

Agile Methods II

Overview

- Today we'll look at **Scrum**, a lean agile method that is built around the notion of sprints
- The content of today's lecture is based on the Scrum Guide
 - <https://scrumguides.org/>



Manifesto for Agile Software Development

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
Mike Beedle
Arie van Bennekum
Alistair Cockburn
Ward Cunningham
Martin Fowler

James Grenning
Jim Highsmith
Andrew Hunt
Ron Jeffries
Jon Kern
Brian Marick

Robert C. Martin
Steve Mellor
Ken Schwaber
Jeff Sutherland
Dave Thomas

<https://agilemanifesto.org/>

What is Agile?

- Agile is a set of **values** and **principles** that guide and shape development.
- There are a number of agile development methods that embody these values and principles in their **practices**:
 - Extreme Programming (XP)
 - Scrum
 - Kanban
 - Crystal Agile Framework
 - Dynamic System Development Method (DSDM)
 - Feature-Driven Development (FDD)

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 - Crystal Agile Framework
 - Dynamic System Development Method (DSDM)
 - Feature-Driven Development (FDD)

Scrum

“Scrum is a lightweight framework that helps people, teams and organizations generate value through adaptive solutions for complex problems.”

- Ken Schwaber & Jeff Sutherland in “The Scrum Guide”
(<https://scrumguides.org/>)

Foundation of Scrum

- **Empiricism**: knowledge is acquired through experience
- **Lean thinking**: focus on the core essentials and reduce waste whenever possible
- **Transparency**: both the process and work artifacts must be visible

Transparency ➤ Inspection ➤ Adaptation

Scrum Values

Commitment

Focus

Openness

Respect

Courage

The Sprint



- The Scrum process is composed of a sequence of sprints
- In Scrum a sprint is short – usually <1 month long (1-4 weeks)

Product Backlog

- Includes the **Product Goal** – the “long-term objective” for the Scrum team
- The rest of the Product Backlog is a prioritized list of what needs to be done to improve the software product (satisfy the Product Goal!)
- Often items in a Product Backlog are represented as **user stories**
 - Individual stories can also have associated **story points** that represent how much work is required to complete a given story
- Items in the Backlog are regularly reviewed and **refined** to break them into small more manageable items of work.

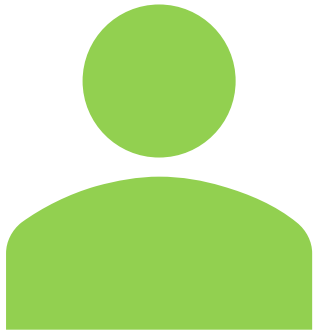
Sprint Backlog

- The **Sprint Backlog** is an artifact for the current Sprint.
- It is put together by the developers and contains:
 - A **Sprint Goal**
 - A subset of **Product Backlog items** relevant to the Sprint Goal
 - A Sprint plan for delivering an increment

What is an **Increment**?

- An increment is a **verified** step toward achieving the Product Goal
- One or more increments per sprint that build on top of past increments

Scrum Team



Product Owner

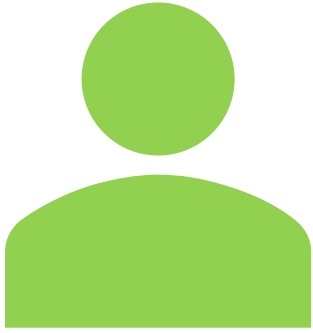


Scrum Master



Developers

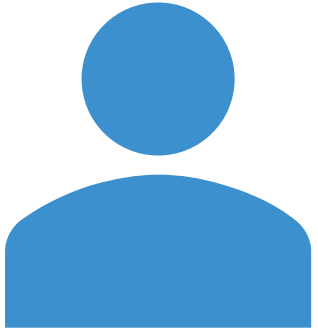
Scrum Team



Product Owner

- “accountable for maximizing the value of the product resulting from the work of the Scrum Team.”
- Represents customers and external stakeholders
- Responsibilities include establishing and communicating the product goal, communicating and ordering product backlog items.

Scrum Team



Scrum Master

- “accountable for the Scrum Team’s effectiveness. They do this by enabling the Scrum Team to improve its practices, within the Scrum framework.”
- A servant leader
- Responsibilities include coaching team members, helping the team focus, removing barriers to progress, facilitating stakeholder collaboration and more...

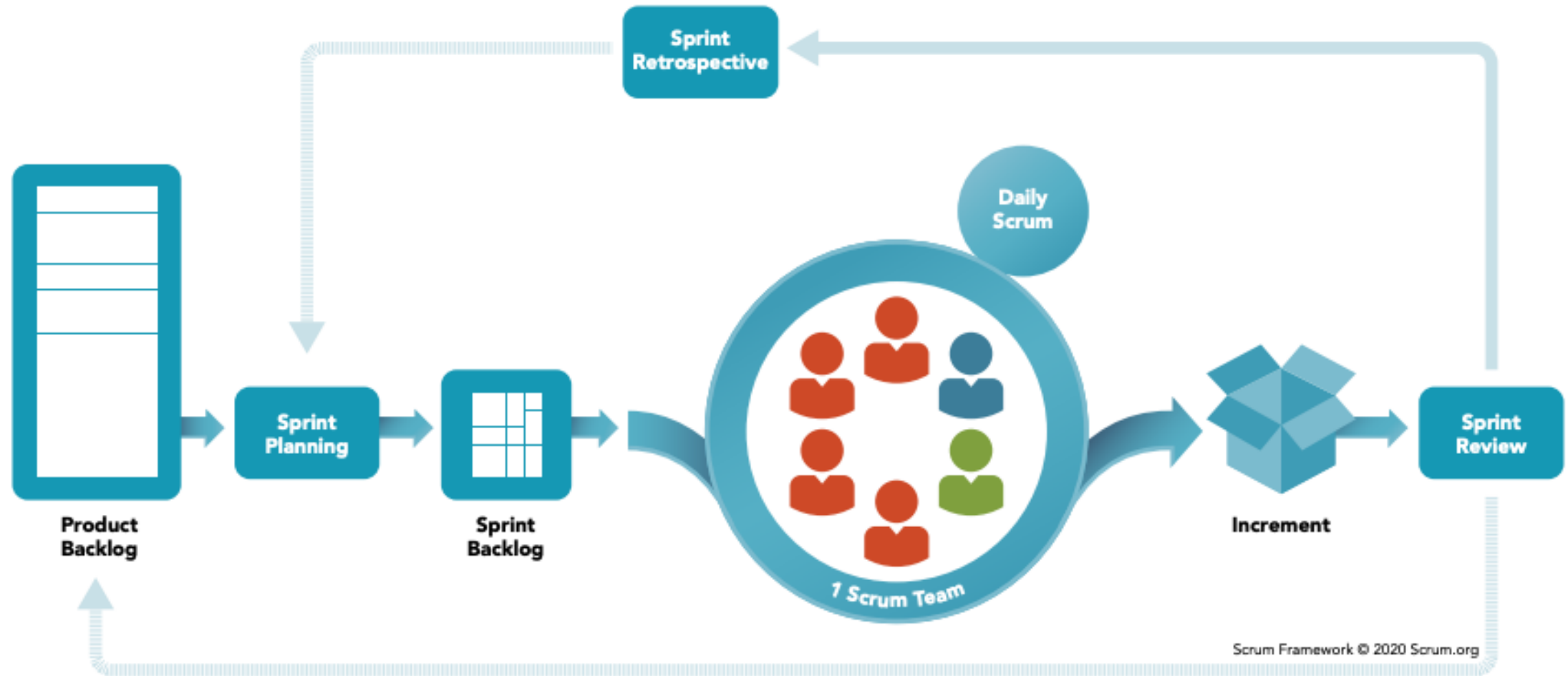
Scrum Team



Developers

- “committed to creating any aspect of a usable Increment (in) each Sprint.”
- A self organizing group
- Responsibilities include creating a Sprint plan, adapting their work to the Sprint Goal, holding team members account, ensuring quality and sticking to the **Definition of Done**

Scrum Framework



Sprint Review vs. Sprint Retrospective

- **Sprint Review**

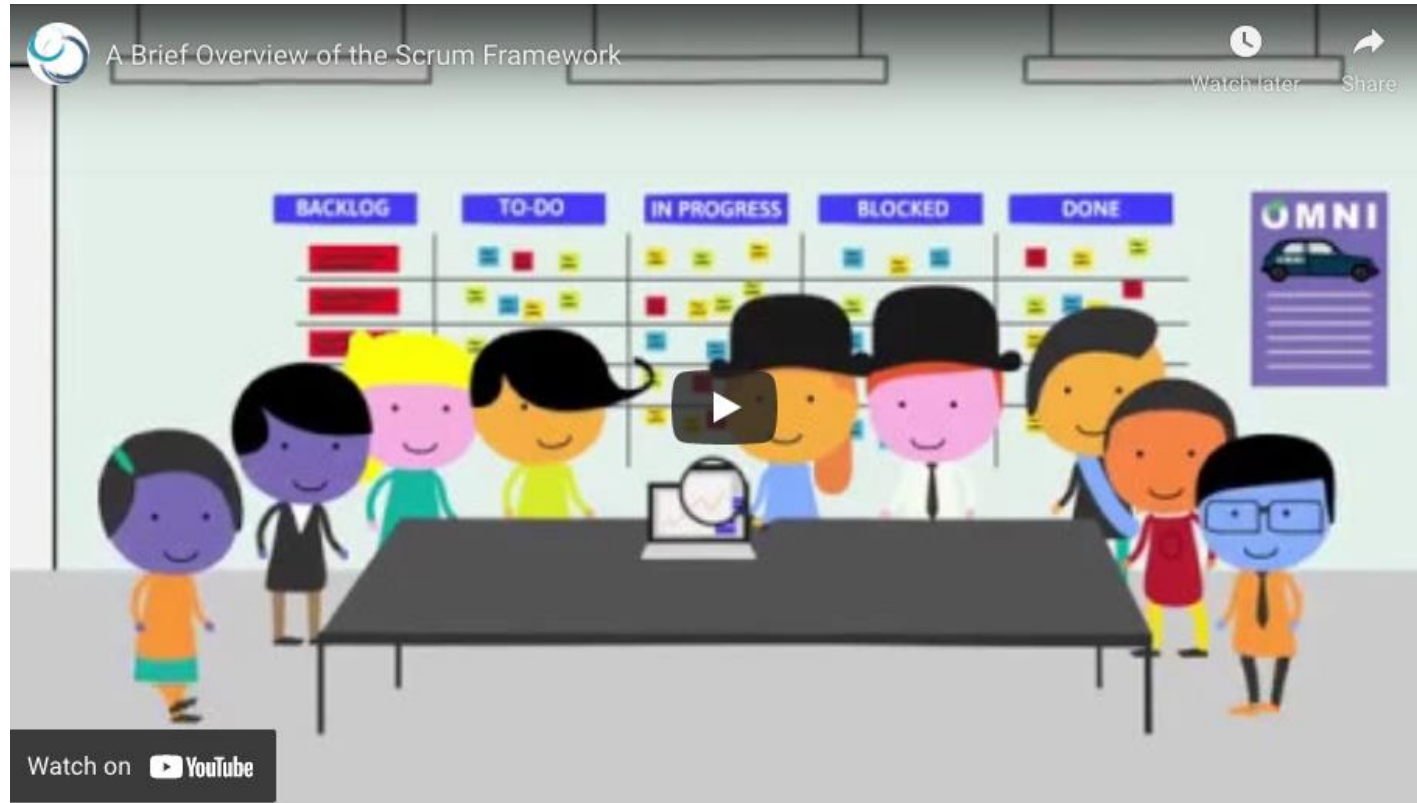
- **Inspect the increments** achieved (outcomes and results) in the latest Sprint
- Present Sprint outcome and results to **stakeholders**
- Determine what to do next, what has changed (e.g., in the environment) and identify any needed updates to the Product Backlog

- **Sprint Retrospective**

- **Inspect the process**, workflow of the latest Sprint
- Plan for improvement – quality and effectiveness
- Discuss positives of last Sprint and **discuss issues** (both solved and unsolved)



A Brief Guide to the Scrum Framework



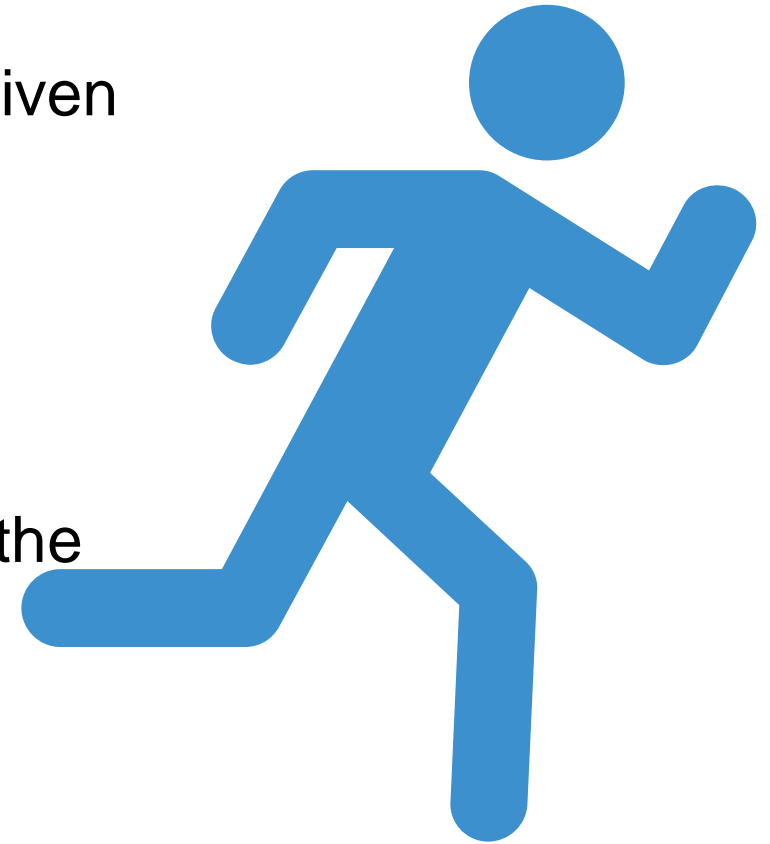
https://www.youtube.com/watch?v=gy1c4_YixCo&t=83s

Measuring Success in Scrum

- The key **Scrum** metric is:
 - **Velocity**: the number of story points done in a given sprint.

Recall...

- What is a user story?
 - Backlog work items are often user stories – the basic unit of work
- What are **story points**?
 - A measure of a story's difficulty



Agile Methods II

Summary

- In general, **agile** methods have become a dominant software development approach
- **Scrum** is a lean agile method that is built around the notion of sprints.

References

- <https://agilemanifesto.org/>
- <https://scrumguides.org/> – The Scrum Guide is the main source of information for these slides and all quotes and images are from the guide.

