

MODULE 4

Agile and Scrum Methodologies

Week 4 · 4 lessons · ~3.5 hrs

Lessons in this module:

- **Lesson 4.1** — The Agile Manifesto and core values
- **Lesson 4.2** — Scrum framework: roles, events, and artifacts
- **Lesson 4.3** — Agile estimation and velocity
- **Lesson 4.4** — Kanban and hybrid approaches

LESSON 4.1

The Agile Manifesto and core values

In 2001, 17 software developers published the Agile Manifesto, establishing four core values that prioritize flexibility and customer collaboration over rigid processes.

The 4 Agile values:

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

The manifesto does not say the right-hand items have no value — it says the left-hand items are valued more. Balance is still important.

12 Agile Principles support these values, including delivering working product frequently, welcoming changing requirements, and maintaining a sustainable pace.

LESSON 4.2

Scrum framework: roles, events, and artifacts

Scrum is the most widely used Agile framework. It organizes work into fixed-length iterations called Sprints (typically 1–4 weeks).

Scrum Roles:

- Product Owner (PO) — defines what to build; owns the Product Backlog; represents the customer
- Scrum Master (SM) — facilitates the process; removes impediments; coaches the team on Scrum
- Development Team — cross-functional group that builds the product; self-organizing

Scrum Events:

- Sprint Planning — team selects backlog items to complete in the sprint
- Daily Standup (Daily Scrum) — 15-minute daily sync: what did I do, what will I do, any blockers?
- Sprint Review — demonstrate completed work to stakeholders
- Sprint Retrospective — team reflects on how to improve the process

Scrum Artifacts:

- Product Backlog — prioritized list of all desired work
 - Sprint Backlog — items selected for the current sprint
 - Increment — the working product produced at the end of each sprint
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LESSON 4.3

Agile estimation and velocity

Agile teams estimate effort using Story Points — relative measures of complexity, risk, and effort — rather than hours.

Planning Poker: A consensus-based estimation technique where each team member independently selects an estimate card, then the group discusses differences until alignment is reached.

Velocity is the average number of story points completed per sprint. Once measured over 2–3 sprints, velocity helps predict how much work can be done in future sprints and when the project will finish.

Velocity is a planning tool, not a performance target. Don't pressure teams to increase velocity artificially — it leads to inflated estimates and poor quality.

LESSON 4.4

Kanban and hybrid approaches

Kanban is a visual workflow management method focused on limiting work in progress (WIP) and improving flow. Unlike Scrum, it has no fixed sprints.

Core Kanban principles:

- Visualize the workflow on a board (To Do → In Progress → Done)
- Limit Work in Progress (WIP) to prevent bottlenecks
- Manage and improve flow continuously
- Make process policies explicit

Many modern organizations use a hybrid approach : applying predictive planning (Waterfall) for regulatory, procurement, and budget phases, and Agile for delivery phases.

KNOWLEDGE CHECK

In Scrum, who is responsible for prioritizing the Product Backlog?

- A) The Scrum Master
- B) The Development Team
- C) The Product Owner
- D) The Project Sponsor

✓ **Answer: C — The Product Owner owns and prioritizes the backlog based on business value.**