Masters in Digital Business
Agile Project Management

IU2: Agile Management Frameworks

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digital skilling

Learning Objective

By the end of this unit, learners will gain knowledge about how to manage Agile projects with Agile methodologies.

Learners will get exposure to Scrum, Kanban, Extreme Programming (XP) frameworks, and Dynamic System Development Method (DSDM)

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Topics Covered

#	Topics
1	Scrum Framework
2	Kanban Framework
3	Extreme Programming (XP) Framework
4	Dynamic System Development Method (DSDM)

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Introduction to Scrum Framework

The Scrum methodology was developed in the 1990s based on a Harvard Business Review article titled "The New Product Development Game." Most project managers would name Scrum as the most popular Agile framework.

As with other Agile frameworks, Scrum entails an iterative approach to project management. The Scrum methodology prescribes breaking a project down into sprints that typically only last one to four weeks. Each sprint ends with the completion of a workable version or draft of the final project deliverable.

The Scrum approach's short iterations enable your team to continuously deliver a working version of the final product.

Scrum is considered lightweight and flexible but difficult to master, with three main pillars:
- **Transparency.** You must use a common language and standard definitions.
- **Inspection.** Scrum "artifacts" and products must be regularly and diligently inspected to ensure quality.
- **Adaptation.** Whenever an inspection discovers below-standard quality, the team must make modifications or corrections as soon as possible.

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Introduction to Scrum Framework

Scrum in 100 words

- Scrum is an agile process that allows us to focus on delivering the highest business value in the shortest time.
- It allows us to rapidly and repeatedly inspect actual working product/project in short, frequent intervals.
- The business sets the priorities. Teams self-organize to determine the best way to deliver the highest priority features.
- Every two weeks to a month anyone can see real working product / project progress and decide to release it as is or continue to enhance it for another "sprint".
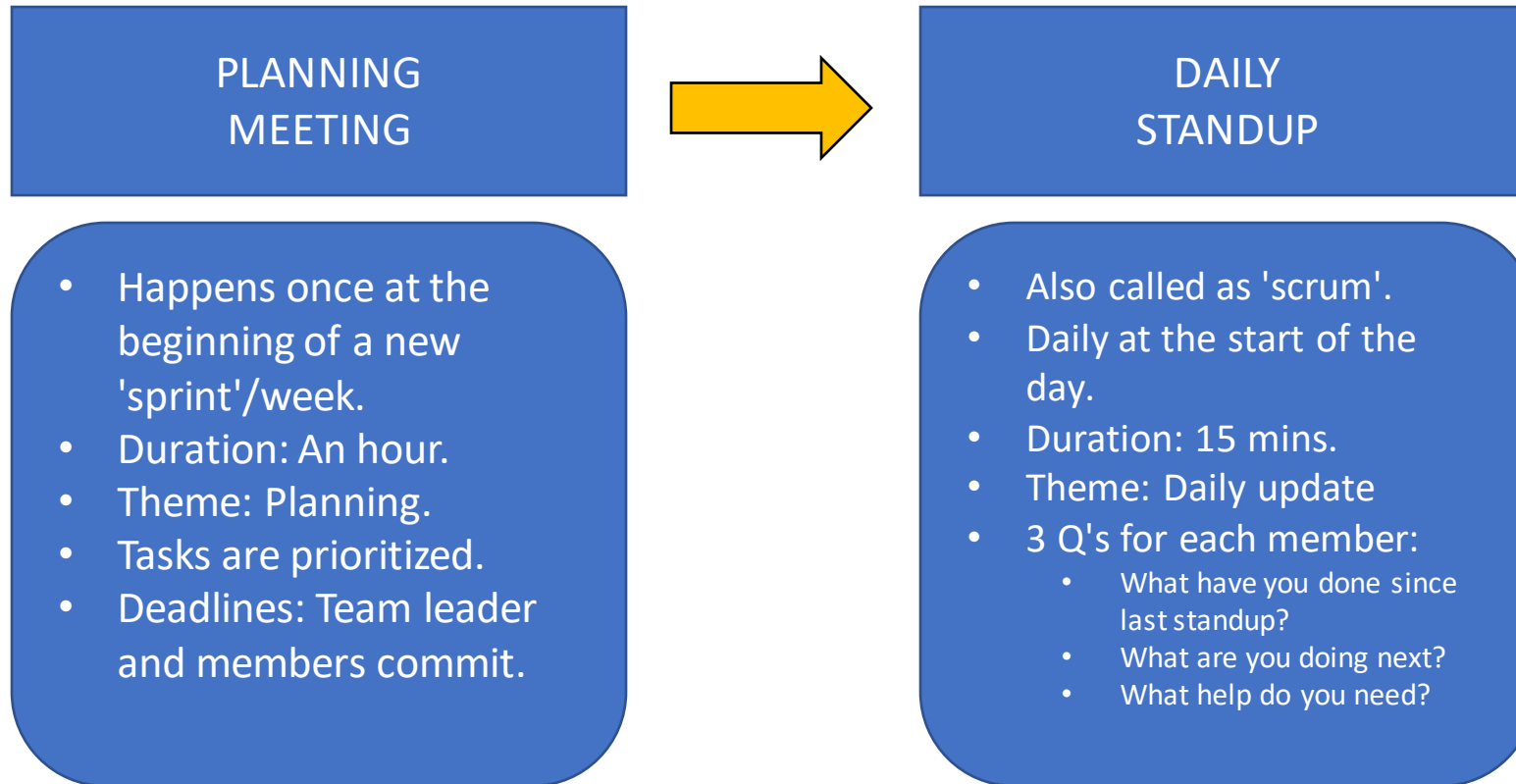
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Introduction to Scrum Framework

Scrum has been used for various business applications.

- Commercial software
- In-house development
- Contract development
- Fixed-price projects
- Financial applications
- ISO 9001-certified applications
- Embedded systems
- 24x7 systems with 99.999% uptime requirements
- the Joint Strike Fighter

- Video game development
- FDA-approved, life-critical systems
- Satellite-control software
- Websites
- Handheld software
- Mobile phones
- Network switching applications
- ISV applications
- Some of the largest applications in use

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Scrum Framework for Daily team meetings

2 Types of Meetings in Agile:

PLANNING MEETING

- Happens once at the beginning of a new 'sprint'/week.
- Duration: An hour.
- Theme: Planning.
- Tasks are prioritized.
- Deadlines: Team leader and members commit.

DAILY STANDUP

- Also called as 'scrum'.
- Daily at the start of the day.
- Duration: 15 mins.
- Theme: Daily update
- 3 Q's for each member:
  - What have you done since last standup?
  - What are you doing next?
  - What help do you need?

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Scrum Team Roles

Scrum in Agile requires particular roles and responsibilities, including the following:

• **Product owner.** The product owner on a project is the person responsible for representing the customer's best interest. This person has the ultimate authority over the final product. The product owner's job is to ensure product requirements, functionality, and priorities are understood and achieved.

• **Scrum master.** The Scrum master is responsible for arranging daily meetings, improving team interactions, and maximizing productivity. The difference between the project manager and the Scrum master is that the latter focuses on being a servant leader. The Agile project manager's roles and responsibilities often include the position of Scrum master. However, they can delegate this to anyone on the team who's a Scrum expert and a strong facilitator.

• **Development team.** The development team is your Scrum project team. It's typically self-organized and cross-functional. This team includes all the people necessary to design, produce, test, and release the final product.

• **Scrum team.** The Scrum team structure includes your development team, Scrum master, and product owner.

Scrum Terminologies

The following are key terms commonly used terms in the Scrum framework:

• **Product backlog.** The backlog is a list of tasks and requirements that you must include in the final product. It's the product owner's responsibility to create and manage the backlog.

• **Sprint.** A sprint is a set time frame for completing each set of tasks from the backlog. Every sprint should be the same length. Two weeks is typical, but the sprint can be anywhere between one to four weeks, depending on the team and project's needs.

• **Backlog planning.** Backlog planning (sometimes called Agile sprint planning) refers to determining which tasks on the backlog list you will include in each sprint.

• **Sprint backlog.** The portion of the backlog that is assigned to the current sprint.

• **Daily Scrum.** A Scrum project team meets every day to discuss any progress over the last 24 hours, progress expected in the next 24 hours, and any new problems. These meetings are typically referred to as a Daily Scrum or Daily Stand-Up and generally take about 15 minutes.

• **Retrospective.** Each sprint should end with a **review meeting** called a retrospective. The team reviews their progress so far and discusses how they can improve in the next sprint.

• **Scrum board.** A Scrum board helps your team see and **manage the sprint backlog**. It can be a physical board, such as a whiteboard, or a virtual one within a project management tool. The board typically has three columns: "To Do," "In Progress," and "Done." As you complete backlog items, you move them from one column to the next on the board. This way, everyone can see what they need to do during the current sprint and how the work progresses.

• **Artifact.** The product backlog, the sprint backlog, and the product increment are the **three Scrum artifacts** within a project. The product backlog and sprint backlog represent work still to be done, and the product increment is the portion of the product that the team has already completed during the current sprint.

Scrum applied in daily meetings

What is a "Sprint"?

"Sprints make projects more manageable, allow teams to ship high-quality work faster and more frequently, and gives them more flexibility to adapt to change."

Source: Atlassian

Scrum applied in daily meetings

Sprint Retrospective - Start / Stop / Continue

Whole team gathers and discusses what they'd like to:

Start doing

Stop doing

Continue doing

This is just one of many ways to do a sprint retrospective.

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Scrum applied in daily meetings

Scrum relies on cross-functional teams to deliver products and services in *short cycles*, enabling:

- Fast feedback
- Quicker innovation
- Continuous improvement
- Rapid adaptation to change
- More delighted customers
- Accelerated pace from idea to delivery
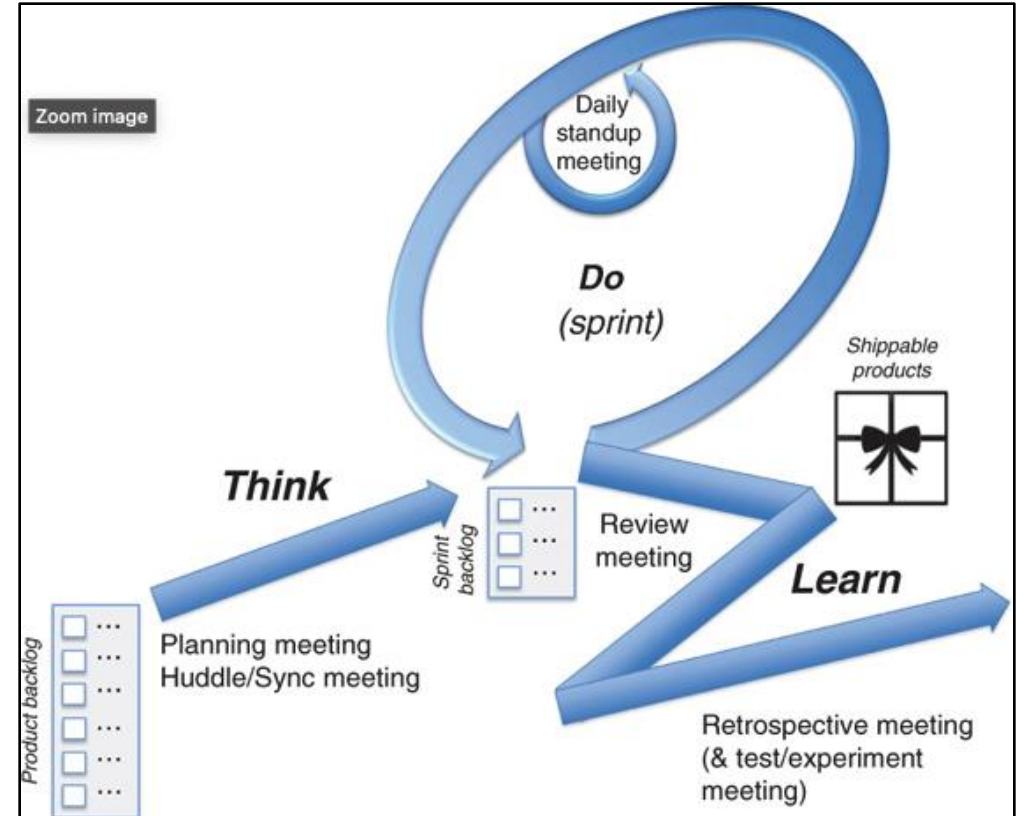
Scrum Framework At a Glance
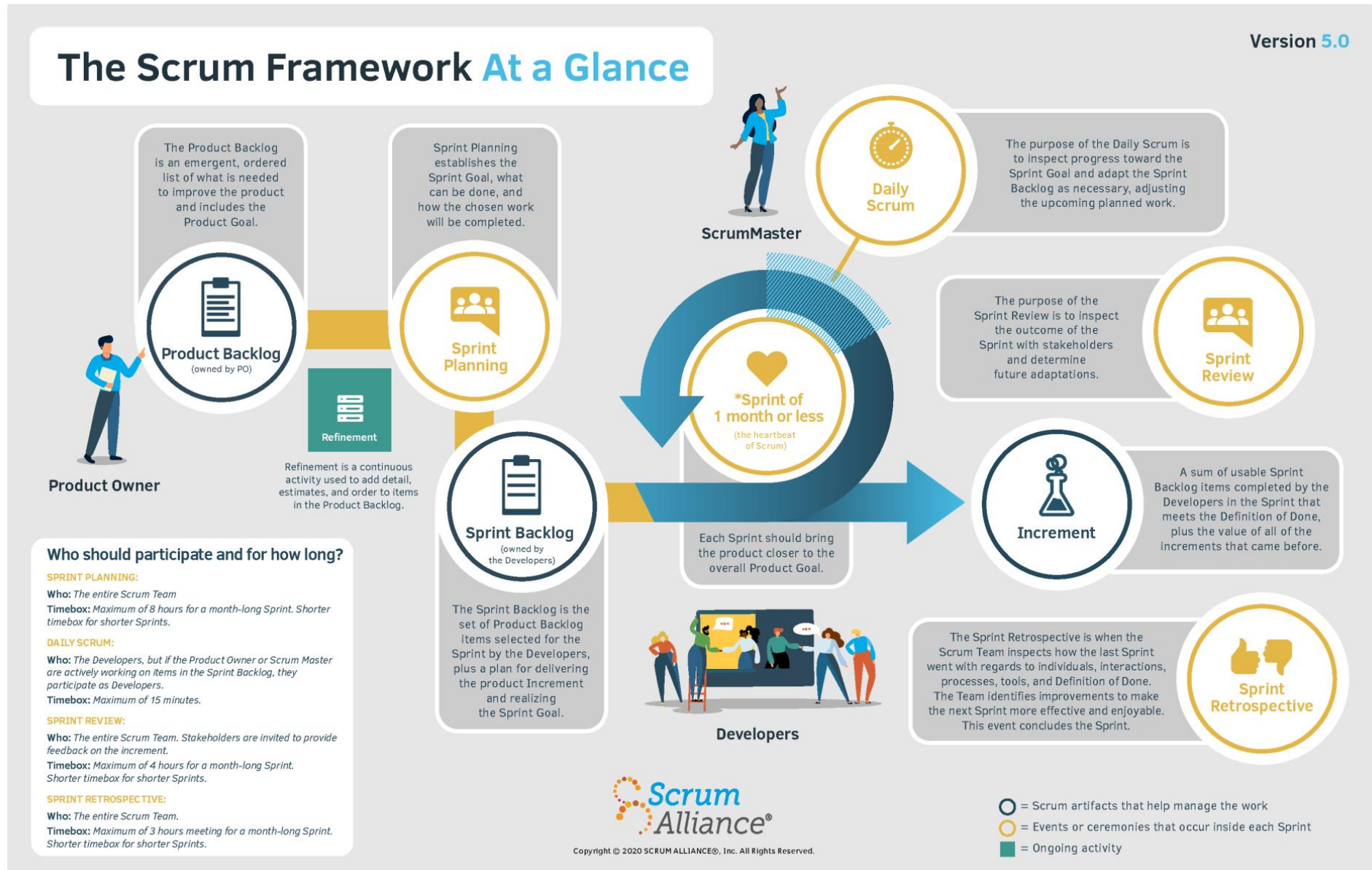
Scrum & the Three Pillars of Empirical Process Control

Scrum is based on the theory of empirical process control, which relies on transparency, inspection, & adaptation.

Transparency

To make decisions, people need visibility into the process and the current state of the product. To ensure everyone understands what they are seeing, participants in an empirical process must share one language. **Sprint Reviews Provide Transparency.**

Inspection
To prevent deviation from the desired process or end product, people need to inspect what is being created, and how, at regular intervals. Inspection should occur at the point of work but should not get in the way of that work.
Sprint Reviews & Retrospectives Offer Inspection Opportunities. Scrum teams inspect their completed work and their process at the end of every iteration during the sprint reviews and sprint retrospectives.
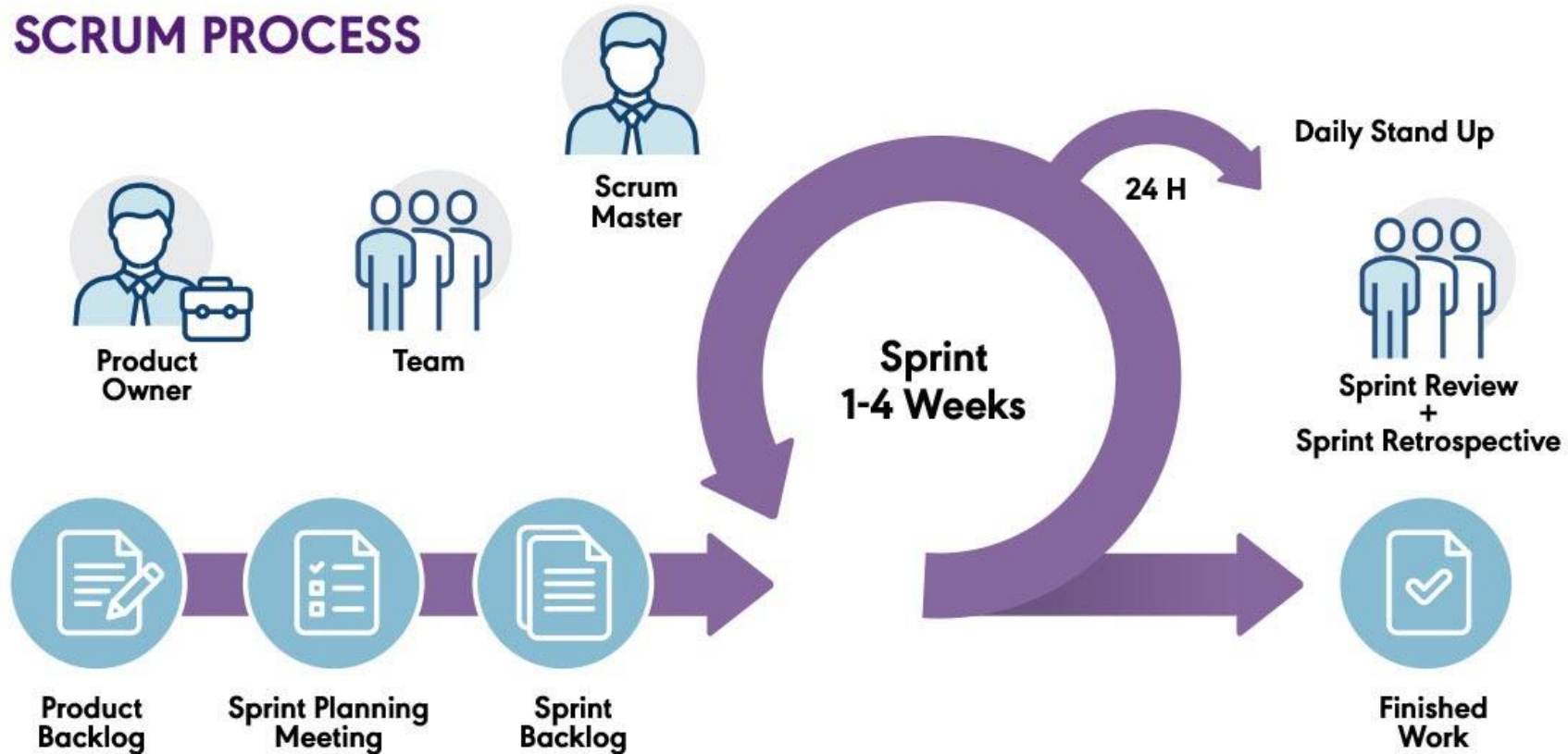
Adaptation
Adaptation means that when deviations occur, the process or product should be adjusted as soon as possible. **Scrum Teams Can Adapt the Product at the End of Every Sprint.** Scrum allows for adjustments at the end of every iteration.

Scrum & the Three Pillars of Empirical Process Control

SCRUM PROCESS

Scrum Master

Product Owner

Team

Product Backlog

Sprint Planning Meeting

Sprint Backlog

Sprint 1-4 Weeks

24 H

Daily Stand Up

Sprint Review + Sprint Retrospective

Finished Work

Introduction to Kanban

The Japanese word "kanban", meaning "visual board" or a "sign", has been used in the sense of a process definition since the 1950s. It was first developed and applied by Toyota as a scheduling system for just-in-time manufacturing.

It first emerged as a lean production scheduling method that was derived from the Toyota Production System (TPS). Toyota began using "just in time" manufacturing in its production in the late 1940s. The strategy resembles a pull system. This implies that rather than the usual push method of producing things and bringing them to market, production is dependent on customer demand. Their distinctive production process served as the cornerstone for lean manufacturing. Its main objective is to reduce waste production while maintaining productivity. The fundamental objective is to increase value for the client while reducing costs.

Introduction to Kanban

Kanban is based on 3 basic principles:

Visualize what you'll do today (workflow automation): Seeing all the items within the context of each other can be very informative

Limit the amount of work in progress (WIP): This helps balance the flow-based approach so teams don't start and commit to too much work at once
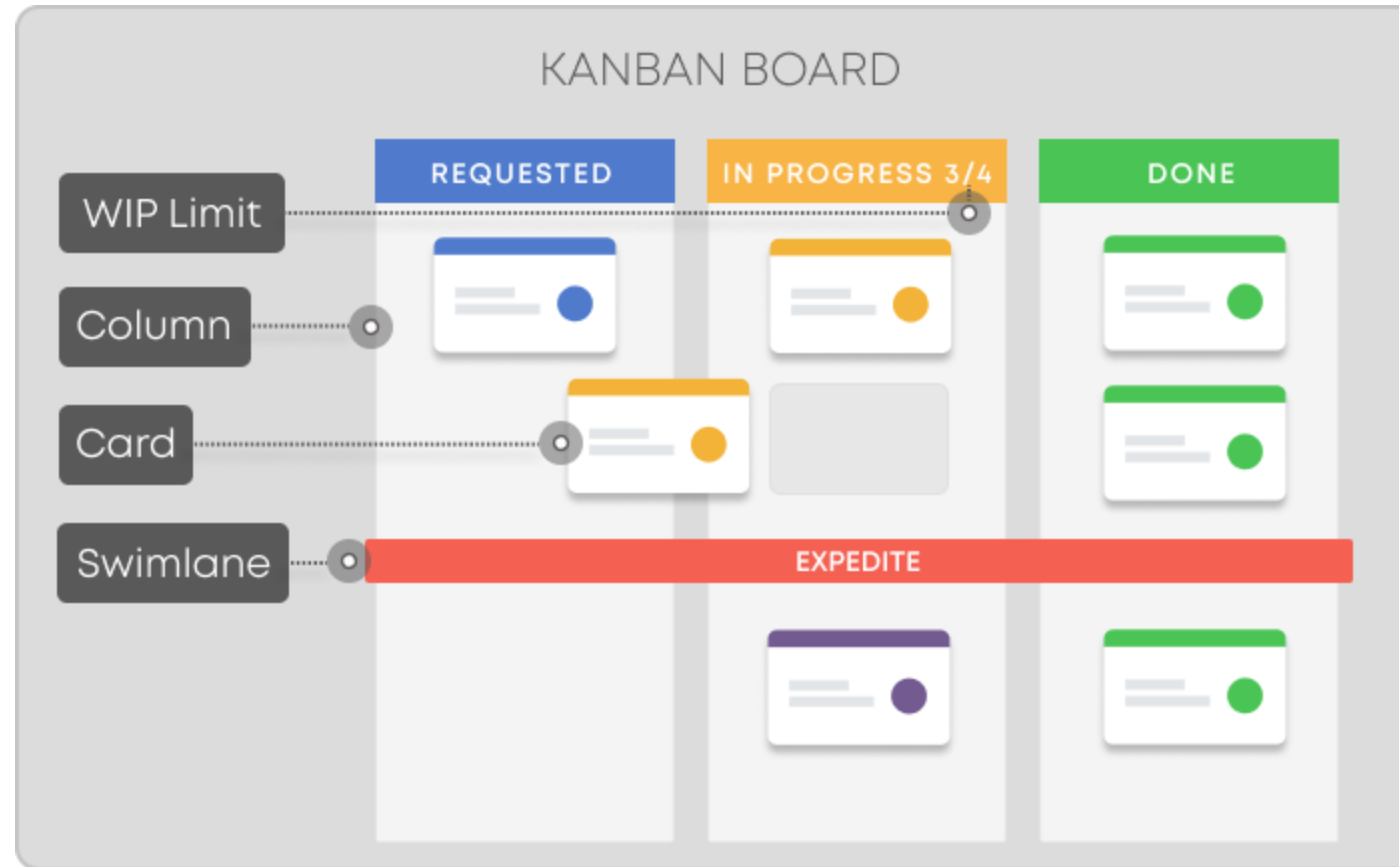
Enhance flow: When something is finished, the next highest priority item from the backlog is pulled into play

Kanban promotes continuous collaboration and encourages active, ongoing learning and improvement by defining the best possible team workflow.
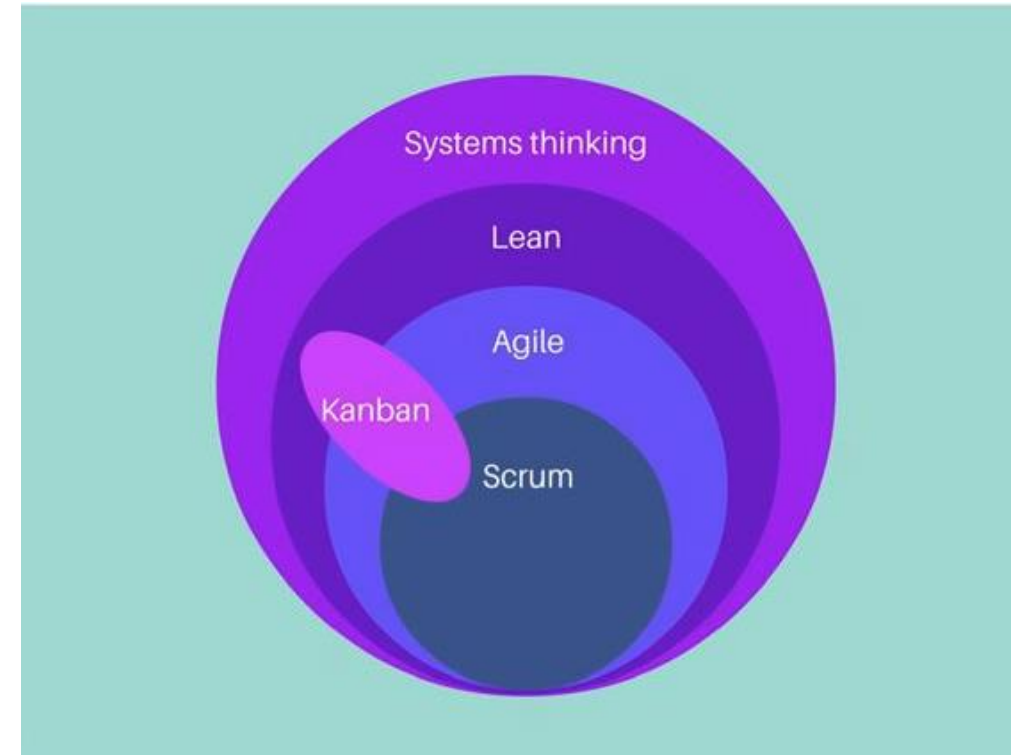
Kanban is used to visually manage Agile and Lean.

Example of a Kanban board

Extreme Programming (XP) Framework

Extreme Programming (XP) is an agile software development paradigm that seeks to deliver software of a better calibre while also improving the team's quality of life. Of the agile frameworks, XP is the most explicit in terms of the proper engineering techniques for software development.

The general characteristics where XP is appropriate were described by Don Wells on www.extremeprogramming.org:

• Dynamically changing software requirements
• Risks caused by fixed-time projects using new technology
• Small, co-located extended development team
• The technology you are using allows for automated unit and functional tests
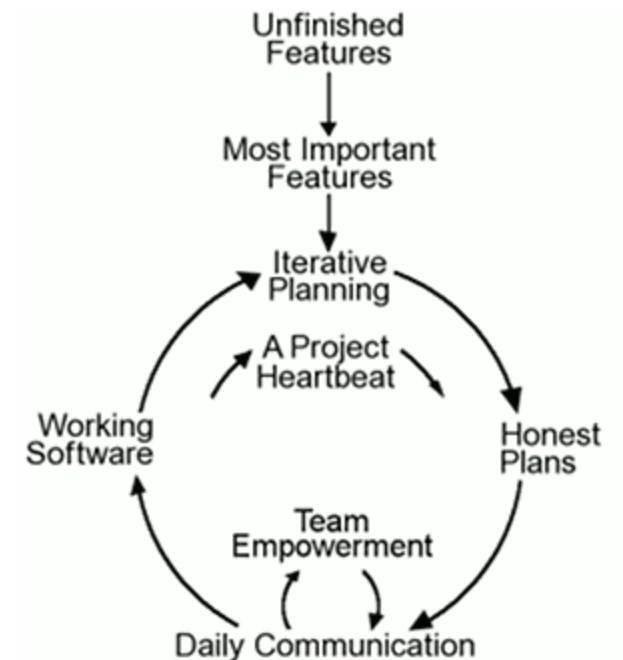
Extreme Programming (XP) Rules

Planning
- User stories are written.
- Release planning creates the release schedule.
- Make frequent small releases.
- The project is divided into iterations.
- Iteration planning starts each iteration.

Managing
- Give the team a dedicated open workspace.
- Set a sustainable pace.
- A stand-up meeting starts each day.
- The Project Velocity is measured.
- Move people around.
- Fix XP when it breaks.

Designing
- Simplicity.
- Choose a system metaphor.
- Use CRC cards for design sessions.
- Create spike solutions to reduce risk.
- No functionality is added early.
- Refactor whenever and wherever possible.

Coding
- The customer is always available.
- Code must be written to agreed standards.
- Code the unit test first.
- All production code is pair programmed.
- Only one pair integrates code at a time.
- Integrate often.
- Set up a dedicated integration computer.
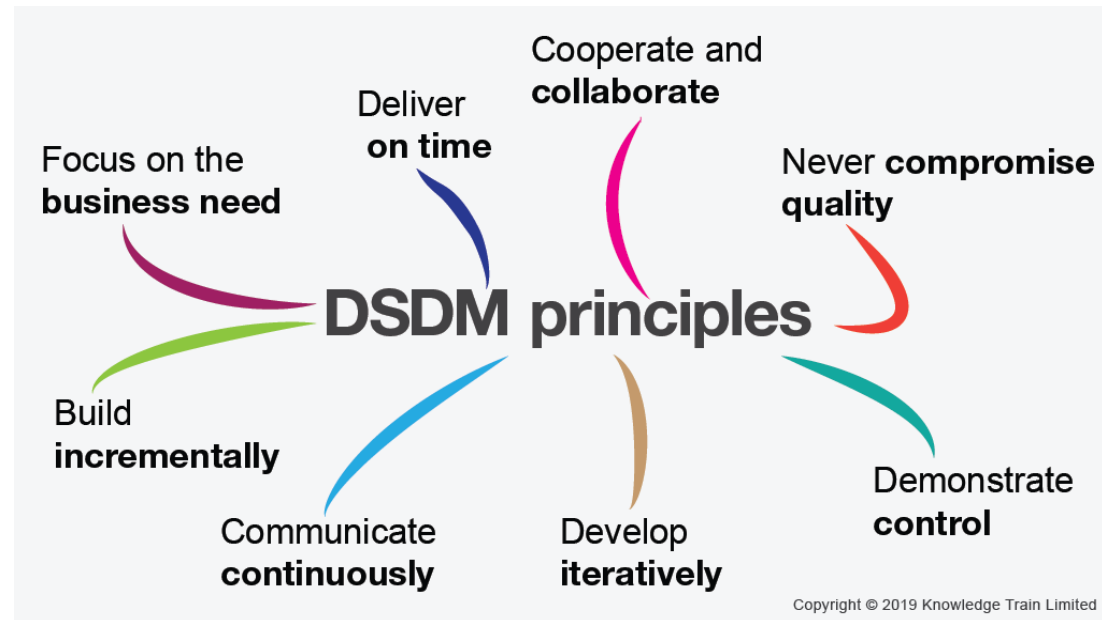- Use collective ownership.

Testing
- All code must have unit tests.
- All code must pass all unit tests before it can
- be released.
- When a bug is found tests are created.
- Acceptance tests are run often and the score
- is published.
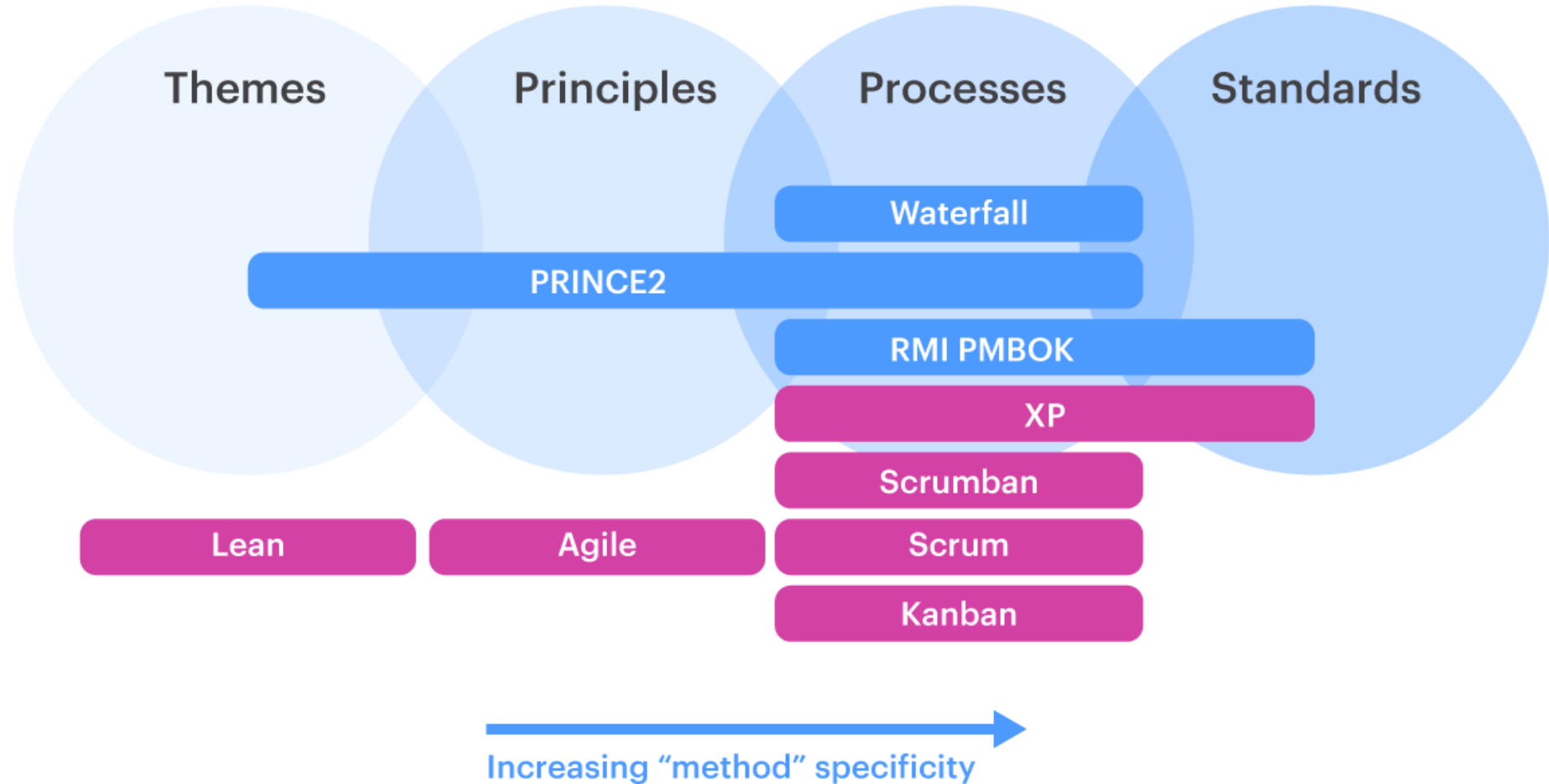
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Dynamic System Development Method (DSDM)

DSDM is an Agile method that **focuses on the full project lifecycle**, DSDM (Dynamic System Development Method) was created in 1994, after project managers using RAD (Rapid Application Development) sought more governance and discipline to this new iterative way of working.

DSDM philosophy:

"that any project must be aligned to clearly defined strategic goals and focus upon early delivery of real benefits to the business."

Focus on the **business need**

Deliver **on time**

Cooperate and **collaborate**

Never **compromise quality**

DSDM principles

Build **incrementally**

Communicate **continuously**

Develop **iteratively**

Demonstrate **control**

Agile versus other Project Management Frameworks

Thank You

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