SCRUM

Framework for Developing and Sustaining Complex Products

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Information on timing

A **Sprint** is a time-box of one month or less, preferably of the same length. This is the heartbeat of the Scrum Team. In general, the length of a Sprint depends on how long a change can be kept out of a Sprint.

Sprint Planning (with topics one and two) is a time-box of altogether eight hours at maximum for a one-month Sprint. For shorter Sprints, the event is usually shorter.

Daily Scrum is a short 15 minutes daily meeting. It is held at the same time and place to reduce complexity.

The Scrum Team decides how and when Product Backlog Refinement is done. This activity usually consumes no more than 10% of the capacity of the Development Team.

Sprint Review is a time-box of up to four hours in case of a one-month Sprint. For Sprints of lesser duration, the event is usually shorter. Scrum Team members should prepare no more than one hour for the Sprint Review.

Sprint Retrospective is a time-box of up to three hours for a one-month Sprint. For Sprints of lesser duration, this event is usually shorter.

Information on useful techniques

Collocation is a technique for teams working together in a common office space. This technique increases the team's productivity since face-to-face conversation is the best way to transfer information. There is no single factor that delivers more value for effective collaboration than collocation. The common work space supports communication, team spirit and awareness for other team members. The need for team spirit and quietness for people to concentrate has to be well balanced.

The Five Phases of a Retrospective[1] is a technique for facilitating a team to inspect its way of work and to identify actions to make it better. First, set the stage. Create an atmosphere where people feel comfortable discussing issues based on the understanding that everyone did the best job he or she could do, regardless of what will be discovered. Second, gather data. This is often done by looking back and identifying what went well and what did not. Third, generate insights. In this phase, teams typically identify why things happened and what should be done more, less or given a try. Fourth, decide what to do. This includes deciding on specific, meaningful, agreed and realistic actions which will be done in the next Sprint. Fifth, close the retrospective. Decide how to document the results and plan for follow-up.

The Impediment Backlog is a technique for the Scrum Master to publicly collect all obstacles which impede the work. The Impediment Backlog is a list of impediments, tasks to resolve them and their current status.

Planning Poker is a consensus based technique for estimating Product Backlog items or other things in Scrum. Usually teams estimate the relative size of items. Planning poker results in reliable and efficient estimations because the team gains a common understanding about the items. Planning Poker is a variation of the Wideband Delphi method.

A Product Vision is a technique to define the long-term goal of the project. It sets the overall direction and guides the Scrum Team. Everyone should be able to memorize the Product Vision; therefore it must be short and precise.

The Release Burndown is a technique to publicly display the progress of the current release. Typically a Release Burndown graph is used. The remaining work for a release is displayed on the vertical axis while the Sprints of a release are shown on the horizontal axis. Every Sprint the Product Owner updates the Release Burndown based on the velocity and the estimations of the team. Often the Release Burndown is used to show the progress for all releases towards completion of the whole product.

Release Planning is a technique to order the realization of the product into releases and to forecast delivery dates. It establishes the goals of the release as well as the highest priority Product Backlog items, describing the overall features and functionality that the release will contain. The forecast is based on the team's velocity and estimations of the items in the release.

The Sprint Burndown is a technique to publicly display the progress of the current Sprint. Typically a Sprint Burndown graph is used. The remaining work in a Sprint is displayed on the vertical axis while the work days of a Sprint are shown on the horizontal axis. In the Daily Scrum the Development Team updates the Sprint Burndown, by plotting the remaining work for the current day.

User Stories are a technique to describe requirements from the perspective of a user utilizing everyday language. A User Story captures what the user wants to achieve and why he or she wants it. User Stories generally follow this template: "As a USER I want GOAL/DESIRE so that BENEFIT." A User Story should be short and precise and fit on a small note card. User Stories provide a simple and easy way of handling customer requirements which can be product or service requirements. The intention of User Stories is to quickly capture the requirements and to iteratively refine and break them down. In Scrum the User Stories technique is often used to write Product Backlog items.

SPRINT START »

Sprint Planning Topic One

Sprint Planning, Topic One is the first step of the Sprint Planning activity. The Product Owner presents the ordered Product Backlog items and the entire Scrum Team collaborates about understanding the work to be done in the Sprint. Afterwards the Development Team forecasts which items it can deliver in the next Sprint and the Scrum Team crafts a Sprint Goal.
Techniques: · Collocation
· Product Vision

Sprint Goal
Forecasted Product Backlog Items
Definition of 'Done'
Product Backlog
Technique: User Stories

Sprint Planning Topic Two

Sprint Planning, Topic Two is the second step of the Sprint Planning activity. The Development Team plans in detail which tasks are necessary to fulfill the Sprint Goal and deliver the forecasted Product Backlog items. At the end of Sprint Planning, the Development Team should be able to explain how it intends to work as a self-organizing team to accomplish the Sprint Goal and deliver the Increment.
Technique: Collocation

Sprint Backlog

SPRINT WORK »

Day A

Day B

Day C

Day ...

Daily Scrum

Techniques: · Task Boards
· Impediment Backlog

During the Sprint the Development Team meets every day. In the **Daily Scrum** the Development Team inspects the progress and plans the work for the next 24 hours. The Daily Scrum optimizes the probability that the Development Team will meet the Sprint Goal. During the meeting, each Development Team member explains:
– What did I accomplish since yesterday?
– What will I do today?
– What impediments do I see?

Sprint Backlog

Work

Day Y

Day Z

SPRINT CLOSE »

Sprint Review

A **Sprint Review** is held to inspect the Increment and adapt the Product Backlog at the end of the Sprint, if needed. The Development Team demonstrates the Increment with focus on the Sprint Goal according to the Definition of "Done". The Scrum Team and stakeholders collaborate about what was done in the current Sprint and what to do next. The intent of this event is to elicit feedback and to collaborate on the next things that could be done to optimize value.
Technique: Collocation

Increment

Sprint Retrospective

In **Sprint Retrospective** the Scrum Team revises their previous way of work in order to make it more efficient and effective in the future. The Scrum Master encourages the Scrum Team to search for best practices and to identify improvement measures which will be implemented in the next Sprint.
Techniques: · Five Phases of a Retrospective
· Collocation

Product Backlog Refinement

Product Backlog Refinement is the act of adding detail, estimates, and order to items in the Product Backlog. This is an ongoing process in which the Product Owner and the Development Team collaborate on the Product Backlog and its details. However, Product Backlog items can be updated at any time by the Product Owner or at the Product Owner's discretion.
Techniques: · Product Vision
· Planning Poker
· Release Planning
· Release Burndown
· Collocation

Principles

Principles for high performing teams and organizations

Empowerment and Self-Organization

Teams are empowered and responsible for all decisions needed to deliver the Increment. They plan their work themselves and choose how to accomplish it best. Teams are cross-functional.

Early and Regular Deliveries

Every member of the team focuses on delivering the product incrementally. Early and regular deliveries ensure a continuous flow of results which enable teams to inspect and adapt.

Inspection and Adaption

Teams regularly reflect on how to be more effective and efficient. This applies to the product as well as to the way of work.

Transparency

Teams share information and knowledge to foster collaboration so that everyone can contribute in the best possible way to reach the goals.

Timeboxing

Everything in Scrum is timeboxed, meaning it has a definite beginning and end which is never extended. This ensures discipline, focus and on-time deliveries.

Sprint

A Sprint is an iteration of work during which a "done", usable and potentially releasable product Increment is implemented, starting with Sprint Planning and ending with Sprint Retrospective. A Sprint immediately succeeds the preceding one. During a Sprint there are no changes allowed which would endanger the Sprint Goal.

Information on the Scrum Team

The **Product Owner** is responsible for the features and the ROI of the product. This person provides, orders and manages the requirements in the Product Backlog. By making the Product Backlog visible to everyone, the Product Owner ensures the Development Team works on the "right things" from a business perspective. He or she identifies what has been done and what has not been done in a Sprint. The Product Owner is a person, not a committee and is authorized to make definite decisions about the product, its features and the order of implementation.

The **Scrum Master** is responsible for promoting and supporting Scrum. He or she does this by helping everyone understand Scrum theory, practices, rules, and values. The Scrum Master is a servant-leader for the Scrum Team. He or she helps those outside the Scrum Team understand which of their interactions with the Scrum Team are helpful and which aren't. The Scrum Master helps everyone change these interactions to maximize the value created by the Scrum Team.

The **Development Team** consists of professionals who do the work of delivering a potentially releasable Increment of „Done" product at the end of each Sprint. Development Teams typically consist of 3 to 9 people and they are self-organizing as well as cross-functional. The Development Team as a whole must have the skills to deliver the Increment. It is responsible for all estimates and it forecasts the Product Backlog items it will deliver during a Sprint. The Development Team decides on how to build an Increment. Furthermore it maintains the Sprint Backlog and monitors the progress towards the Sprint Goal. A stable team composition is important for increasing the performance from one Sprint to another.

Information on artifacts

The **Product Backlog** is an ordered list of everything that is known to be needed in the product. It is the single source of requirements for any changes to be made to the product. It lists all features, functions, requirements, enhancements, and fixes. The Product Backlog is dynamic. It is constantly changed to identify what the product needs to be appropriate, competitive, and useful.

The **Sprint Backlog** is the set of Product Backlog items selected for the Sprint including a plan for delivering the product Increment and realizing the Sprint Goal. The Sprint Backlog is a forecast done by the Development Team on the functionality of the next Increment and the work needed to deliver said functionality.

The **Increment** is the sum of all Product Backlog items completed during the current Sprint and all previous ones. At the end of a Sprint the new Increment has to be in a usable condition and meet the Scrum Team's Definition of "Done".

The **Sprint Goal** is an objective that can be met within the Sprint by implementing the forecasted Product Backlog items. It provides guidance to the Development Team on why it is building the Increment. The Sprint Goal gives the Development Team also some flexibility regarding the functionality implemented within the Sprint.

The **Definition of "Done"** is a shared understanding of the Scrum Team on the meaning of work to be complete. It typically contains quality criteria, constraints and overall non-functional requirements. As Scrum Teams mature, their Definition of "Done" is expected to expand encompassing more stringent criteria for higher quality.

[1] Agile Retrospectives: Making Good Teams Great. By Esther Derby and Diana Larsen. Pragmatic Programmers. 2006.

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