



Harnessing Scrum - Engineering Excellence through Agile Methodologies

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ABSTRACT

This white paper explores the principles, processes and practices of Scrum engineering, which is a framework that is now widely used across multiple industries. It is both iterative and incremental in progress where great collaboration and adaptability is needed and followed. While the document touches about benefits and challenges faced during implementation, I will make an effort to show this in an atypical perspective.

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INTRODUCTION

Scrum is an Agile framework that facilitates complex software development projects by promoting both iterative and incremental progress. It has become a cornerstone that is followed by many enterprises. Scrum follows empirical process which we will discuss in the upcoming sections.

Empirical Process & Lean Thinking

Scrum follows Empirical Process. What is Empirical Process – it is an idea which asserts knowledge that comes from experience and decisions made on what is known. In simple terms, we do not know or know very little in the beginning of software development but we learn and make informed decisions based on the data. The data is collected during the development process which is also called Sprint cycle.

Lean thinking talks about reducing waste and focusing on essentials. Scrum preaches to avoid unnecessary overhead, follow just the key activities and teams should periodically evaluate on the processes and stay focused/be on track.

Value Stream mapping is one of the mechanisms that is followed in lean where team often create maps to depict end-end processes and value delivered. During this process, any bottlenecks identified and removed will be taken care before the start of work (like dependency on other modules, awaiting approvals etc.)

Pillars of Scrum

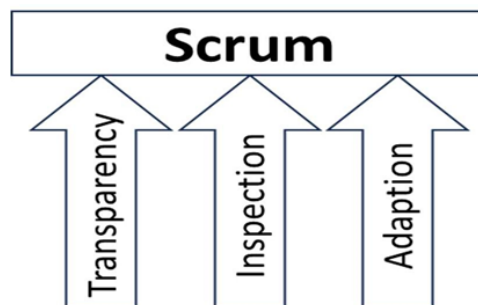


Illustration 1 Scrum talk about three pillars –

Transparency- means looking at available facts in their current state. It is expected that all entities of the enterprise operate transparently. Trust is essential and there is no hidden dependencies. Goal of the product is shared by everyone.

Inspection- In this step we are expecting an audit process to happen over the development process. The focus is to have artifacts, work and other activities to be reviewed continuously and adopt to the changes. Ex: Product Backlog is transparent and viewable by whole scrum team (Product Owner, Scrum Master & Developers), they can review the stories/features and make amends as needed. Similarly, Active Sprint board on JIRA shows the current assignments for all the team members participating in the sprint cycle.

Adaptation- This is about continuous improvement. Action items arise from Inspection step and teams formulate plans to make themselves & product better than yesterday. This should lead to benefits like faster time to market, improved return on investment (ROI), enhanced customer satisfaction and employee satisfaction.

Rule



Often, during most discussions, we talk about components of Scrum separately. In the sense, we discuss what different roles in the scrum are? What the different events & artifacts are? But all these together are also called as 3-5-3 rule. Let us explore into each of these.



Product Owner (PO) - Role

He/She should be able to understand the product vision, how it helps the customers and in turn the organization. PO then defines the same by communicating long-term vision to the stakeholders. In the action plan, PO proposes to achieve the vision through various short-term goals which we can call interim releases. PO is also responsible for release plan of the product.

Other responsibilities of PO include

- Create and maintain Product Backlog
- Stakeholder Communication
- Product Backlog Refinement
- Maximizing Value
- Decision Making
- Collaboration with Scrum team



Scrum Master (SM) - Role

Let us give a different perspective for responsibilities of Scrum Master.



SM Roles can broadly be classified as

• **Planning –**

- a. SM works with PO to understand and share the same vision of the product as PO.
- b. Work with PO to have a healthy backlog and prioritize them.
- c. Facilitate refinement & sprint planning sessions.
- d. Make sure artifacts like JIRA and JIRA Align are in sync so the product area leads can have an overview of the progress.

• **Execution –**

- a. During sprint execution, SM acts as a servant leader trying to remove impediments and/or coaches the team to reach to a maturity of solving issues independently.
- b. Facilitate scrum events.
- c. Review sprint health with team using Burn Down Charts.
- d. Creating an environment where each team member invests in other's success.
- e. Motivate the team for self-governance.
- f. Conflict resolution.
- g. Servant Leader & help with continuous improvement.

• **Reports –**

- a. SM uses different reports to show continuous progress of team and delivery of product. He/She showcases overall maturity of the team and alignment of enterprise set OKRs using tools like Agility Health Check.
- b. SM may create reports for immediate managers depicting metrics wrt. Predictability, Churn, Velocity, Cycle Time etc.
- c. On a team level, SM showcases burndown chart to discuss health/progress of sprint and work on action items discussed during retro.

• **Governance-**

- a. Scrum Master also has to contribute to Organization's development in Scrum space. Hence, SM makes sure to attend SM Cohorts, PODs to share learnings, discuss issues in team and help each other thereby bringing learnings to the team for implementation.
- b. SM also need to make sure that teams are adhering to Engineering standards and not deflecting from process.
- c. SM need to devote 20% of time or as per enterprise standards in continuous learning and complete any certifications as mandated.



Developers – Role

These team members are crucial for developing a successful product. The team should be self-organized and cross-collaborated. They are responsible for

Collaborating on Sprint Planning – They actively participate in this event, work with PO to understand product backlog items and move most valued items into Sprint backlog. During this event, team discusses on impediments, dependencies risks in implementing the sprint goal. They ensure items follow Independent, Negotiable, Valuable, Estimable, Small & Testable for focused delivery by ensuring Definition of Ready is met.

Developing & Implementing functionality – They write code, design features, implement functionality while adhering Definition of Done.

Daily Adaption towards sprint goal.

Holding each other as owners for the sprint goal.



Product Backlog Refinement – Event

While Sprint is considered as a Time Boxed event, for our discussion we will consider events which are part of Scrum -

The goal of product backlog refinement is to work together as a team to ensure Definition of Ready is met. And, what it means is developers have a clear understanding of the story, it should be small enough to be developed & tested in the same sprint and doesn't depend on any other story which could possibly become an impediment. PBIs (Product Backlog Increment) should also add value to the product, which means any developer doesn't have the

option for cherry picking their items. One should understand that this is an ongoing process to consistently deliver increments and building trust with stakeholders.



Sprint Planning – Event

The goal of this event is to define what can be achieved in a sprint cycle. This is a collaborative discussion amongst the scrum team.

The backlog items are usually stories which contribute value to the product as an increment.

Team discusses and analyses any dependencies, feasibility and potential risks.

Once they all agree and come to a common understanding, they estimate the effort.

In a typical environment, all enterprises encourage to allocate 20% of sprint time for Life Cycle Management efforts and/or upskilling to enhance continuous learning.



Daily Scrum – Event

This is a 15 minutes timeboxed event created to discuss and align with the sprint goal and to create a plan of action until team meets next day. Team discusses 3 main questions.

What have I accomplished yesterday.

What will I work on today.

Any impediments, issues, concerns which are hindering the progress.



Sprint Review – Event

This is the meeting held at the end of the sprint to showcase the work done by the team to the relevant stakeholders. Inputs received from them will then be added to product backlog which will undergo refinement and then the cycle goes on.



Sprint Retrospective – Event

While each event in Scrum is important, my personal favorite is retrospective. Daily Scrum also serves the purpose of inspecting the progress and correcting the course of action, retro address the greater problem which team as a whole need to cater to.

The team looks back and considers what went well, what could have gone well and any action items to make themselves better.

Team must remember that retro is a safe place to be vocal of their ideas without any damage to Psychological Safety.



Product Backlog – Artifact

Items in backlog could be stories which directly provide value or tasks, defects which indirectly enhance the value of a story. Product Backlog is a fundamental artifact which is solely owned by PO. Items in the backlog are prioritized by PO by putting high deliver values items on the top. Backlog items are usually prioritized using methods like MoSCoW or Cost of Delay etc.



Sprint Backlog – Artifact

Items in sprint backlog are high priority or most valued items in the product backlog. Items of utmost importance are moved to sprint which is then converted to a product increment. Spring backlog is an actionable plan agreed upon by Scrum team. This is a real time, highly visible picture of work that developers accomplish during the sprint.



Product Increment (PI) – Artifact

PI is the total of all completed items in sprint backlog. It is considered as a shippable artifact which can be delivered to stakeholders. PI is verified by developers to make sure it's a workable product.

Scrum encourages iterative and incremental development. By delivering usable increments, teams continuously learn, adapt and create a valuable product.



Benefits of Scrum

Flexibility & Adaptability – Responding to change vs following a plan is the most important trait in Scrum. Inspecting, adapting to changes allows the team to respond to changes quickly due to market conditions or needs. One should note that response to changes should not be considered as a GO to change sprint goal once sprint is started. This will de-motivate the team. Scrum team has to discuss the need of changing the items in active sprint backlog and developers may consider removing any items from sprint backlog which have been previously accepted to accommodate new changes. Only PO has the authority to cancel the items in a sprint.

Collaboration and Communication – Regular meetups, DSU, Working Agreements help with better communication amongst the team members.

Product Quality – Self organized teams provided better designs and better quality. On the other side, continuous testing & feedback ensure loopholes are addressed promptly.

Customer Satisfaction – The focus is on customer collaboration through continuous and frequent deployments by allowing changes through the development cycle. This enhances in continuous customer feedback leading to a product that meets their needs.

CONCLUSION

Enterprises must look at Stacy Ralph Chart and understand that Scrum is a framework used to create and manage complex software development process. By following its principles, teams can increase product quality and customer satisfaction by focusing on continuous learning amongst team members and willingness to adapt to new ways of working.

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