7 : Sprinting

IT4406 – Agile Software Development

Level II - Semester 4

Overview

- Sprint is a short, time boxed period which a scrum team works to complete a set amount of work.
- A release is typically composed of multiple sprints, each of which delivers customer or user value.
- A sprint cycle has key phases such as sprint planning, sprint execution, sprint review and sprint retrospective.
- Getting sprint right would help agiles team to ship better software with fewer issues.

Intended Learning Outcomes

- At the end of this lesson, you will be able to;
  - Understand sprint planning approaches.
  - Understand and apply sprint planning process in Scrum
  - Discuss the principles and techniques that guide how the Scrum team plans, manages, performs, and communicates during sprint execution.
  - Describe the sprint review, i.e its purpose, its participants, and the work required to make it happen.
  - Identify common sprint review issues.
  - Describe the purpose of and participants in the sprint retrospective.
  - Identify pre-work and major activities associated with a sprint retrospective.

List of subtopics

7.1 Sprint Planning

- 7.1.1 Introduction
- 7.1.2 Approaches to Sprint Planning
- 7.1.3 Determining Capacity
- 7.1.4 Selecting Product Backlog Items
- 7.1.5 Acquiring Confidence
- 7.1.6 Refine the Sprint Goal
- 7.1.7 Finalize the Commitment

List of subtopics

7.2 Sprint Execution

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- 7.2.2 Sprint Execution Planning
- 7.2.3 Flow Management
- 7.2.4 Daily Scrum
- 7.2.5 Task Performance-Technical Practices
- 7.2.6 Communicating

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- 7.3.1 Introduction
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- 7.3.5 Sprint Review Issues

List of subtopics

7.4 Sprint Retrospective

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- 7.4.3 Sprint Retrospective Prework
- 7.4.4 Sprint Retrospective Approach
- 7.4.5 Sprint Retrospective Follow Through
- 7.4.6 Sprint Retrospective Issues

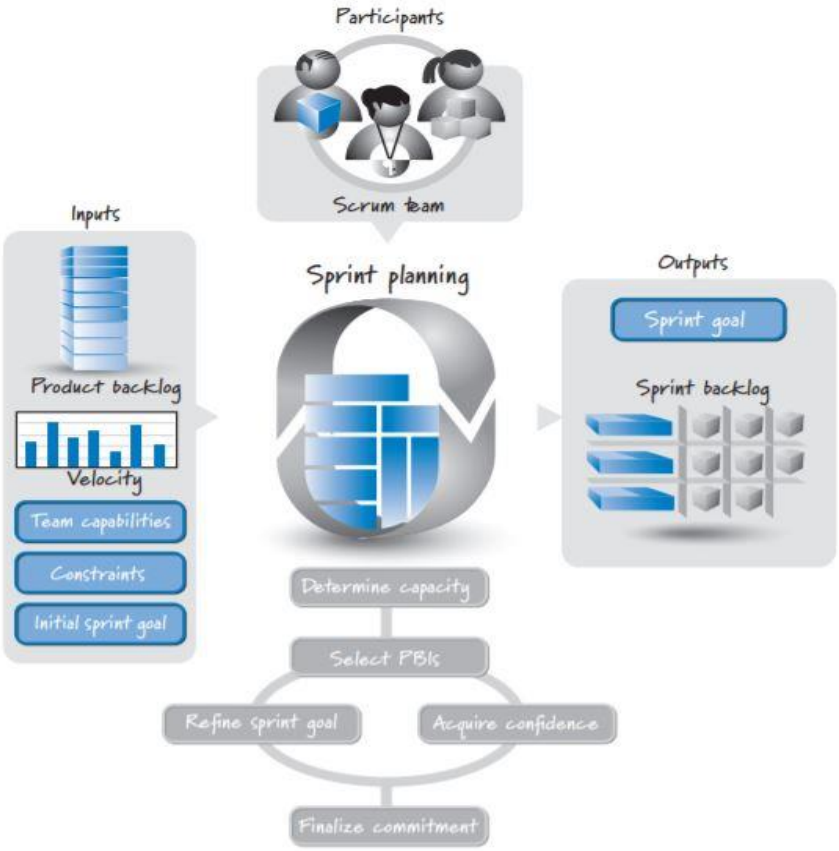
1.1 Sprint Planning

- **Introduction**

  - Product backlog represents weeks/months of work
  - Sprint planning is used to determine the most important subset of product backlog items to build in the next sprint
  - A recurring, just-in-time activity that takes place at the beginning of each sprint
  - The combination of product backlog items and the plan forms the sprint backlog.

- **Sprint Planning - Participants**
    - The full Scrum team collaborates
    - The product owner
        - Shares the initial sprint goal
        - Presents the prioritized product backlog
        - Answer questions
    - The development team
        - Determine what can be delivered after the sprint
    - The Scrum Master
        - Acts as the Scrum team coach
        - Observes the planning activity
        - Asks questions and facilitate the meeting

- **Sprint Planning - Process**



Inputs

- Product backlog
- Team velocity
- Constraints
- Team capabilities
- Initial sprint goal

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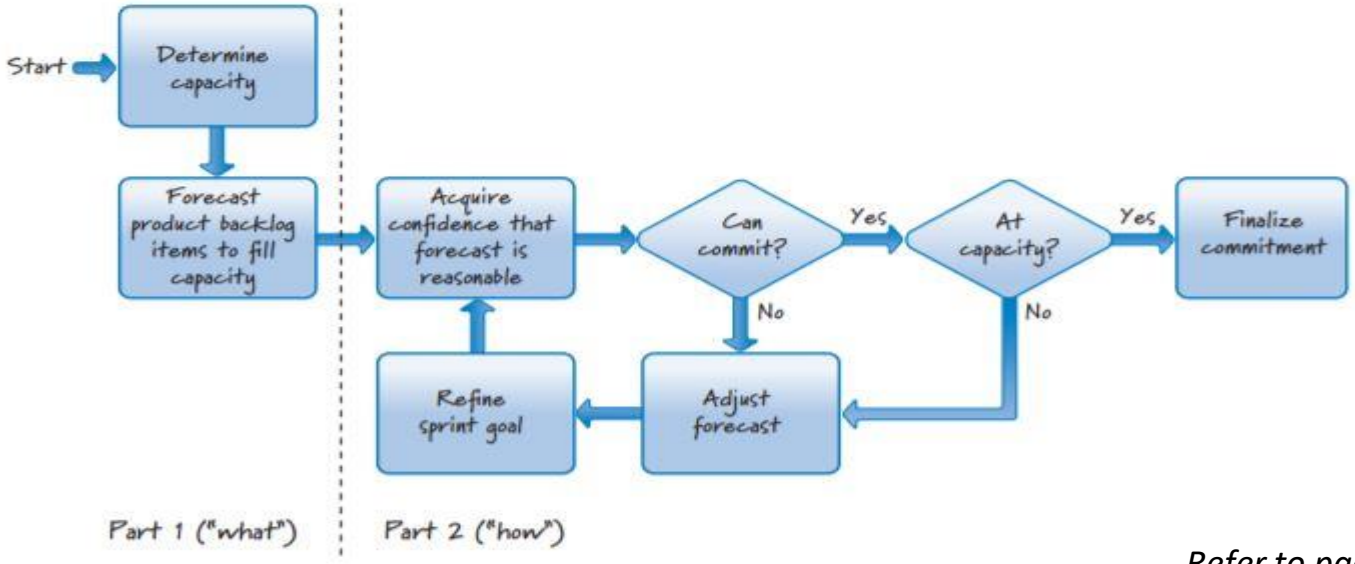
- Approaches to Sprint Planning
  - Two-Part Sprint Planning
    - Separate planning in to two parts
      - The "What" part
      - The "How" part



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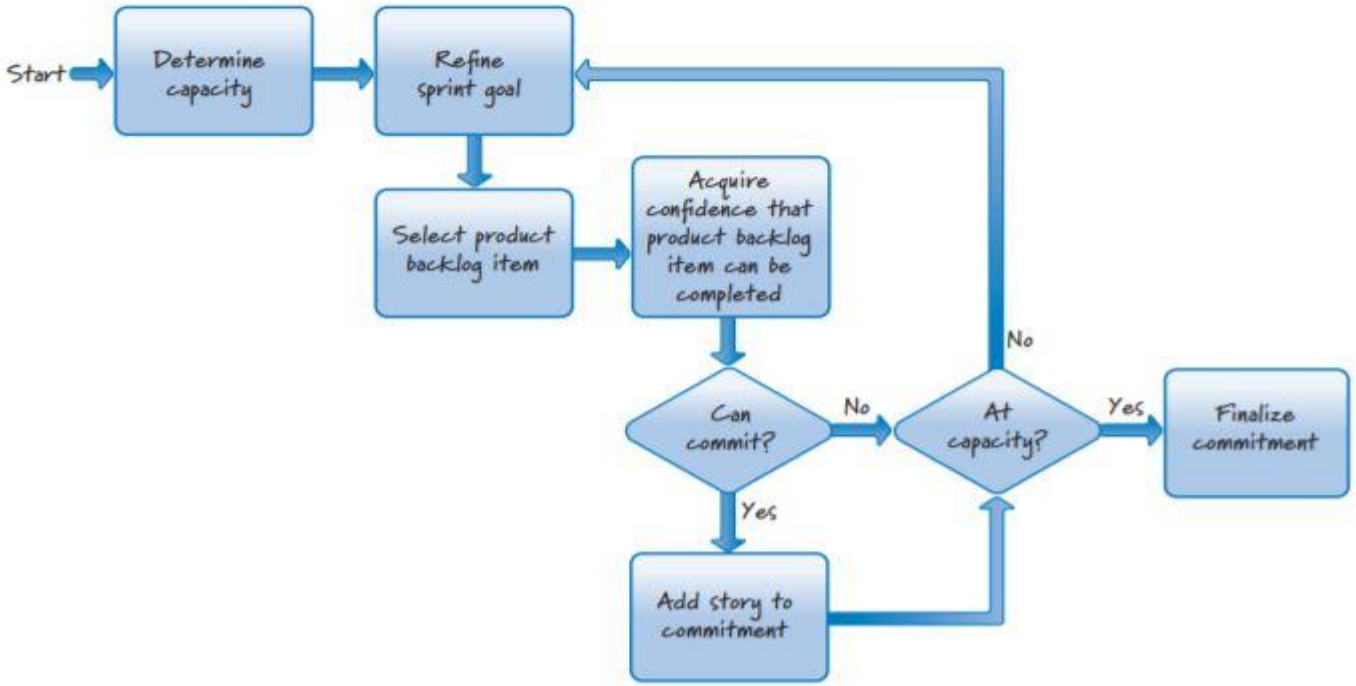
- One-Part Sprint Planning
  - Most frequent approach
  - Interleaves selecting an item and acquiring confidence that it can be delivered



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- **Capacity**
  - Determines the available capacity of the team to perform work during the sprint.
  - Capacity :
    - Eg : Ten day sprint
      - Team doesn’t actually have ten days to dedicate to sprint execution.
        - 1 day for sprint-planning, sprint review, and sprint retrospective
        - Up to 10% of time assisting product owner with product backlog grooming
        - Work outside the sprint
        - Don’t work full eight hours a day (attending meetings, responding to emails, interruptions)
        - Personal time off

- **Capacity ctd.**
    - After removing all these and some buffer for unexpected issues, what remains is the capacity of the team to work
    - Capacity in Story Points
    - Capacity in Effort-Hours

- **Selecting Product Backlog Items**
  - Selection can be done in several ways
    - If a sprint goal is available
      - Select product backlog items that align with that goal
    - If a sprint goal is unavailable
      - Select items from the top of the product backlog
  - Start-only-what-you-can-finish rule

- **Acquiring Confidence**
  - Use predicted velocity to see if the commitment is realistic
    - Issues….
  - Decompose the product backlog items down into the tasks
    - Estimate the tasks in effort-hours
    - Subtract from the team's capacity
    - The result is the sprint backlog

At the completion of sprint planning the development team finalizes its commitment

7.2 Sprint Execution

- **Introduction**
  - The work the Scrum team performs to meet the sprint goal
  - How the Scrum team plan, manage, perform, and communicate during sprint execution
  - Accounts for the majority of time during a sprint
    - Begins after sprint planning
    - Ends when the sprint review starts

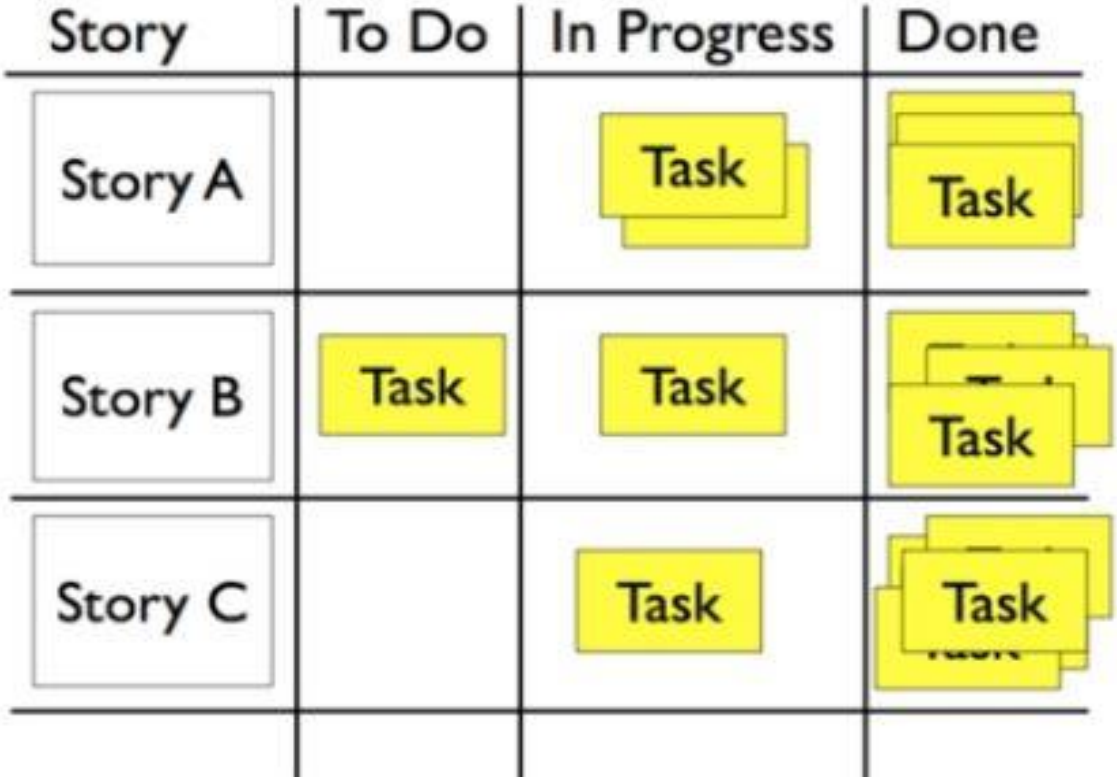
- **Flow Management**
  - The team is responsible for managing the flow of work during sprint execution
    - Decide on
      - Parallel work and swarming ?
      - Which work to start ?
      - How to organize task work ?
      - What work needs to be done ?
      - Who does the work ?

- **Daily Scrum**
  - Daily inspect-and-adapt activity to help the team achieve faster, more flexible flow toward the solution
  - 15-minute, time boxed activity that takes place once every 24 hours
  - The goal is to give the team an idea of of what is happening so that they can understand ,
    - How much to work on
    - Which items to start working on
    - How to best organize the work among the team member

- **Technical Practices**
  - Test-driven development
  - Refactoring
  - Metaphor
  - Pair programming
  - Simple design
  - Continuous integration
  - Coding standard
  - Collective code ownership

- **Communicating**
  - Since the team size is small , you don’t need complex charts or diagrams to communicate the progress
  - The commonly used techniques are
    - Task Board
    - Burndown and/or Burnup charts

- **Communicating - Task Board**
  - The task board shows the evolving state of the sprint backlog over time



- **Communicating - Sprint Burndown Chart**
  - During sprint execution team members update the estimate of how much effort remains for each uncompleted task.

Tasks	D1	D2	D3	D4	D5	D6	D7	D8	D9	...	D15
Task 1	8	4	4	2							
Task 2	12	8	16	14	9	6	2				
Task 3	5	5	3	3	1						
Task 4	7	7	7	5	10	6	3	1			
Task 5	3	3	3	3	3	3	3				
Task 6	14	14	14	14	14	14	14	8	4		
Task 7						8	6	4	2		
Tasks 8–30	151	139	143	134	118	99	89	101	84		0
Total	200	180	190	175	155	130	115	113	90		0

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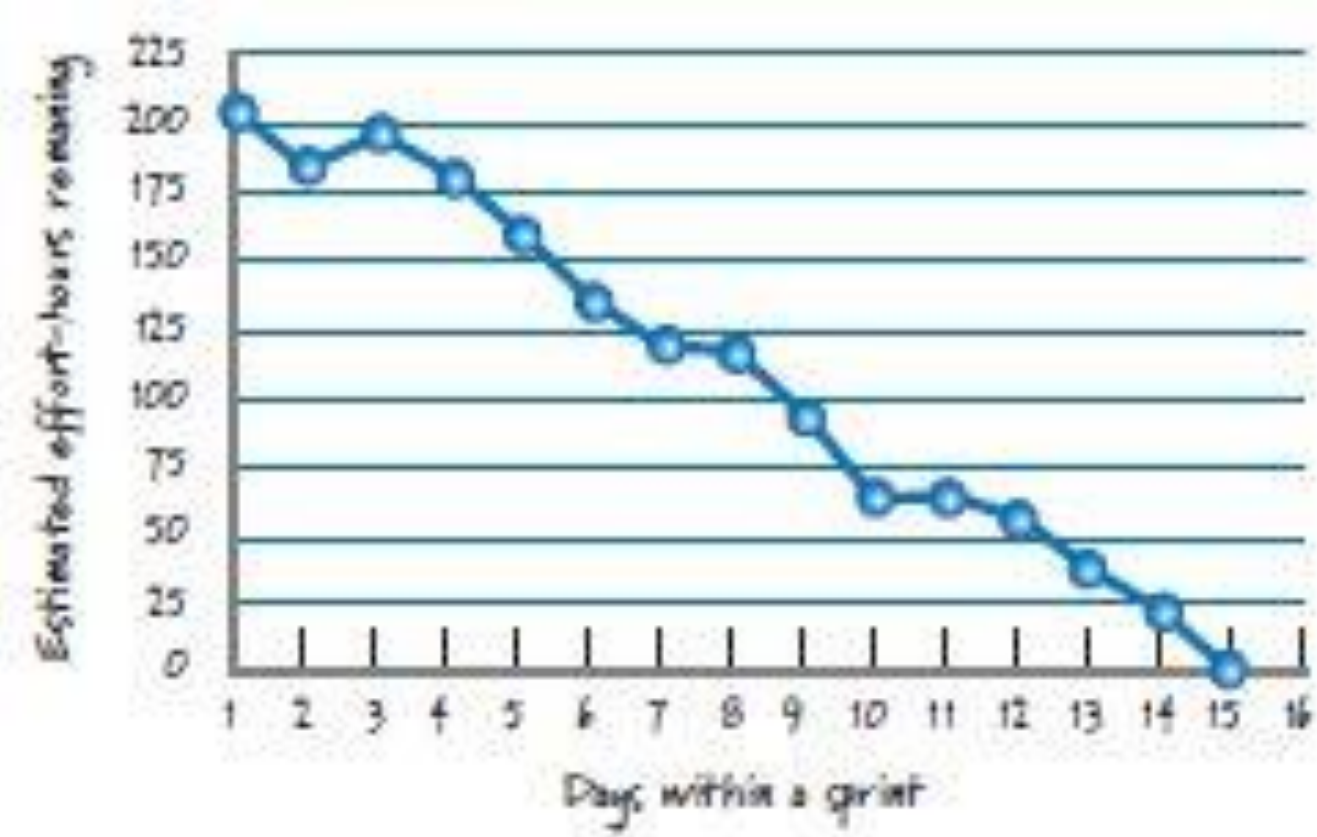
- **Communicating - Sprint Burndown Chart ctd.**



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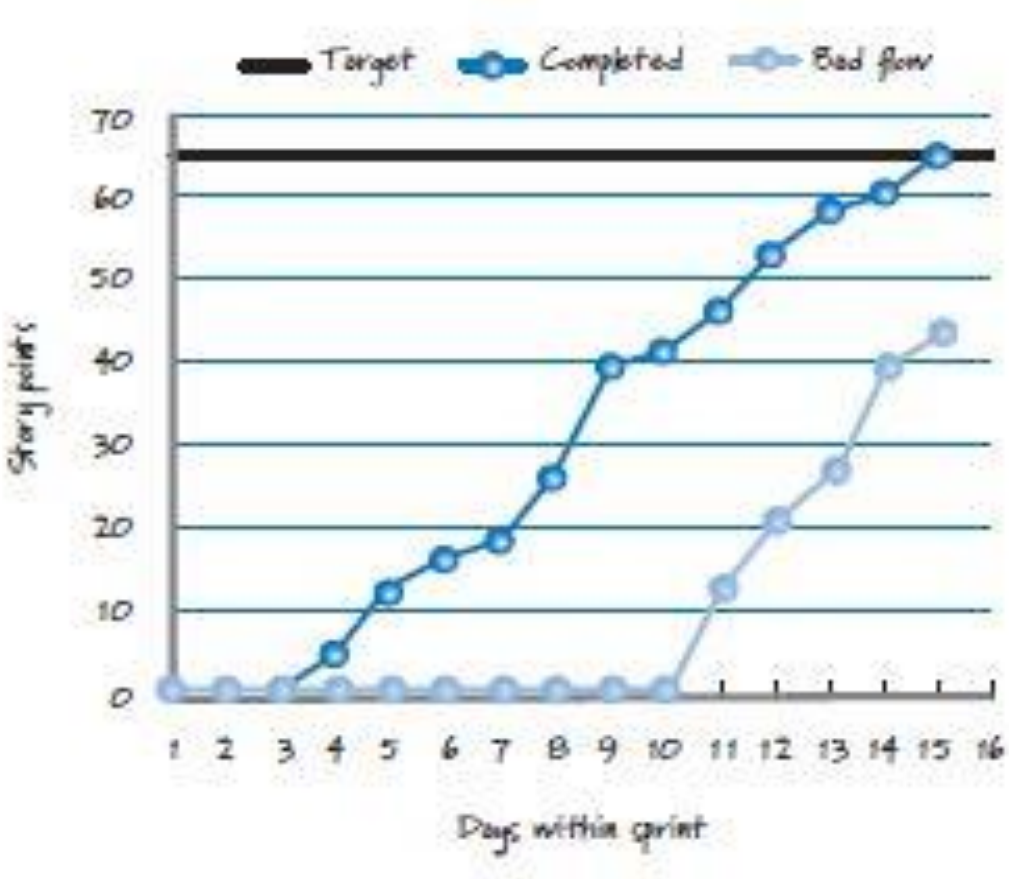
- **Communicating - Sprint Burnup Chart**
  - A way to visualize progress through a sprint



The work can be represented in either effort-hours or in story points. Here we have used effort-hours

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7.3 Sprint Review

- **Introduction**
  - Near the end of the sprint, the team conducts two important inspect-and-adapt activities:
    1. The sprint review
       - Focuses on the product itself
    1. The sprint retrospective
       - Looks at the process used
  - During sprint planning we plan the work
  - During sprint execution we do the work
  - During sprint review we inspect the result.
    - Occurs near the end of each sprint cycle

- **Introduction ctd.**
  - The Scrum team , Internal stakeholders , Other internal teams and external stakeholders take part in this.

- **Sprint review prework**
  - Determine whom to invite
  - Schedule the activity
  - Confirm that the sprint work is done
  - Prepare for the demonstration
  - Determine who does what

- **Approach**
  - The outputs of the sprint review are a groomed product backlog and an updated release plan.
  - Usually in the review,
    - Provides a summary of what has and has not been accomplished
    - A demonstration of the increment
    - Discuss the current state of the product, and adapting the future product direction.

- **Sprint Review Issues**
  - Sign-offs
  - Sporadic Attendance
  - Large Development Efforts

7.4 Sprint Retrospective

- **Introduction**
  - The sprint retrospective is one of the most important and least appreciated practices in the Scrum framework.
  - A sprint retrospective can be as simple as the Scrum team members coming together to discuss questions such as
    - What worked well this sprint that we want to continue doing?
    - What didn't work well this sprint that we should stop doing?
    - What should we start doing or improve?
  - The full scrum team takes part in this.

- **Sprint retrospective prework**
  - Define the retrospective focus
  - Select the exercises
  - Gather objective data
  - Structure the retrospective

- **Approach**
  - The outputs of the sprint retrospective include
    - A set of concrete improvement actions that the team has agreed to perform in the next sprint
    - A backlog of insights collected during the current retrospective that the team will not address in the upcoming sprint but might choose to address in the future
    - Improved camaraderie

- **Approach ctd.**
  - One approach is to
    - Set the atmosphere
    - Create a shared context among the participants (Event Timeline)
    - Identify insights that can lead to improvements
    - Determine concrete improvement actions to take during the next sprint
    - Close the retrospective

- **Sprint Retrospective Issues**
  - Not doing the retrospective or low attendance
  - All fluff, no stuff
  - Ignoring the elephant in the room
  - Poor facilitator
  - Depressing and energy draining
  - Blame game
  - Complaint session
  - Replaces ad hoc process improvement
  - Too ambitious
  - No follow-through

Summary