PMI®—Agile Certified Practitioner (PMI-ACP)®
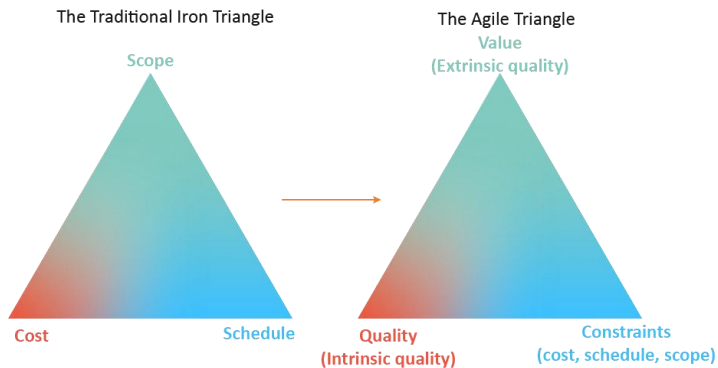
Agile Methodologies–II

After completing this lesson, you will be able to:

- Explain Agile methodologies and techniques

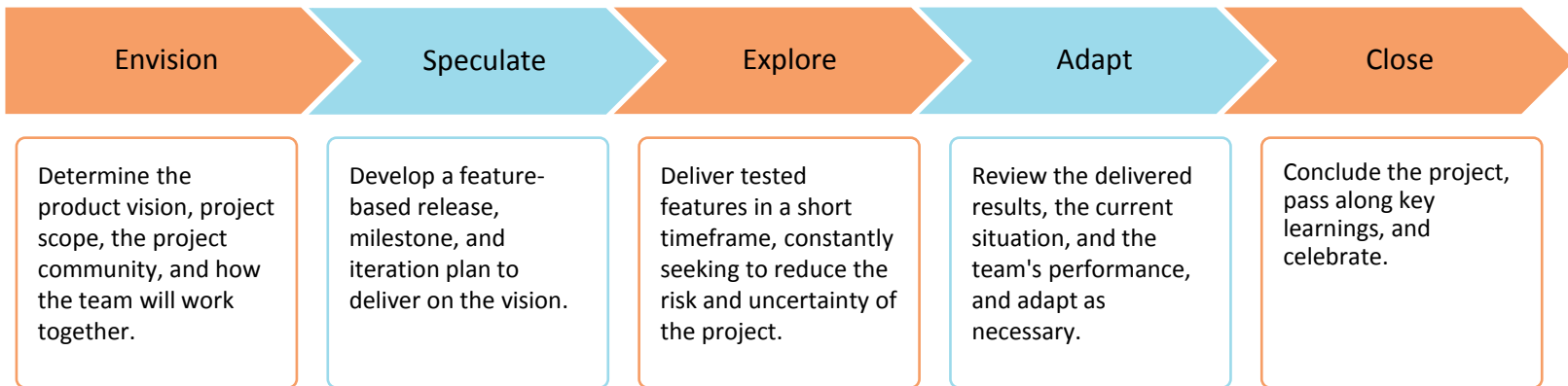- List the examples of Agile controversy

The book, Agile Project Management (APM) by Jim Highsmith was one of the first attempts to broaden Agile techniques into a more cohesive whole.

- APM introduced phases for Agile projects that aligned with the PMP phases applied by the Project Management Institute.
- APM also modified the traditional "Iron Triangle" to emphasize Value and Quality and created the Agile Triangle.

The Traditional Iron Triangle

Scope

Cost   Schedule

The Agile Triangle

Value
(Extrinsic quality)

Quality   Constraints
(Intrinsic quality)   (cost, schedule, scope)

APM Framework

The five phases of APM framework are as follows:

Envision	Speculate	Explore	Adapt	Close
Determine the product vision, project scope, the project community, and how the team will work together.	Develop a feature-based release, milestone, and iteration plan to deliver on the vision.	Deliver tested features in a short timeframe, constantly seeking to reduce the risk and uncertainty of the project.	Review the delivered results, the current situation, and the team's performance, and adapt as necessary.	Conclude the project, pass along key learnings, and celebrate.

Michele Sliger showed how the Agile Project Management Framework could align to the PMI Project Management Book of Knowledge (PMBOK).

PMBOK		Agile Project Management (APM)

Initiating → Envisiating
Planning → Speculating
Executing → Exploring
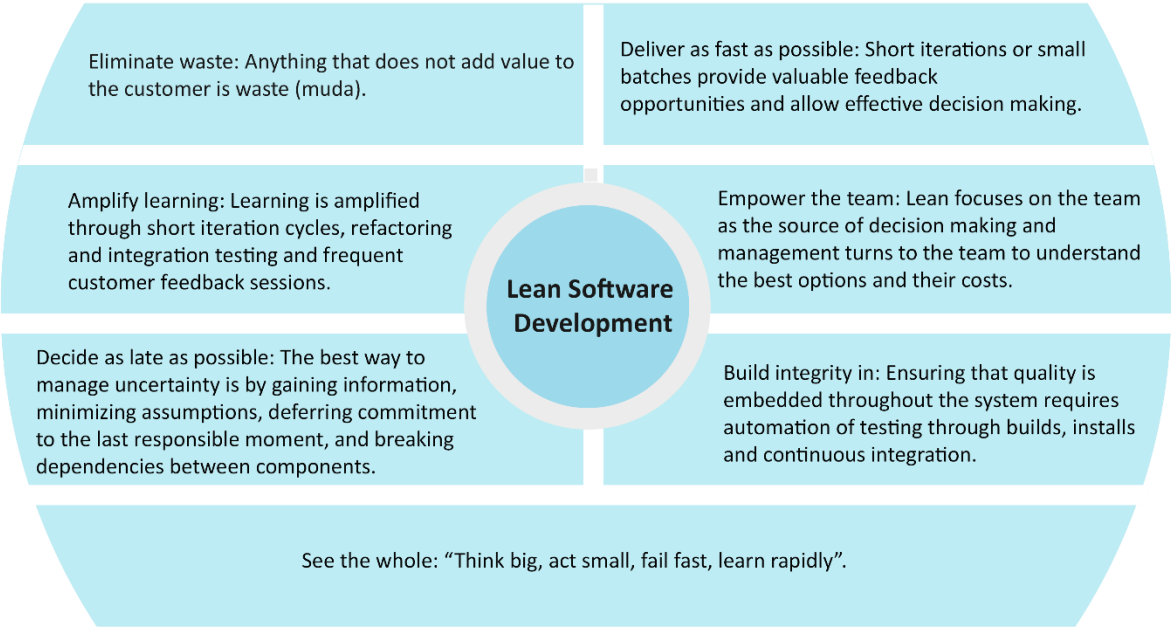Controlling → Adapting
Closing → Closing
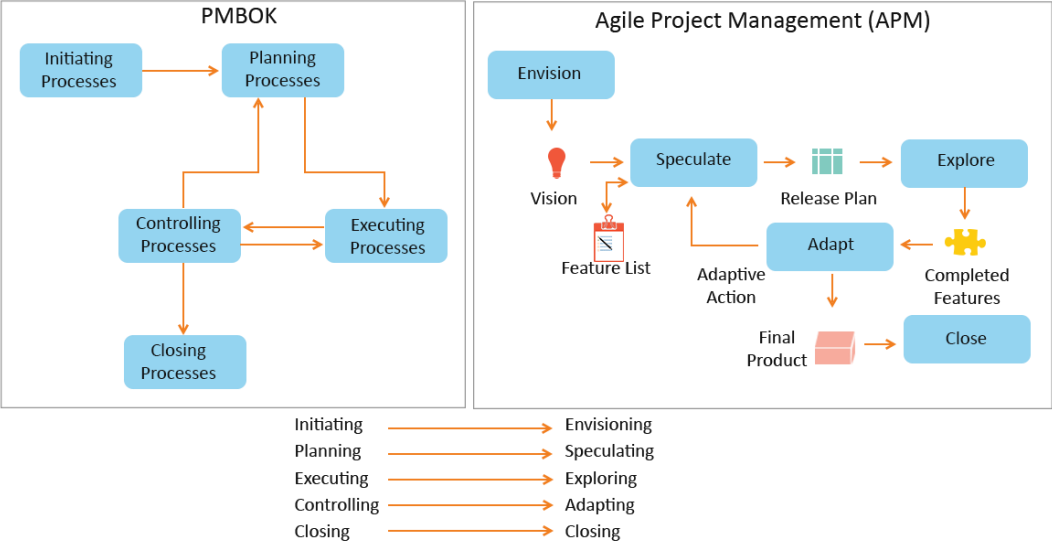
Lean Software development was introduced to the agile community by Tom and Mary Poppendieck.

- Lean Software development adopts the principles and practices from the Toyota Production System (TPS).

- TPS was developed to address issues affecting manufacturing processes like:

  o overuse (muri);

  o quality (mura); and

  o waste (muda).

Following are the seven lean principles:

Eliminate waste: Anything that does not add value to the customer is waste (muda).

Deliver as fast as possible: Short iterations or small batches provide valuable feedback opportunities and allow effective decision making.

Amplify learning: Learning is amplified through short iteration cycles, refactoring and integration testing and frequent customer feedback sessions.

Lean Software Development

Empower the team: Lean focuses on the team as the source of decision making and management turns to the team to understand the best options and their costs.

Decide as late as possible: The best way to manage uncertainty is by gaining information, minimizing assumptions, deferring commitment to the last responsible moment, and breaking dependencies between components.

Build integrity in: Ensuring that quality is embedded throughout the system requires automation of testing through builds, installs and continuous integration.

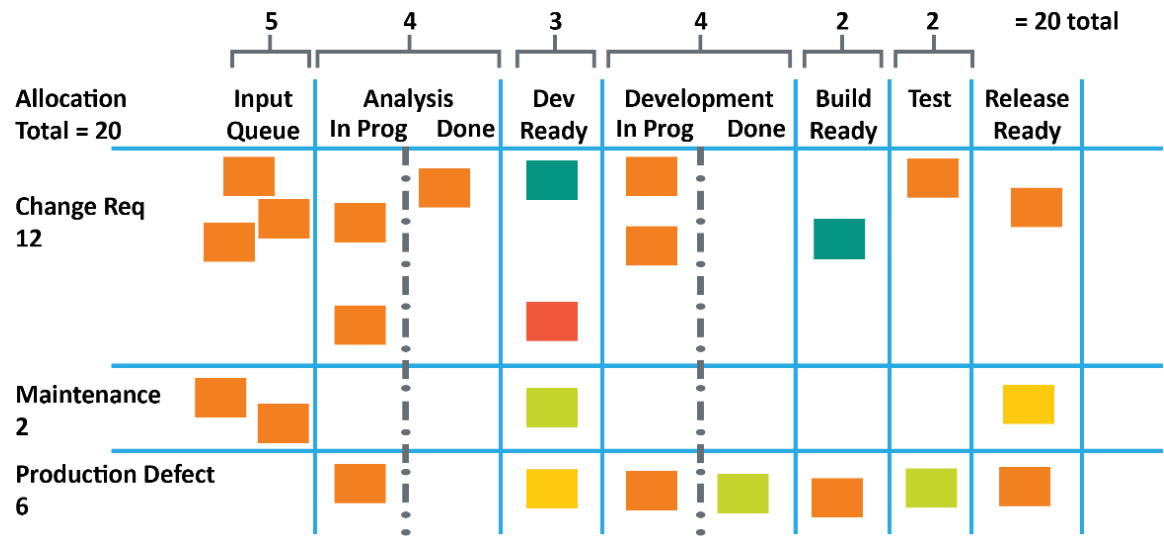See the whole: "Think big, act small, fail fast, learn rapidly".

Kanban, Japanese term for signal board, was also developed in the Toyota Production System (TPS). Agile adopted Kanban techniques to reflect the throughput of a sprint or iteration.

- Most Kanban boards are located in the team room and have user story cards/post-it notes distributed across different categories.

- Kanban helps manage the throughput of a process by identifying bottlenecks, setting 'work in progress' limits and showing the status of the entire production system with one view.

Following image shows a typical Kanban board:

Allocation Total = 20	Input Queue	Analysis		Dev Ready	Development		Build Ready	Test	Release Ready
		In Prog	Done		In Prog	Done			
			5		4		3	4	2	2	= 20 total

This method was established by David Anderson and blends Kanban with Lean and other Agile principles.
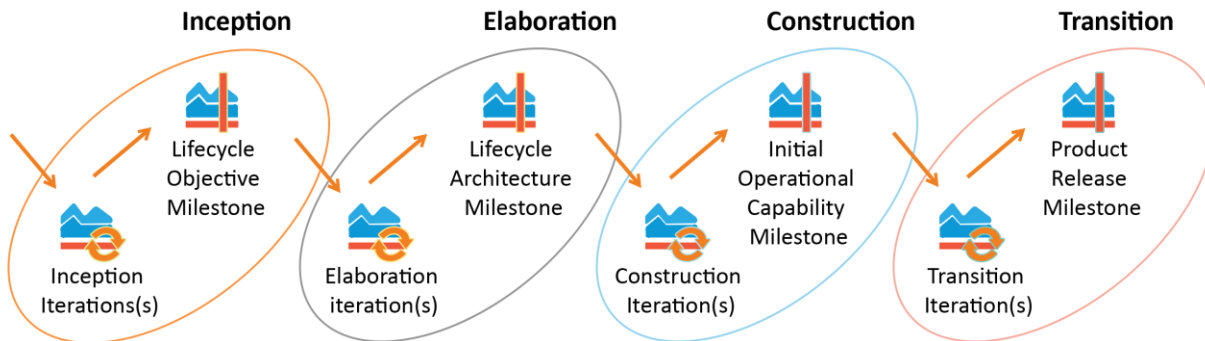
Three Principles of Lean Kanban
1. Start with what you know
2. Agree to pursue incremental, evolutionary change
3. Respect current roles, responsibilities, and job titles

Five core practices of Lean Kanban
1. Visualize
2. Limiting work in progress
3. Manage flow
4. Make management policies
5. Improve collaboratively using "safe to fail" experiments

OpenUP

OpenUP is an open-source variant that IBM released into the public domain in 2006 and is a variant of the Rational Unified Process (RUP). It maintains many of the key attributes of RUP—iterative development, use cases, risk driven prioritization, and use cases.

OpenUP has four phases across the project lifecycle.

Inception — Lifecycle Objective Milestone — Inception Iterations(s)

Elaboration — Lifecycle Architecture Milestone — Elaboration iteration(s)

Construction — Initial Operational Capability Milestone — Construction Iteration(s)

Transition — Product Release Milestone — Transition Iteration(s)

Many of Agile ideas challenge long established practices followed by established organizations.

For example:

- A customer representative is attached to the project. This role can become a single-point-of-failure for the project and some people have found it to be a source of stress.

- Detailed specifications are not created or preserved.

- There is no "Big Design Up Front." Most of the design activities occur on the fly and incrementally, starting with "the simplest thing that could possibly work" and adding complexity only when it's required by failing tests. This challenges the common waterfall approach of clear sign-offs between requirements gathering, design, and programming.

Kanban Method—Case Study

Kanban helps increase the visibility of project progress throughout the company. It drastically reduces the time-to-market, development, and engineering time. It helps in organizing work and boosting communication among team members. The graphic below shows the benefits of implementing Kanban in a company.

Project Time

Product Development Time

Product Engineering Time

Reduced from 22 days to 14 days

Reduced from 9 to 3 days

Reduced from 11 to 8 days

? Quiz

QUIZ 1

How does Kanban help a software project?

a. Manage the throughput of a process by identifying bottlenecks, setting 'work in progress' limits and showing the status of the entire production system with one view

b. Ensure visibility of the overall software development process

c. Provides an inexpensive mechanism to manage requirements

d. Provides a continuous improvement process for projects

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Answer: a.

Explanation: Kanban is a signal system that shows the throughput of a process, 'a' is the best answer. Answer 'd' refers to a similar Japanese word, Kaizen, for continuous improvement.

QUIZ 2

What does the Agile Triangle reflect?

a. The difference between traditional project management and agile project management

b. The emphasis that agile projects place on delivering value and ensuring quality

c. The Team, Product Owner, and Scrum Master

d. A design pattern found in Peter Coad's book "Modeling in Color and Shapes with UML"

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Answer: b.

Explanation: Agile projects place a strong emphasis on value and quality. Answer A is true but it is not the real purpose of the Agile Triangle. Answer C is the list of roles in Scrum. Answer D is a funny reference to Peter Coad's book "Modeling in Color with UML".

QUIZ 3

What are the three principles of the Kanban method?

a. Start with what you know, Incremental/evolutionary change, Respect

b. Visualize, Limit work in progress, Manage flow

c. Focus on the business need, Deliver On Time, Collaborate

d. Envision, Explore, Adapt

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Answer: a.

Explanation: The Kanban method has three principles Start with what you know, Agree to pursue incremental, evolutionary change, Initially, respect current roles, responsibilities, and job titles.

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

- Lean Software Development, Kanban, Agile Project Management, and Lean Kanban are some of the Agile practices that are widely popular.

- Agile is not without its detractors. Many of its ideas challenge long established practices followed by large and established organizations.

THANK YOU