

# Software Engineering

# The Process

## Agile Methods

- Iterative + Incremental
- No detailed system specification
- Minimized design documentation
- Series of increments
- End-users, stakeholders involved in specifying, evaluating each increment
- Extensive tool support (testing, configuration management, UI production)
- Principles
  - › Satisfying the customer
  - › Welcoming changing requirements
  - › Delivering working software frequently
  - › Frequent interaction with stake holders
  - › Maintaining constant pace
  - › Keeping it simple
  - › Building projects around motivated individuals
  - › Empowering self-organizing teams
  - › Promoting sustainable development
  - › Minimizing unnecessary works
  - › Reflecting and adjusting continuously

# The Process

## Agile Methods

### □ Frameworks

- Scrum
- XP
- Crystal
- Kanban
- Lean

# The Process

## Agile Methods

### □ Frameworks

#### ▪ Scrum

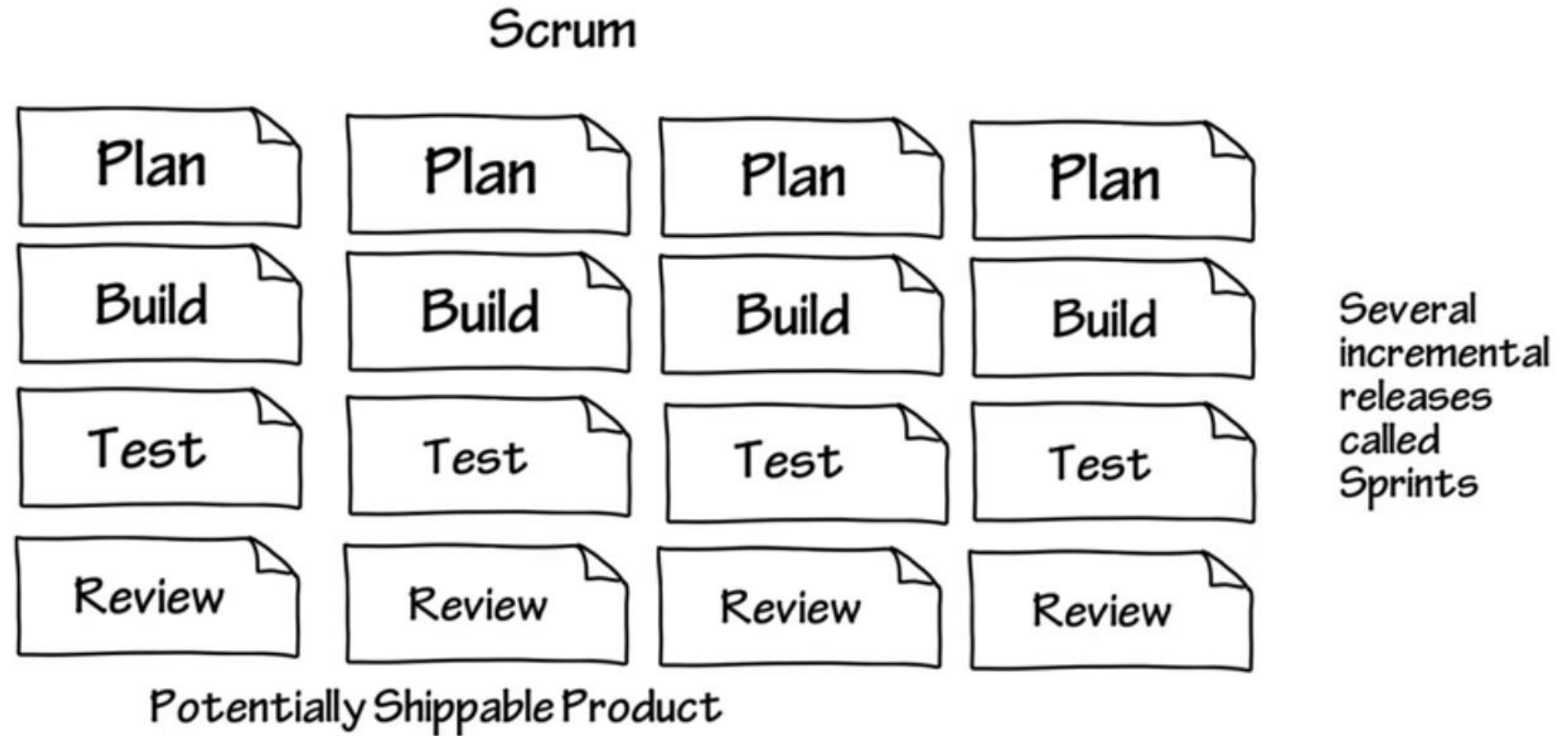


Figure 8: Overview of Scrum

# The Process

## Agile Methods

### □ Frameworks

#### ▪ Scrum

› Sprint: 1-3 weeks

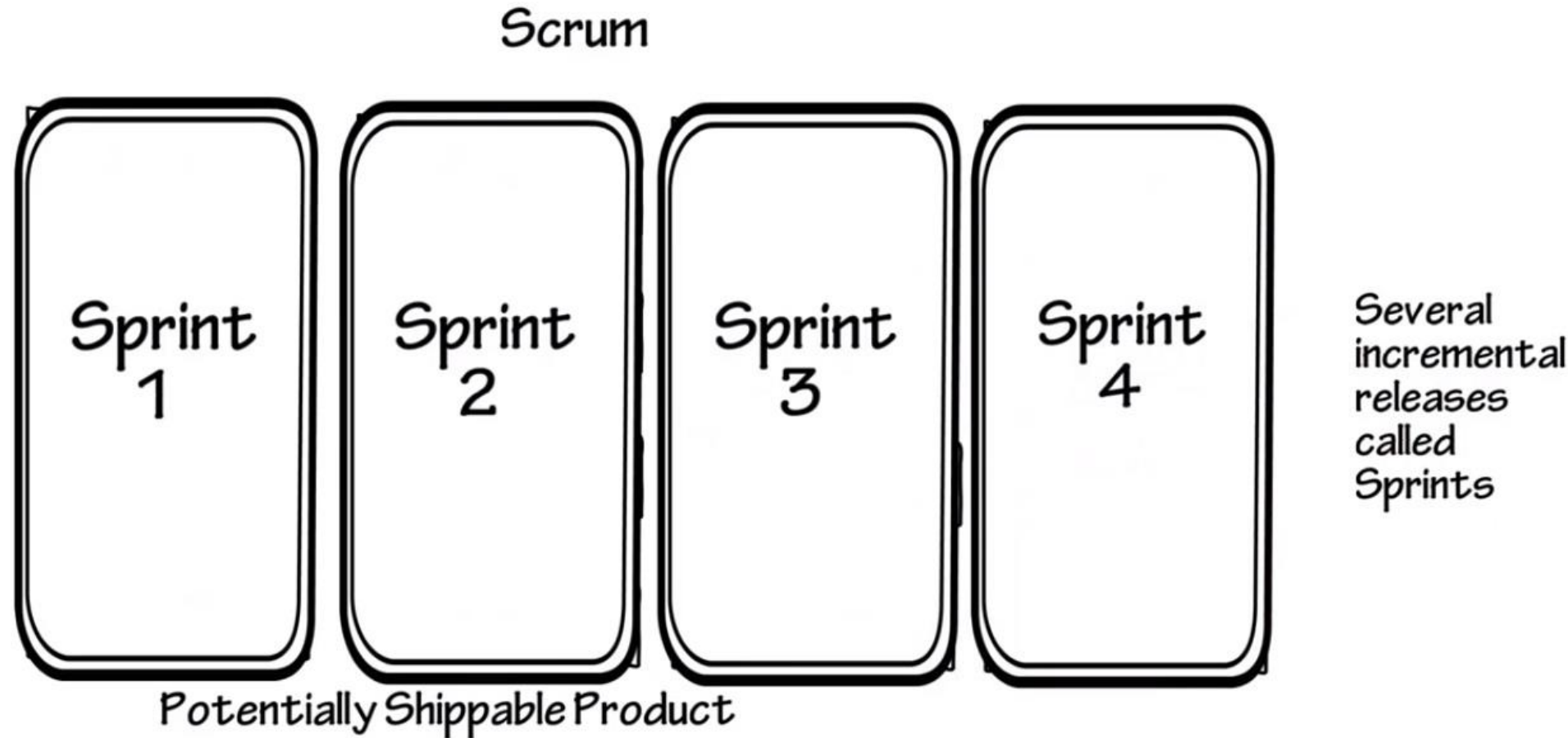


Figure 9: Sprints of Scrum

# The Process

## Agile Methods

### □ Frameworks

#### ▪ Scrum

##### › Roles

- Product owner
  - Defining the product features
  - Ideas
- Scrum master
  - Leader of the team
  - Protecting the team, process
  - Running meetings
- Team
  - Helps developing products (developer, tester)
  - Multiple roles

# The Process

## Agile Methods

### □ Frameworks

#### ▪ Scrum

##### › Documents

- Product backlog
  - Prioritized list of features (user stories)
  - Created by product owner
  - Gets changed/evolved with every sprint
- User stories
  - Describes feature sets
- Sprint backlog
  - Highest priority user stories
- Burndown charts
  - Progress during a sprint on the completion of sprint backlog
  - Should approach to 0 at the end

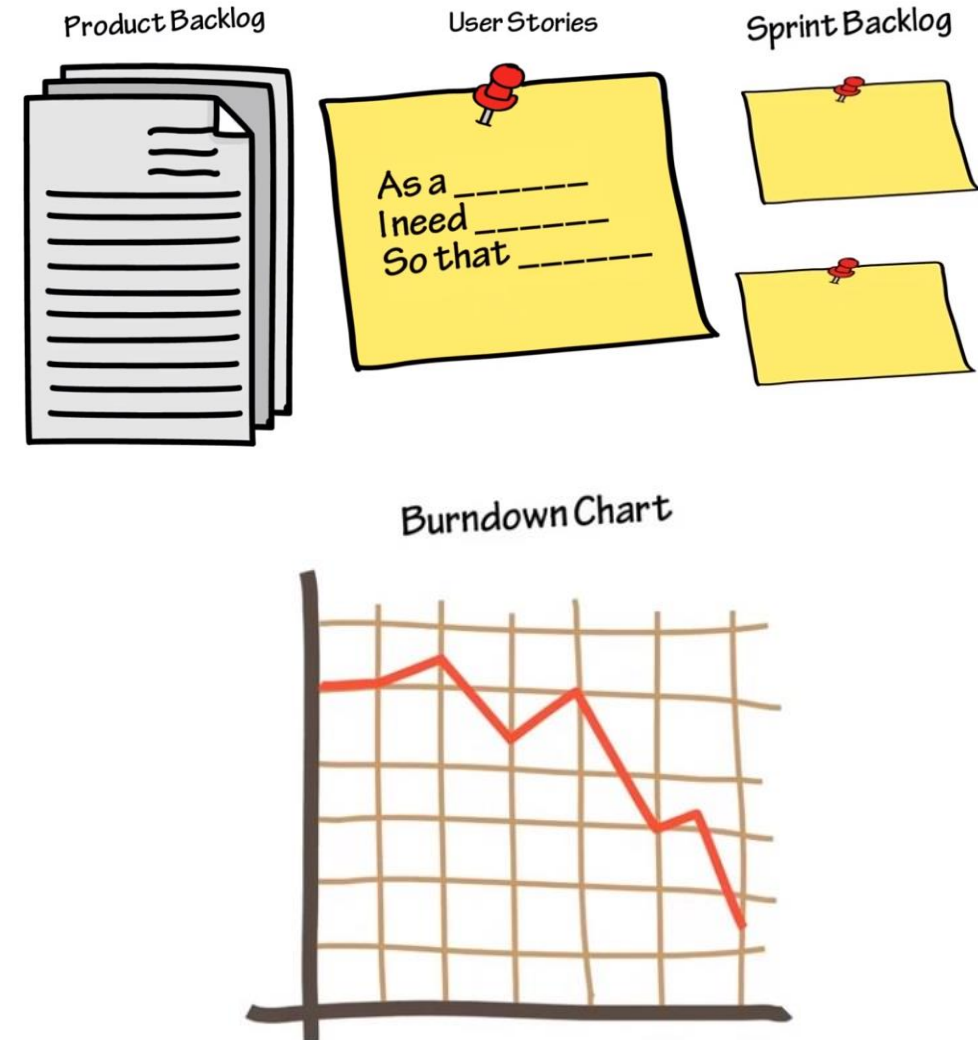


Figure 10: Documents of Scrum

# The Process

## Agile Methods

### ❑ Frameworks

#### ▪ Scrum

##### › Ceremonies

- Sprint planning
  - Product owner, spring master and team [meeting]
  - Discussing user stories
  - Estimating relative sizes of sprints
- Daily Scrum
  - Team [meeting]
  - Accomplishment since last meeting
  - Current work
  - Blocked/need help
- Sprint review
  - At the end of the sprint
  - Team demonstrates completed work to product owner
  - Discussion regarding progress

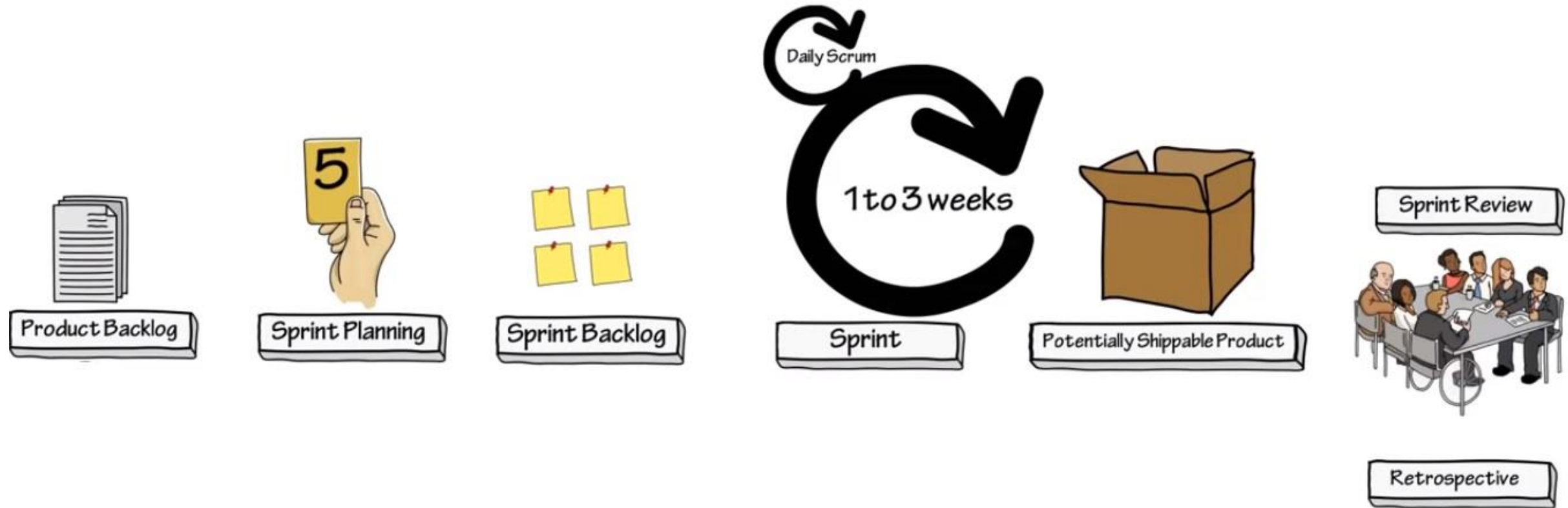


# The Process

## Agile Methods

### □ Frameworks

#### ▪ Scrum



Repeat this workflow for *each* sprint

Figure 11: Workflow of Scrum