GUIDE TO

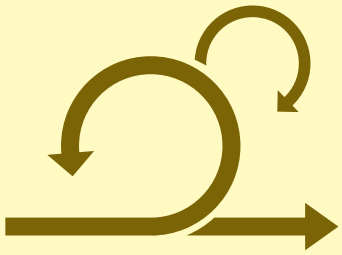
simplilearn

TABLE OF CONTENTS

AN INTRODUCTION TO SCRUM

The Agile practices and patterns have evolved in many additional layers over the years, and the Scrum practice, which is a subset of Agile, has subsequently unfolded itself in multiple levels, to address the complexities that arise in product development.

This eBook, will detail on the core principles of the Scrum process framework and further educate the reader on the Agile and Scrum Certification paths that can be chosen and benefited from.



WHAT IS SCRUM?

Scrum is a simple, lightweight process framework designed to help small cross-functional and self-organized teams develop complex products.

Therefore, it is an agile process framework that can be applied to product development projects that:

1. stick to specified deadlines,

2. need complex requirements and

3. still retain a level of uniqueness.

> **Scrum is defined as:**
> *"A framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value."*

Developed in the early 1990s, this framework was intended largely for the use in software development. It now finds relevance in a multitude of other industries including, education, manufacturing or any industry that is rapidly changing and those which demand high emergent requirements.

? WHY SCRUM?

Before delving deep into the concept and the functioning of the Scrum methodology in product development, it is crucial that we understand the benefits of this methodology. Here are a few ways in which Scrum assists in product development:

- With scrum, companies can build iteratively and incrementally and deliver products that the customer needs, in a faster and more efficient manner.

- Scrum allows to incorporate customer feedback at the end of every sprint (sprints are repeatable work cycles, also known as iterations; a sprint can be anywhere between a week to a month). This ensures that the products align with the needs of the customer and value to the user; rather than building products on assumptions.
- Scrum improves ROI by reducing costs. The Scrum methodology aides in eliminating wasteful procedures and skips unnecessary work that makes for a faster, leaner and cost-effective product development teams and processes.
- Scrum is therefore a methodology that helps in building products of value that find relevance and use among customers, in short time; and thereby benefits businesses and engineers largely.

THE SCRUM FRAMEWORK

The components of a Scrum framework include: scrum teams and their associated roles, events, artifacts and rules.

To adapt to the scrum framework in the production of specific products, and to benefit from them, it is also important to understand the objective of each of these components, and the rules governing the relationships between each of these; as this helps scrum teams create, adapt or change processes that are to be included/excluded in the scrum framework.

> **As Ken Schwaber and Jeff Sutherland, the first conceivers of the scrum methodology, said,**
> *"The methodology is founded on the 'empirical process control theory' and three concepts act as pillars in upholding the implementation of this theory. They are –* **Transparency, Inspection** *and* **Adaptation***."*

TRANSPARENCY: means that considerable aspects of the process should be visible to those responsible of the final outcome. This is essential as it sets a common standard and the participants of a Scrum team will share a common understanding.

INSPECTION: By inspection, it means scrum users inspect scrum artifacts to reduce unwanted cost and time and reach the Sprint Goal in stipulated, less time. Ideally, the inspection should be conducted frequently and preferably by skilled inspectors as it is a diligent process to be conducted at regular intervals, so much as part of work.

ADAPTATION: The principle of adaptation suggests that adjustments are made to the processes or the materials themselves, when deviation beyond acceptable limits tend to occur. This factor adds to one of the best advantages of the scrum methodology, as it directly influences the quality and the quantity of product development.

The four formal events identified for inspection and adaptation are: Sprint Planning, Daily Scrum, Sprint Review and Sprint Retrospective.

SCRUM ROLES

THE PRODUCT OWNER

THE SCRUM DEVELOPMENT TEAM

THE SCRUM MASTER

THE PRODUCT OWNER

Product Owner is the single person responsible for managing the Product Backlog. He / She is the key stakeholder in a product development project and is responsible for maximizing the return on investment. This is usually someone who is from product management or marketing, or a key user.

RESPONSIBILITIES:

- Controlling the priority of items in the team's backlog
- Directing the team towards valuable work and eliminating/reducing time on less valuable work
- Being the single authorizing body who allots the work or changes the priority of items
- Maximize team's effort value by making sure the team understands the requirements
- Representing the customers or the users of the product
- Creating acceptance criteria for the product's backlog items
- Answering team members questions as and when required, and so on

THE SCRUM DEVELOPMENT TEAM

As stated earlier, Scrum teams are cross-functional, self-organizing teams, which means the team comprises a range of skills which in a traditional setup may be found in different departments. The scrum team usually consists of few people – five to ten members – but it can even expand to hundreds, as per demands

FUNCTIONS

- As Teams are cross-functional, all the skill-sets required to develop a shippable product is available in the same team and they work in a single room, thereby increasing the likeness at succeeding in a given project.
- The Team is given autonomy in its functioning and is responsible for achieving the targets and the "done" status between the Sprint Planning and the Sprint Review meetings.
- However, each member, beyond effectively contributing in their area of specialization, is also expected to work outside their areas to best move backlog items.

- The Scrum Teams, therefore, works with the motto of not restricting themselves to their area of specialization but “doing the job” and self-organizing to accomplish the task at hand.
- It also creates and owns the estimates that are involved in a product development project.
- It is responsible for incorporating and completing user stories, in order to increase the value of the product that is developed.

THE SCRUM MASTER

The Scrum Master is the coach who maintains the productivity of the Scrum Team.

FUNCTIONS

- The Scrum Master expedites the Scrum process and keeps the Scrum artifacts visible.
- The Scrum Master is responsible for coaching the Scrum Team into a high-performing, self-organizing team.
- The Scrum Master helps the team learn and apply scrum practices within the team.
- The Scrum Master removes impediments that may hamper productivity in the team.
- The Scrum Master does not hold an authoritative hand in the team and does not make business or technical decisions, nor commit to work on behalf of the team.
- On the other hand, the Scrum Master is the coach who guides the Scrum team with the knowledge and the responsibilities that are expected of the role.
- The Scrum Master also works with the Product Owner by often suggesting effective Product backlog management, in order to maximize value.

The official Scrum Guide differentiates and states the Scrum Master’s responsibility to the Product Owner and the Scrum Team, separately.

SCRUM MEETINGS

Scrum meetings or the Scrum Events are conducted at specific points of the project which are – The Sprint Planning Meeting, Daily Scrum, Sprint Review Meeting and the Sprint Retrospective. Although the Scrum Master does not act as the decision-maker at these meetings, all Scrum Meetings are initiated and expedited by the Scrum Master.

THE SPRINT PLANNING MEETING

This meeting is conducted at the beginning of each iteration or Sprint. The Product Owner and the Scrum Development Team sit together and decide on the Product Backlog Item that is of most importance to business at the moment, and work on it at the particular Sprint.

Later, the Team breaks down the Product Backlog Item into Sprint Tasks and decides on the work flow that needs to be followed to accomplish the task in the given time. In this meeting, the Team also defines the objective or the Sprint Goal. The Sprint Goal is the end product of the negotiation between the Product Owner and the Scrum Team while deciding on the Product Backlog Item. The Product Owner's presence is not mandatory during this part of the meeting.

Ideally, the time spent on a Sprint Planning Meeting for a Sprint that would last two weeks will round up to 4 hours.

DAILY SCRUM

This meeting is conducted every day, at the same time and place, before commencing on the tasks for the day and lasts around 15 minutes. The Scrum Team gathers and there is a discussion on the accomplishments of the previous day, what is to be accomplished over the present day and what are the impediments that are expected.

While doing so, the team will examine the current Sprint Task list, Sprint Burndown Chart, and impediments list. The Sprint Task list contains the list of fragmented work-units that are to be conducted in the given Sprint.

The Sprint Burndown Chart, is a visual artifact that often acts as a strong motivator for the Scrum Team – it gives the team a glimpse of the task that has been accomplished, tasks that are to be accomplished and the overall progress on the current project.

The Product Owner does not necessarily have to be present during these meetings.

This practice (Daily Scrum Meeting) is an addition to the exclusive characteristics of the Scrum Methodology as it involves team members reporting to each other, instead of to a boss.

SPRINT REVIEW MEETING

This is the point at which the Scrum Team delivers the workable product to the Product Owner and the stakeholders. The Product Owner then decides on the "done" status for the tasks and incomplete tasks are sent back to the Product Backlog for future Sprints.

One of the main advantage of conducting this meeting, is that it allows stakeholders and customers to provide feedbacks and inputs on the developed product. These feedbacks are added as new Product Backlog Items and incorporated during a different Sprint activity.

SPRINT RETROSPECTIVE

This stage in product development occurs after the Sprint Review and before the next Sprint Planning. For a Sprint that is two weeks long, the Sprint Retrospective would usually be held for about 90 minutes. It is the responsibility of the Scrum Master to schedule a Sprint Retrospective and ensure all team members participate.

During this stage, the Team reflects and analyzes their activities during the last Sprint. Discussions are carried out with regard to people, relationships, process, and tools; and improvements are suggested. A plan is then devised for the next Sprint and the suggested improvements are assimilated into the plan.

BACKLOG REFINEMENT MEETING

In Sprint, the basic concept is that the management will not change the requirements during a Sprint. So, to idealize the effort of items in the Product Backlog, the team splits large Product Backlog Items and gets issues relating to them clarified. New user stories may be written by a part of the team, by including the notions laid out by the Product Owner and the stakeholders. Finally, the Product Owner prioritizes the effort on the Product Backlog items, before the next Sprint Planning Meeting.

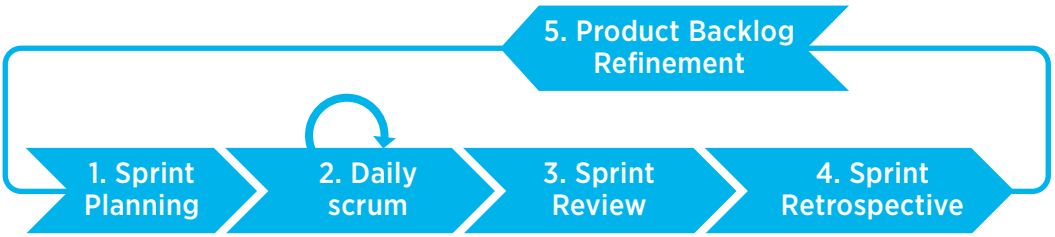


Figure 1: Sprint Execution

SCRUM ARTIFACTS

The Scrum artifacts intend to enhance the already mentioned three pillars of the Scrum process – transparency, inspection and adaptation. The Scrum Artifacts include: the Product Backlog, Product Backlog Item (PBI), Sprint Backlog, Sprint Task, Sprint Burndown Chart and the Product/Release Burndown Chart.

PRODUCT BACKLOG

The Product Backlog is a list of all the requirements needed in product development and is also the single source of requirement for changes to be made in the product. The contents to the Product Backlog can be added by the stakeholders or the team members. Hence it is a list that constantly evolves and grows and changes to match the needs of the product.

A single Product Backlog can be used to represent work on an upcoming product, to multiple Scrum teams that are working on the same product.

The contents of the Product Backlog item is constantly re-prioritized by the Product Owner and is kept visible to all stakeholders. This is maintained mainly during the Backlog Refinement Meeting.

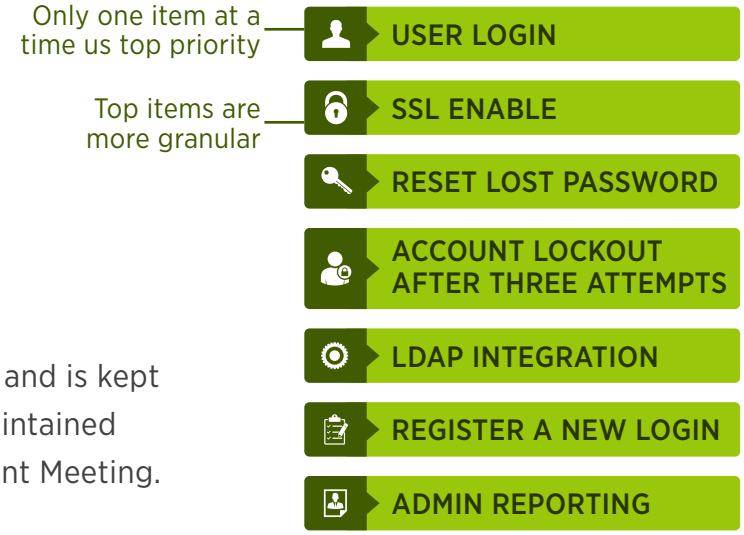


Figure 2: Product Backlog

PRODUCT BACKLOG ITEM

The Product Backlog Items are the specific items in a Product Backlog. It is the unit of work to be completed by a Scrum Team in one Sprint iteration. The effort to be taken in a Product Backlog Item is estimated by the Team in the form of user stories. However, the business value for this is decided by the Product Owner, in order to prevent technical debt.

SPRINT BACKLOG

The Sprint Backlog encompasses the Product Backlog items for the Sprint, along with the plan that is devised to achieve a specific objective or the Sprint Goal. This is solely decided by the Development Team. The Sprint Backlog keeps changing and evolving during the Sprint activity – new requirements and changes relating to work are added, and unnecessary elements are deleted from the list, as and when required. In short, this is some kind of an “information radiator” that looks like a physical task-board.

Figure 3: Sprint Backlog

SPRINT BURNDOWN CHART

As previously discussed, the Sprint Burndown Chart is a Scrum artifact that comprises of the tasks and the hours remaining to achieve a Sprint Goal. The 'x-axis' might represent the tasks and the 'y-axis', the time. The purpose of Sprint Burndown Charts is to enhance team self-organization and is in no way a management report. The components adding to the chart is re-estimated on a daily basis and usually goes up before reaching the null-point.

A typical Sprint Burndown Chart would look something like in Figure 4.

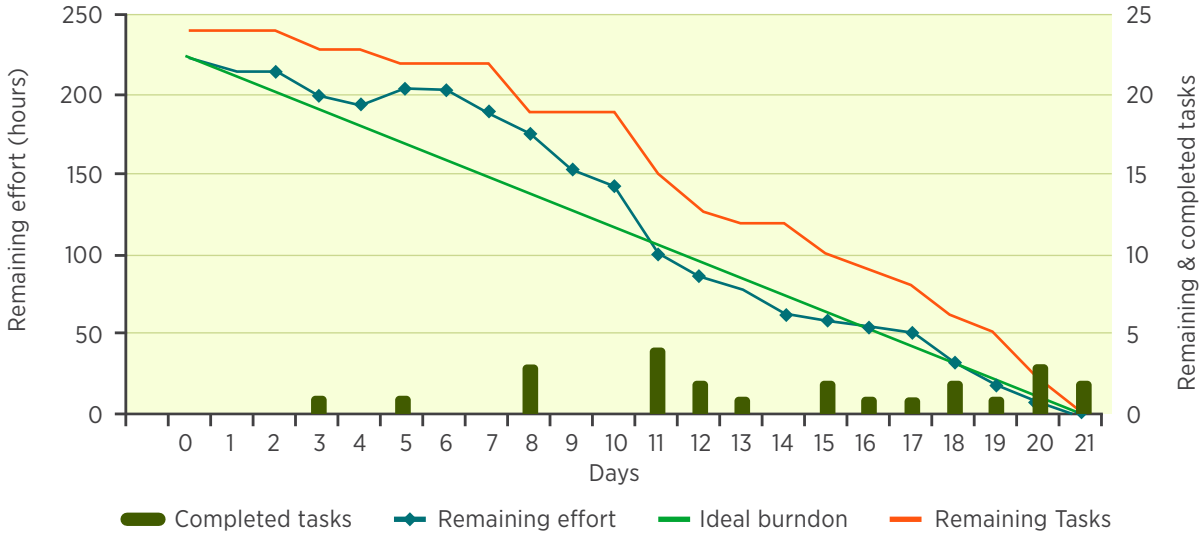


Figure 4: Sample Burndown Chart

ADDRESSING THE RISK FACTORS

As Scrum teams are usually cross-functional, members from multiple discipline groups gather in a common team room to hold discussions on the risk factors that need to be considered in a specific product development project or, Sprints and Sprint Goals.

In order to do this, it is important that the right type of communication is used at all points of the project. For instance, while addressing high-rated risks, involving too many people in the communication will make things worse.

Therefore, to effectively address the issue at hand "feature teams" are used to interact at different levels of the layers and across components. And multiple teams interact with each other by choosing a representative delegate from one team to participate in all the meetings.

The communication, on an overall sketch is represented in Figure 5.

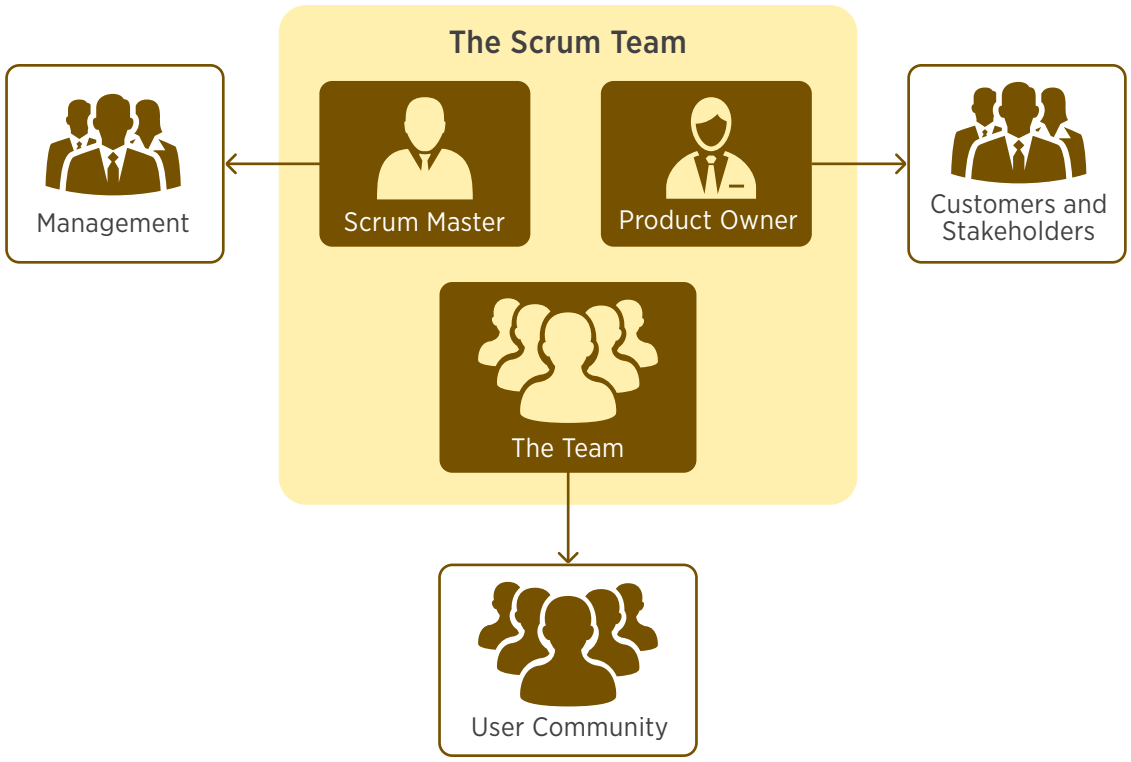


Figure 5: Scrum Communication Model

To have a better understanding of the complexities involved in the scaling process, it is advisable that organizations and professionals employing Scrum in their processes seek and pursue training and coaching.

WHAT ARE THE CERTIFICATION PATHS?

Scrum education and certifications are important qualifications for professionals and teams that use the Scrum processes to increase “collaboration, productivity, and success among team members”.

The certifications offered under the Scrum category include:

Certified ScrumMaster (CSM)	For Practitioners
Certified Scrum Product Owner (CSPO)	
Certified Scrum Developer (CSD)	
Certified Scrum Professional (CSP)	
Certified Scrum Coach (CSC)	For Coaches
Certified Scrum Trainer (CST)	For Trainers

Simplilearn® as a Registered Education Provider (REP), offers **CSPO** and **CSM** Certifications for professionals and aspiring candidates. While the CSPO is a certification at the Intermediate level, CSM is for Experts. For starters, a beginner level training course that overviews the Scrum Methodology (Scrum Overview), is also offered through our REP program.

GOOD LUCK

simplilearn