makes decisions about product scope.
  - ✓ A *project backlog*—if the term is used—refers to all the known product scope that will be built during a particular project.
  - ✓ The terms product backlog and project backlog are not mutually exclusive, and many teams just use the term product backlog. We include the term project backlog in case you encounter it on the exam.
  - ✓ The sprint (or iteration) backlog is the specific increment or increments of product that are currently at the top of the prioritized backlog and are selected for the next (or current) sprint. You may recall from earlier in this book that a project consists of a series of sprints (or iterations) leading up to one or more product releases.



- The product backlog is a perpetual artifact as long as the product's life cycle continues.
- ✓ For new product development the backlog contains the features needed for at least the first product release. It may include enough features for more than one product release in a single project. The scope of a single project (including how many releases) is as always defined and negotiated with the customer or key internal stakeholders (represented by the product owner), depending on the resources available for the project.
- ✓ For ongoing development on an existing product, the backlog is a combination of new features, fixes for defects (bug fixes, for software), and upgrades to existing features.



**Think About It.** Scrum and generic agile terms are commonly used interchangeably in exam questions, so do not be distracted by semantics while taking the exam. If you are well prepared, you will understand a particular question from the context of the given scenario.

## Scrum Core Concepts

The following are considered to be Scrum core concepts:

- **Iterative and incremental development** Scrum practitioners deliver increments of the product, which they build in sprints.
- **Dedicated team** The Scrum team is dedicated to the project and it is stable, meaning the same people stay on the team and projects are brought to them. This contrasts with predictive environments where different teams may be assembled and broken up on a per-project basis.
- **Cross-functional team** Scrum team members are “jacks of all trades, masters of a few.” This means that in contrast to traditional teams where members are specialists in a field or two, a Scrum team member can fill in for another team member as needed. For example, a computer programmer may also do testing.
- **Pillars** The pillars are essential Scrum core concepts. They are transparency, inspection, and adaptation.
  - ✓ **Transparency** This means creating a common understanding among all responsible parties. Creating a project or product vision, a team charter, and a definition of done for a story or a product increment are all examples of transparency.
  - ✓ **Inspection** This is about examination of how the work is going on a regular basis, assessing how the team is progressing, and what may need to change to continuously improve alignment of team performance and project (or product, or iteration) goals.
  - ✓ **Adaptation** This is making changes appropriate to the findings from inspection. Examples of practices facilitating (inspection and) adaptation are the sprint planning, daily scrum, sprint retrospective, and sprint review meetings.



**Think about it.** How often do team members change in your organization? The concept of a dedicated team allows team members to stay together for the long term, learning to work together well and become very productive. Can you see how this would increase the speed at which a team could get work done?

## Daily Scrum

The team's daily scrum is designed to be short, informative, and to keep work moving forward while wasting no time. This meeting is also called the daily standup meeting. All projects can benefit from this type of meeting, at which team members are asked and then answer three questions:

- What have I completed since the last meeting?
- What am I working on today?
- Are there any impediments to progress?



Rules for this meeting are:

- If you have something to report you must attend.
- If you have nothing to report, you shouldn't speak at the meeting.
- Talk is restricted to addressing the three questions.
- If you have identified an impediment, it will be taken up after the meeting by the Scrum Master (or anyone else who may be able to help remove the impediment). It is not to be elaborated during the meeting.

## XP (eXtreme Programming)

XP or eXtreme Programming was one of the early agile (software development) methodologies to gain popularity. From XP we get these terms, already used in this book: user stories, release planning, iteration, product increment, release, along with the concept of small releases.

### XP and Similar Terminology

XP uses the term “coach” as we have used “team lead” or “agile coach” in this book. The role is analogous to Scrum Master. Other XP team members are programmers and testers. XP uses the term “customer” the way that Scrum uses “product owner.”

We also get the terms *spike* and *architectural spike* from XP.

- **Spike** Also known as a “risk spike,” this is an iteration specifically planned to explore risks to understand them better and thus reduce them. Unlike other iterations, a product increment is not produced.
- **Architectural spike** Like a risk spike, this type of iteration doesn't require that a product increment be delivered at the end. Architectural spikes explore new technological approaches to show they will work for the product and the project.

XP has activities, values, and practices.

### XP Values

The following values are meant to guide XP teams. The concepts have been integrated into generic agile.

1. **Simplicity** This means not adding unnecessary design or functional features, keeping complexity at a minimum. Associate “find the simplest thing that could possibly work” with XP.
2. **Communication** This ensures all team members know what others are working on and also understand the big picture.
3. **Feedback** “Fast failure” is a commonly used agile cliché that comes from XP. Delivering prototypes and other possible solutions fast means the team finds out quickly what works and what is pleasing to the customer.
4. **Courage** XP encourages collaboration through practices where people work closely together and remain transparent about their work. See for example, pair programming and collective code ownership in the XP Practices section.
5. **Respect** This should be self-explanatory in any team environment where everyone is collectively responsible for results, are experts in their field, and yet are working on something new on a daily basis. Teamwork cannot work without mutual respect.

## XP Practices

As a programming methodology, XP is mainly concerned with software engineering practices. Thirteen core practices underlie the XP methodology.

**Whole team** This is the agile concept that the team has all skills needed to build the product and that team works together on the project. This is similar to the SCRUM concepts of dedicated and cross-functional teams.

1. **Planning games** Release planning and iteration planning are called planning games.
2. **Small releases** Like other agile methodologies, small releases allow XP teams to deliver small sets of prioritized features frequently, thus providing a continuous delivery of value.
3. **Simple design** Keeping the design as simple as possible helps enable frequent small releases and provides a more easily maintained product in the long run.
4. **Metaphor** XP practitioners use metaphors and analogies to make technical concepts understandable to customers.
5. **Sustainable pace** This is the same as saying that having the team do overtime to make a deadline is not a viable scheduling strategy on projects. Product developers should be able to work at a pace that is sustainable in the long term.
6. **Customer tests** These are tests driven by customer descriptions of how the software should behave to indicate that it is working as intended.  
*Example* “When I click the ‘Menu’ option, options X, Y, and Z should appear.”
7. **Test-driven development** This means the team creates the tests before they develop the code (or product increment). The code has to be built to pass the tests.
8. **Pair programming** This is the practice of two developers working together, taking turns developing code while the other watches. It increases quality because “another set of eyes” on the product as it is being developed is better than the active developer working alone.
9. **Collective code ownership** No one on the team owns the product; the team as a whole owns the product. This means that any programmer pair can change code when they find they can improve it, regardless of who originated the code.
10. **Code standards** XP teams follow a stringent coding standard. This keeps pair programming and collective code ownership from resulting in a product with an inconsistent design.
11. **Continuous integration** How do you know that when a new product increment is created it won’t break the product? Continuous integration means integrating all new code into the product (once unit testing is done) on a regular basis to ensure the product continues to work as planned, as new code is added.
12. **Refactoring** There is always more than one way to accomplish something. As a product is built, more and less efficient components can wind up as a part of it. Think of refactoring as doing cleanup. Refactoring is not changing the way the product works but making the code more efficient by removing duplicate or unnecessary code and implementing design simplification and other improvements.

*Example* Imagine the software development team who built your favorite mobile app. They had an idea and worked together to build features they hoped you would like. The first release of the app was probably small and simple, with just a few features. They received feedback and continued to add more features based on customer responses. Some new releases are fixing problems (refactoring) and every change is integrated with the existing app (continuous integration).

## Crystal Family of Methodologies

Crystal is a group of methods that the project manager and team tailor to find a situation-specific solution. For the exam, you are most likely to see questions that link Crystal with tailoring. Figure 17.2 looks complicated, but we provide it just to show you that with Crystal methodologies, you choose a specific set of practices based on the criticality of the project.

The colors are just names for different approaches. Of course, larger teams require more structure and governance. Criticality categorizes projects by their potential risks and impacts. For example, a “C6” project has a low level of criticality, so practices can be relatively lightweight. By contrast, the other extreme is Magenta (L200), a set of practices for any project with a risk to Life (L), like building a medical device, regardless of team size. A criticality of “Life” indicates the most formal and stringent use of processes and methods.

	Clear	Yellow	Orange	Red	Magenta
Criticality					
Life (L)	L6	L20	L40	L80	L200
Essential money (E)	E6	E20	E40	E80	E200
Discretionary money (D)	D6	D20	D40	D80	D200
Comfort (C)	C6	C20	C40	C80	C200
	1–6	7–20	21–40	41–80	81–200
	Team Size				

FIGURE 17.2 Crystal methodology considerations based on criticality

## DSDM

Dynamic Systems Development Method (DSDM) is an early agile method that still has influence within generic agile. As a stand-alone method it is more prevalent in the UK. We display the DSDM eight core principles’ life cycle alongside figure 17.3, just to help you be aware of it and give you an idea of its similarities to other agile methods that influence agile.

### DSDM Core Principles

- Focus on business need
- Deliver on time
- Collaborate
- Never compromise quality
- Build incrementally
- Develop iteratively
- Communicate continuously and clearly
- Demonstrate control

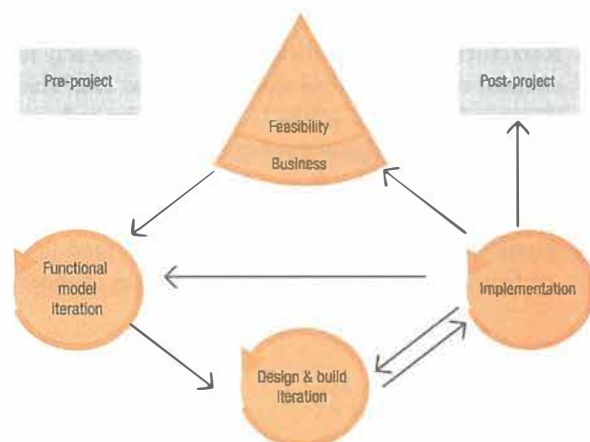


FIGURE 17.3 DSDM life cycle

## Scaled Agile Framework® (SAFe®)

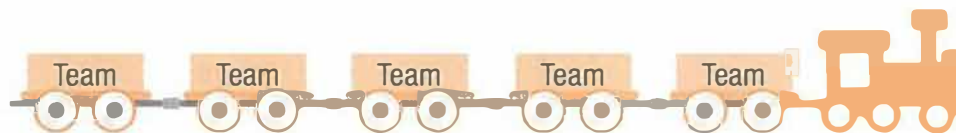
We've been talking about small agile teams—self-organizing, cross-functional groups of people who work together to build a product. These small teams work well for building a mobile app or a video game. But how would a small team build a large system like an enterprise management system or inventory control system? And how would a portfolio or program be managed using agile practices? “Scaled agile” refers to using the agile mindset in a larger context.

The Scaled Agile Framework®, first released in 2011, is a set of management practices and processes that guide a group of agile teams to work towards a common, often longer-term, goal. This framework uses small agile teams, working in concert with each other, each producing a part of a larger product or solution. SAFe promotes alignment, collaboration, and delivery across a large number of agile teams. SAFe is based on three of the bodies of knowledge you have been learning: agile development, lean product development, and systems thinking.

In SAFe, agile teams may use Scrum or another agile approach at the team level. Their work is coordinated under the SAFe Framework. A “team of teams” oversees the work of the individual teams (usually 5-12 teams) and is called the Agile Release Train (ART). SAFe also has unique roles like the Release Train Engineer (RTE).



**Think About It.** SAFe uses a train analogy, with each train car being an agile team. Train cars each have a specific purpose: some carry livestock, some are refrigerated to carry food that would spoil in heat, some carry vehicles, and they can link together with any other car because they are all the same size and have the same connection mechanism. In an enterprise using the SAFe framework, each team is assigned a specific component or aspect of the product to build, and then links it together with other teams who are working on other components of the same product. Ideally, work is timed so that all the pieces come together at the same time and the product is delivered as scheduled.



Here are the four core values of SAFe:

- **Alignment** The alignment value refers to making sure all teams are aligned to organization strategy, goals, and each other. When several agile teams are working on the same product it is critical that their work is clearly aligned.
- **Built-in quality** Built-in quality refers to the importance of building quality product components and increments of the solution. Since components built by different teams will need to “fit together,” they all must be built to the same quality standard. The value of built-in quality comes from the lean principle of “build integrity in.” The bigger the product, the more important that quality is built in. Without this value, rework and lower velocities are guaranteed.
- **Transparency** Transparency means openness, honesty, and decision making based on facts. Transparency requires trusting relationships between team members and teams. Transparency also refers to the behaviors of making sure that everyone involved with the product and project understands the goals and vision.
- **Program execution** Nothing will be accomplished if teams don't execute according to the plans and the framework. Teams must be well-trained, coached, and understand their role within the entire framework.

SAFe defines levels of work, each larger and more strategic than the prior.

- **Team** This is the agile team using Scrum or another agile approach.
- **Program** As defined in the “Project Management Foundations” chapter, a program is a group of projects that are coordinated to support a related organizational goal.
- **Essential SAFe** The team and program levels are combined into Essential SAFe.
- **Large Solution** A large, organization-wide solution.
- **Portfolio** As defined in the “Project Management Foundations” chapter a portfolio includes programs, projects, and related operational work supporting a strategic business goal. Most organizations have just a few portfolios.



### Leadership for SAFe

Leadership is important for success with the SAFe framework. Roles like the portfolio managers and product managers all have specific responsibilities for their part of the framework. They are responsible for prioritizing work, communicating about stakeholder needs, reviewing completed work, and providing feedback to the development teams. It requires strong, clear leadership to make sure that each train car gets linked to other cars going to the same place, gets on the right tracks, avoids collisions with other trains, and delivers as promised. Be prepared to answer exam questions about scaling agile for large solutions using SAFe.

## Feature Driven Development (FDD)

Feature Driven Development (FDD) also originated from software engineering. In looking at figure 17.4, can you see the similarities between FDD and agile practices you have learned about in this book? FDD is focused on feature delivery, starting from an overall model. Then, the feature list (analogous to a backlog) contains client-valued increments of functionality from the high-level model. The product is then planned by feature and work from there moves into designing and building.

Feature-Driven Development is the agile methodology that popularized cumulative flow diagrams and parking lot diagrams, which are one-page summaries of project progress. Both are useful tracking and diagnostic tools that are now used by other agile approaches.

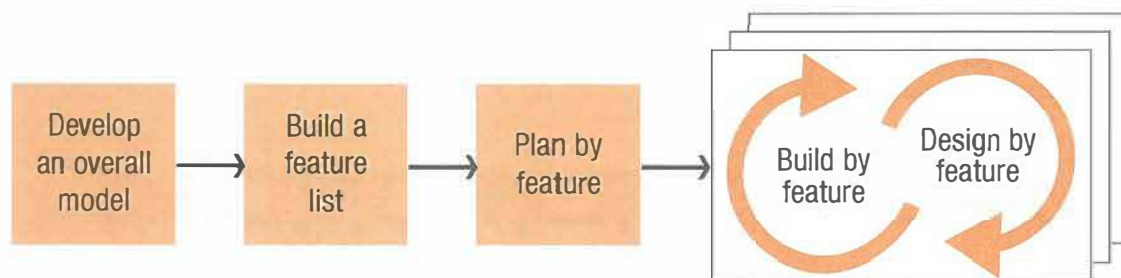


FIGURE 17.4 FDD or feature driven development

## Agile Values and Principles

A group of software development professionals wrote agile's four values and twelve principles called the Agile Manifesto. It is not necessary to memorize this for the exam, but as you read the Agile Manifesto it should make good sense to you considering what you know about how agile works as a tailored set of practices.

We suggest you substitute "product" or "service" for "software," depending on your profession.

### Agile Values

As you look over these four values, you will recognize that the items on the right are directly related to a plan-driven project. The bolded items on the left are at the core of agile projects. The manifesto states that "while there is value in the items on the right, we value the items on the left more."

**Individuals and interactions** over processes and tools

**Working software** over comprehensive documentation

**Customer collaboration** over contract negotiation

**Responding to change** over following a plan

The format of the four values—A over B ("Individuals and interactions *over* processes and tools")—addresses intention, focus, and effort. This isn't as black and white as just saying, "Do A *instead of* B." Instead, it acknowledges that both A and B will be components of projects, but that we should apply more of our focus, emphasis, and intention to A than to B.

## Agile Principles

In addition to the four agile values, the authors of the Manifesto ([Agilemanifesto.org](http://Agilemanifesto.org)) created twelve guiding principles for agile methods:

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2. Welcoming changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference for the shorter timescale.
4. Business people and developers must work together daily throughout the project.
5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity—the art of maximizing the amount of work not done—is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

### 17.1 Exercise

Think about these principles. In your own words, describe what each principle means to you. Can you see how some of these might apply to your projects?

#### Principle

#### What does this mean to you?

Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

Business people and developers work together daily throughout the project.

Build projects around motivated individuals. Give them the environment and support they need and trust them to get the job done.

The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

Working software is the primary measure of progress.



Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

Continuous attention to technical excellence and good design enhances agility.

Simplicity—the art of maximizing the amount of work not done—is essential.

The best architectures, requirements, and designs emerge from self-organizing teams.

At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

## **The Agile Mindset**

You may see the phrase Agile Mindset on the exam. This phrase refers to the idea that you don't just memorize the values and principles and join an agile team. To be agile, you must change your thinking to adopt these principles and ways of working. It takes time to learn and adopt an agile mindset and it will change the way you view much of your work. Agile approaches are less prescriptive than plan-based approaches and rely more on the team members operating with an agile mindset.

## **Key Concepts**

Here are a few concepts, derived from the values and principles, that you may see on the exam.

### Welcoming Change

A major difference between predictive and adaptive environments is the project manager's (and team's) response to customer requests for change. In plan-driven life cycles, changes are considered "necessary evils" requiring a process—Integrated Change Control—to include the change into a project that is already underway. Agile approaches welcome change. When you see exam questions about changes to the project, be sure to notice if the project manager is using a plan-driven or agile approach before you answer.

### Working in Small Value-added Increments

Exam questions about plan-driven projects assume large projects with hundreds of stakeholders and long timelines. Exam questions about agile projects refer to smaller teams, building small increments of a product, delivered to customers as soon as possible. This is not to say that large projects would not use an agile approach, but remember that products are built in small, valuable increments that can be delivered to the customer faster than the entire product.

### Using Build and Feedback Loops

Customers or their representatives (e.g., product owners) are closely involved with agile teams and give frequent feedback. At the end of every iteration customers are shown demonstrations of the product component most recently built, and they can request any changes they want. These frequent feedback loops prevent the team from going too far down a path that the customer would not like.

### Learning through Discovery

Experimentation or discovery is important for new, innovative products to emerge. As new technologies become available, teams may need time to learn how best to use them. Agile teams recognize the need to plan time for learning and experimentation. Prototypes are often built early in the project to test out ideas. This ties into the prior principle of build and feedback loops. Prototypes are viewed by customers who provide early feedback. Once the team has successfully tested a new technology, product development progresses more smoothly.

### Failing Fast with Learning

Related to learning through discovery, the concept of fast failure results in additional learning. Agile methods recognize that some experiments fail and the team should find out as soon as possible if a new technology or architecture is going to work. If not, they can stop and redesign. Human nature often leads teams to do the easy work first, putting off the hard tasks until the end. But, finding out that new technology won't support the new product at the end of the project can be devastating and will have wasted many hours of time.

### Value-driven Development

Agile leaders and their teams are always focused on providing value to their customers. Analysis of existing software products reveals that 80% of many application features are rarely used (remember the Pareto 80-20 rule?). Organizations have realized they need to focus on the most valuable product features first, delivering to the customer as early as possible.

### Continuous Delivery

Another important concept of agile approaches is continuous delivery. When possible, teams build products in increments and deliver them as soon as they are usable for the customer. Think about your mobile phone updates. Your phone provider is continuously delivering new features, updates to existing features, corrections and enhancements to your phone's operating system. They are creating a minimally viable product.

### Continuous Improvement

Finally, the concept of continuous improvement is used throughout project execution. Continuous improvement processes and techniques have been around for a long time. Agile approaches build on existing tools like Lean and Kanban to encourage continuous improvement. Plan-driven project life cycles use lessons learned to improve future projects. Agile life cycles use retrospectives. Regardless of the approach used, all teams should be constantly learning and finding better ways of working.

## **The Agile Triangle**

In project management, understanding the project constraints is one of the most important tasks of the project manager. In traditional, plan-driven life cycle approaches the scope is considered a key constraint. Once the scope is approved by the customer, changes to the scope are discouraged because the entire project management plan is built around accomplishing the agreed-upon scope. The cost and time constraints of the project are impacted if scope is changed.

In agile life cycle approaches, these constraints are turned upside down. (The inverted triangle model was first published in the DSDM Manual in 1994.) As you can see in figure 17.5, agile approaches start with the time and cost constraints, agreed upon by the customer or sponsor and the scope is allowed to change during the project. There are several benefits to this approach. One is the sponsor or customer knows the labor cost at the beginning of the project. Rather than just an estimate, the labor cost agreed to will be the actual amount of money to be spent because the agile team has a fixed number of members and fixed amount of time. For example, if a project manager has asked for 5 team members for 3 months, the actual cost of the team is known at the beginning of the project.

Another customer benefit of an agile approach is the flexibility to change the desired scope as the project moves along. The product is built in small increments and the customer reviews and approves each increment. After seeing an early version of the product, the customer may choose to move the product in a different design direction than was originally planned, with no negative impact to the time or cost. Imagine a project to publish a digital book where each chapter is released online as it is completed. As chapters become available to readers, they can provide feedback, and revisions to these early chapters can be made at any time. Later chapters will build on the early chapters incorporating in feedback (e.g., "more illustrations please") increasing the quality and usefulness of the entire book.

An advantage of the inverted triangle, to the agile team, is they don't spend hours trying to document every detailed requirement in a document and/or spend hours trying to estimate the time it will take to build the product. Many project teams struggle with both requirements and estimating complex knowledge products, so an agile approach decreases time spent doing things that humans are not very good at anyway.

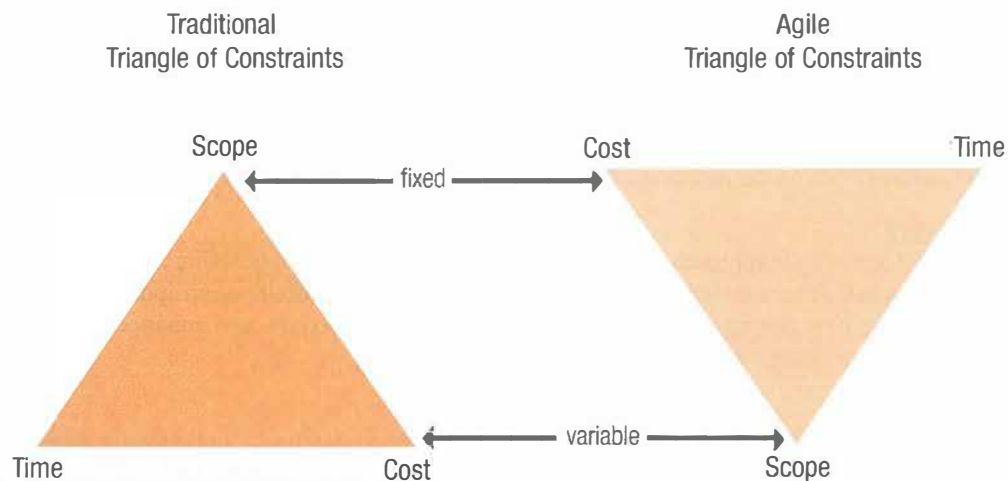


FIGURE 17.5 *Inverted triangle model*

## 17.2 Exercise



**Think about it.** As you approach your next project, will you consider an agile approach? What would be the reasons you should consider one? Write your answer in your Exercise Notebook.

### Answer

Here are some examples of what you might have come up with. You may have come up with some other ideas as well.

- New unique or complex knowledge product
- The sponsor is looking for cost savings in a complex process
- Unclear scope or unknown requirements
- The product could be delivered in increments
- The product will use a new, untried technology
- Early delivery of value to a market would generate early revenue or beat a competitive to market

# 18 *PMBOK® Guide* and the PM Standard Principles and Domains

## QUICKTEST

- Performance Domains
- Principles in the Project Management Standard

### Introduction

After reading this book you will have already learned a great deal of what you need to know for the exam from the *PMBOK® Guide, Seventh Edition*. We weaved *PMBOK® Guide* information into the content of this book although we have not always identified it specifically as *PMBOK® Guide* content. It was enough for you to concentrate until now on the *Examination Content Outline (ECO)*, the Process Groups model, and the spectrum of project management approaches including agile, plan-driven, and hybrid approaches.

Now it is time to fill in a few gaps so you have a more comprehensive understanding of how the content of the exam and the PMI publications fit together.



**Think About It.** Before you continue reading this chapter you should review the concepts you've been learning. Think about how all the pieces fit together as you review the following sections of the "PMP® Exam References in Context" chapter:

- *Examination Content Outline (ECO) Overview.*
- *The Process Groups Model Overview.*
- **Rita's Process Chart™ Game** You should have played this game once when you first read that chapter. Now that you have read more about predictive project management processes in this book, it is a good time to play this game again for review.
- **Rita's Agile Process Chart™ Game** You may want to practice playing this game again for review.

Reviewing this information will prime your memory so you are more comfortable with these concepts as we now pull in the additional information from PMI's *PMBOK® Guide* and *The Standard for Project Management*.

As you read about the *PMBOK® Guide's* performance domains in the next section of this chapter, we will point out parallels between these performance domain concepts and the ECO and Process Groups model to which you were already introduced.

To start, know that the *PMBOK® Guide* is neither process-based nor prescriptive. It is based on performance domains. A performance domain is a group of related activities that interact and are interdependent. Keep in mind that while it is useful to group critical project management activities together into distinct domains, project management needs to be looked at holistically.

### The *PMBOK® Guide*, the ECO, and Process Groups

In each of the ECO Process (domain II) chapters we mapped three sets of concepts:

- ECO tasks most applicable to the content of that chapter
- Process Groups model processes applicable and most closely aligned to the content of the chapter
- *PMBOK® Guide* performance domains most closely associated with the ECO tasks and Process Groups model processes we identified for that chapter

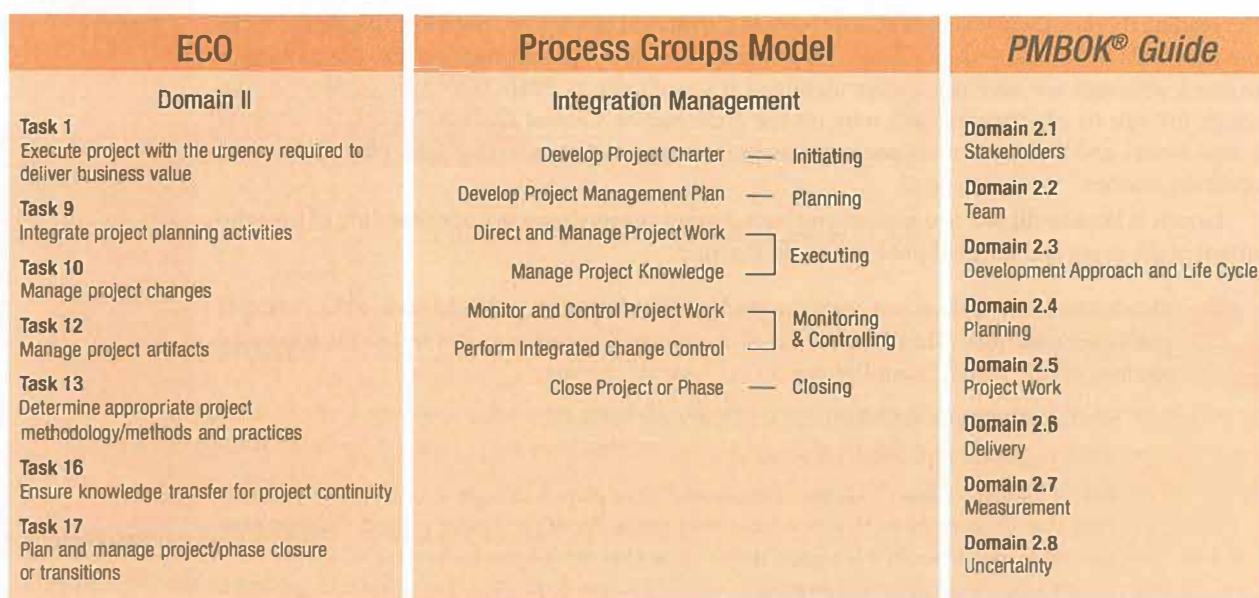


In this chapter, we look at these charts again with attention to the *PMBOK® Guide* domains. The concepts are not new so you will easily be able to relate them to what you already know about the ECO processes, the Process Groups model processes, and agile and hybrid methods. The *PMBOK® Guide*'s performance domains will no doubt sound familiar because the *PMBOK® Guide* is looking at the same concepts through a different lens.

The *PMBOK® Guide*'s performance domains are as follows:

- Stakeholders
- Team Performance
- Development Approach and Life Cycle
- Planning
- Project Work
- Delivery
- Measurement
- Uncertainty

We will ask you to look at these performance domains and think about the following figure from the standpoint of integration management. Integration management is related to and affects all these performance domains.



**FIGURE 18.1** Mapping of integration management

With integration management, the project manager is creating a cohesive, holistic system of organization for just about everything they, the team, and other stakeholders do on a project. This is to ensure that all project stakeholders have a common understanding, the project proceeds in an orderly and predictable manner, and the organization and its stakeholders receive the desired requirements and outcomes for which the project was undertaken. High performance is required of the project manager and the team in all the *PMBOK® Guide*'s performance domains.

With that in mind, let's look at each of the *PMBOK® Guide* performance domains.

## Stakeholders

This domain is about doing the work needed to ensure the desired stakeholder outcomes during and as a result of the project and its deliverables. These outcomes include good and productive working relationships and communications with all stakeholders on the project, and a common understanding about and agreement with the project's goals and objectives. These outcomes help ensure customer satisfaction with the project and its deliverables. Another desired outcome of high performance in this domain is that opposition to the project does not lead to negative impacts on the project or its stakeholders.



**Think about it.** Can you see how this domain relates to the associated ECO tasks and Process Groups model integration processes in the integration figure (figure 18.1)?

## Team Performance

We discussed high-performing teams in the People domain section of this book. High-performing teams can be achieved and maintained not only with skilled and motivated people but with good servant leadership. High-performing teams will take shared organization and ownership of their work. Team members will apply emotional intelligence, leadership, and other interpersonal and team skills in relationships and work on the project.



**Think about it.** Can you see how this domain relates to the associated ECO tasks and Process Groups model integration processes in figure 18.1? Can you see how all these tasks and processes depend upon team performance?

## Development Approach and Life Cycle

High performance in this domain can achieve the desired outcomes of using a development approach and life cycle for each project that is consistent with organizational governance but also tailored to the specific characteristics and needs of each project.

A properly selected and executed development approach and life cycle will also result in using phases (and/or iterations) to deliver the desired business value to project stakeholders at a pace consistent with the needs of the project, the building of its deliverables, and the maintenance of the project's benefits beyond project closing.



**Think about it.** Can you see how this domain relates to the associated ECO tasks and Process Groups model processes in the integration figure (figure 18.1)? The development approach and project life cycle is carefully selected at the beginning of planning (or earlier in initiating) and is carefully tailored throughout the project in accordance with the project's needs.

## Planning

How can you have a successful project without planning? You can't. Planning, of course, is related to all ECO process domain tasks and depends on good outcomes from the ECO People and Business Environment domain tasks. Project planning (and this performance domain) is about achieving the following desired outcomes:

- Planning is tailored to the needs of the project so that stakeholder engagement and each phase, iteration, and deliverable are planned with rigor but just enough detail, and no more than is needed.
- The project progresses in an orderly fashion with few or no risks that have not been accounted for with risk response plans in the backlog (or WBS) and schedule, and contingency reserves in the budget.
- As new information becomes available, iterative planning and progressive elaboration on project management plans continue to evolve, as well as work and measurement strategies, to achieve the defined project outcomes.



**Think about it.** Can you see how this domain relates to the associated ECO tasks and Process Groups model processes in the integration figure (figure 18.1)? This performance domain summarizes why planning is so important to every aspect of project management and product delivery to stakeholders.

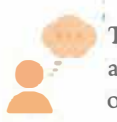
## Project Work

Just as the executing process group dovetails with the planning process group, the Planning and Project Work performance domains come together. The desired outcomes from this domain are efficient and effective project performance from all involved stakeholders, not least of which are the project manager and team.

Good project management work means the following produce results appropriate to the needs of the project and ongoing process improvements for the organization:

- Project processes
- Stakeholder engagement and communications
- Effective management of physical resources and procurements
- Continuous improvement and learning for the team and processes





**Think about it.** Review the integration figure (figure 18.1). Can you see how this domain relates to the associated ECO tasks and Process Groups model processes in the figure? Think ahead about how the work and outcomes of this Project Work domain will also dovetail with those of the Delivery and Measurement domains.

## Delivery

This domain is about delivering the scope for which the project was undertaken, at the appropriate quality according to product and quality requirements. Remember the connections of the scope and quality processes:

- The measurement (or monitoring and controlling) process of Control Quality while the team is building a deliverable leads to...
- The ability of the team and project manager to present the deliverable to the stakeholders (or customer) for acceptance. This process is called Validate Scope.

Successfully carrying out planning, project work (along with doing measurement along the way) leads to the desired outcomes of delivery. The project manager and team's understanding of and ability to execute against a clear understanding of project requirements should lead to the following desired outcomes. They are the achievement of:

- Projects goals and objectives
- The project's contribution to the organization's business goals and objectives (tied to advancement of its business strategy)
- The project's completion on schedule
- Stakeholder's acceptance of and satisfaction with project deliverables



**Think about it.** Review the integration figure (figure 18.1). Think holistically about the domains discussed so far and their associated ECO tasks and project management processes. Doing so should give you a comfortable overview of project processes and the people skills that support them. You should understand that knowledge of and interaction with the business environment ensures that projects are governed appropriately and to the benefit of the organization and its stakeholders. If you are not comfortable yet with how all these concepts come together, that just means you need more time reviewing this book and its interactions and exercises.

Let's now look at the final two PMBOK® Guide performance domains.

## Measurement

Remember the Monitoring and Controlling process group within the Process Groups model? Measurement is about monitoring and controlling; observing and measuring from when the project starts until it is completed. Measurement's purpose is to be able to see when changes need to be made to improve project performance. Measurement outcomes include being able to take the data observed about the project and create reliable forecasts throughout the project life cycle. The outcomes from measurement should be continual and there should be a common understanding of the project's status among all stakeholders. This outcome should in turn lead to timely changes within the project as needed to keep project performance on track and achieve the planned targets and business value.

## Uncertainty

PMI defines uncertainty as a lack of understanding or awareness of issues, events, paths to follow, or solutions to pursue. Uncertainty results from a combination of risk, ambiguity, complexity, and volatility. Let's look at these concepts, a combination of which helps explain why uncertainty warrants a performance domain of its own:

- **Ambiguity** is when events, conditions, and their causes could have more than one interpretation and choice of solution.
- **Complexity** means having many related and interdependent factors that need to be considered simultaneously. Ambiguity contributes to complexity and with complexity there often seems to be contradictory facts or conditions that are true at the same time. These seemingly contradictory factors or conditions cannot be reconciled so instead the best choice needs to be made even though all information may not be available with which to make it.
- **Risks** are uncertain events that may or may not happen on the project. They exist in two basic forms: threats and opportunities. Threats will cause problems with achieving the balance of project constraints if they occur while opportunities may allow us to achieve project objectives with even better performance than planned.

While PMI teases out these various meanings and summarizes them as *uncertainty*, what we know without all this is that projects are about achieving things for organizations and their stakeholders that have never been done before, under conditions for which all the information cannot be available for the precise reason that it has never been done before.

Outcomes of successfully navigating uncertainty include an awareness and a comfort with one's ability to manage an uncertain environment and complex projects that carry risks. Being able to proactively manage uncertainty means the capacity to plan, measure, and control the project while anticipating and planning for risks so that threats deliver little or no negative impact on project goals and objectives. We also can add to this that navigating uncertainty successfully means achieving the outcome of delivering the value for which the project was undertaken on schedule, within budget, and at the appropriate level of quality. In this way projects also contribute to the organization's long-term business objectives.

## Mapping the PMBOK® Guide to the ECO and Process Groups Processes

The integration management responsibilities of the project manager were a perfect fit for discussing the PMBOK® Guide's domains because integration is all-encompassing. Now, spending additional time reviewing the remainder of the ECO Process (domain II) tasks and their associated processes through the lens of PMBOK® Guide domains will help you continue to review this material.



**Think about it.** We have reproduced all the figures from the Process domain chapters here, for your convenience. For each one, we have given you key phrases to help stimulate your thinking. Study them now to review the ECO tasks alongside the Process Groups model processes, but most importantly, relate them to the PMBOK® Guide performance domains listed.

ECO	Process Groups Model	PMBOK® Guide
Domain II	Scope Management	
Task 8 Plan and manage scope	Plan Scope Management Collect Requirements Define Scope Create WBS Validate Scope Control Scope	Domain 2.4 Planning  Domain 2.6 Delivery  Domain 2.7 Measurement  Domain 2.8 Uncertainty

**Scope:** Planned, measured, delivered through uncertainty, tailoring

ECO	Process Groups Model	PMBOK® Guide
Domain II	Schedule Management	
Task 6 Plan and Manage Schedule	Plan Schedule Management Define Activities Sequence Activities Estimate Activity Durations Develop Schedule Control Schedule	Domain 2.4 Planning  Domain 2.7 Measurement  Domain 2.8 Uncertainty

**Schedule:** Planning and executing the proper timeline through uncertainty, tailoring

ECO	Process Groups Model	PMBOK® Guide
Domain II	Cost Management	
Task 5 Plan and manage budget and resources	Plan Cost Management — Planning Estimate Costs — Planning Determine Budget — Planning Control Costs — Monitoring & Controlling	Domain 2.4 Planning Domain 2.6 Delivery Domain 2.7 Measurement Domain 2.8 Uncertainty

**Cost:** Staying within planned and agreed spending parameters through uncertainty, tailoring

ECO	Process Groups Model	PMBOK® Guide
Domain II	Quality Management	
Task 7 Plan and manage quality of products/deliverables	Plan Quality Management — Planning Manage Quality — Executing Control Quality — Monitoring & Controlling	Domain 2.4 Planning Domain 2.6 Delivery Domain 2.7 Measurement Domain 2.8 Uncertainty

**Quality:** Scope, schedule, and cost managed to requirements through uncertainty, tailoring

ECO	Process Groups Model	PMBOK® Guide
Domain I	Resource Management	
Task 1 Manage conflict Task 2 Lead a team Task 3 Support team performance Task 4 Empower team members and stakeholders Task 5 Ensure team members/stakeholders are adequately trained Task 6 Build a team Task 7 Address and remove impediments, obstacles, and blockers for the team Task 8 Negotiate project agreements Task 9 Collaborate with stakeholders Task 10 Build shared understanding Task 11 Engage and support virtual teams Task 12 Define team ground rules Task 13 Mentor relevant stakeholders Task 14 Promote performance through emotional intelligence	Plan Resource Management — Planning Estimate Activity Resources — Planning Acquire Resources — Executing Develop Team — Executing Manage Team — Executing <del>Control Resources</del> — <del>Monitoring &amp; Controlling</del>	Domain 2.2 Team Domain 2.4 Planning Domain 2.5 Project work Domain 2.6 Delivery Domain 2.7 Measurement

**Resources:** Servant leadership requires all People domain skills; tailoring



ECO	Process Groups Model	PMBOK® Guide
<b>Domain II</b>  <b>Task 2</b> Manage communications	<b>Communications Management</b>  Plan Communications Management — Planning Manage Communications — Executing Monitor Communications — Monitoring & Controlling	<b>Domain 2.1</b> Stakeholder  <b>Domain 2.2</b> Team  <b>Domain 2.4</b> Planning  <b>Domain 2.5</b> Project work  <b>Domain 2.8</b> Uncertainty

**Communications:** Closely tied to all good stakeholder relationships; tailoring

ECO	Process Groups Model	PMBOK® Guide
<b>Domain I</b>  <b>Task 7</b> Address and remove impediments, obstacles, and blockers for the team  <b>Domain II</b>  <b>Task 3</b> Assess and manage risks  <b>Task 15</b> Manage project issues	<b>Risk Management</b>  Plan Risk Management — Planning Identify Risks — Planning Perform Qualitative Risk Analysis — Planning Perform Quantitative Risk Analysis — Planning Plan Risk Responses — Planning Implement Risk Responses — Executing Monitor Risks — Monitoring & Controlling	<b>Domain 2.7</b> Measurement  <b>Domain 2.8</b> Uncertainty

**Risk:** Embodiment of uncertainty; plan, navigate, measure, tailor

ECO	Process Groups Model	PMBOK® Guide
<b>Domain I</b>  <b>Task 8</b> Negotiate project agreements  <b>Domain II</b>  <b>Task 8</b> Plan and manage scope <b>Task 11</b> Plan and manage procurement	<b>Procurement Management</b>  Plan Procurement Management — Planning Conduct Procurements — Executing Control Procurements — Monitoring & Controlling	<b>Domain 2.4</b> Planning  <b>Domain 2.5</b> Project work  <b>Domain 2.7</b> Measurement  <b>Domain 2.8</b> Uncertainty

**Procurement:** Achieve part of scope through partners; plan, execute, measure through uncertainty

ECO	Process Groups Model	PMBOK® Guide
<b>Domain I</b> <b>Task 4</b> Empower team members and stakeholders <b>Task 9</b> Collaborate with stakeholders <b>Task 10</b> Build shared understanding <b>Task 13</b> Mentor relevant stakeholders <b>Domain II</b> <b>Task 4</b> Engage stakeholders	<b>Stakeholder Management</b> Identify Stakeholders — Initiating Plan Stakeholder Engagement — Planning Manage Stakeholder Engagement — Executing Monitor Stakeholder Engagement — Monitoring & Controlling	<b>Domain 2.1</b> Stakeholder <b>Domain 2.4</b> Planning <b>Domain 2.7</b> Measurement <b>Domain 2.8</b> Uncertainty

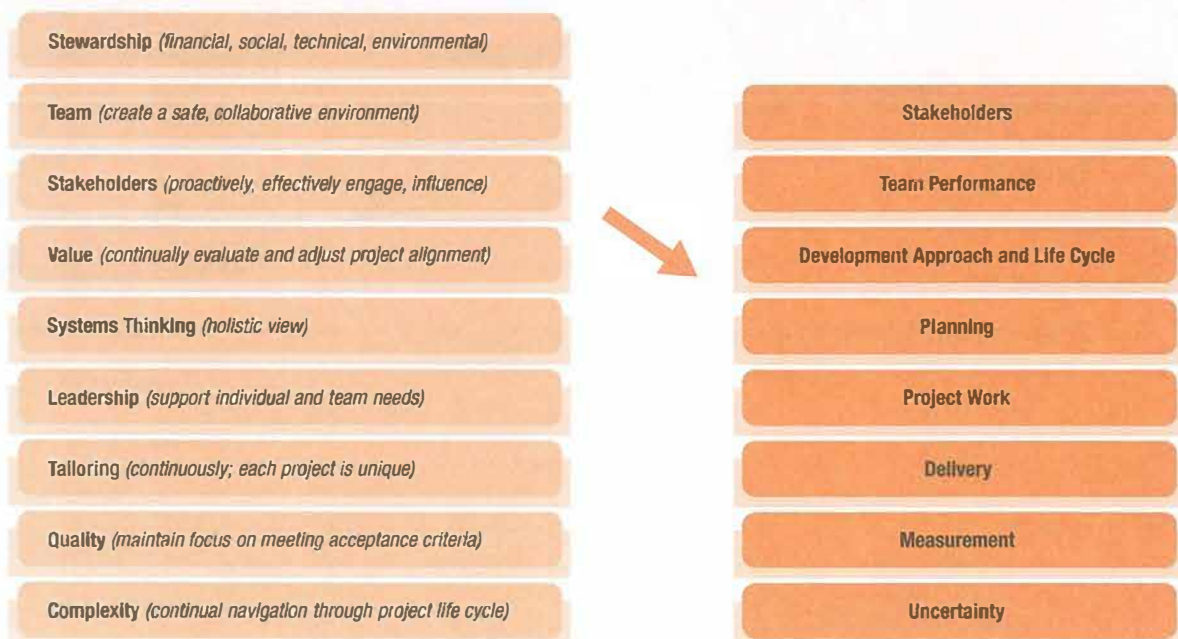
**Stakeholders:** For whom we do it all; tied to communications; tailor through uncertainty

## The Standard and the PMBOK® Guide

PMI's *The Standard for Project Management* (Standard) and the *PMBOK® Guide* complement each other and they both speak to the same purposes and outcomes. But the *PMBOK® Guide* is organized into performance domains, while the Standard is principle-based.

Both the *PMBOK® Guide* and the Standard speak of projects as a system for value delivery, a concept discussed earlier in this book that has run through all our discussions of project management. The purpose of the Standard is to provide an understanding of how project management enables intended outcomes. The principles in the Standard then, enable the successful achievement within the performance domains.

First, the most basic principles outlined in the Standard are responsibility, respect, fairness, and honesty, in keeping with the original principles underpinning the PMI Code of Ethics and Professional Conduct. You should spend a bit of time observing Figure 18.2 below, which illustrates the Standard's principles alongside the *PMBOK® Guide*'s performance domains. As you study this figure, keep in mind that the principles of the standard support and enable the domains and outcomes described in the *PMBOK® Guide*.



**FIGURE 18.2** The Standard's Principles support the PMBOK® Guide's Performance Domains