# Scrum –Agile Project Management

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# Scrum – Agile Project Management

**TERM PAPER | Agile, Scrum**

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**Abstract.** In the era of high traffic in rapid delivery of outputs in product based companies.Scrum is one of the agile methodologies which is designed in respect to guide teams in the iterative and incremental delivery of a product.It is referred to as “an agile project management framework,” with its focus is on the use of an empirical process that allows the teams to respond rapidly, efficiently, and effectively to change with time.Traditional project management methods fix
requirements in an effort to control time and cost. Scrum differs with it in the way that it fixes time and cost both in an effort to control requirements in order to save money with time and resource.Scrum relies deeply on team and customer relationship.This paper provides an overview of Scrum and its use in project management.

**Keywords:** Project Management · Waterfall Agile · Scrum · Sprint · Backlog · Timer job · Project simulation

**Scrum.** We should first know that the concept that agile is scrum is wrong. While Scrum is indeed agile, it is not the core method of implementing agile principles in project management.Scrum comes to those many methods that come under agile process in project management.The other methods include Extreme Programming (XP), Crystal, Feature Driven Development and so on. All these methods are prone to Agile Manifesto and its disciplines.

Scrum is an agile method of iterative and incremental product delivery that uses frequent feedback and collaborative decision making between team and customer representatives.

**History.** Scrum, as an agile project management framework. It has its roots in the early 1980s. Its origins can be traced back to the work of Hirotaka Takeuchi and Ikujiro Nonaka, who introduced the concept of "Scrum" in a 1986 published Harvard Business Review article titled "The New New Product Development Game." In this article, Takeuchi and Nonaka described a flexible and adaptive approach to product development inspired by the game of rugby, where a team works together collaboratively to move the ball forward despite uncertainty and opposition.Through this article the writer emphasises that the collaborative nature of rugby players in a team , about how they goal and win matches can be imposed in product management as a new method .

Jeff Sutherland and Ken Schwaber began to formalise this Scrum ideology as a project management framework in the early 1990s. They drew upon their experiences in software development and combined elements from various methodologies, including Lean thinking and empirical process control. They first applied this method at the Easel Corporation in 1993.Ken Schwaber and Mike Beedle were both americans who wrote about their experiences in their book Agile Software Development with Scrum published in 2002, followed by Schwaber's book Agile Project Management with Scrum published in 2004, which included the work Schwaber had done with Primavera.Further the Agile Manifesto, published in 2001, further propelled the adoption of agile methodologies like Scrum.In the mid-2000s, organisations such as the Scrum Alliance and Scrum.org were founded to promote Scrum and provide training and certification programs for practitioners who are implementing Scrum in their project.

Now Scrum is incremented in a vast size working in almost all sectors.Today, Scrum is widely used across various industries beyond software development, including marketing, healthcare, innovative product delivery and education.The enthusiasts and practitioners are learning in scrum.org for

certifications to work further using Scrum methods. Many Learning Management Systems like Coursera , Udemy are providing courses on Scrum and Agile principles.Scrum has come to trend as the most popular methods due to its iterative , adaptive and incremental delivery of products.

**The Scrum Framework.**The project here begins with a transparent vision provided by the business team, and a set of products and its features in respect of importance. These features are the part of the product backlog, which is maintained by the customer or customer representative referred to as the Product Owner respectively. A time box commonly referred to as an iteration or sprint, is the set amount of time that the team has to complete the features selected. Sprints take generally from one to four weeks in length, and that length is maintained throughout the life of the project so as to establish a cadence. The team selects items from the product backlog that it believes can be completed in the sprint, and creates a sprint backlog consisting of the features and tasks as part of the sprint-planning meeting.Generally a sprint is a fixed-length period of time, typically lasting between 1 to 4 weeks, during which the Scrum team works to complete a set of product backlog items.Each sprint has its specific goal, which is defined by the Product Owner in collaboration with the Development Team and is based on the highest-priority items from the product backlog.

Once the team has committed to a sprint backlog, the task work begins for the product.At this duration of time in the sprint, the team is protected from interruptions and allowed to focus on meeting the sprint goal. No changes to the sprint backlog are allowed; however, the product backlog can be changed in preparation for the next sprint.During the sprint, the team checks in daily and meets with each other in the form of a 15-minute meeting known as a scrum. The team stands in a circle as a ditch member of states what they did yesterday, what they are planning to do today.At the end of the sprint, the team shows demos of the work they have completed to the stakeholders and gathers regular feedback that will affect what they will work on in the next sprint. They also hold a retrospective to learn how to improve. This meeting is critical, as its focus is on the three pillars of Scrum: transparency, inspection, and adaptation.

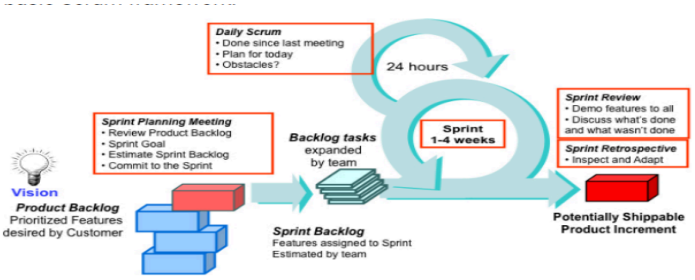

Exhibit 1. The Original Scrum Framework

**Roles and Responsibilities.**There are three roles in Scrum: the Team, the ScrumMaster, and the Product Owner.

The *ScrumMaster* is the leader and caretaker of the process, the shield of law for the team, and the prime protector of the team. They remove all potholes, and facilitate better flexible team communication, always discuss rapidly within the team and do negotiations with outside bodys(like stakeholders etc.) to the team.They are always committed and dedicated in service to the team.The team members relies on them and relatively complete tasks as per order restricted for each team.

The *Team* owns the estimates as well as makes task commitments, and reports daily status among each other in the daily scrum.The Team consists of the seven plus or minus two people, who are jointly responsible for the delivery of the product. They are total self-organising, meaning that structure appears without explicit intervention from the outside. In other words, the team owns how it chooses to build the product with its features—the team owns the"how," while the Product Owner owns the "what" and the Scrum Master owns "why".

The *Product Owner* represents the value of the customer about the product and has the right to make decisions about the product . They owns the product backlog and are solely responsible for the visionary communication to the team, and defining and prioritising the backlog items. The Product

Owner cooperates with the team on a daily basis to clear their doubts and provides formal, informal guidance relevant to the proposed product.

**Applications of Scrum.**Scrum is simple collaborative and is applied through following a series of ceremonies, face to face meets or meetings respectively .Required Scrum ceremonies include the sprint planning meeting, the daily scrum, the sprint review and the sprint retrospective. Work in pieces of time boxes called sprints are some required resources.The release planning meetings are optional based on lead and team members and allow the planning and forecasting of groups of sprints.

## Sprint Planning Meeting

The sprint-planning meeting is held on the very first day of every individual sprint. The ScrumMaster, Product Owner, and Team are all visionaries who attend it. The Product Owner participates in the meeting and throws an order to complete the features he or she would like to see completed in the sprint. The work estimates are also reviewed then to see if the team has the gap of time within deadline to complete all the features that are requested in the sprint. If the gap is small or invisible then, the Team commits to the sprint. If it is false , then the lower priority features returns into the product backlog, until the workload for the required sprint is small enough to obtain the Team's Commitment for the sprint.

## Tracking Progress

After the sprint-planning meeting is over and the team has made a commitment towards the sprint, the team begins to track its progress using highly visible information radiators. These radiators include the burndown chart and the task board.

A *burndown chart* is a graphical representation .It tracks the progress of work completed within a sprint in scrum or any other time-boxed iteration. It provides a clear visualisation of the representation of  remaining task versus deadline allotted, allowing the scrum team to monitor their progress within the sprint towards completing the sprint goal.

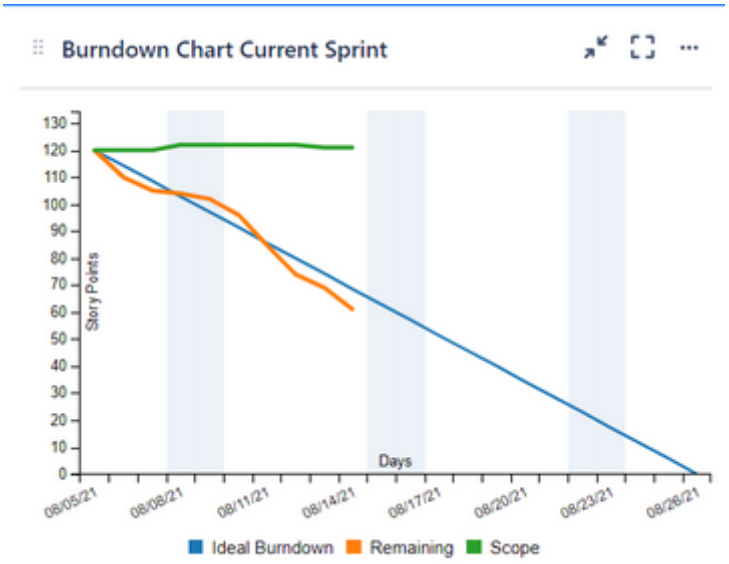


Fig: burndown chart

One of the good and efficient modern day tools for arranging burndown charts is Jira.Jira is completely packed with these resources .

The *task board* is used by the team to track the progress of the tasks for individual features. The minimum columns used are To Do, Doing, and Done present inside. Teams will have their daily scrum meeting visible at the task board, and move items across the board when stating what they did yesterday,what they plan to do today, and what obstacles they are grappling with.

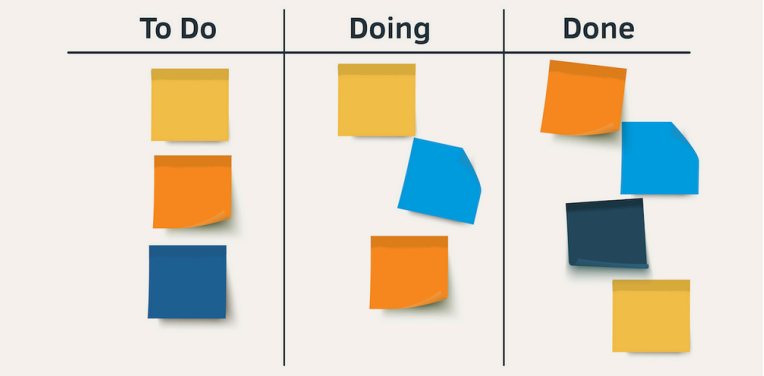


Fig: scrum task board

## Sprint Review

At the end of the sprint, the team arranges a meeting calling the stakeholders for a sprint review meeting where the features that were completed in the sprint are demoed and feedback is requested. The Product Owner is responsible to keep track of the feedback and incorporates it as needed into the product backlog.
Once the review part is over, the team (excluding the stakeholders) conducts a meet to determine their ups , downs and table turn point throughout the task. An action plan is created then and these items are implemented over the next sprint period, and reviewed for efficacy in the next sprint retrospective.

## Release Planning

Release Planning is a part of Scrum, and it is a simpler way to do long-term planning for a time box that consists of multiple sprints. It is often done in quarters , and the results of the quarter do not have to get a release to the customer respectively.
The entire team attends the release-planning meeting, where the Product Owner presents the features his/her would like to see completed in the quarter.They propose a deadline for the completion and the tasks are started accordingly.

## What's wrong with the rest of the documentation?

Popular documentations in project managements are present like Gantt charts are not typically used on Scrum projects.The Burndown charts ( sprint burndowns and release burndowns), task boards, backlogs, sprint plans, release plans, and other metrics charts are used instead of the commonly found stuffs we found usually to communicate progress, status, updation and forecasts.These documentations are necessary while in a Scrum project. A variety of agile project management tools exist in the current market which are free to access and provide this type of dashboard report visualisation, including plug-ins for Microsoft Project. Another software as mentioned is Jira.It is highly popular due to its simple and influential user interface for the creation of these documentation.

The documentation Scrum measures are the product backlog, sprint backlog, release burndown, and sprint burndown.The rest of the documentation are on a hold status so that Scrum Master decides with others. But there's a rule in Scrum is that any documentation or other artefacts attracts customers well and helps to progress fast .Then it will be considered and proposed within Scrum for better progress.

## Who is the ideal Scrum Master in a scrum ?

Well the work and characteristics of a Scrum Master is deep .But in a project the Project Manager acts like Scrum Master. He/she organises , communicates and do discussions to his team for the purpose of of taking further steps for completion of task and gives suggestions to his fellow team about the scrum .Scrum Master is always ready for a challenge to accept thats regarding any obstacle in the product or, any communication problem within or outside the team (eg. stakeholders etc.) and solve every problem on their own. Scrum Master is very confident about the Scrum and consistent in his/her decision to complete the goal of Scrum. Scrum Master is the first who is responsible for anything happening within the team and is the first to defend any wrong information or, misunderstand raised against the team.Scrum Master is very hard working thus taking daily updates necessarily and

working by themselves whenever Scrum gets some issues.Scrum Master moves like a saviour to his Team and thus takes all challenges and issues to them self for the sake of his/her ‘s Team.In this example there are multiple Scrum Masters so not restricting to characterise one.

**Scrum Examples.** Scrum is now developed as a common in software development projects and myriad examples can be found through research papers.Here are some examples which are realtime and are outside of the software project development.

### Scrum in Church

Rev. Arline Sutherland worked as an interim pastor for the Unitarian Universalist church. She was the wife of Mr. Jeff Sutherland, one of the co-creators of Scrum. In a 2009 released paper for the Agile 2009 Conference titled Scrum in Church: Saving the World One Team at a Time, Rev. Sutherland described her experiences of using Scrum to organise in churches in Delaware, Massachusetts, Connecticut, Florida, and Virginia.
Scrum is primarily used by officers and volunteers to both “keep the engine running” and in “new initiatives” (Sutherland, 2009, p. 3). Projects under various programming areas such as social justice, pastoral care, children and youth, membership development, music, facilities, finances and fund raising were managed using Scrum.
Several adaptations and steps were made and decisions taken in each instance to accommodate the needs of the team members and the constraints of their environment. It was impossible to hold a daily in-person rush with more than half the team holding down day jobs. So Skype was used since “the largest demographic using Skype are grandparents, (and) even older less technologically sophisticated members are often skilled users” (Sutherland, 2009, p.4).
It is worth that Sutherland discovered “that each and every time Scrum is introduced into a system it has to be adapted” (Sutherland, 2009, p. 4). Originally discouraged that her implementations of Scrum never seemed to match the ideal of “real Scrum,” she quickly realised that the benefits of genuine adaptive change included the adaptation of Scrum itself.

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