Scrum Master (SM)

- Accountable for:
  - Establishing Scrum as defined in the Scrum Guide and promotes to team-members and org
  - Scrum Team's effectiveness (thru improving practices) & artifact transparency
- Serves the Scrum Team by:
  - Coaching the team members in self-management and cross-functionality
  - Creating High Value Increments that meet the DoD
  - Causing the removal of impediments to the Scrum Team's progress
  - Ensuring that all Scrum events take place (positive, productive, keep in timebox)
- Serves the Product Owner by:
  - Helping find techniques for effective Product Goal definition and PB management
  - Helping the scrum team understand the need for clear and concise PB items
  - Helping establish empirical product planning for a complex environment
  - Facilitating Stakeholder collaboration as requested or needed
  - Facilitates Scrum Events
- Serves the Organization by:
  - Leading, training, and coaching the organization in its Scrum Adoption
  - Planning and advising Scrum implementations within the organization
  - Provides insight and transparency of scrum artifacts
  - Helping Employees / Stakeholders understand and enact empirical approach
  - Removing barriers between Stakeholder and scrum teams
  - Works with other scrum masters to increase effectiveness of the application of scrum in the org
- True leaders who serve the Scrum Team and Organization
- Helping everyone understand Scrum Theory and practice (team and org)

Developers (Devs)

- Committed to creating any aspect of a usable Increment each Sprint
- Specific skills are broad and will vary with the domain of work
- Accountable for: Creating a plan for the Sprint (Sprint Backlog), Instilling quality by adhering to a DoD; Adapting their plan each day toward the Sprint Goal; managing the progress of total work, tracking remaining Sprint Backlog tasks to adhere to the Sprint Goal
- Holding each other accountable as professional

Scrum Team

- Small team (< 10 people) that is highly flexible and adaptive - Consist of SM, PO, Devs (No Sub-teams / No Hierarchies)
- Cohesive Unit of Professionals focus on a single objective, the product goal Cross-Functional, Self-Managing, Internally Make Decisions

Product Owner (PO)

- Product Value Maximizer, Lead Facilitator of Key Stakeholder Involvement, Product Marketplace Expert
- Accountable for maximizing value of the product (one person, not committee); Responsibility: High Level Goals
- Accountable for effective Product Backlog
  - Developing/Explicitly communicating the Product Goal
  - Responsible for the Project Backlog
    - Creating/Clearly communicating Product Backlog items
    - Ordering Product Backlog items
    - Ensuring Product Backlog is transparent, visible, understood
- PO can delegate reasonability to others; PO still accountable
- Entire Org must respect the PO decisions
- PO's decisions are visible in the content/ordering of the Product Backlog, and thru inspectable Increment at the Sprint Review
- PO represents the needs of the many Stakeholders in the Product Backlog
- Those trying to change the Product Backlog, must convince PO for the change
- Has the authority to cancel a Sprint

The Sprint

- Heartbeat of Scrum, Ideas turn to value
- Timebox: Fixed Length Events of One Month or less
- New sprint starts immediately after the conclusion of the previous sprint

Product Backlog (PB) [-> Product Goal]

- Emergent, ordered list of what is need to improve the product (never finished/complete)
- Single source of work that undertaken by the Scrum Team, if multiple Scrum Teams, they use the same PB
- Work Items able to be done within a sprint are selected at a Sprint Planning event
- Acquire transparency after refining activities by the Scrum Team
- Refinement is the act of breaking down and further refining PB items into smaller more precise items
  - Ongoing activity to add details, description, order to work items
  - Attributes often vary with the domain of work
- Devs responsible for estimating/sizing tasks; PB should be < 10 % of the Devs time allocation
- PO can influence with helping with understanding/trade-offs

Product Goal

- Describes a future state of the product that serve as a target for the Scrum Team to plan against
- The Product Goal is in the Product Backlog, the rest of the Product Backlog emerges to define "what" will fulfill the Product Goal
- Product, a vehicle to deliver value, can be a service, physical product, or something more abstract, that has clear boundary, known Stakeholders, well-defined users
- The Product Goal is a long-term objective for the Scrum Team, that they fulfill (or abandon) one objective before taking on the next objective; Devs responsible for all estimates in the Product Backlog

Sprint Backlog (SB) [-> Sprint Goal]

- Composed of the Sprint Goal (why), the set of Product Backlog items selected for a the Sprint (what), as well as an actionable plan for delivery the Increment (how)
- Sprint Backlog is a plan by, belongs with and for the Devs, highly visible, real-time picture of the work that the Devs plan to accomplish during The Sprint to achieve the Sprint Goal; track total work accomplish over a sprint
- Sprint Backlog is updated throughout the Sprint as more is learned, with detail inspected in the Daily Scrum
- Sprint Goal + Product Backlog items + Plan to Deliver them = Sprint Backlog (Devs can only change the SB)

Sprint Goal

- Is the single objective for the Sprint, commitment by the Devs, its provides flexibility in terms of the work needed to achieve it
- The Sprint Goal creates coherence and focus, encouraging the Scrum Team to work together
- The Sprint Goal is created during Sprint Planning by the Scrum Team and then added to the Sprint Backlog (builds the Increment)
- As Devs work during the Sprint, they keep the Sprint Goal in mind
- If work turns out to be different than they expected, Devs collaborate with the responsible Product Owner, to negotiate the scope of the Sprint Backlog with the Sprint without affecting the Sprint Goal

Increment [-> Definition of Done]

- Is a concrete stepping stone toward the Product Goal, must be usable to provide value
- Each Increment is additive to all prior Increments & verified, ensuring that all Increments work together
- Devs create the Increment; Multiple Increments may be created within a Sprint
- The sum of the Increments is presented at the Sprint Review, thus providing Empiricism
- An Increment may be delivered to Stakeholders prior to the end of the Sprint
- The Sprint Review should never be considered a gate to releasing value
- Work cannot be considered part of an Increment unless it meets the Definition of Done
- Sum of all the Product Backlog items completed during a Sprint and value of all previous Sprints

Definition of Done (DoD)

- Formal description of the state of the Increment, must meet quality; Devs are responsible to conform to a DoD
- Access work done for Increment, ensures artifact transparency, part of Organization standards & guidelines
- Creates transparency by providing shared understanding of what work was completed as part of the Increment

Sprint Planning

- Initiates the Sprint by laying out the work to be performed from the Sprint
- Timebox: 8 hours for a one-month sprint (event can be shorter if sprint is shorter)
- Entire Scrum Team (SM, PO, Devs) collaboratives to develop the Sprint Plan
- PO ensures attendees are prepared most important Product Backlog items & how they map to Product Goal
- Scrum Team can also invite other people to provide advice for Sprint Planning
- Sprint Planning = Latest Product Increment + Past Performance of Devs + Product Backlog + Projected Capacity of Devs
- At the end of Sprint Planning, Devs should be able to explain to PO how they intend to work as a self-organizing team

Topics covered in Sprint Planning:

- Why is the Sprint Valuable?
  - PO proposed how the product could increase value in the current Sprint
  - Scrum Team collaborates to define a Sprint Goal (why the Sprint is valuable to Stakeholders)
  - Sprint Goal is finalized prior to the end of Sprint Planning
- What can be Done this Sprint?
  - Thru discussion with PO, Devs select items form the Product Backlog to include in the current sprint
  - Scrum Team refines these items during this process, increase understanding and confidence
  - Move known about past performance, upcoming capacity, and DoD, the more confident with Sprint forecast
- How will the chosen work get done?
  - Devs plan the work necessary to create an Increment that meets DoD
  - Done by decomposing Product Backlog items into smaller work items
  - How this is done is sole discretion of the Devs (no one else can tell them how)
- Answers the following: What can be delivered in the increment? & Will the work needed to deliver the Increment be achieve?
- Note: All Scrum Teams working the same product, are not required/do not need the same sprint length

Daily Scrum

- Inspects progress toward the Sprint Goal and adapt the Sprint Backlog as necessary, adjusting the upcoming planned work
- Timebox: 15 minutes event for the Devs of the Scrum team
- Held at the same time and place every working day (to reduce complexity)
- If PO and SM are actively working items in the sprint backlog, they participate as Devs
- Devs, as the only active participates in the daily scrum, can select whatever structure/technique they want as long as the daily scrum focuses on progress toward the Sprint Goal, produces an actionable plan for the next day of work (creates focus and improves self-management)
- Help with: improve communications, identify impediments, promote quick decision-making, and consequently eliminate the need for other meetings
- SM ensures that the Daily Scrum: Occurs by the Devs, conducted in the timebox, no one disrupts the meeting
- Daily Scrum is not the only time Devs are allowed to adjust their plan, can meet throughout the day for more detailed discussions for adapting/replanning the rest of the Sprint work
- Charts: Burn Down = how much work remains till the end of the sprint / Cone of Uncertainty = how much is known about the Product over time

Sprint Review

- Inspect the outcome of the Sprint and determine future adaptations (working session, not a presentation)
- Timebox: 4 hours for a one month sprint, (event can be shorter if sprint is shorter)
- Scrum Team presents the results of their work & progress towards the Product Goal is discussed to participating Stakeholders
- Scrum Team (SM, PO, Devs) and Stakeholders review what was accomplished in the Sprint and what has change in their environment
  - Based on this information, attendees collaborate on what can do next
  - PO tracks and maybe adjust the Product Backlog for the next Sprint to meet new opportunities based on results of the Sprint Review

Sprint Retrospective

- To plan ways to increase quality and effectiveness (concludes the Sprint), inspected elements often vary with the domain of work
- Timebox: 3 hours for a one month sprint, (event can be shorter if sprint is shorter)
- Scrum Team inspects how the last Sprint went with regards to individuals, interactions, processes, tools, and their DoD (increases product quality)
- Assumptions that led them astray are identified and their origins explored
- Scrum Team discusses what well during the Sprint, what problems it encountered, and how these problems were (or were not) solved
- Scrum Team identifies the most helpful changes to improve its effectiveness (most impactful improvements are address asap)
- Improvements may even be added to the Sprint Backlog for the next Sprint
- The Definition of Done can be reviewed and adapted during the Sprint Retrospective

During a sprint:

- No changes are made that endanger the Sprint Goal, Quality does not decrease, Product Backlog is refined as needed
- All work to achieve the Product Goal happen within the sprint
- Scope may be clarified/refactored with PO as more is learned

Scrum Purpose

- Scrum developed in 1990s (Ken Schwaber / Jeff Sutherland 1995) , scrum guide created in 2010 to help the community
- Each element of the scrum framework serves a specific purpose that is essential to the overall value and results realized by Scrum
- Change the core design or ideas of scrum such as leaving out elements, not following the rules covers up problems and limits the benefits
- Scrum was developed for software but has expanded to many domains/complex problems (research, cloud, analytics, science and other specializes)

Scrum Values: Commitment, Focus, Openness, Respect, and Courage

- Scrum Team commits to archiving its goals and to support each other
- Scrum Team primary focus is on the work of the Sprint to make the best possible progress toward these goals
- Scrum Team & Stakeholders are open about the work and the challenges
- Scrum Team respect each other to be capable, independent people, and are respected as such by the people with whom they work
- Scrum Team have the courage to do the right thing, to work the tough problems

Scrum Theory

- Scrum is founded on empiricism (knowledge comes from experience, what is observed) and lean thinking (reduce waste and focuses on essentials)
- Scrum employs an iterative, incremental approach to optimize predictability and to control risk
- Scrum engages groups of people who collectively have all the skills & expertise to do the work & share/acquire such skills as needed
- Scrum combines four formal events (Sprint Planning, Daily Scrum, Sprint Review, Sprint Retrospective) for inspective and adaptation within a Sprint.
- Empirical Scrum pillars are: Transparency, Inspection, and Adaptation, which help to build trust within the team and Stakeholders
- Comprised of Events, Artifacts, Roles and Rules
- Scrum Team model is optimized for flexibility, creativity and productivity

Scrum Definition

- Scrum is a lightweight framework that helps people, team, and organization generate value through adaptive solutions for complex problems
- Scrum requires a SM to foster an environment where:
  - PO orders work for a complex problem into a Product Backlog
  - The Scrum Team turns a selection of work into an Increment of value during a Sprint
  - The Scrum Team and its Stakeholders inspect the result and adjust for the next Sprint
- Scrum is simple, try it as is and determine if is philosophy, theory and structure works to achieve project goals and creates value
- Scrum framework is purposefully incomplete, only defining the parts required to implement Scrum theory
- Scrum is built upon by the collective intelligences of the people using it
- Instead of detailed instructions, the rules of Scrum guide their relationships and interactions
- Various processes, techniques and methods can be employed with the framework
- Scrum wraps around existing practices or renders them unnecessary
- Scrum makes visible the relative efficacy of current management, environment and work techniques, so that improvements can be made
- Each Scrum Artifact contains a commitment to ensure it provides information that enhances transparency & focus against progress is measured
- Scrum artifacts are reviewed and updated, but should not get in the daily work of the Scrum Team

Scrum Theory: Transparency [Transparency enables Inspection; Inspection without transparency is misleading and wasteful]

- Emergent process & work must be visible to those performing the work and those receiving it
- Important decisions are based on perceived state of its formal artifacts (PB, SB, and Increment)
- Artifacts that have low transparency can lead to decision that diminish value & increase risk

Scrum Theory: Inspection [Inspection enables Adaptation; Inspection w/o Adaptation is considered pointless. Scrum events -> provoke change]

- Scrum artifacts and progress toward agreed goals must be inspected frequently and diligent to detect potentially undesirable variances or problems
- To help, Scrum provides cadence with five events: The Sprint, Sprint Planning, Daily Scrum, Sprint Review, Sprint Retrospective)

Scrum Theory: Adaptation [Adaptation happens when people are empowered and self-managing]

- If any aspects of a process deviate outside acceptable limits or product is unacceptable, the process being applied must be adjusted, asap

- If a Product Backlog item does not meet DoD, it cannot be release/even presented at Sprint Review; Item goes back to Product Backlog for re-work
- If the DoD for an increment is part of the standards of the Organization, all Scrum Teams must follow it as a minimum. If not an org standard, the Scrum Team must create a DoD for it; Guides the Devs in knowing how many product items it can select during Sprint Planning
- Multiple Scrum Teams working on same product, have a mutually define & comply with the same DoD / don't need same sprint duration though