Scrum Guidelines

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1. Introduction

1.1 Purpose

This document describes the process to be followed while implementing Scrum methodology during the execution of a project in Scrum & DevOps methodology.
The objective of this document is to provide a common guideline for Scrum process in software development projects. These guidelines enumerate general points to be followed for effective implementation of Scrum methodology.

2. Scrum Methodology Overview

2.1 Scrum Overview

"Scrum" is Project Management Methodology for Agile development. On one hand Scrum is very simple. The process, its practices, its artefacts and its rules are few, straight forward and easy to learn. On the other hand, Scrum's simplicity can be deceptive. Scrum is not a prescriptive process; it doesn't describe what to do in every circumstance. Scrum is used for complex work in which it is impossible to predict everything that will occur. Accordingly, Scrum simply offers a framework and set of practices that keep everything visible. This allows Scrum's practitioners to know exactly what's going on and to make on-the-spot adjustments to keep the project moving towards the desired goals.

Three pillars uphold every implementation of empirical process control:

- Transparency
- Inspection and
- Adaption

Transparency: Those performing the work and those accepting the work product must share a common definition of "Done".

Inspection: Scrum users must frequently inspect Scrum artefacts and progress toward a Sprint Goal to detect undesirable variances.

Adaptation: Scrum prescribes four formal events for inspection and adaptation –

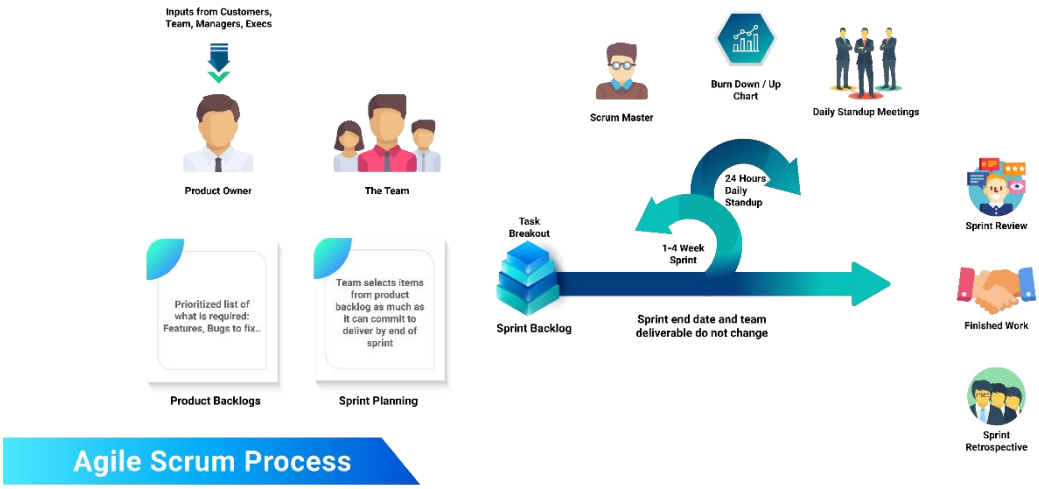
- Sprint Planning
- Daily Scrum
- Sprint Review/Sprint Demo
- Sprint Retrospective

2.2 Characteristics of Scrum

- It is a Project Management methodology
- It is a wrapper for existing engineering practices
- Scrum works with XP, RUP and any other engineering practice
- Scrum believes in empowering the development teams
- Scrum advocates working in small teams (6-8)
- It consists of only three roles (Product Owner, Scrum Master and Team)
- Scrum expects to track the progress on daily basis

2.3 Scrum Process Flow

- Prioritized requirements should be documented in a product backlog. Priorities should be assigned by Product Owner. Product Owner will be from customer team who can help team with end to end understanding of the product
- Sprint backlogs are created by breaking down the requirements in a product backlog into multiple sprints based on priorities. Each sprint backlog contains a list of requirements that can be delivered in that specific sprint. This list can change over the time as the priorities keep on changing. But once the sprint is planned and started, nothing can be changed in that specific sprint
- A Sprint is ideally recommended to be of 15 calendar days (two weeks) duration. However, this duration can vary from project to project and can range from 1 week onwards to 30 calendar days based on the customer requirement
- At the start of each sprint, sprint planning meeting should be conducted with all the team members, Scrum Master, Product Owner and any other required stakeholders to understand the requirements in depth. This will help team to understand better and build a good software
- The sprint progress should be tracked through daily scrum meetings and the burn down charts as required
- Operations team should be engaged continuously with the development team throughout the project. They provide the necessary inputs to the development team in order to build and validate the Operations & User related requirements.
- Operations team may participate from Hot House to understand the business vision, and the release time lines
- At the end of the sprint, a deliverable called as product increment should be shipped out to the customer without any wasted inventory (unused code in IT terms)



Pictorial Representation of Scrum Process Flow

2.4 Scrum Roles and Responsibilities

There are three roles in this Scrum; Product owner, Scrum Master and the Team.

Product Owner:

- Product Owner is the person responsible for managing Product Backlog
- Owns Product Backlog and Prioritizes
- Ensures that Product Backlog is Prioritized, Visible, Transparent and clear to all
- Ensures the Development team understands items in Product Backlog to the level needed
- Represents all stakeholders in the project
- Directs the project, Sprint by Sprint,
- Manages ROI through Prioritization and Release Plans

Typically, Customer or Customer Proxy (Person from Onsite, BA) should be the product owner. Product Owner may interact with Operations Team to know basic information on requirements, deployment & support platform, third party interfaces, dependency on vendor for infrastructure maintenance etc.

Scrum Master:

- Scrum Master is the person responsible for the Scrum Process, its correct implementation, and the maximization of its benefits
- Helps the team turn the Sprint Backlog into functionality
- Help teams to understand and enact Scrum and empirical Product development
- Main job is to remove impediments to the Development team's progress by coordinating

with different teams/persons as required
- Leads and Coaches team in its Scrum adoption
- Fosters team communications
- Improves engineering practices and tools
- Responsible for improving productivity of development team
- Organizes and facilitates Scrum Meetings (Planning, Daily and Retrospective)

Typically, Project Manager will/may act as the Scrum Master.

Scrum Team:

- Is a cross functional group (Development & Operations) of people that are responsible for managing itself to develop & support software every sprint
- Has full authority to get to any level to meet the sprint goal
- Estimates deliveries
- Commits and delivers user stories
- Produces quality code

The entire project team members will constitute the Scrum Team. Typically, a Scrum team has 6-8 members. If the project team is big, then Scrum of Scrums should be implemented. The team will be split logically in more Scrum teams, Scrum Master of all Scrums will co-ordinate with Scrum Masters of individual Scrums to take the status of Burn down, completion of the product backlog items and Project Impediments.

3. Scrum Phases

- Sprint Planning Meeting
- The Sprint
- Daily Standup Meeting
- Sprint Review Meeting
- Sprint Retrospective Meeting
- Scrum of Scrums

3.1 Sprint Planning Meeting

Sprint Planning Meeting is a one-day meeting time-boxed to 8 hours that initiates every Sprint. It consists of following activities:

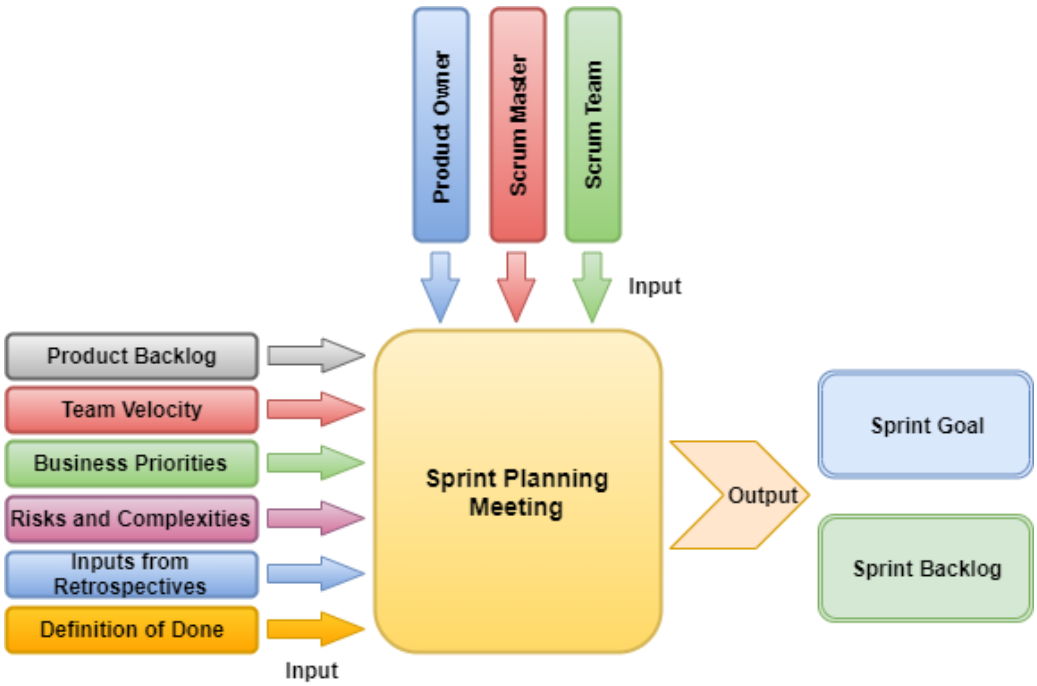
- Product Owner describes highest priority features to the Team
    - The Product Owner selects the ideal backlog for the coming Sprint and communicates its meaning and importance to the team
    - Team may ask questions
    - The Product Owner answers questions but does not direct the team's choices
- Team estimates the requirements

- The Team estimates for each Product Back Log Item after understanding the requirements from Product Owner
- Team velocity is then calculated
- Based on the estimates and velocity, The Team decides on the sprint goal (a short theme for the sprint) how much it can commit to delivering in the coming Sprint

- The outcome is the Sprint goal and the Sprint Backlog

The Team decides how to turn the selected requirements into an increment of potentially shippable product functionality. The Team devises its own tasks and figures out who will do what. This is based on "Accepted responsibility" principle of Agile. The Scrum Master doesn't allocate tasks to the team members. In fact, the team members themselves decide and sign up for the tasks individually.

Any dependency on infrastructure providers and system integrators may be discussed at this stage using inputs from the Operations team.



Pictorial representation of Sprint Planning

3.2 The Sprint

- Strictly time boxed to the planned calendar days (15 days in general); it's more important to fall short than to slip the date
- Activities are visible through the Sprint Backlog and Sprint Burndown Charts
- The Product Owner refrains from tinkering with priorities
- Within the sprint, there are many possible engineering practices
- Changes

  - Team adds new tasks whenever they need in order to meet the sprint goal
  - Team can move unnecessary tasks
  - But sprint backlog can only be updated by the team
- Estimates are updated whenever there is new information
- During Sprint execution, Operations Team & Development Team can interact closely so that operations related requirements are met and validated in respective engineering life cycle phase

3.3 Scrum Meetings (Daily Standup Meeting)

Daily scrum meetings are held by the team along with Scrum Master to check the status on work being done on daily basis. Scrum Master leads the meeting and assesses the responses from each person.

a) **Meeting Rules:**
   - Daily
   - Not more than 15 Minutes
   - Strictly Stand Up
   - Not for Problem Solving

b) **Three Questions to Answer:**
   - What did you do yesterday?
   - What will you do today?
   - Any Obstacles on your way?

c) **Purpose of Scrum Meeting:**
   - Help the team to uncover potential problems as early as possible
   - Daily meetings lead to knowledge socialization and promotes self-organizing team structure
   - Product Owners may also participate in these meetings as passive listeners to get a good insight on the progress
   - Ensure that Operations related requirements as applicable are discussed and features are built in alignment with the requirements

3.4 Sprint Review Meeting

The purpose of the Sprint review is for the Team to present to Product Owner and stakeholders, functionality that is done as per following:

- Team presents what is accomplished during the sprint
- Team demonstrates product increment to product owner's satisfaction
- Time boxed to one hour of preparation and four hours of meeting
- Informality is encouraged
- Functionality that isn't done cannot be presented

- At the end of the presentations, the stakeholders are polled, one by one, to get their impressions, any desired changes and the priority of these changes
- At the end of the Sprint review, the Scrum Master announces the place and date of the next Sprint review to the Product Owner and all stakeholders
- Operations requirements can also be part of Sprint Review Meeting for demonstration to stakeholders and Product Owner. All sprint reviews may not include Operations related features so their involvement can be decided during Sprint Planning

3.5 Sprint Retrospective Meeting

- A retrospective is a ritual gathering of Team at the end of the project to review the events and learn from the experience
- During each Sprint Retrospective, the Scrum Team plans ways to increase product quality and productivity
- It can be done at end of sprint/iteration/release or any specific event/situation requiring a re-look
- It is time boxed to two to four hours

Following are the activities:

- Team, Scrum Master, and (optionally) Product Owner review the last Sprint
- Teams get together to discuss the following
  - What did we do well?
  - What did we learn?
  - What should we do differently next time?
  - What still puzzles us?
- Actionable items are presented to the Product Owner for prioritization as non-functional requirements
- Sprint retrospective template is used to capture information of the same

What a Retrospective is NOT:

- Retrospectives are NOT about blame
  - Problems (opportunities) arise. The focus is on what we can learn from what happened
- Retrospectives are NOT a witch hunt
- Retrospectives are NOT about gathering specific information
  - They are a free-flowing brainstorm on opportunities and ways to resolve them

Sprint retrospective details can be logged in Retrospective worksheet of Agile Dev Metrics Template or for Agile VV&T projects

4. Scrum Artefacts

- Product Backlog
- Sprint Backlog
- Sprint Burndown Chart
- Product Increment/Release

4.1 Product Backlog

- Product backlog is a list of all desired work on the project. It is a prioritized list of project requirements or features that provide business value for the customer
- Usually a combination of a) Story based work b) Task based work
- List is prioritized by the Product owner in consultation with Operations Team as applicable
- Items can be added to the backlog at any time (this is how changes are introduced)
- This activity is not intended to analyze the system, merely to scope and list its requirements and not to how it would be done

The Product Backlog consists of three types of items:

- **Product Functionality** - What functions could the system perform to deliver the value anticipated in the product vision
- **Non-Functional Requirements** - For the product to deliver the necessary value, what operational aspects must it demonstrate, such as performance, security, reliability, and cost requirements
- **Environmental Requirements** - What capabilities and environments must be in place for the product to be developed and delivered

4.2 Sprint Backlog

- The Sprint Backlog is the list of tasks that the Scrum Team is committing that they will complete in the current Sprint
- Scrum team takes the sprint goal and decides what tasks are necessary, these tasks are derived on Sprint planning day through Sprint estimation process
- Selected by team at outset of Sprint
- The sprint backlog may include specific line items related to securing the necessary tech platforms for mock deployment and other such coordination activities pertaining to operations team
- Scrum master maintains the sprint Backlog by updating it to reflect which tasks are completed and how long the team thinks it will take to complete those that are not yet done
- Changes during Sprint as information is discovered
- Okay to use other engineering practices (stories, micro-iterations), but progress must be reported in the backlog

- Managers don't make decisions for the team
- Time estimates must be updated daily

When a Product Backlog item or an Increment is described as "Done", everyone must understand what "Done" means. Although this varies significantly per Scrum Team, members must have a shared understanding of what it means for work to be complete, to ensure transparency. This is the definition of "Done" for the Scrum Team and is used to assess when work is complete on the product Increment.

If the definition of "done" for an increment is part of the conventions, standards or guidelines of the development organization, all Scrum Teams must follow it as a minimum. If "done" for an increment is not a convention of the development organization, the Development Team of the Scrum Team must define a definition of "done" appropriate for the product. If there are multiple Scrum Teams working on the system or product release, the development teams on all of the Scrum Teams must mutually define the definition of "Done."

As Scrum Teams mature, it is expected that their definitions of "Done" will expand to include more stringent criteria for higher quality. Any one product or system should have a definition of "Done" that is a standard for any work done on it.

4.3 Sprint Burn-down Chart

- The estimated work remaining in the Sprint is calculated daily and graphed resulting in a Sprint Burn down chart
- The burn-down chart is emotionally powerful because there is a special feeling about hitting the number zero that helps people get excited about completing their work and pressing forward

4.4 Product Increment/Release

- At the end of every Sprint the team should have delivered a production quality increment of the system
- The Product Increment is what is demonstrated to the users and stakeholders - working software rather than mock-ups, documents or hand waving. Delivers measurable value
- Product Increment should be "Potentially Shippable". The process can be halted after every Sprint and there will be some value, some ROI
- It must be a product, no matter how incomplete

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