PMI®—Agile Certified Practitioner (PMI-ACP)®

Introduction to Agile

After completing this lesson, you will be able to:

- Explain Agile development

- Describe the principles of Agile Manifesto

- List the core values and principles of Agile

- Explain what is not Agile

- Describe the benefits of Agile methodologies

Agile is a family of project development processes.

Agile emphasizes:

- face-to-face communication;

- business and developer collaboration;

- working software as the primary demonstration of progress;

- emphasis on effective engineering techniques;

- frequent demonstrations of progress and early return on investment;

- adaptation to business change; and

- retrospectives and continuous improvement.

Agile evolved in the late 1990s in response to the burdens of heavy documentation and frequent requirements change. It started as a collection of lightweight and quality driven approaches to software development. Some of the more prominent techniques included:

| Test Driven Development | Writing tests before writing software. This creates a rich collection of tests. |

| Continuous Integration | Merging all developer working copies with a shared mainline several times a day. |

| Refactoring | The process of restructuring existing computer code without changing its external behavior. |

| User Stories | Technique that captures the end user requirement and what a user needs to do as part of his job function, in one or more sentences in simple language. |

Agile Manifesto

The Agile Manifesto was signed in February 2001 by a group of 17 leading software developers.

This is considered the key reference for all Agile practices.

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Kent Beck	James Grenning	Robert C. Martin
Mike Beedle	Jim Highsmith	Steve Mellor
Arie van Bennekum	Andrew Hunt	Ken Schwaber
Alistair Cockburn	Ron Jeffries	Jeff Sutherland
Ward Cunningham	Jon Kern	Dave Thomas
Martin Fowler	Brian Marick	

Following are the 12 principles given in the Agile Manifesto:

Produce value early	Working software
Welcome change	Sustainable pace
Iterative delivery	Technical excellence
Daily business collaboration	Keep it simple
Trust motivated team	Self-organize
Face-to-face communication	Reflect and adjust

Plan
Collaborate
Agile
Deliver

Manifesto

With the Agile Manifesto, a framework for approaching agile development was created and this led to a clearer definition of the term Agile.

> Agile is an iterative and incremental (evolutionary) approach to project development which is performed in a highly collaborative manner by self-organizing teams with "just enough" ceremony that produces high quality software in a cost effective and timely manner which meets the changing needs of its stakeholders.
>
> - Scott Ambler, www.agilemodeling.com , Managing Agile Projects

Agile—Less Engineering, More Enabling

Over time, Lean and Six Sigma techniques began to infuse themselves into Agile practices.

These include the following:

|	
Continuous Improvement	The entire team regularly discussing what worked and what didn't work in an iteration.
Focus on the Value Chain	Extending Agile techniques, particularly 'Pull', across each segment of the value chain.
Business Value Emphasis	Understanding the business value of work and prioritizing effort around this work.
Incremental Delivery	Delivering measurable value early in the project lifecycle.

Agile Core Principles and Practices

The PMI-ACP recognizes a number of core Agile principles and practices.
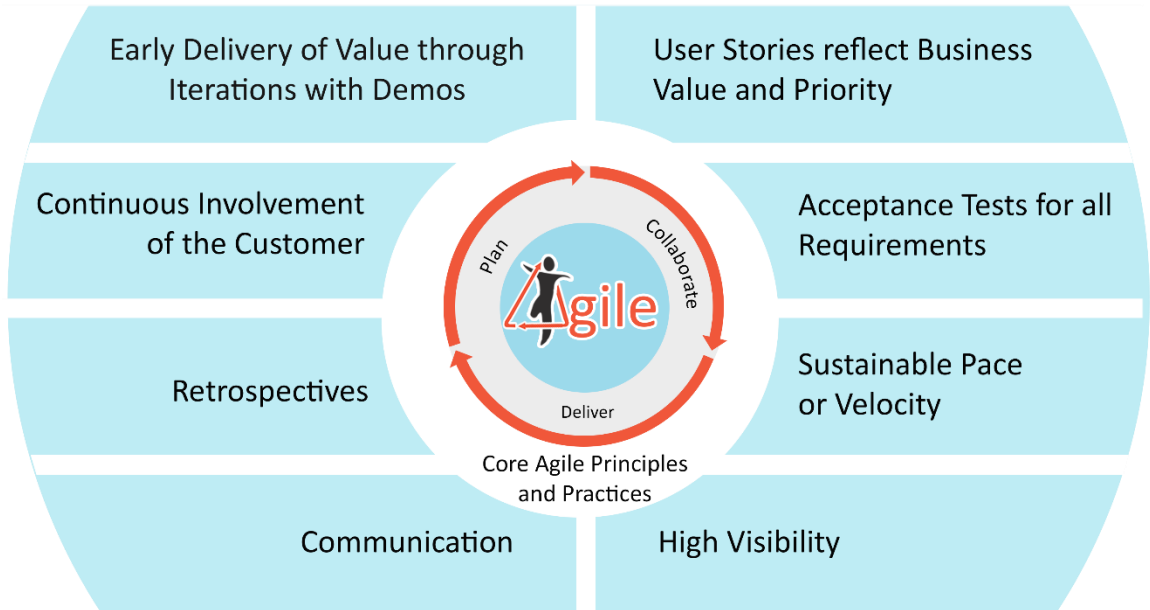
Agile does not involve:

- big design and requirement gathering up-front;

- predictions on project completion;

- 'death march' projects where project teams make up the difference for poor estimates with unpaid overtime;

- use of tools that force behaviors, such as, task management tools;

- top down management/control; and

- 'heavy' documentation, particularly Status Reports, Software Architecture Diagrams, Software Requirements Specifications, Test Plans etc.

As Agile has rapidly become one of the more popular and effective techniques to manage projects, it is important to understand the benefits to its adopters.

- Emphasis on collaboration, team empowerment, and frequent demonstrations of progress
- Lightweight, relies on whiteboards, index cards, and facilitation techniques
- Very appealing to developers with its development focus
- Idea of time-to-market opportunities and driving the features of the development lifecycle
- Agile focus on pull instead of push
- Simple and easy to understand
- Contemporary

Struggling with traditional methods, Kiandra, a custom software development and outsourced IT Services company decided to take up agile transformation. They realized that Agile provides better outcomes than the traditional software development approaches. The graphic below shows how the transformation benefitted them as they developed each portal and gained a better understanding of Agile principles and practices.

The outcomes of the changes made to the requested features in various web portals are:

Portal 1

Delivered all the features in half the time and for 10% less than originally estimated.

Portal 2

Delivered in 30% less time and 10% less cost than originally estimated with half the functionality deployed early.

Portal 3

Reduced the time taken for placing a business order from ten minutes to three minutes. It was 80% less than what it had taken to do a similar project two years before.

? Quiz

| QUIZ 1 | What does the Agile Manifesto principle "Build projects around motivated individuals" mean? |

a. Only engage in projects that motivate individuals

b. The best architectures emerge from self-organizing teams

c. Trust the team to get the job done

d. Do projects that will 'excite' the customers

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Answer: c.

Explanation: Principle number 5 of Agile Manifesto states, "Build projects around motivated individuals. Give them the environment and support they need and trust them to get the job done."

QUIZ 2	Which of the following is not seen as a benefit of Agile?

a.   Emphasis on collaboration, team empowerment, frequent demonstrations of progress

b.   Accurate predictions of project completion

c.   Lightweight, relies on whiteboards, index cards, and facilitation techniques

d.   Implicitly focuses on 'pull vs. push'

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Answer: b.

Explanation: Agile does not emphasize accurate project completion as a benefit of its practices.

17

QUIZ 3

Why doesn't Agile recommend Big Design up-front?

a. Too much emphasis on design limits the amount of requirements gathering.

b. The best designs emerge from code overtime.

c. Agile does not recommend design as it constrains development velocity.

d. Designing up-front wastes time that can be better spent on other activities.

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Answer: b.

Explanation: Agile does not emphasize trying to design a system in advance of developing it. Instead, design should evolve and adapt with development and changing requirements.

| QUIZ 4 | Why is Continuous Integration seen as valuable? |

a. Integration is hard and often delayed just before the final build; if code is continuously compiled and checked, conflicts can be identified when they are easy to manage.

b. It is part of the technique called Kaizen that emphasizes continuous improvement.

c. It ensures that Scrum of Scrum projects can deliver a potentially implementable shipment of software.

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Answer: a.

Explanation: One of the learnings from the Chrysler project, where Kent Beck developed XP, was that code integration was a significant contributor to project delays and defects. He decided to focus on integrating continuously to identify defects as early as possible.

QUIZ 5

Which of the following Agile Manifesto values is incorrect?

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Answer: b.

Explanation: The correct value is "Responding to change over following a plan."

Here is a quick recap of what was covered in this lesson:

- Agile techniques emerged from software engineering approaches to deal with changing requirements and to improve quality.

- The Agile Manifesto was signed in 2001 that captured the values and principles of the agile movement.

- Agile Manifesto highlights 12 principles.

- As a lightweight project management approach, Agile avoids big design, heavy documentation, and top-down management or control.

- Agile emphasizes collaboration, team empowerment, and frequent demonstrations of progress by focusing on 'pull vs. push'.

THANK YOU