PMI Agile Certified Practitioner (PMI-ACP)[SM]

Examination Content Outline

Project Management Institute

PMI Agile Certified Practitioner

(PMI-ACP)^{SM}

Examination Content Outline

July 2011

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INTRODUCTION

The Project Management Institute (PMI®) has developed a certification for project management practitioners who are using Agile practices in their projects, or whose organizations are adopting Agile approaches to project management. The PMI Agile Certified Practitioner (PMI-ACP)[SM] has been designed to:

- Demonstrate to employers the practitioner's level of professionalism in Agile practices of project management,
- Increase the practitioner's versatility in project management tools and techniques,
- Show that the practitioner has the capacity to lead basic Agile project teams, and
- Provide a framework for Agile training and professional development initiatives.

PMI's examination development processes stand apart from other project management certifications through adherence with certification industry best practices, such as those found in the *Standards for Educational and Psychological Testing*.[1] Organizations wishing to offer valid and reliable certifications are directed to use a study, commonly referred to as a job analysis, practice analysis, or role delineation study (RDS), as the basis for the creation of the examination. This process determines the level of importance of each of the tasks, tools and techniques, and knowledge and skills required to use Agile principles and practices in project management.

The examination for the PMI-ACP[SM] is a vital part of the activities leading to earning this certification. Therefore, it is imperative that the PMI-ACP examination accurately reflect the Agile practices, tools, and techniques being used by project management practitioners. All the questions on the examination have been written and extensively reviewed by qualified Agile experts. In addition, each question is referenced to texts, such as those noted on the Agile reference list (available separately from this document). These questions are mapped against the *PMI Agile Certified Practitioner (PMI-ACP)[SM] Examination Content Outline* to ensure that the appropriate number of questions are in place for a valid examination.

PMI retained Professional Examination Service (PES) to develop the *PMI Agile Certified Practitioner (PMI-ACP)[SM] Examination Content Outline*. Since 1941, Professional Examination Service (PES) has provided the full range of tailored assessment and advisory services to organizations across a broad range of professions, in support of professional licensure and certification, accreditation, training, competency assurance, and continuing professional education. As a mission-driven, not-for-profit organization, PES is dedicated to promoting the public welfare through credentialing.

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[1] American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (1999). *Standards for educational and psychological testing.* Washington, DC: American Educational Research Association.

Candidates studying for the PMI-ACP examination are urged to use the *PMI Agile Certified Practitioner (PMI-ACP)[SM] Examination Content Outline* as a guide to the areas included on the examination. Further, trainers are urged to use the *PMI Agile Certified Practitioner (PMI-ACP)[SM] Examination Content Outline* to structure their training. Candidates are also encouraged to study current references in Agile, such as those on the PMI-ACP examination preparation reference list.

PMI-ACP^{SM} EXAM CONTENT OUTLINE

The PMI-ACP^{SM} examination will consist of 100 scored items and 20 unscored (pre-test) items. The unscored items will not be identified and will be randomly distributed throughout the exam. The allocation of questions will be as follows:

Content	% of Exam
Agile tools and techniques	50%
Agile knowledge and skills	50%

TOOLS AND TECHNIQUES (50% OF EXAM)

Questions about the tools and techniques will comprise 50% of the examination. These tools and techniques have been organized into the 10 areas below. The examples given for each area are provided to illustrate the types of Agile tools and techniques that might be found in each area. However, these examples do *not* provide an exhaustive list of the tools and techniques that might be tested. The toolkits are ranked in the order of their relative importance within the tools and techniques section of the exam.

Tools and Techniques (50%) of Exam	
Communications	**Including but not limited to: information radiator, team space, agile tooling, osmotic communications for colocated and/or distributed teams, daily stand-ups**
Planning, monitoring, and adapting	**Including but not limited to: retrospectives, task/Kanban boards, timeboxing, iteration and release planning, WIP limits, burn down/up charts, cumulative flow diagrams, process tailoring**
Agile estimation	**Including but not limited to: relative sizing/story points, wide band Delphi/planning poker, affinity estimating, ideal time**
Agile analysis and design	**Including but not limited to: product roadmap, user stories/backlog, story maps, progressive elaboration, wireframes, chartering, personas, agile modeling**
Product quality	**Including but not limited to: frequent verification and validation, test-driven development/test first development, acceptance test-driven development, definition of done, continuous integration**
Soft skills negotiation	**Including but not limited to: emotional intelligence, collaboration, adaptive leadership, negotiation, conflict resolution, servant leadership**

Tools and Techniques (50%) of Exam	
Value-based prioritization	**Including but not limited to: return on investment (ROI)/net present value (NPV)/internal rate of return (IRR), compliance, customer-valued prioritization, minimally marketable feature (MMF), relative prioritization/ranking**
Risk management	**Including but not limited to: risk-adjusted backlog, risk burn down graphs, risk-based spike**
Metrics	**Including but not limited to: velocity, cycle time, earned value management (EVM) for agile projects, escaped defects**
Value stream analysis	**Including but not limited to: value stream mapping**

KNOWLEDGE AND SKILLS (50% OF EXAM)

The PMI-ACP[SM] examination includes 43 knowledge and skill areas, which are presented below. The knowledge and skill areas have been organized into levels of importance. These levels suggest the likelihood that a question about a particular knowledge and skill will be included; be aware that *not every knowledge and skill may be included on each form of the exam.*

Knowledge and Skills Content	
Level	**% of Knowledge and Skill Content / % of Exam**
Level 1 (18 knowledge/skills)	65% / 33%
Level 2 (12 knowledge/skills)	25% / 12 %
Level 3 (13 knowledge/skills)	10% / 5 %

Knowledge and Skills
Level 1 (33% of total examination questions)
• Active listening
• Agile Manifesto values and principles
• Assessing and incorporating community and stakeholder values
• Brainstorming techniques
• Building empowered teams
• Coaching and mentoring within teams
• Communications management
• Feedback techniques for product (e.g., prototyping, simulation, demonstrations, evaluations)
• Incremental delivery
• Knowledge sharing
• Leadership tools and techniques
• Prioritization
• Problem-solving strategies, tools, and techniques
• Project and quality standards for Agile projects
• Stakeholder management
• Team motivation
• Time, budget, and cost estimation
• Value-based decomposition and prioritization

Knowledge and Skills

Level 2 (12% of total examination questions)

- Agile frameworks and terminology

- Building high-performance teams

- Business case development

- Colocation (geographic proximity)/distributed teams

- Continuous improvement processes

- Elements of a project charter for an Agile project

- Facilitation methods

- Participatory decision models (e.g., input-based, shared collaboration, command)

- *PMI's Code of Ethics and Professional Conduct*

- Process analysis techniques

- Self assessment

- Value-based analysis

Level 3 (5% of total examination questions)

- Agile contracting methods

- Agile project accounting principles

- Applying new Agile practices

- Compliance (organization)

- Control limits for Agile projects

- Failure modes and alternatives

- Globalization, culture, and team diversity

- Agile games

- Principles of systems thinking (e.g., complex adaptive, chaos)

- Regulatory compliance

- Variance and trend analysis

- Variations in Agile methods and approaches

- Vendor management

DOMAINS AND TASKS FOR PMI AGILE CERTIFIED PRACTITIONER (PMI-ACP)^{SM}

Agile project practitioners engage in a number of tasks in the course of working on projects in an Agile environment. These tasks have been delineated and organized into six major domains of practice:

Domain I: Value-Driven Delivery

Domain II: Stakeholder Engagement

Domain III: Boosting Team Performance Practices

Domain IV: Adaptive Planning

Domain V: Problem Detection and Resolution

Domain VI: Continuous Improvement (Product, Process, People)

While these domains and tasks are *not* used in the construction of the PMI-ACP^{SM} examination, they are important. The domains and tasks delineated here may form the basis of educational and training programs and materials. These domains and tasks may also provide guidance for professional development initiatives. Recognition of the tasks may help shape the ways in which Agile project management is understood across industries as organizations continue to adopt Agile frameworks in project management.

Domain I	Value-Driven Delivery
Define Positive Value	
Task 1	**Define features and project work in terms of end-user and stakeholder value by focusing on maximizing value delivered and minimizing non-value-added activities in order to keep the delivery team focused on maximizing the value developed.**
Task 2	**Incorporate experience from each delivery by soliciting feedback and lessons learned in order to surface new information about and optimize the value of the system.**
Task 3	**Sharpen the requirements by defining acceptance criteria for the most important features on a just-in-time basis in order to articulate a shared definition of "done."**
Task 4	**Select and tailor the project methodology based on project and organizational characteristics in order to maximize project success.**
Incremental Development	
Task 5	**Compose small releasable system increments by organizing requirements into minimally marketable features in order to achieve a rapid return on investment (ROI) and to allow for the incorporation of feedback.**
Task 6	**Define product increments for both internal evaluation and external release in order to expose integration, performance, requirements, compatibility, usability and other problems early and at minimal cost.**
Task 7	**Frequently release high-quality project deliverables to stakeholders so that they can evaluate and provide feedback on the value delivered.**
Task 8	**Investigate and communicate termination opportunities in order to assist the business to optimize benefit-to-cost of the system developed.**
Task 9	**Maintain system design quality by timely updating the internal design in order to reduce the overall cost of incremental development.**

Domain I	Value-Driven Delivery

Avoid Potential Downsides

Task 10	Plan early and proactively mitigate project risks by identifying them and/or utilizing spikes or proof of concepts in order to manage their unknown affects on project outcome.
Task 11	Use operational reviews or periodic checkpoints to identify and mitigate dependency risks in order to ensure expectations are managed and stakeholders are aware and informed.
Task 12	Solicit customer feedback by developing and demonstrating working, integrated stages of the system in order to ensure that the functionality meets customer needs.

Prioritization

Task 13	Prioritize both features and related project work to balance stakeholder value, business value, and residual risk by incorporating both value- and risk elements into the requested work set in order to maximize total value proposition over time.
Task 14	Reprioritize requirements periodically in order to reflect changes in the environment and stakeholder understanding.
Task 15	Elicit non-functional requirements to ensure that the solution satisfies operational and maintenance parameters in order to minimize the impacts of failure.

Domain II	Stakeholder Engagement

Stakeholder Needs

Task 1	Identify and engage effective and empowered business stakeholders who are engaged with the team in order to ensure that the team is knowledgeable about an agreed, prioritized feature set reflecting all stakeholders' interests.
Task 2	Identify and engage all stakeholders (current and future) by promoting knowledge sharing early and throughout the project to ensure the unimpeded flow of value throughout the lifespan of the project.

Stakeholder Involvement

Task 3	Establish stakeholder relationships by forming a working agreement among all stakeholders to promote effective collaboration and participation of stakeholders on project activities.
Task 4	Maintain proper stakeholders' involvement by continually assessing the changes in the project and organization that affect the stakeholder landscape in order to ensure new stakeholders on the project are appropriately engaged.

Stakeholder Expectations

| Task 5	Establish and maintain a shared understanding of success criteria, deliverables and acceptable trade-offs by facilitating awareness among stakeholders in order to align expectations and build trust.
Task 6	Communicate team progress and development capabilities in order to help the business stakeholders make informed decisions about scope, time, and cost.
Task 7	Manage stakeholders' expectations around minimal/most likely/optimal project outcomes, balancing accuracy and precision, so stakeholders have greater assurance that those outcomes will help them meet their business objectives.

Domain III	Boosting Team Performance Practices

Team Formation

Task 1	Facilitate the team in collectively creating ground rules and internal processes in order to remove fear of conflict and strengthen members' commitment to shared outcomes.
Task 2	Help form cross-functional teams by ensuring all skills and resources necessary are readily available in order to enable the team to deliver on their commitment.
Task 3	Identify team members that have the right combination of soft and technical skills and encourage them to be generalizing specialists in order to maximize teamwork and reduce bottlenecks.
Task 4	Ensure the team has a common understanding of the values and principles of agile and a common knowledge around the agile practices and terminology being used.

Team Empowerment

Task 5	Empower the team to self-organize around the work in order to manage the project's complexity and produce effective solutions.
Task 6	Create a safe team environment by allowing people to experiment and make reasonable mistakes so that they learn and continually improve the way they work.
Task 7	Continuously discover team and personal motivators and de-motivators in order to ensure that the team remains motivated and productive throughout the project.

Team Collaboration

Task 8	Establish collaborative behaviors among the members of the entire project team by applying group decision making and conflict resolution techniques in order for them to take responsibility for outcomes and improve their effectiveness.
Task 9	Facilitate close communication within the team and with necessary stakeholders through colocation or collaborative tools in order to reduce the cost of miscommunication and rework.

Domain III	Boosting Team Performance Practices
Team Commitment	
Task 10	**Facilitate commitment by protecting the team from outside distractions in order to establish a predictable outcome and optimize the value delivered.**
Task 11	**Align project and team goals by sharing project vision and aligning team objectives with project objectives in order to ensure the team understands how their objectives fit into the overall goals of the project.**
Task 12	**Encourage the team to measure its capacity by tracking and measuring actual deliverables in previous cycles in order for members to gain a better understanding of their velocity and commitment.**

Domain IV	Adaptive Planning

Levels of Planning

Task 1	Plan at multiple levels (strategic, release, iteration, daily, etc.) creating appropriate detail using rolling wave planning and progressive elaboration to support the necessary level of understanding.
Task 2	Engage the team and customer in planning activities to create practical plans that balance priorities and team capabilities in order to gain increased levels of commitment.
Task 3	Make specific commitments to project sponsors and manage expectations around those commitments based on actual project experience in order to set and manage sponsor expectations.

Adaptation

Task 4	Coach the team to adjust the cadence and the planning process based on project characteristics and/or the size/complexity/criticality of the project deliverables.
Task 5	Inspect and adapt the project plan to reflect changes in requirements, schedule, budget, and shifting priorities based on team learning, delivery experience, feedback, and defects in order to maximize business value delivered.

Estimation

Task 6	Encourage the team to create estimates that reflect current understanding of the effort to deliver the project by including all the aspects of delivery (analysis, development, test, refactoring, deployment preparation, etc.).
Task 7	Refine estimate ranges so that they reflect the current level of uncertainty and the team's own ability and skills in order to manage stakeholder expectations.

Velocity/Throughput/Cycle Time

Task 8	Capture a measure of the accepted work completed in a given time frame in order to gauge progress and extrapolate completion.
Task 9	Adjust planning capacity by considering maintenance and operations demand to ensure team does not over commit.

Domain V	Problem Detection and Resolution
Task 1	**Create an open and safe environment to surface problems and impediments that are slowing the team down or preventing its ability to deliver value.**
Task 2	**Proactively engage the team at various points in the project to identify risks and create mitigation strategies.**
Task 3	**Ensure impediments are resolved and/or reset expectations in view of impediments that cannot be resolved.**
Task 4	**Maintain a visible list of risks and impediments in order to elevate accountability and track ownership and resolution status.**
Task 5	**Communicate status of risk and impediments in order to manage the expectations of the impacted stakeholders.**

Domain VI	Continuous Improvement (Product, Process, People)
Task 1	**Tailor the process to the project by adapting practices for the team, organization culture, and delivery goals in order to ensure that the team is effective within established organizational norms.**
Task 2	**Incorporate feedback by conducting frequent retrospectives in order to improve process, individual, and team effectiveness.**
Task 3	**Adjust team composition and work practices to improve efficiency within the existing process with a goal of keeping a team together long term.**
Task 4	**Remove wasteful process elements by challenging existing process elements in order become more efficient.**
Task 5	**Create systemic improvements by disseminating knowledge and practices across project and organizational boundaries in order to avoid re-occurrence of problems identified, improving the effectiveness of the organization as a whole.**
Task 6	**Improve team member knowledge and skills by pairing team members in order to improve overall team effectiveness and lowering risk around knowledge silos.**
Task 7	**Evaluate work efficiency in order to identify opportunities to reduce waste.**
Task 8	**Experiment with new techniques and process ideas for short periods in order to discover more efficient and effective ways of working.**
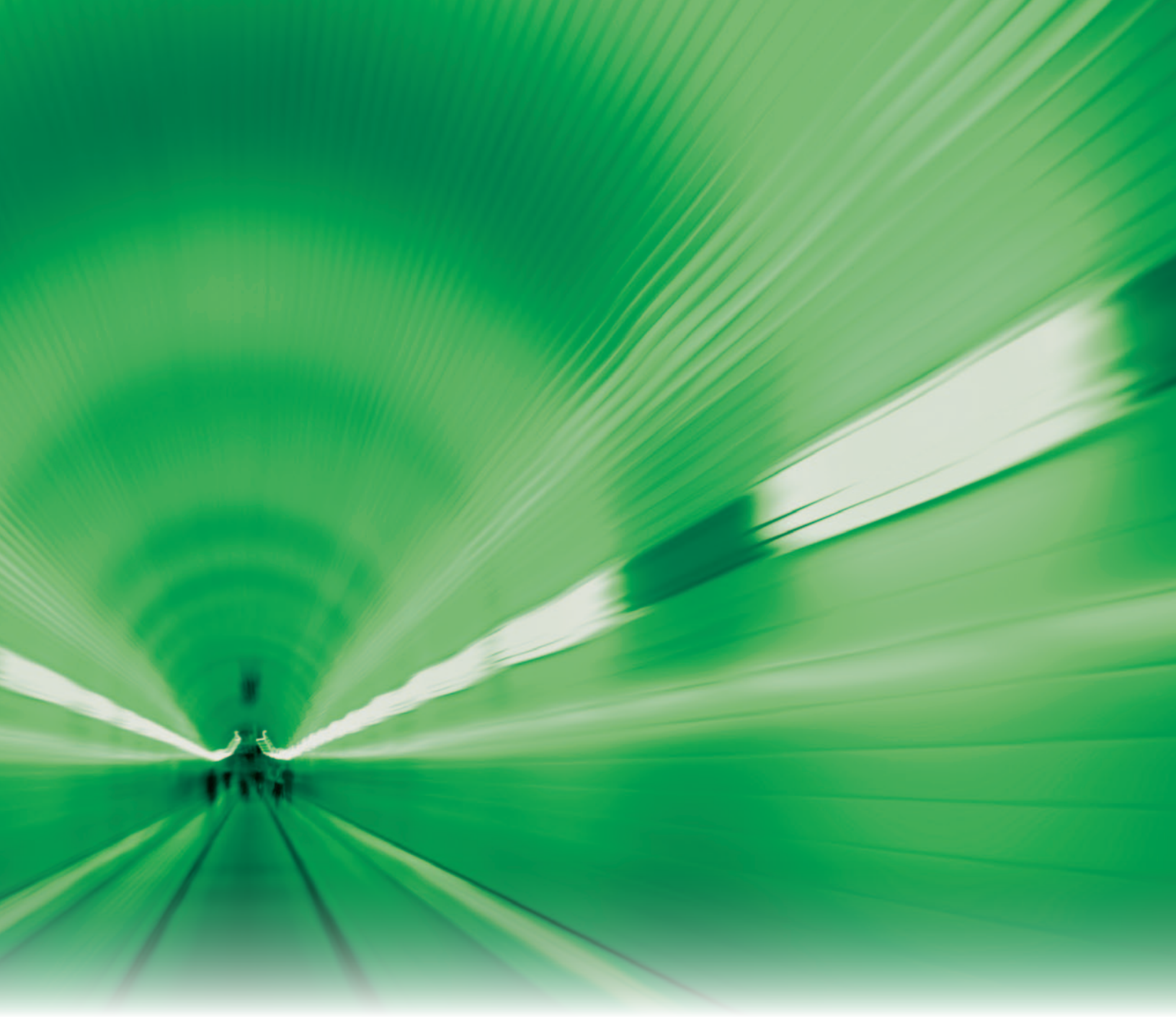
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