

# Topics

Following are the topics covered in this module:

- Agile Model
- Principles of Agile Model
- Scrum
- Scrum Framework
- Scrum Pillars
- Scrum Values
- Scrum roles
- Scrum Artifacts
- Scrum Events
- Sprint Execution
- Definition of Done

# Objectives

After completing this module, you should be able to:

- Understand Agile Model
- Implement the principles of Agile Model
- Describe Scrum
- Gain Knowledge on Scrum Framework
- Use the sprint execution planning
- Understand the definition of Done

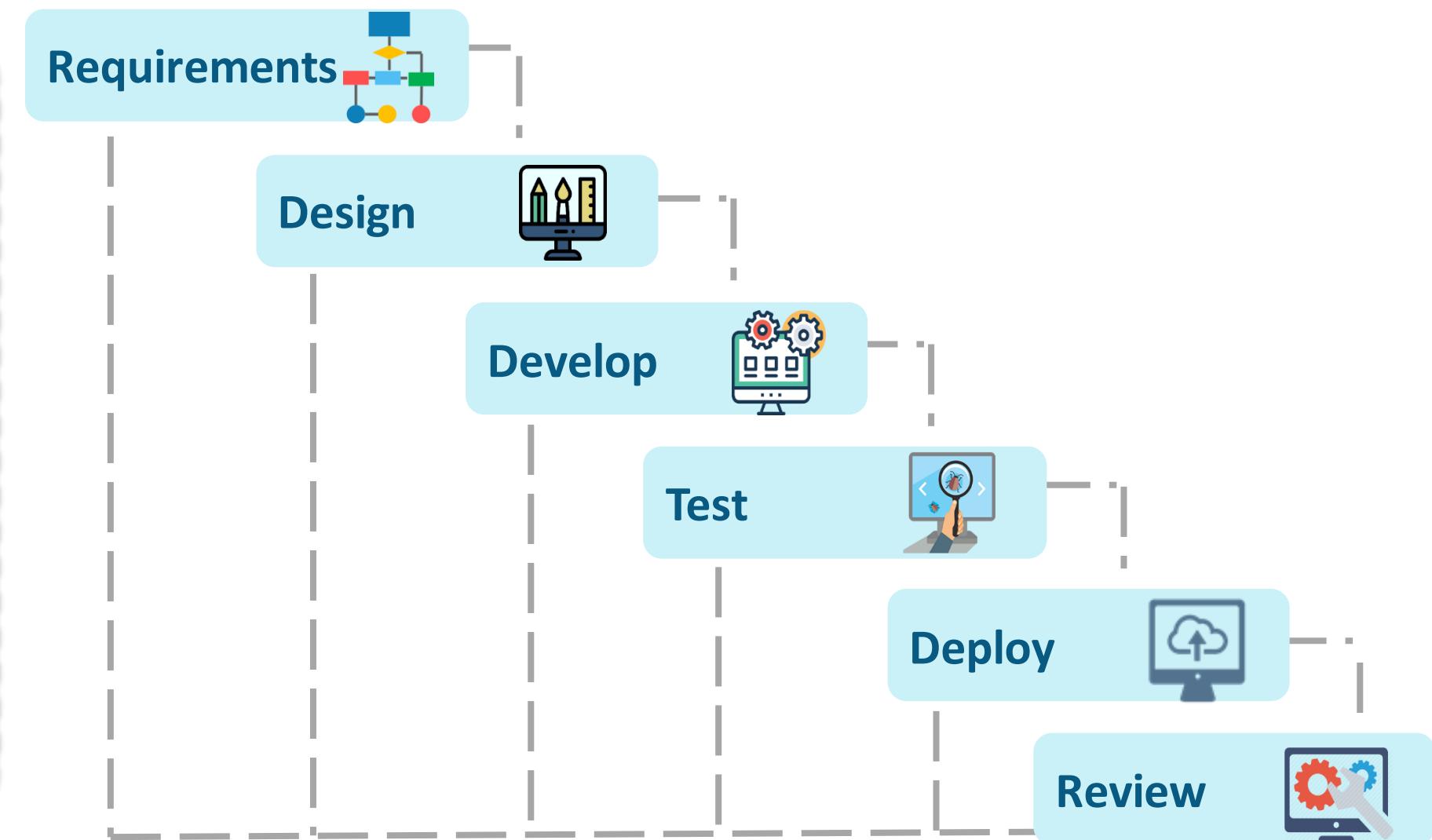
# Introduction To Agile Model

# Problems Before Agile Model – Waterfall Model

**Waterfall Model** is a process where the development process of a new phase begins only after completion of the previous phase

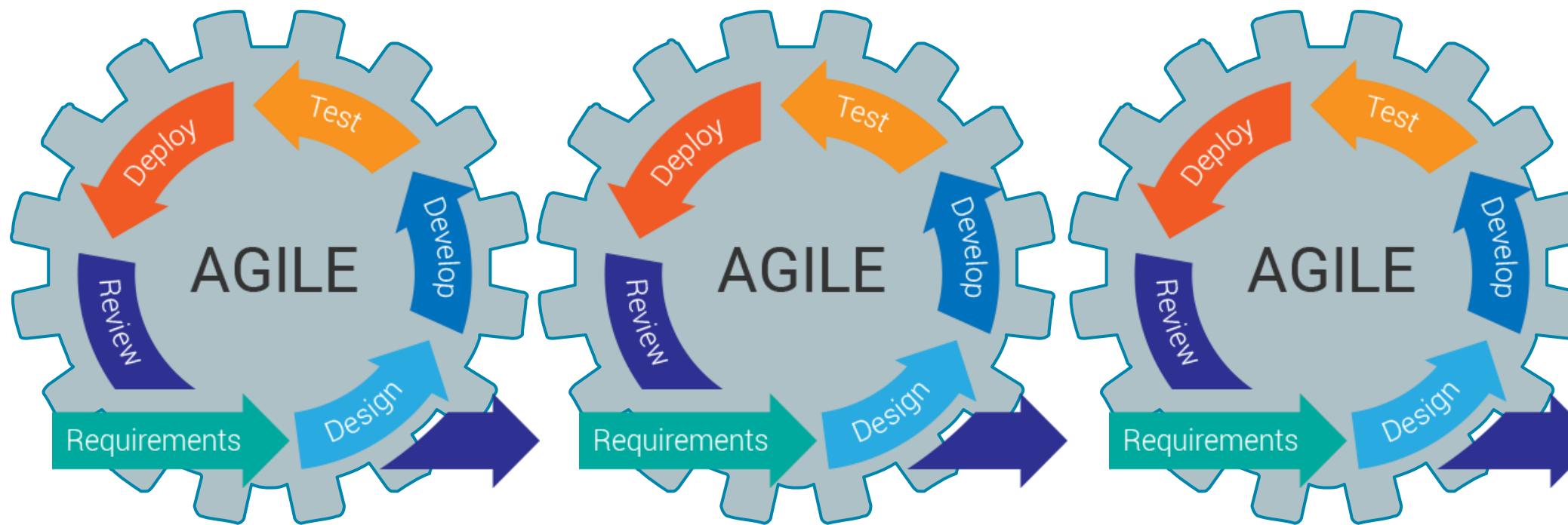
## *Difficulty in this approach*

- Here **development phase** takes a **longer** duration of time
- By the time product is released to the market customer **requirement** is changed, which leads to high amount of risk as making **revisions** is difficult
- As a result, customer might lose interest in the product due to its **extended development** or a **shift** in his requirement
- It is used only when the final product is fixed



# What Is Agile Model?

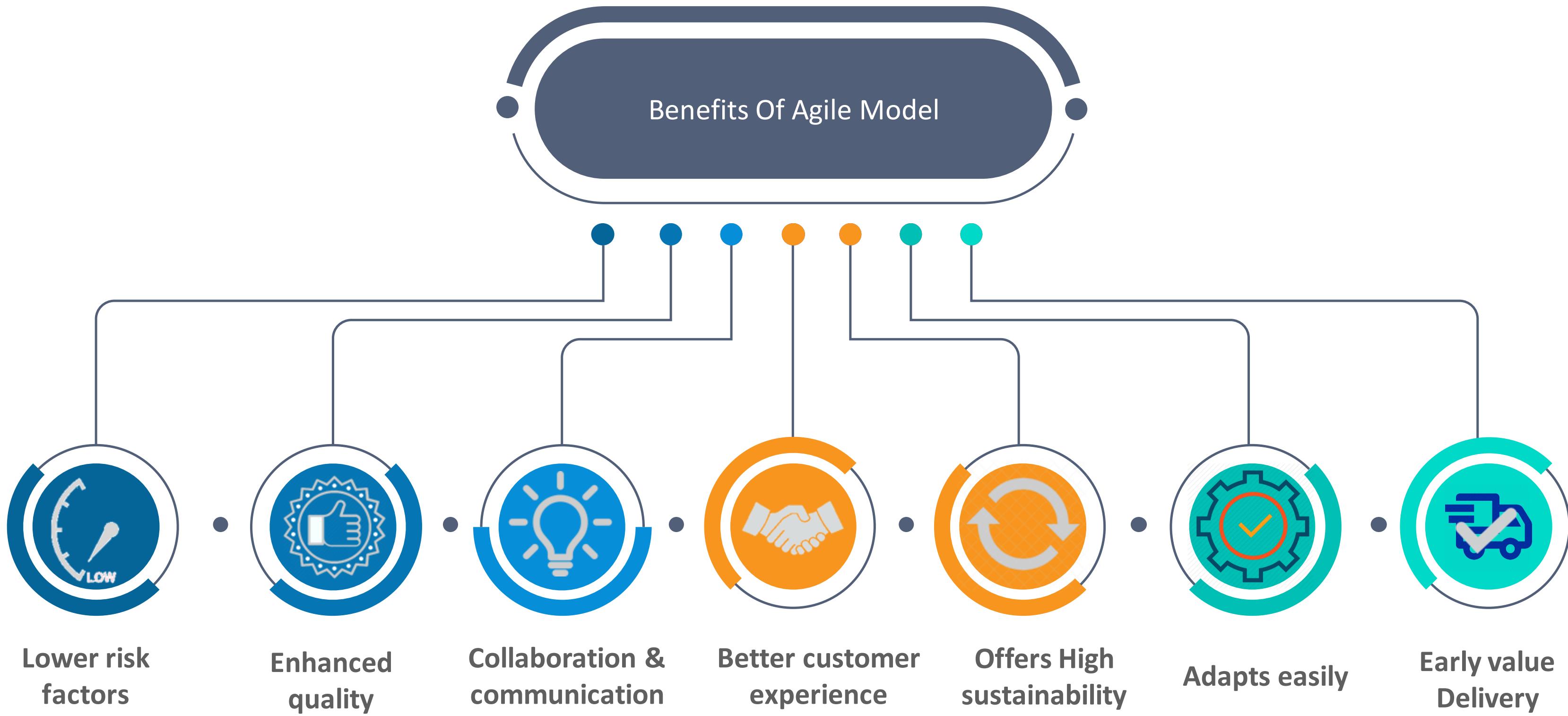
**Agile Model** breaks product development work into **small iterative and incremental** process model with the focus on process adaptability and customer satisfaction by rapid delivery of working software product



**Agile model solves the problem of waterfall model by –**

- Minimize the amount of up-front required for planning and design
- Releasing a product in iterations not at one go
- Accepting changes in requirements at different iterations

# Benefits Of Agile Model



# Agile Manifesto



On Feb 2001, 17 software developers gathered to discuss the alternative solution to software development, the result of that was ***Manifesto for Agile Software Development***.



It specifies the better ways to develop software is by doing it and helping other do it. To make this work they have come with certain ***values and principles***

# Values Of Agile Manifesto

*The four key values of Agile Manifesto are:*



Individuals and interactions

*over*

Processes and tools



Working software

*over*

Comprehensive documentation



Customer collaboration

*over*

Contract negotiation

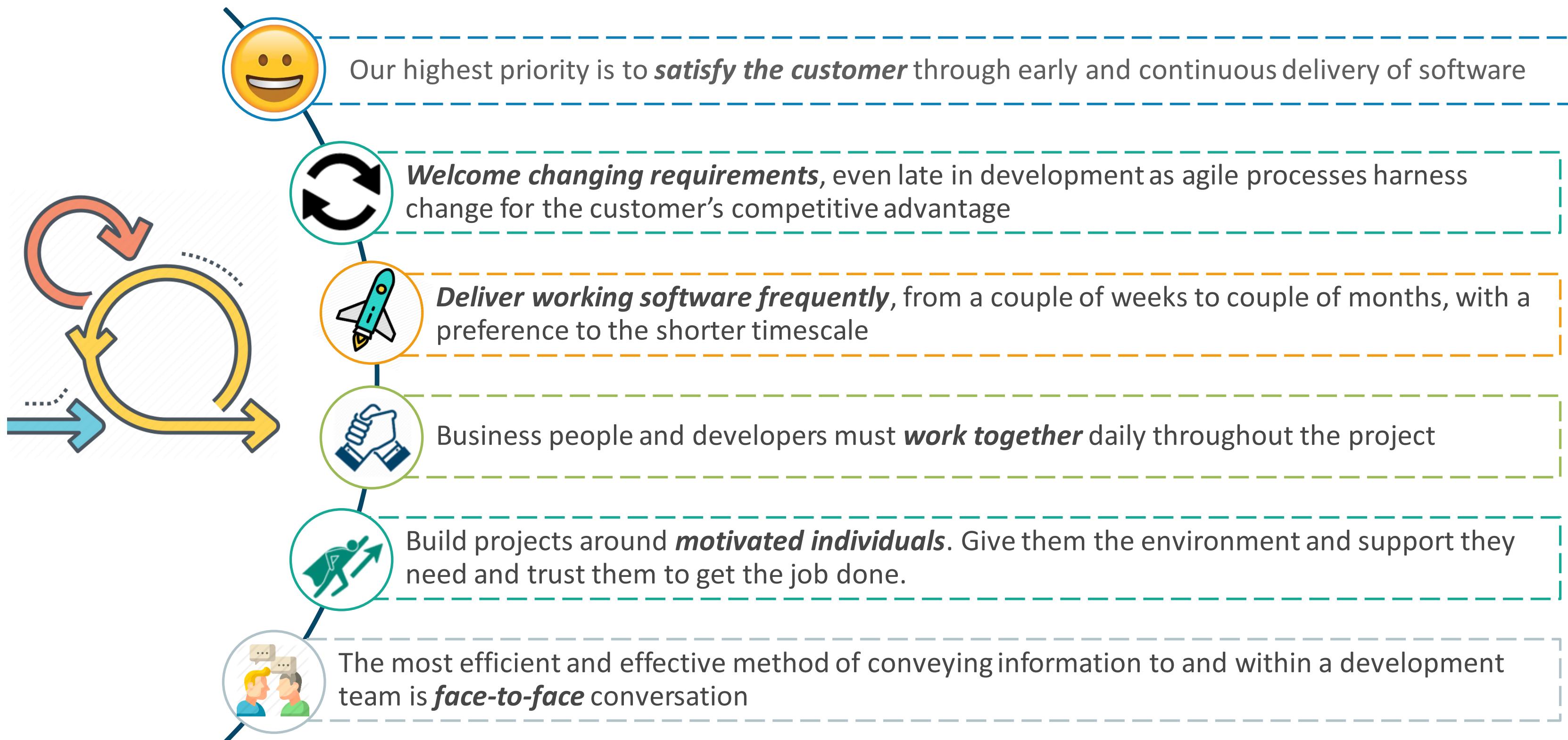


Responding to change

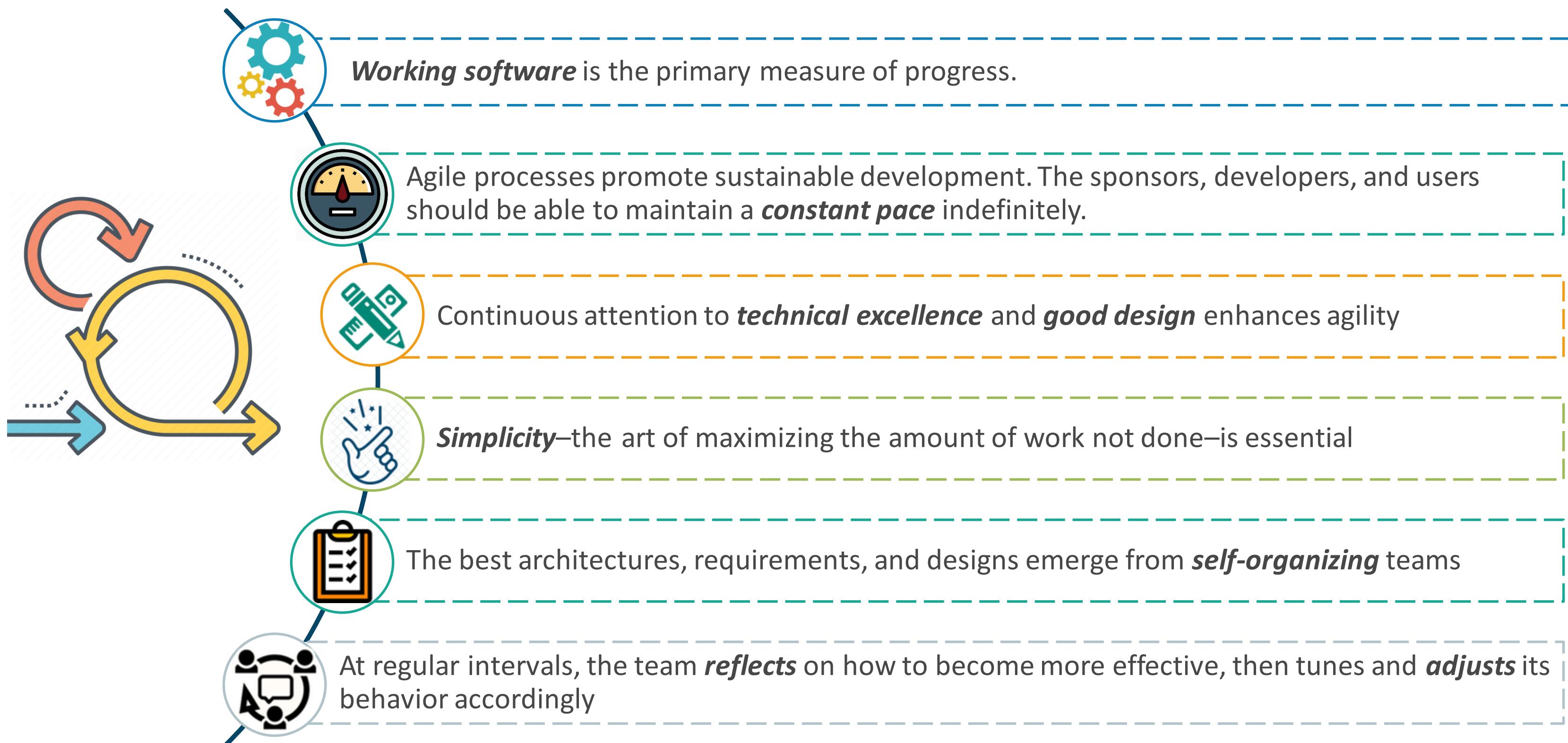
*over*

Following a plan

# Principle Behind Agile Manifesto



# Principle Behind Agile Manifesto

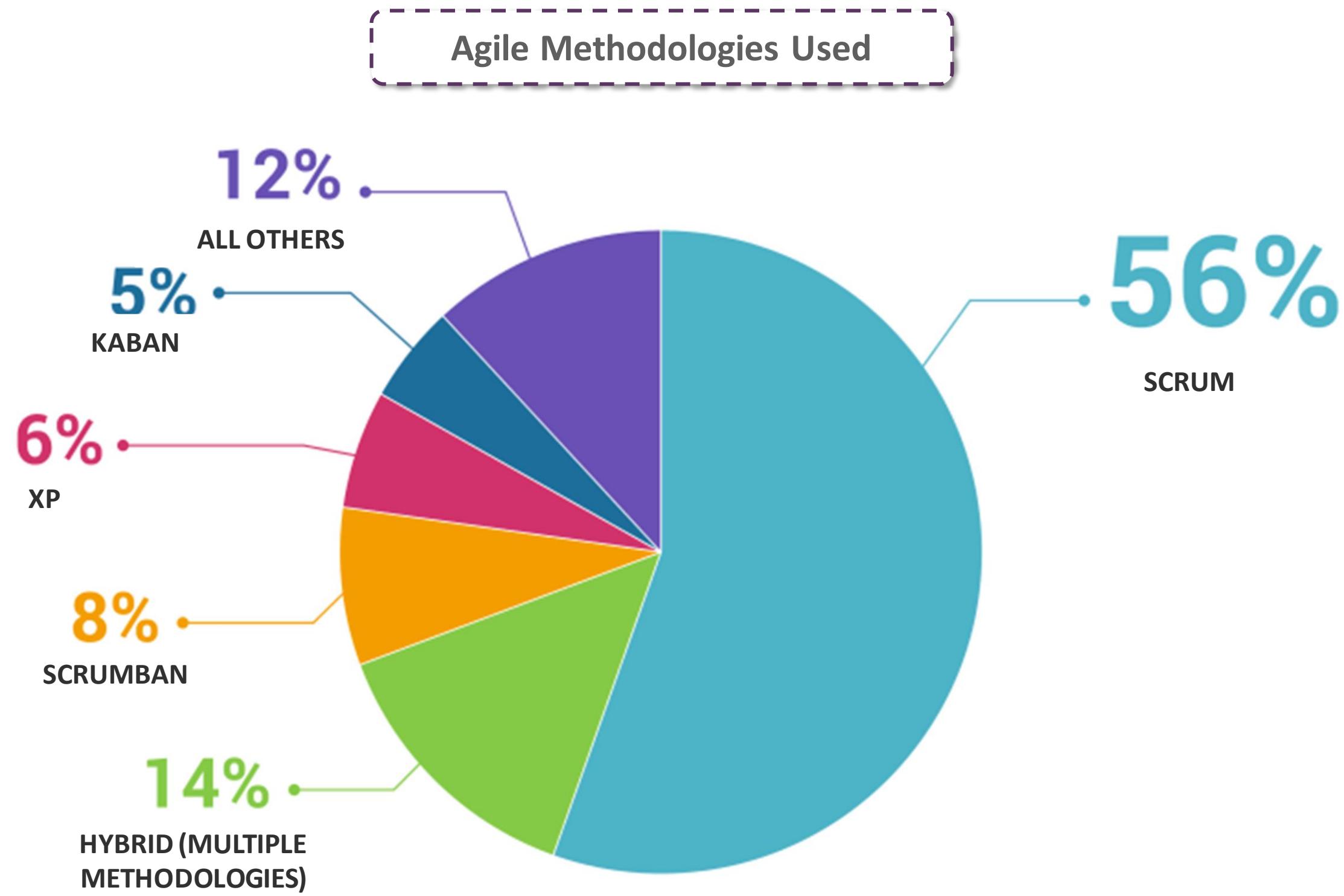


# Popular Agile Methodologies



# Scrum

# Why Scrum?



# What Is Scrum?

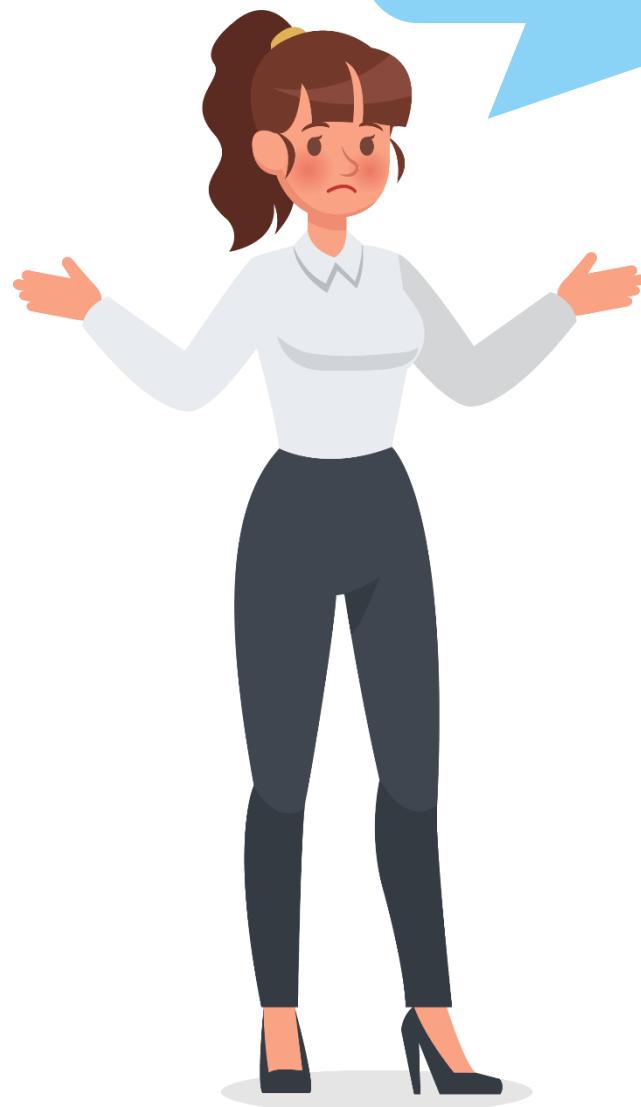
Scrum is an *agile framework*, within which people can address complex adaptive problems, while *productively and creatively* delivering products of the highest possible value



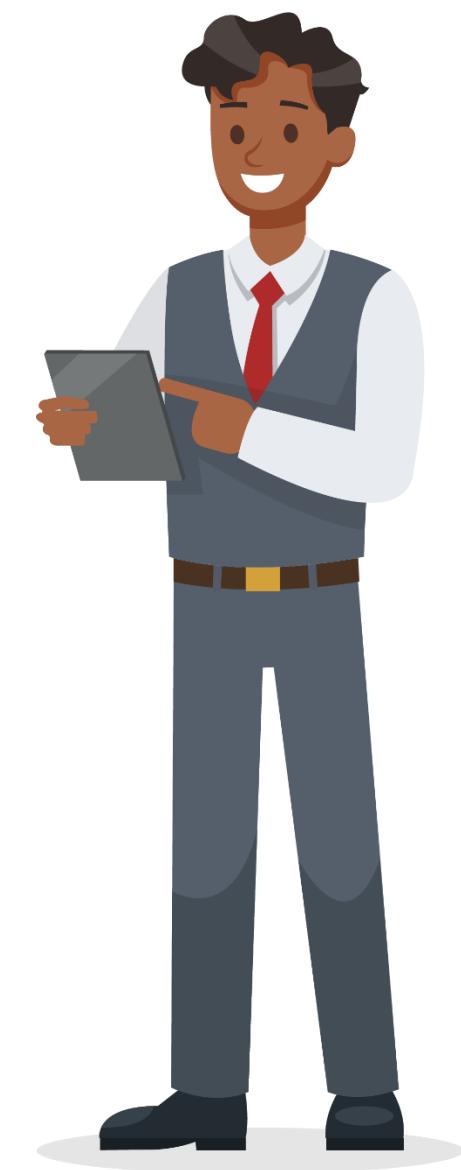
This iteration process occurs in the time period of one to three weeks of time

# Scrum v/s Agile

What is the difference between Scrum and Agile?



- | - - - - -  
**Agile** is set of **methods and practices** based on the values and principles, which includes things like collaboration, self-organization, and cross functionality of teams  
| - - - - -
  
- | - - - - -  
**Scrum** is a framework that **implements agile principles** that can be used to manage iterative and incremental projects of all types  
| - - - - -



# Facts In Scrum



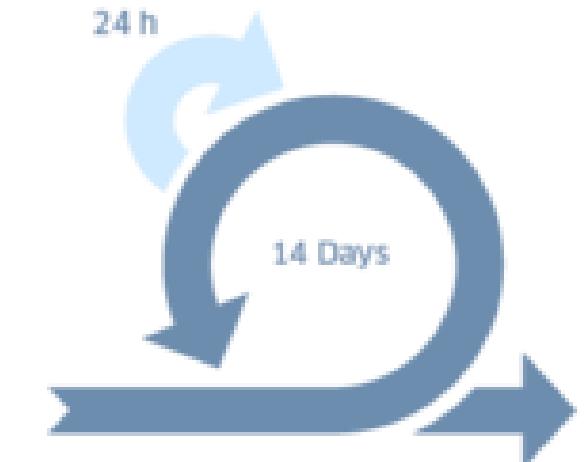
People work as a single team



Enhance the products based on  
the customer feedback



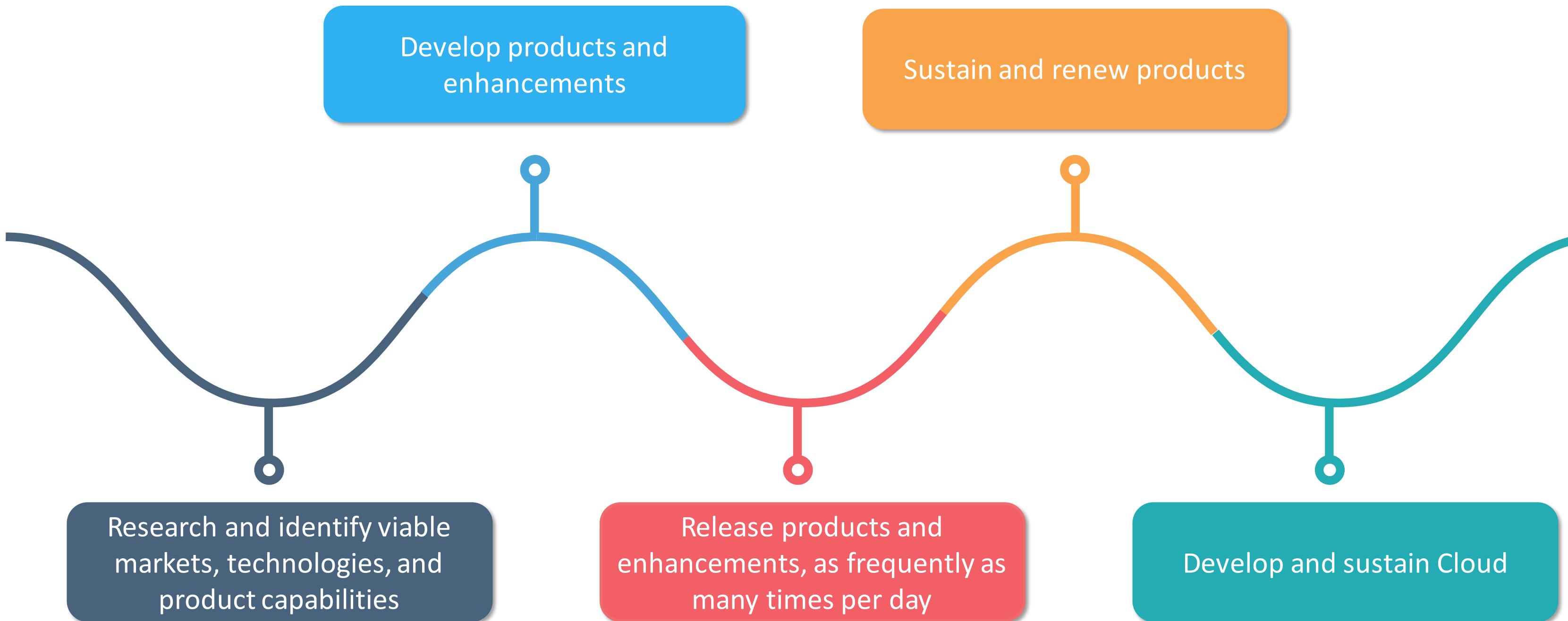
Products are developed in sprints  
(several incremental releases)



Continuous delivering functional  
products



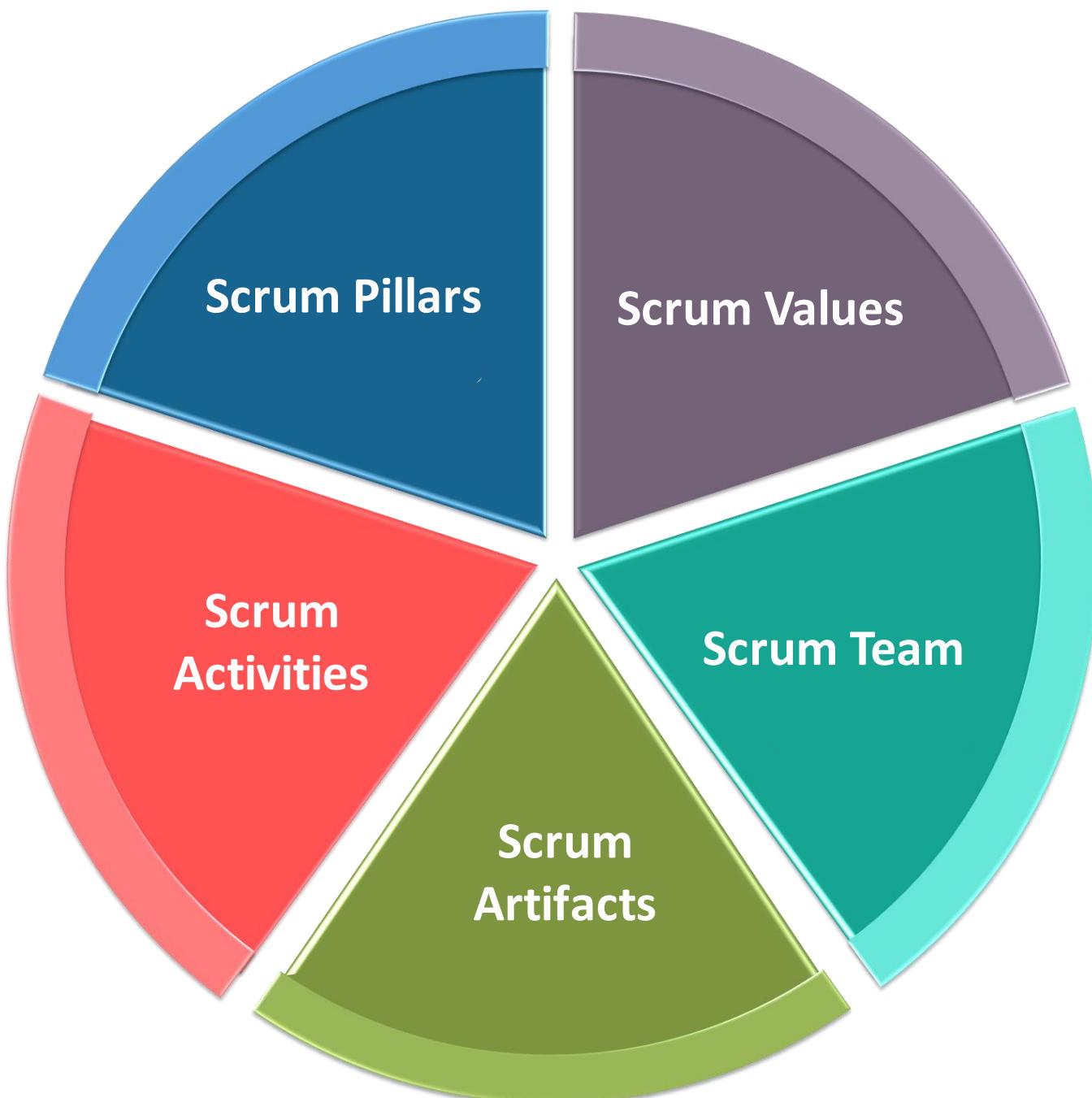
# Uses Of Scrum

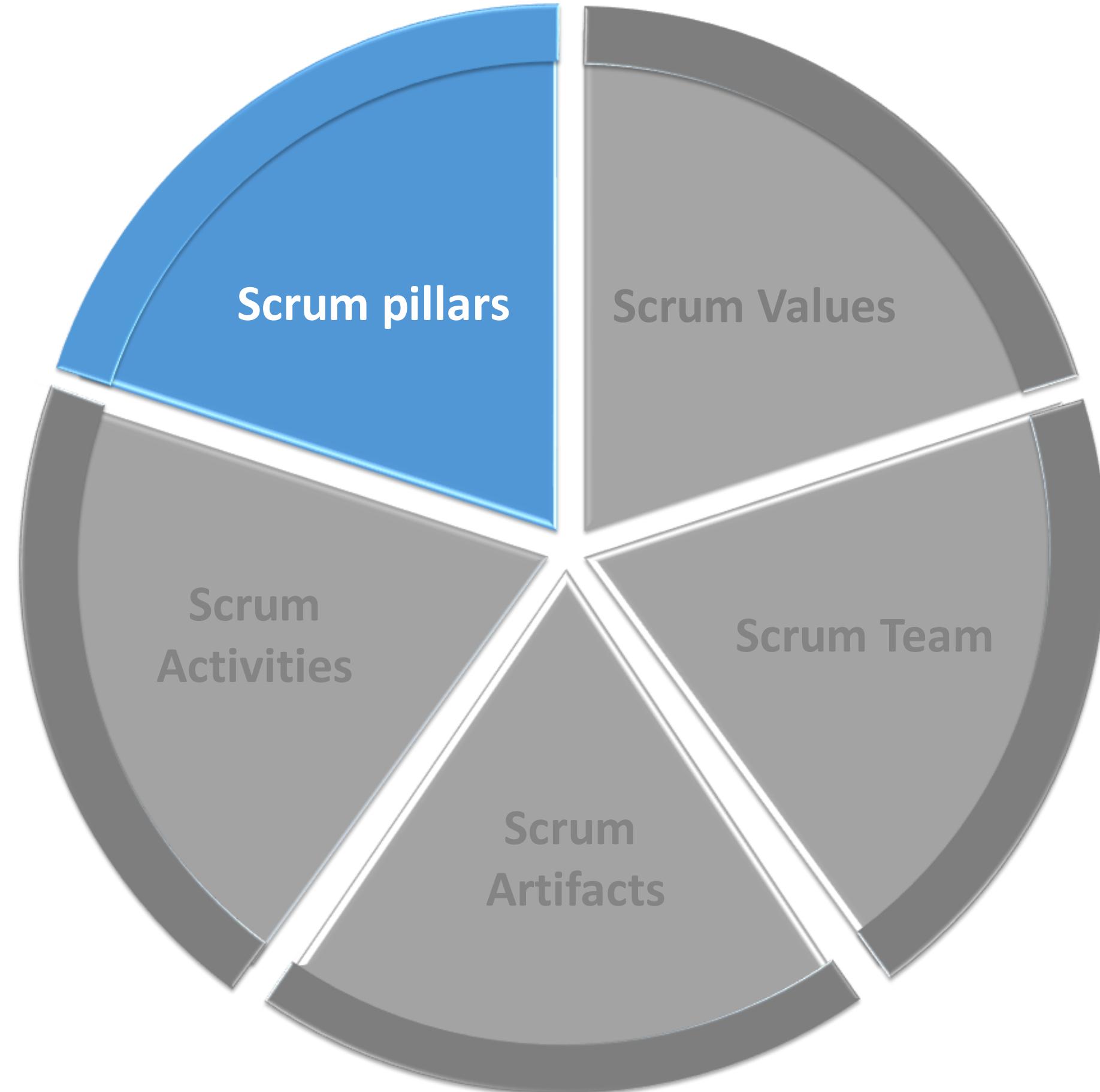


# Scrum Framework

# Scrum Framework

Scrum Framework includes





# Scrum Pillars

The Software Products and requirements **cannot** be *fixed at the beginning*, so the best way to build a winning product is by following the *empirical process theory*



Empirical Process Theory follows

Transparency

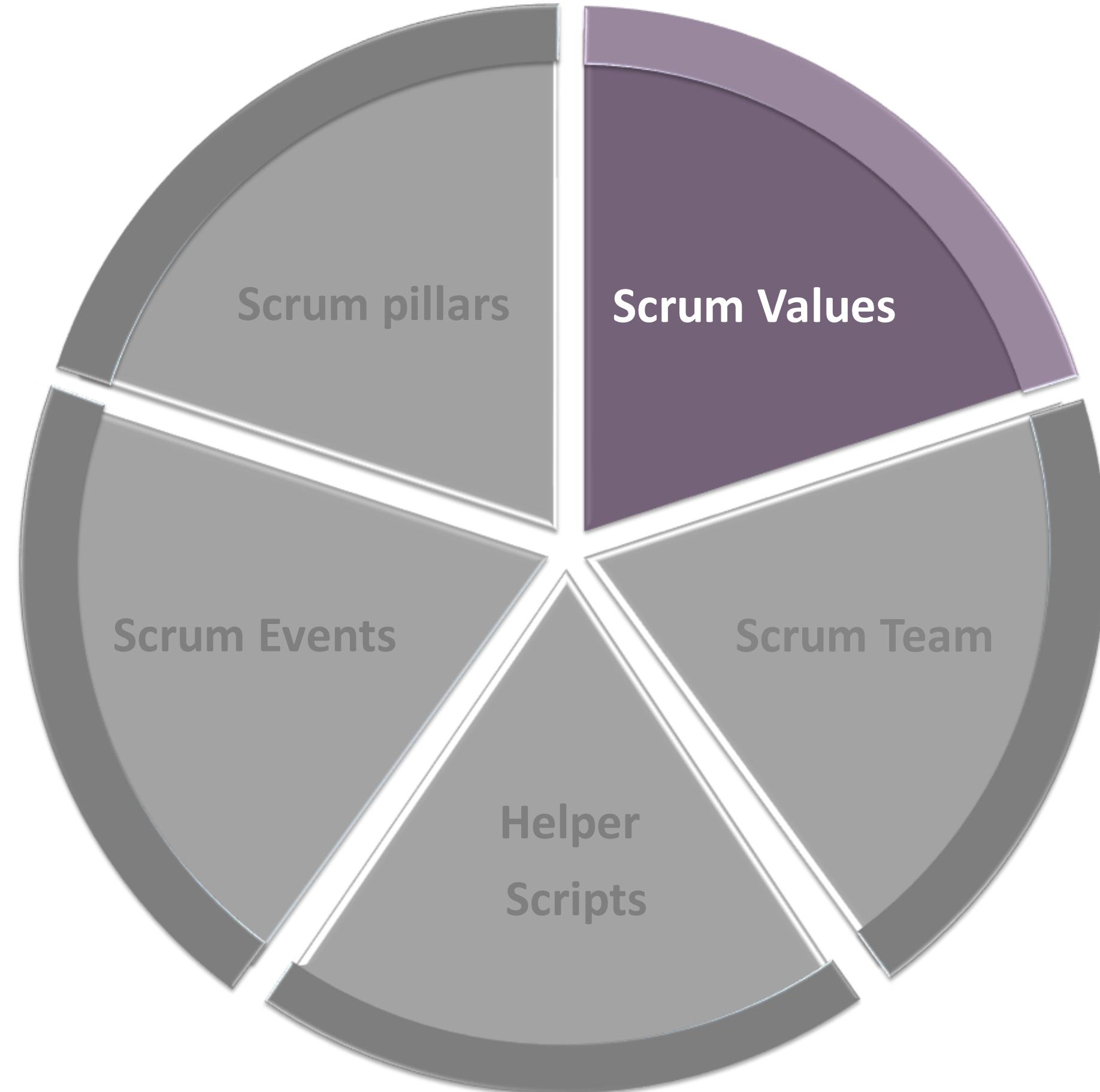
Helps in understanding what is done and what is left to do, so that each future action can be planned according

Inspection

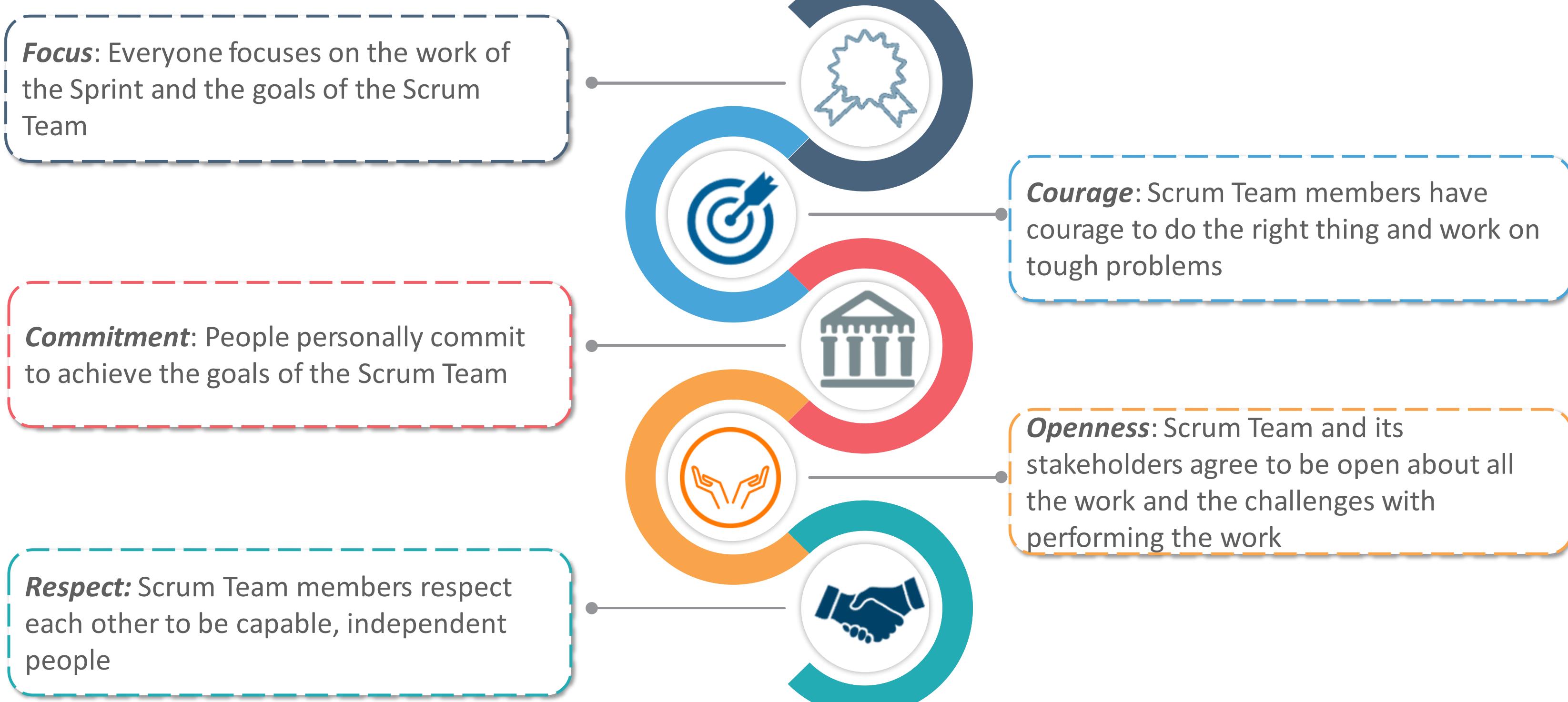
Inspection is done through Scrum board or by collecting feedback

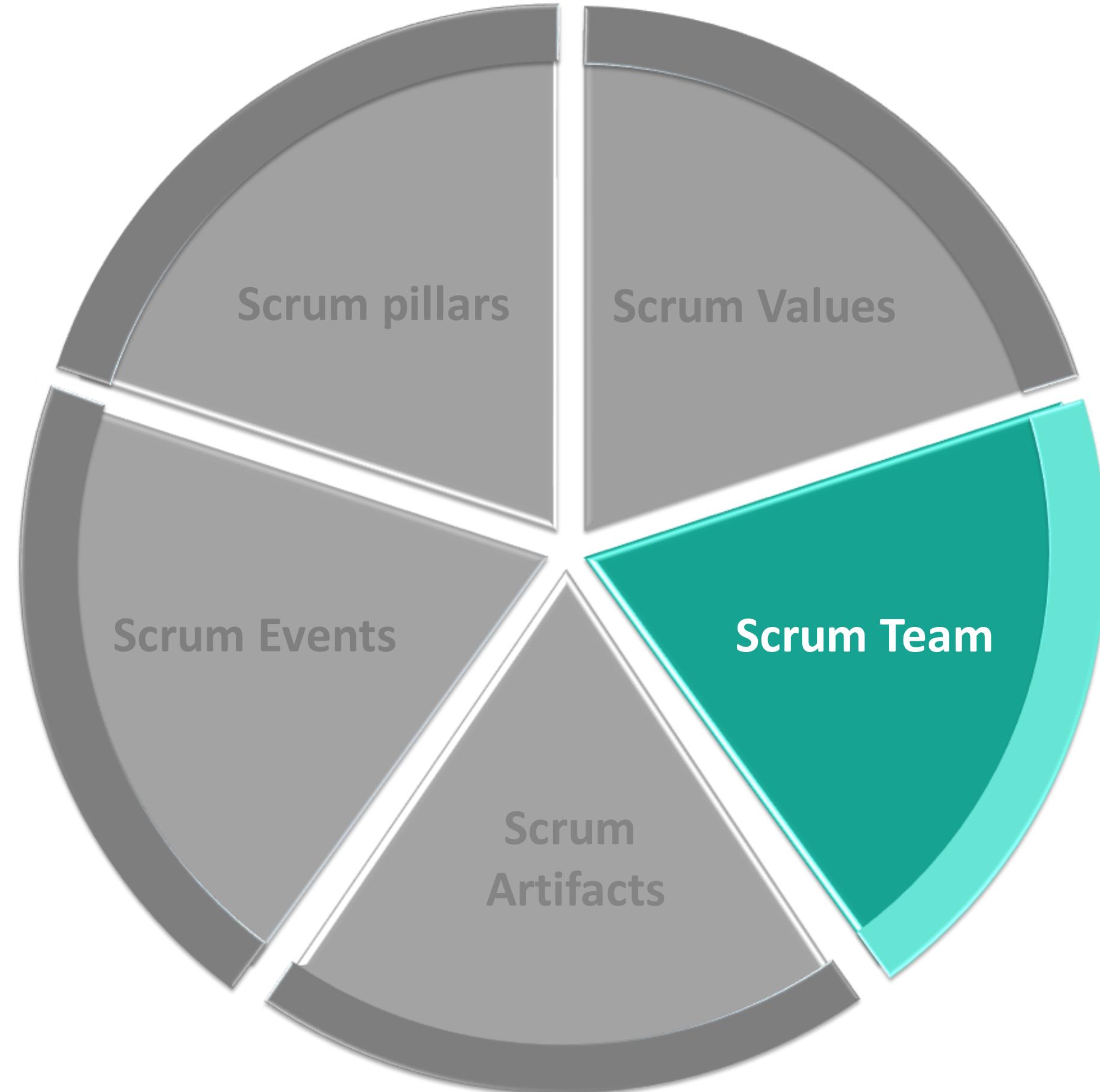
Adaptation

Team learns through transparency & inspection and then adapt by making improvements in the work they are doing



# Scrum Values





# Scrum Team

The different roles in Scrum Team include



## Product Owner

He is the key stakeholder who ***represents the client side*** and is responsible for maximizing the value of the product and the work of the Team



## Scrum Master

He is the ***team's resident facilitator***, who is responsible for helping all team members follow Scrum's theories, rules, and practices



## Development Team

They are the ***professionals*** who do the work of delivering a potentially releasable increment of "Done" product at the end of each Sprint

# Product Owner – Roles, Responsibilities And Qualities



## Roles

- Managing product backlog
- Progressing the value of the work done
- Guiding team to achieve the best goals and missions
- Guiding team to achieve the best goals and missions

## Responsibilities

- Manage economics
- Groom the product backlog
- Participate in planning
- Collaborate with development team
- Collaborate with the stakeholders

## Qualities

- Customer Delighted
- Storyteller
- Knowledge Broker
- Conflict Resolver

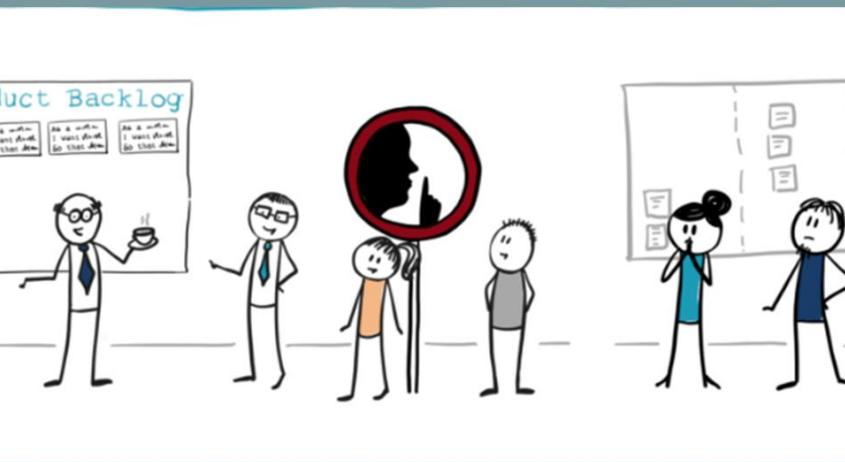
# Scrum Master



**Scrum Master is NOT the person calling everyone for scrum meetings**



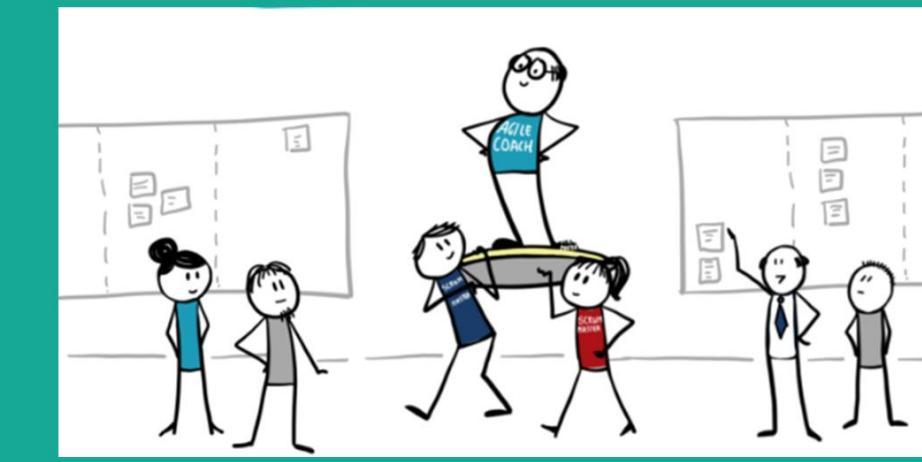
**Scrum Master is NOT responsible for talking to stakeholders**



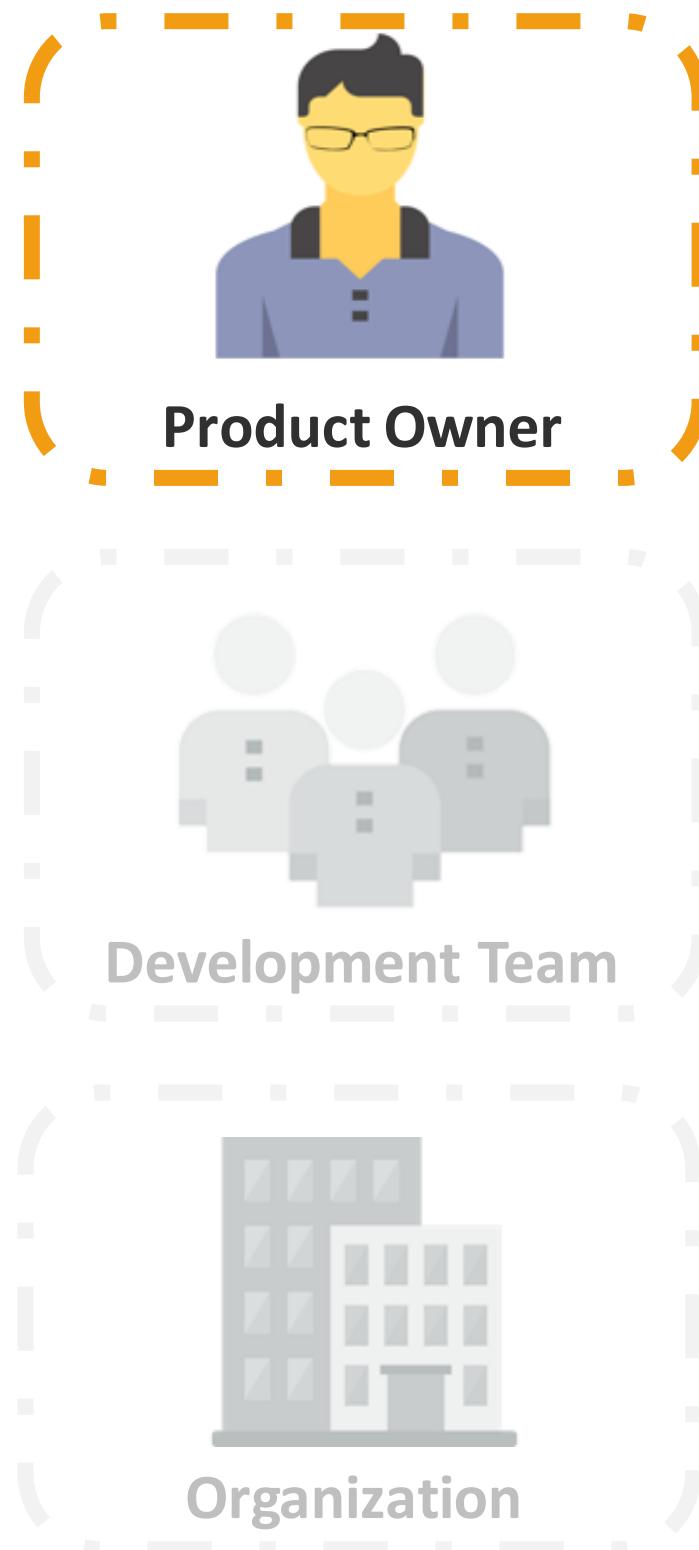
**Scrum Master is NOT responsible for all the problems**



**Scrum Master is NOT the boss, he/she is part of the scrum team**



# Scrum Master



The Scrum Master serves the Product Owner in multiple ways:

Finds effective product backlog management techniques

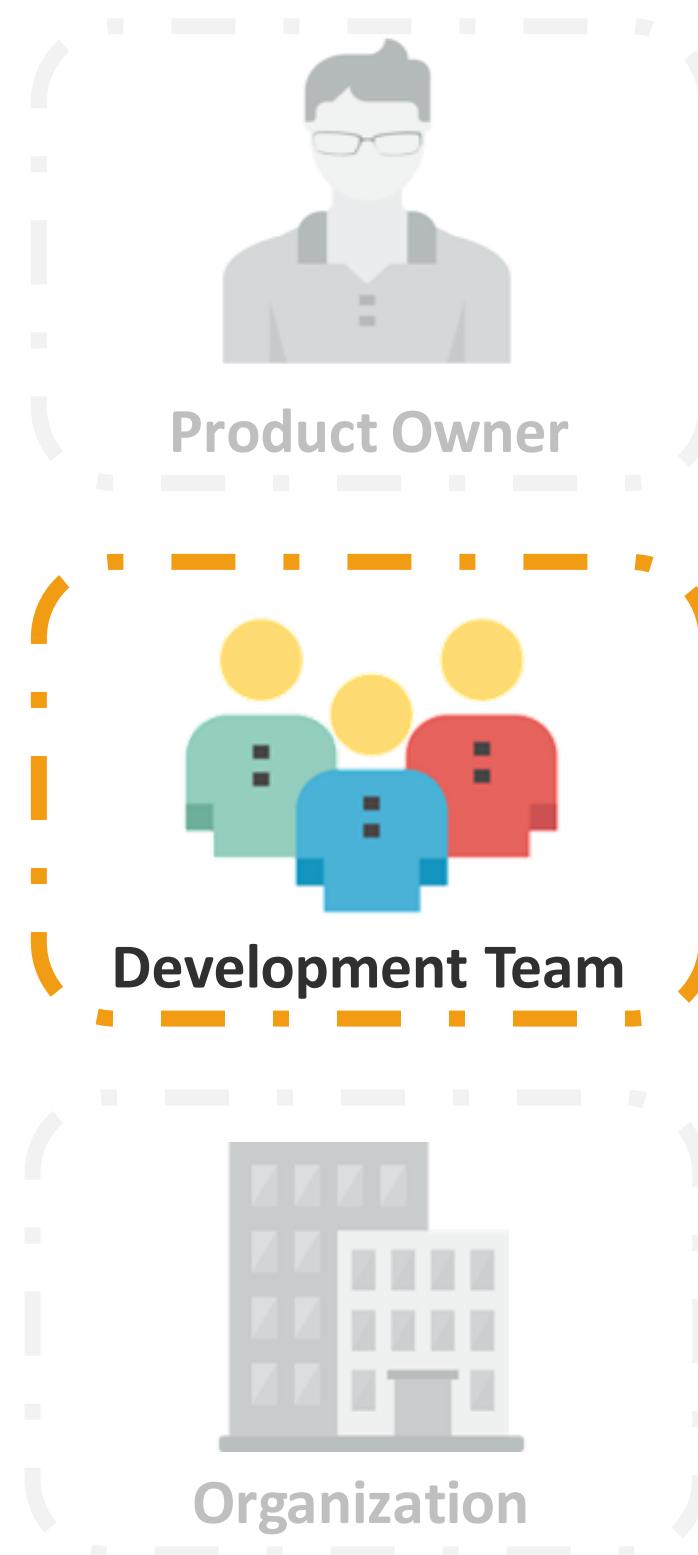
Understanding & practicing agility

Facilitating scrum events as requested

Help product manager arrange product backlog

Understanding product planning in empirical environment

# Scrum Master



The Scrum Master serves the Development Team in multiple ways:

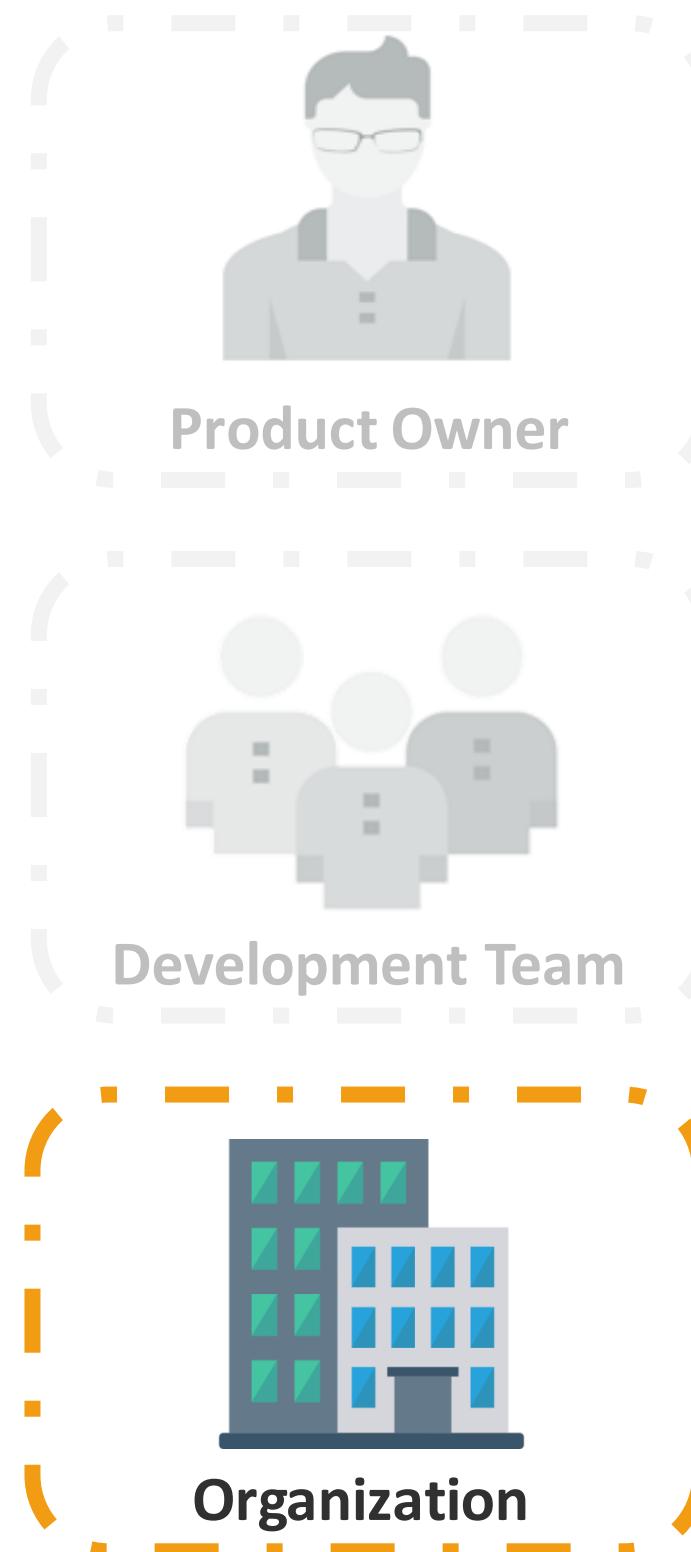
Removes obstacles & impediments

Helps create high-value products

Facilitate scrum events when needed

Coach development team when scrum not fully adopted

# Scrum Master



The Scrum Master serves the Organization multiple ways:

Helps employees and stakeholders understand and implement Scrum practices

Leading and coaching organization on scrum adoption

Causing changes that increases the productive of the scrum team

Working with other scrum masters to increase the effectiveness

# Scrum Master – Responsibilities And Qualities



## Responsibilities

- Coach
- Servant leader
- Process authority
- Impediment remover
- Interference shield

## Qualities

- Knowledgeable
- Patient
- Collaborative
- Transparent
- Observant
- Influential

# Development Team – Roles And Responsibilities



## Roles

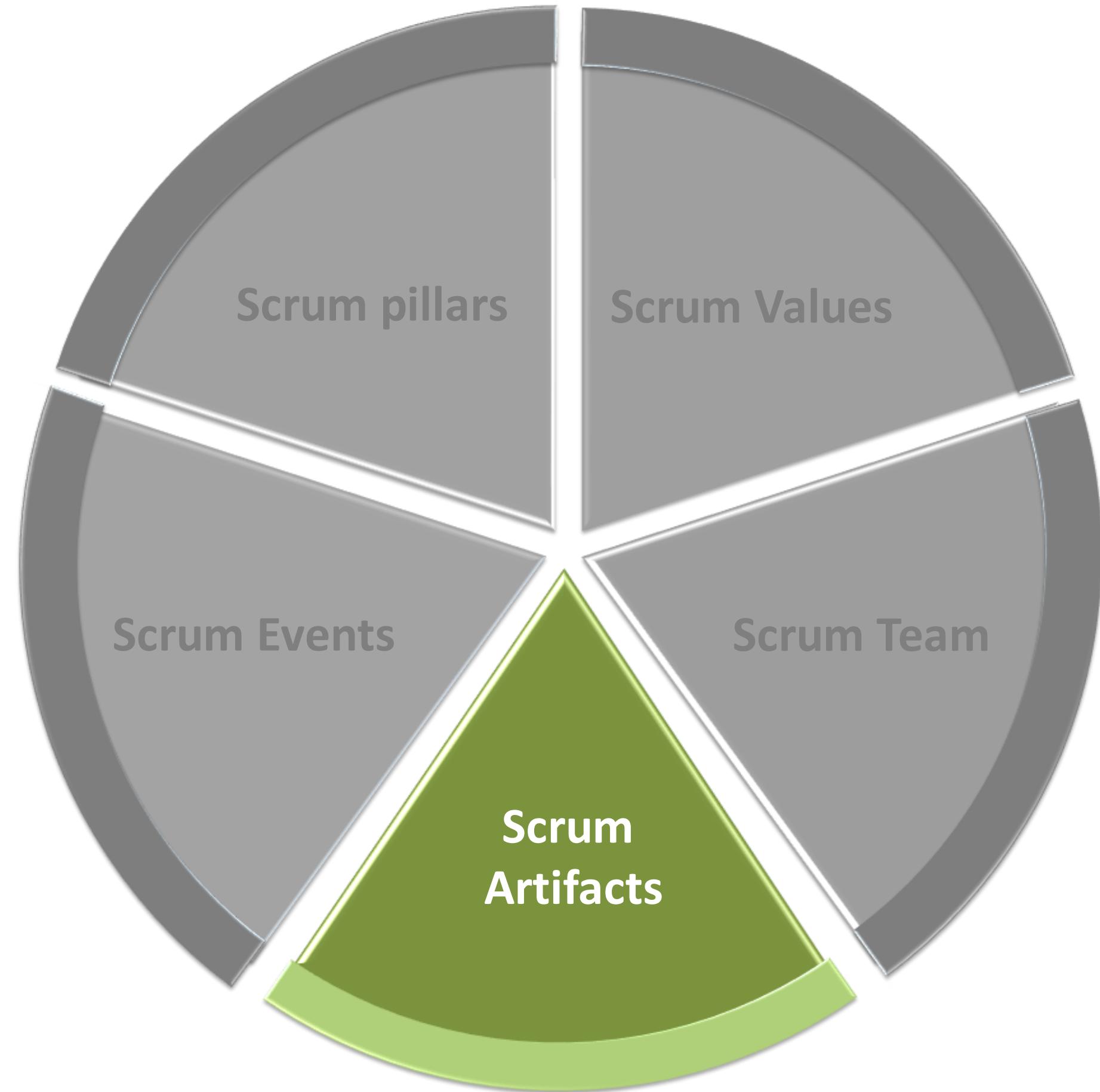
- They are self-organizing teams
- Cross-functional & comprises members with varied skills
- Team members doesn't have individual titles
- Scrum recognizes no sub-teams in the Development Team

## Responsibilities

- Perform sprint execution
- Inspect and adapt
- Groom the product backlog
- Plan the sprint
- Inspect and adapt product & process

## Qualities

- Pair programming
- Knowledgeable
- Self - Motivation
- Team Player



# Scrum Artifacts

Artifacts are just physical records that provide project details when developing a product

Scrum Artifacts include:

Product Backlog



Sprint Backlog



Burndown Charts

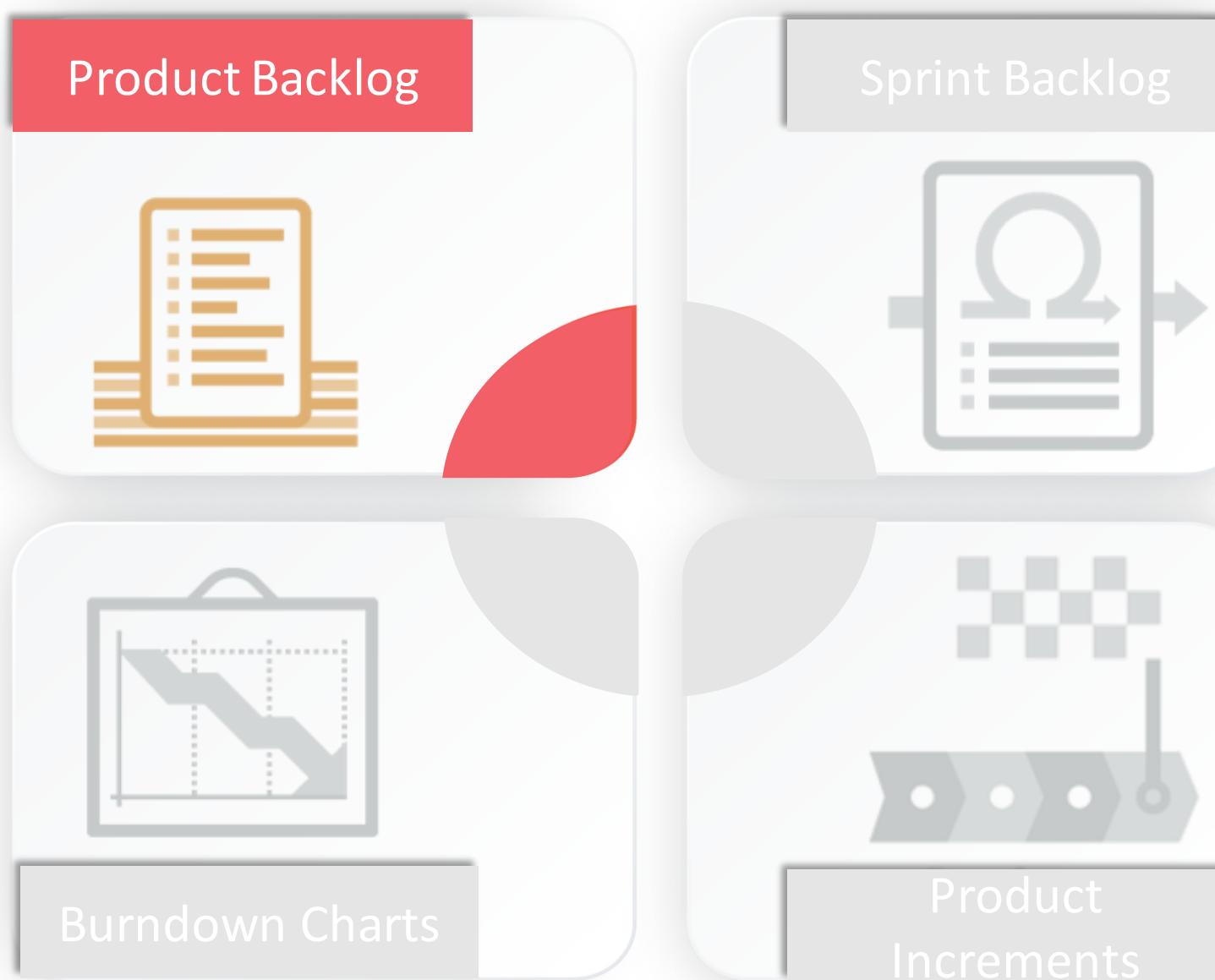


Product Increments



# Product Backlog

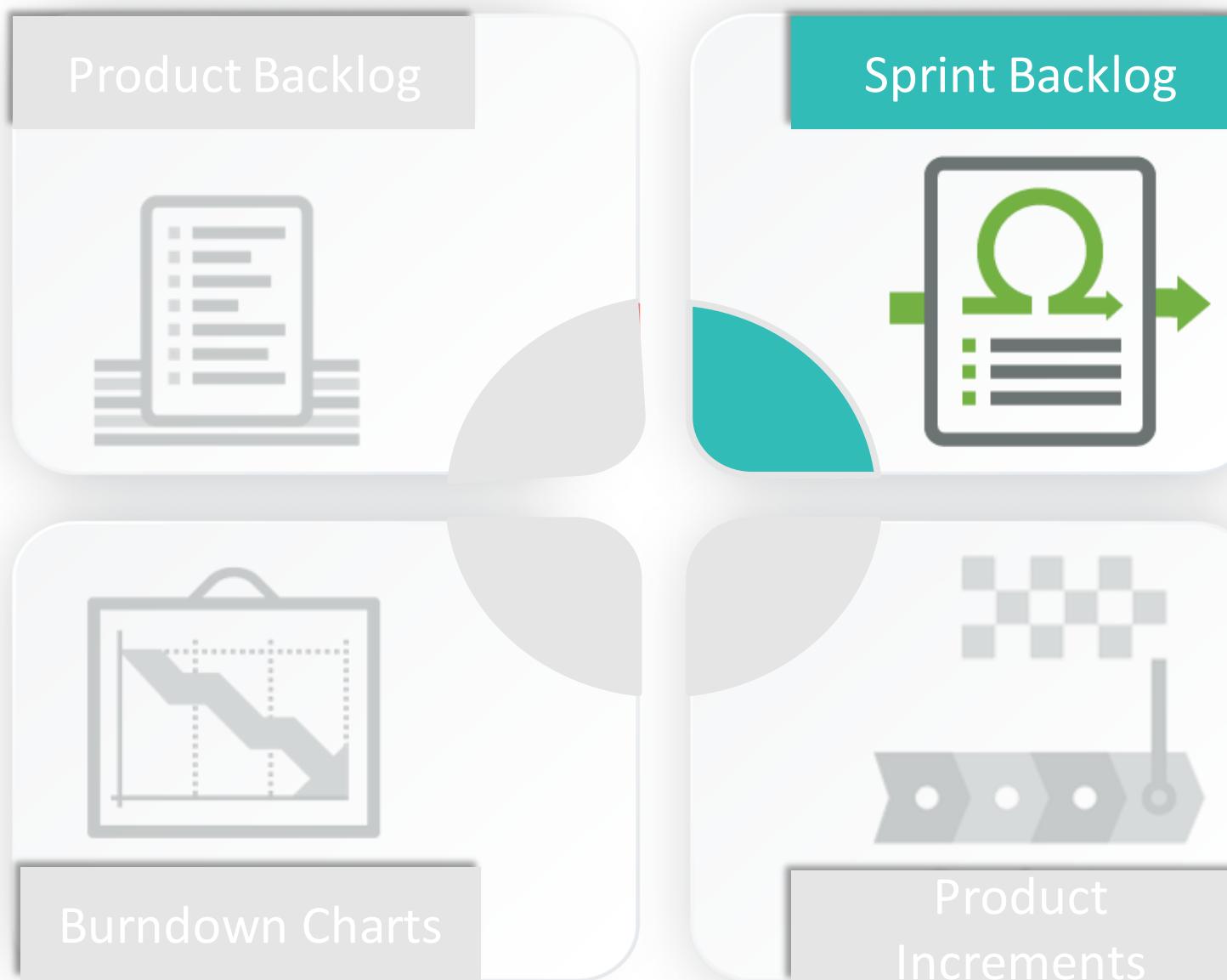
***Product Backlog*** is an ordered list of tasks and requirements that the final product needs, it is constantly evolving and is never complete



- Includes description, estimate & value of business for each item
- Product owner is responsible for product backlog
- Release products & enhancements very frequently
- Consists of a list of features, requirements, functions, enhancements, and fixes
- Defines what is to be implemented next

# Sprint Backlog

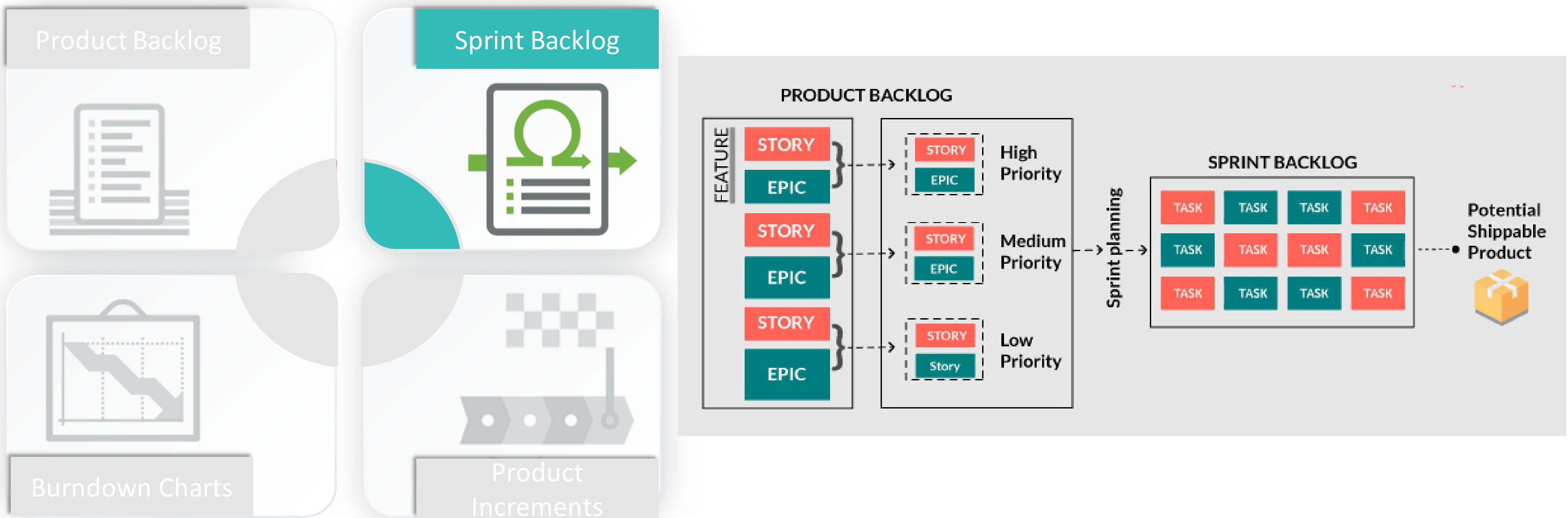
The Sprint Backlog is a list of all items from the Product Backlog that need to be worked on during a Sprint.  
Team members sign up for tasks in the Sprint Backlog based on their skills and priorities.



- Sprint backlog is dynamic in nature
- It is the outcome of sprint planning meeting sessions
- Development team owns the sprint backlog
- Makes easy in identifying the work to the development team
- Highly visible, real-time picture of the work that the Development Team plans to accomplish

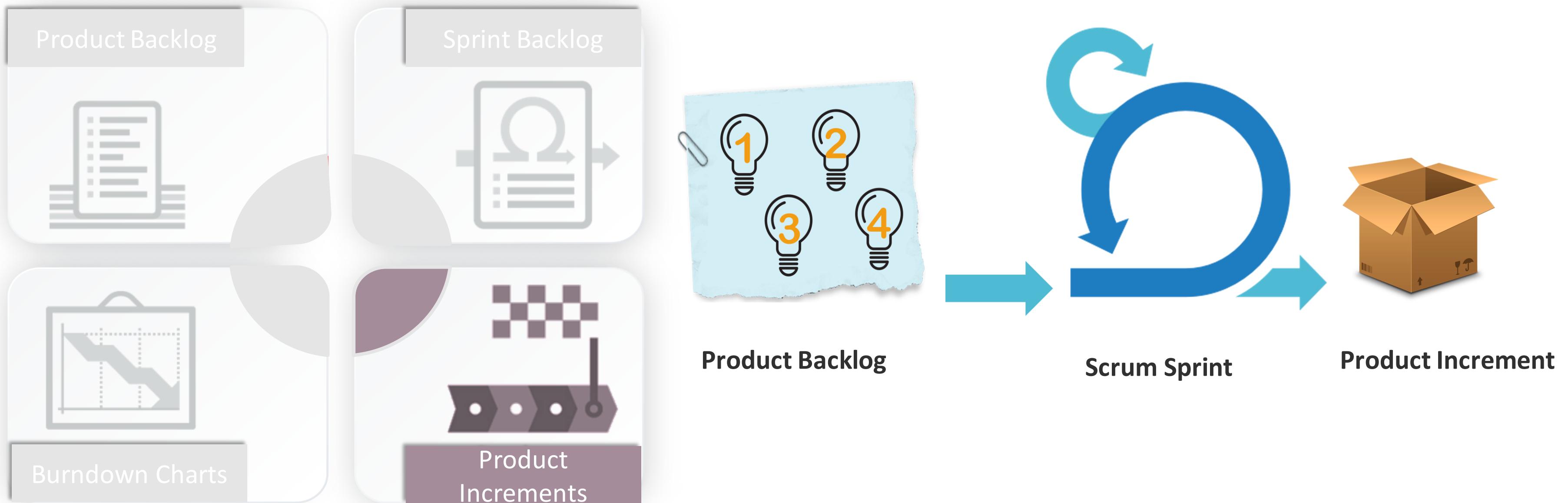
# Sprint Backlog

The Sprint Backlog is a list of all items from the Product Backlog that need to be worked on during a Sprint.  
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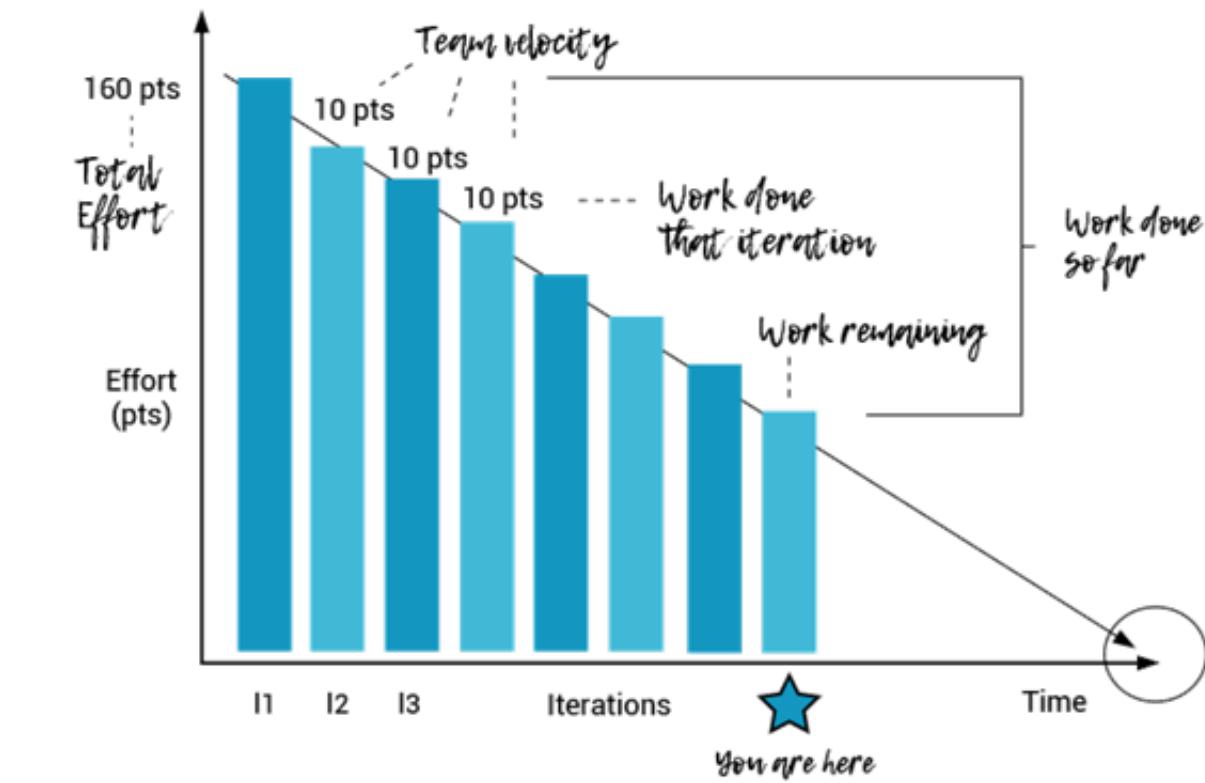
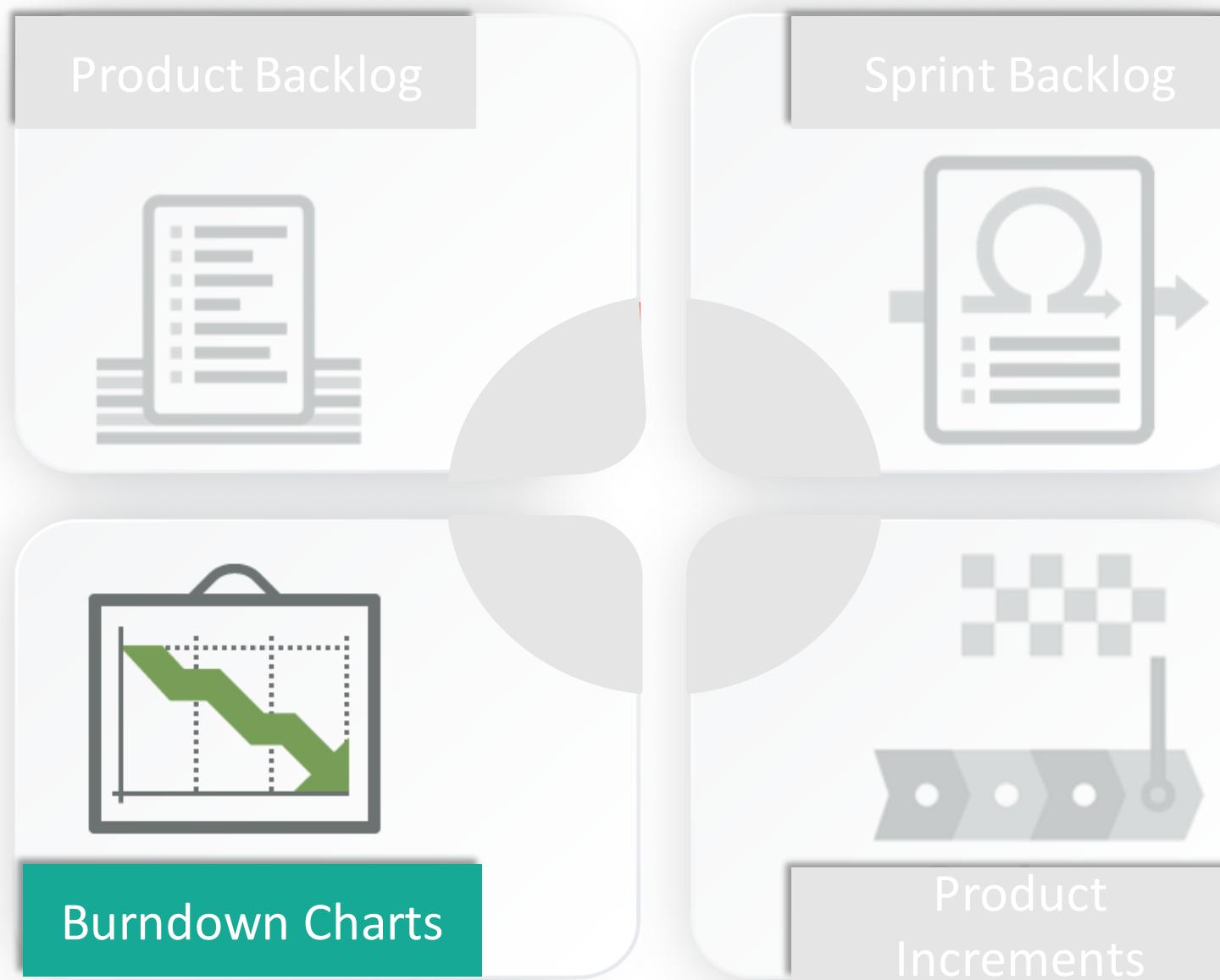
# Product Increment

A Product Increment is the sum of product work completed during a Sprint the value of the increments of all previous Sprints. The increment must be in useable condition regardless of whether the Product Owner decides to release it.

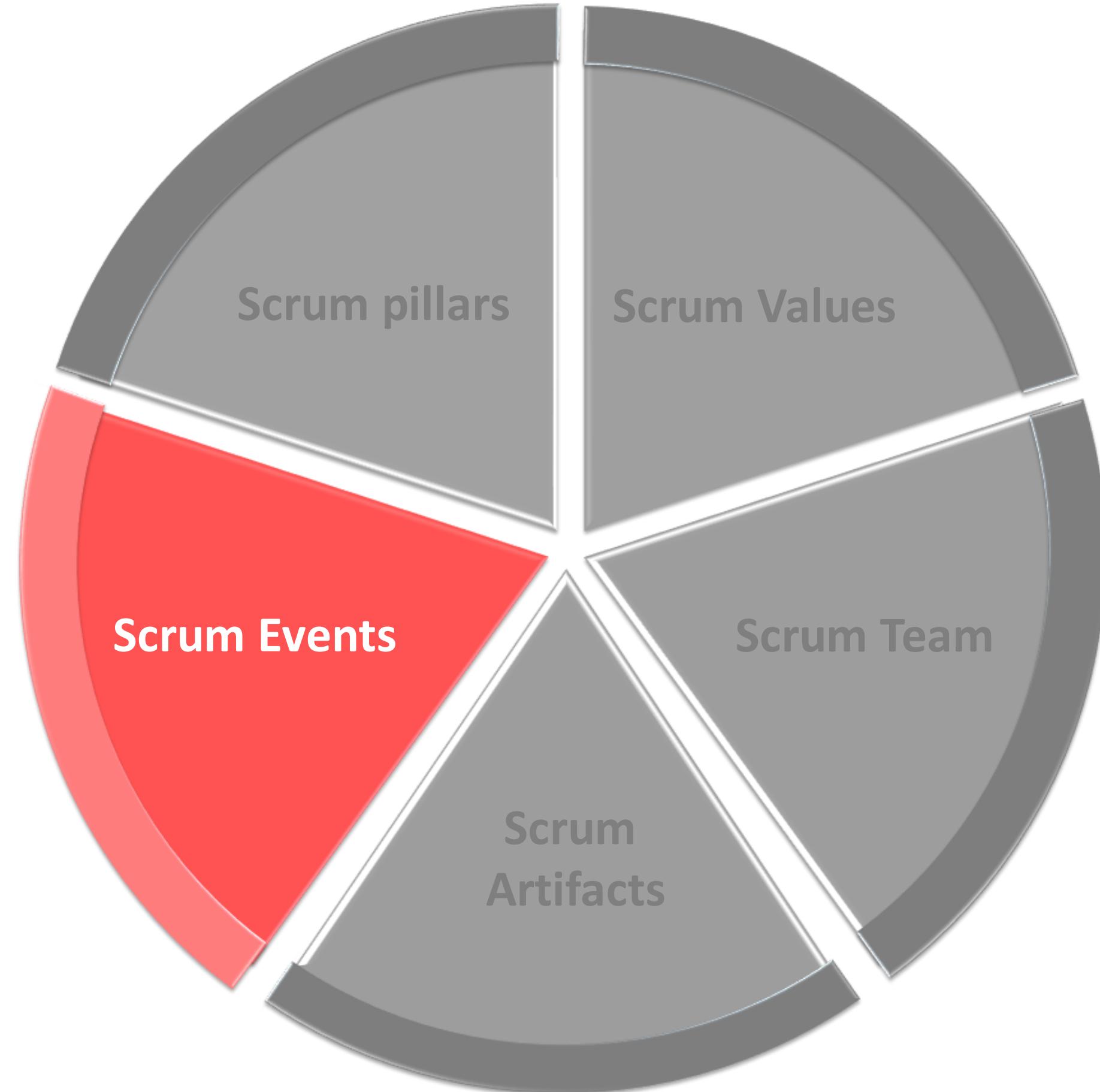


# Burndown Charts

Burn-Up and Burn-Down Charts are used to trace the progress of the project



- **Burn-Up Chart:** Illustrates the amount of work completed
- **Burn-Down Chart:** Illustrates the amount of work pending for the project completion



# What Is A Sprint?

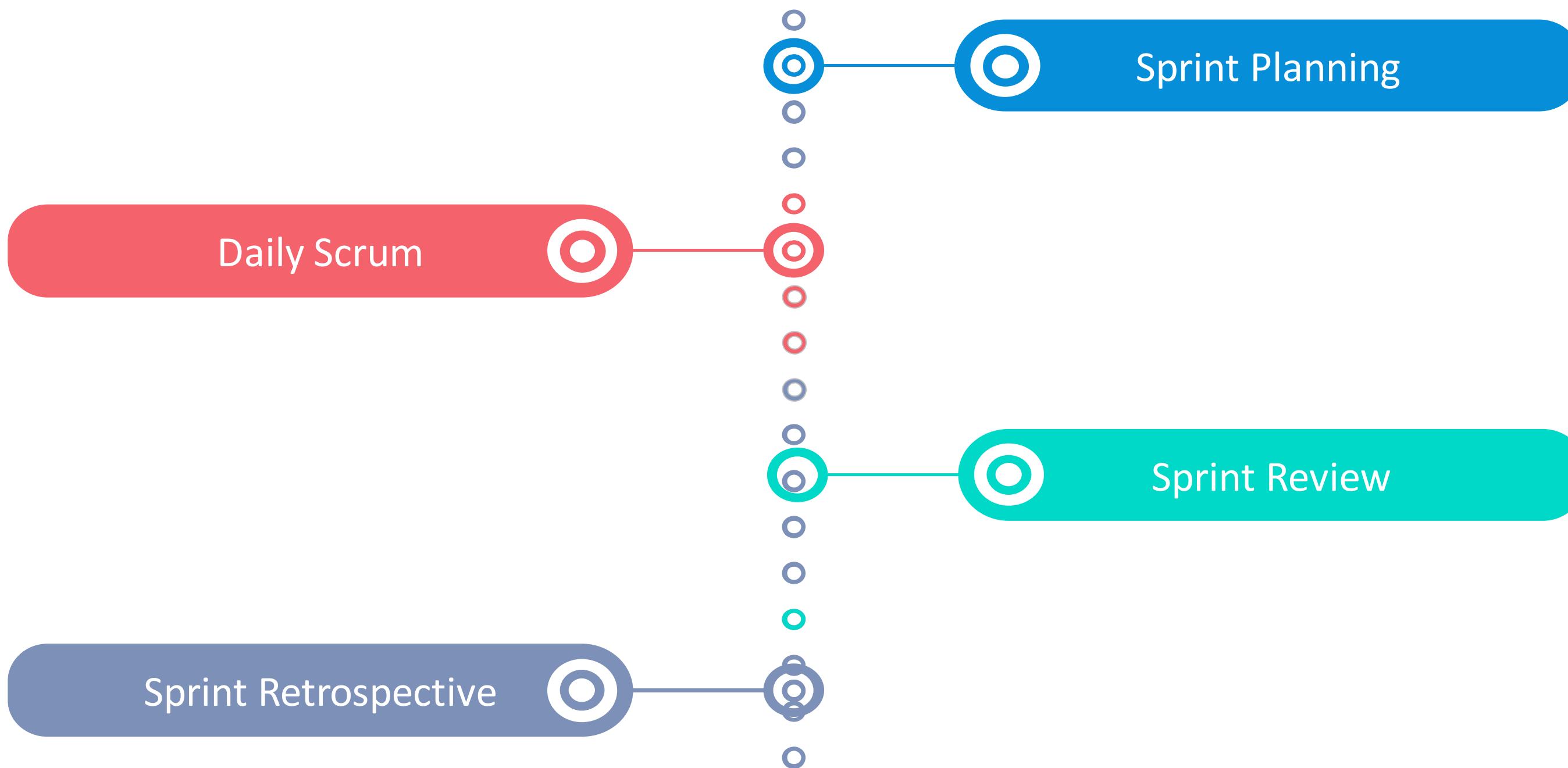
Sprint is a predefined interval or time frame in which the work has to be completed and make it ready for review or ready for production deployment

**The purpose of Scrum Sprint is:**

- 
- 1 Timeboxed
  - 2 Forces Prioritization
  - 3 Demonstrate progress
  - 4 Avoid unnecessary perfections
  - 5 Motivates closure
  - 6 Improves predictability
  - 7 Ease of planning
  - 8 Fast feedback
  - 9 Improved return of investment
  - 10 Short duration

# Scrum Events

Scrum Events include:



# Sprint Planning

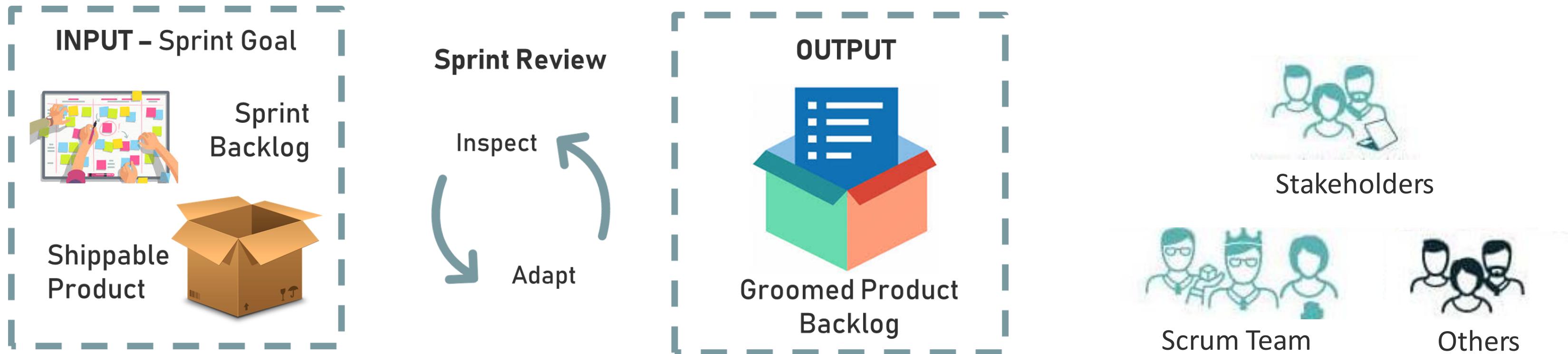
Goal	Define Sprint goal, achievable amount
Who	Scrum Team
When	Beginning of the sprint
Duration	4 hours in 2 weeks sprint
Inputs	Priority, Product backlog, acceptance criteria and capacity
Outputs	Sprint goal, Sprint backlog, task and their estimates, Burndown charts and Development plan/Strategy
Questions to be answered	<ul style="list-style-type: none"><li>• What needs to be done?</li><li>• How to achieve the goal?</li></ul>

# Daily Scrum

Goal	Plan for the day, Inspect and adapt daily towards reaching the sprint goals
Who	Development teams
When	Daily throughout the sprint
Duration	Maximum 15 minutes
Inputs	Priority, Product backlog, acceptance criteria and Capacity
Outputs	Sprint goal, Sprint backlog, task and their estimates, Burndown charts and Development plan/Strategy
Questions to be answered	<ul style="list-style-type: none"><li>• What did I do since last daily scrum?</li><li>• What am I planning to work on today?</li><li>• Impediments if any</li></ul>

# Sprint Review

Goal	Get feedbacks on product increment development during the sprint. Inspect and adapt on the product features.
Who	Scrum Team + other (optional)
When	Last day of the sprint
Duration	2 hour for a 2 week sprint

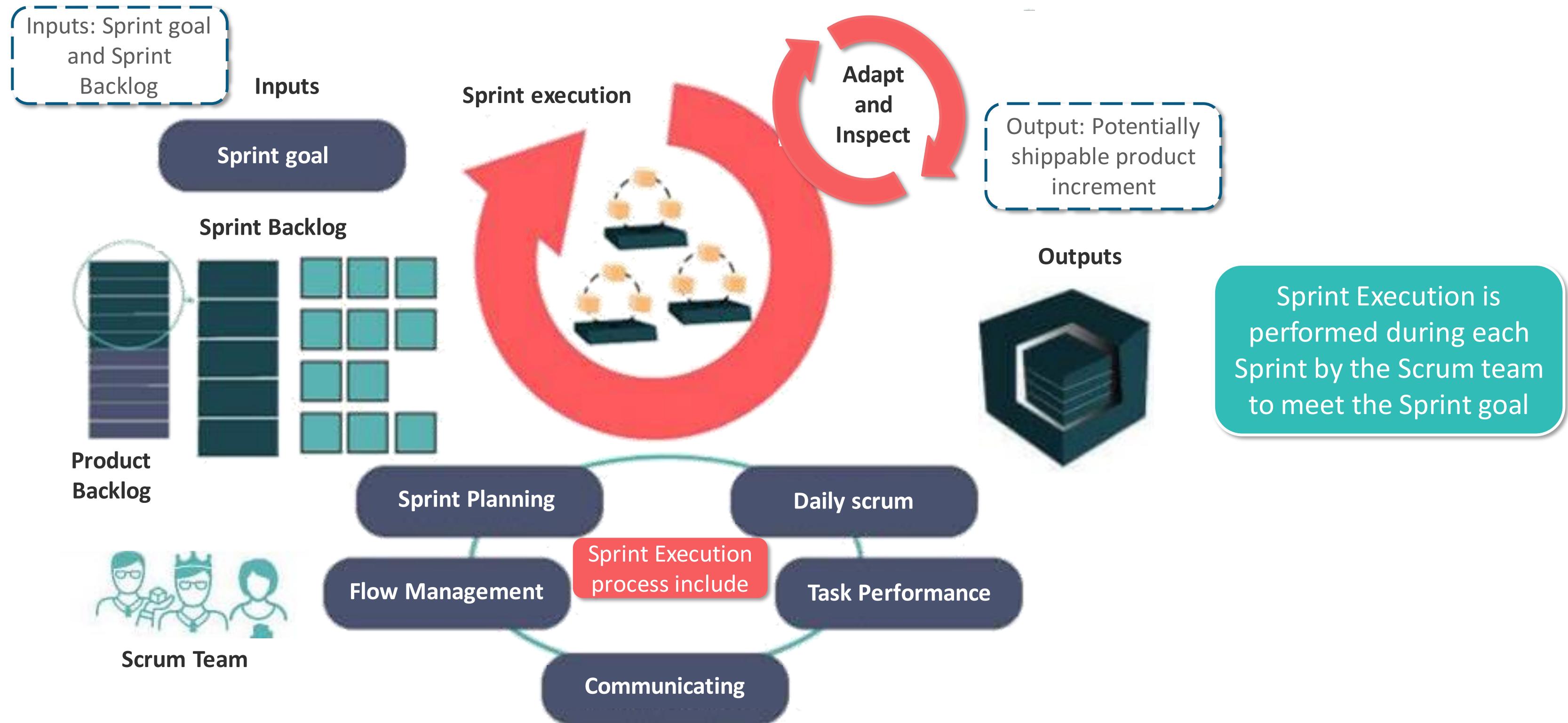


# Sprint Retrospective

Goal	To inspect and adapt to become effective and efficient on process, people and culture aspects
Who	Scrum Team
When	Last day of the sprint
Duration	3 hours for one month sprint
Inputs	Observations, issues, experience, pattern and desired results
Outputs	List of steps to be taken to make the team more effective and efficient, action items on the team and prioritized
Questions to be answered	<ul style="list-style-type: none"><li>• What went wrong during the sprint?</li><li>• What actions can be taken for improvement?</li><li>• What could have been improved?</li><li>• Implemented actions and results</li></ul>

# Sprint Execution

# How Does Sprint Execution Work?



# Sprint Execution

Sprint Planning

Flow Management

Daily Scrum

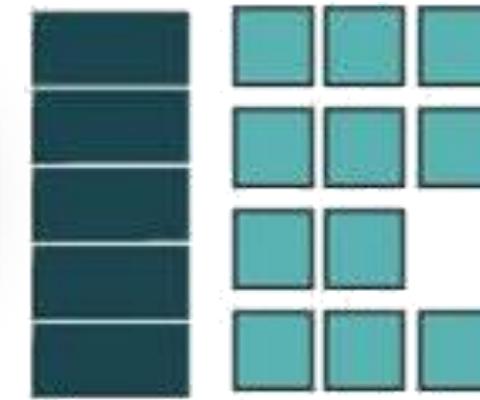
Task Performance

Communicating

## *Sprint Planning*

During planning, the team creates a prioritized plan, called **Sprint Backlog** to achieve the Sprint goal

## *Sprint Backlog*

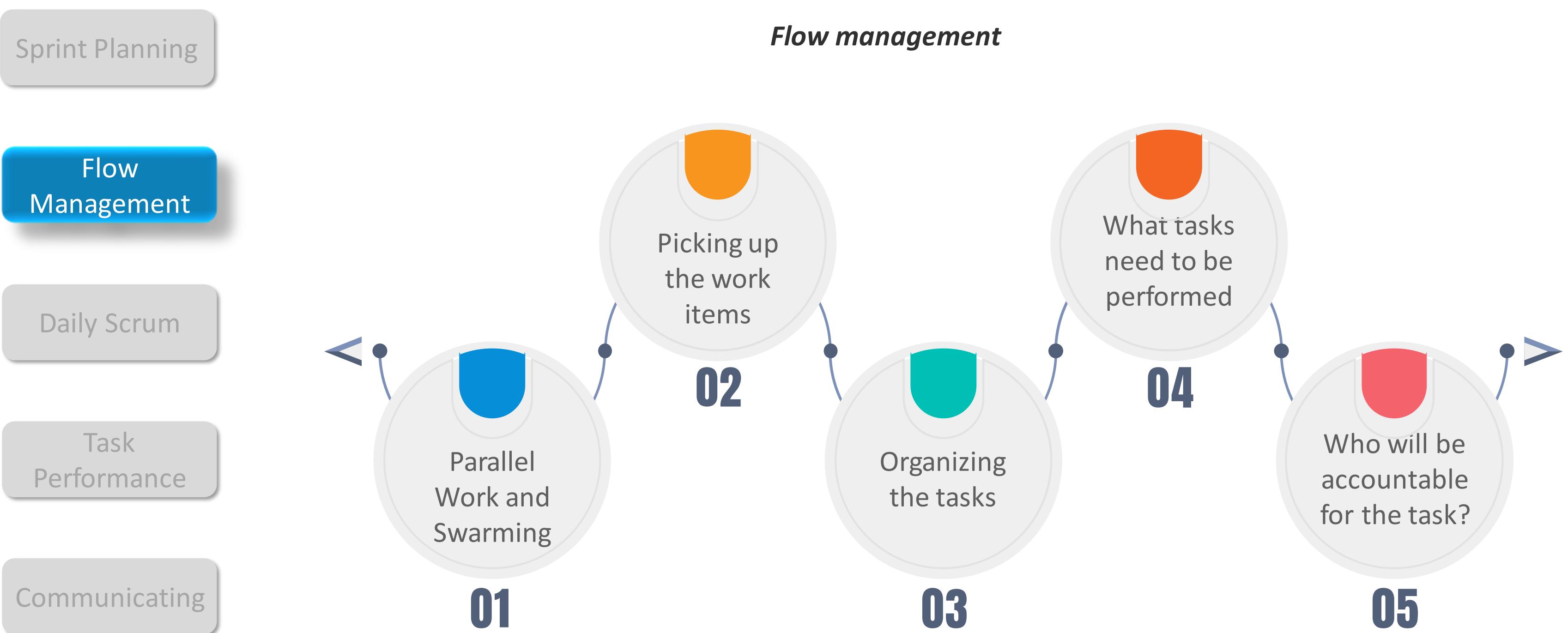


*Just-in-time task-level planning*



The team members perform 'just-in-time' task-level planning to increase the task performance, if needed

# Sprint Execution



# Sprint Execution

Sprint Planning

Flow Management

Daily Scrum

Task Performance

Communicating

## ***Daily Scrum***

It is a 15 minutes **inspect and adapt** activity, that takes place every 24 hours at the workplace

***Goal of this meeting:*** Help the teams achieve the Sprint goal faster

***Points discussed:*** Current status of the Sprint, how much to work, which work items are prioritized, best way to do, and how to organize the work among the team members

# Sprint Execution

Sprint Planning

Flow Management

Daily Scrum

Task Performance

Communicating

## ***Task Performance***

The development team should have technical knowledge of what they perform

For example: If it is software development team, then the team members should be good at

Continuous Integration

Automated testing

Programming languages

Refactoring



# Sprint Execution

Sprint Planning

Flow Management

Daily Scrum

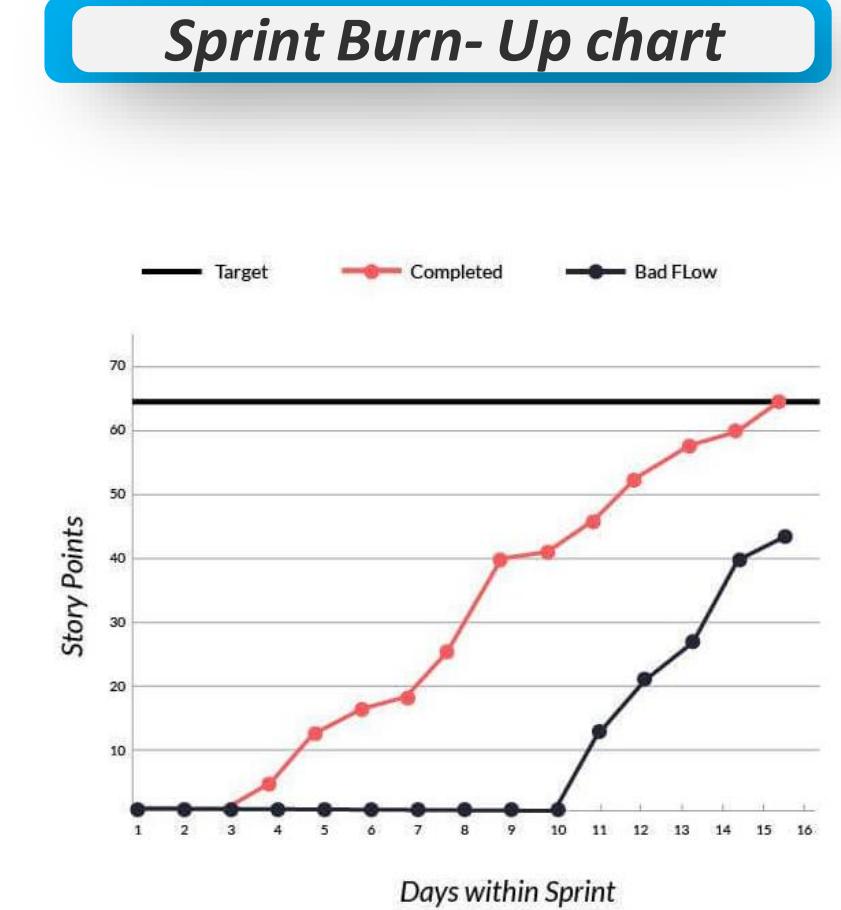
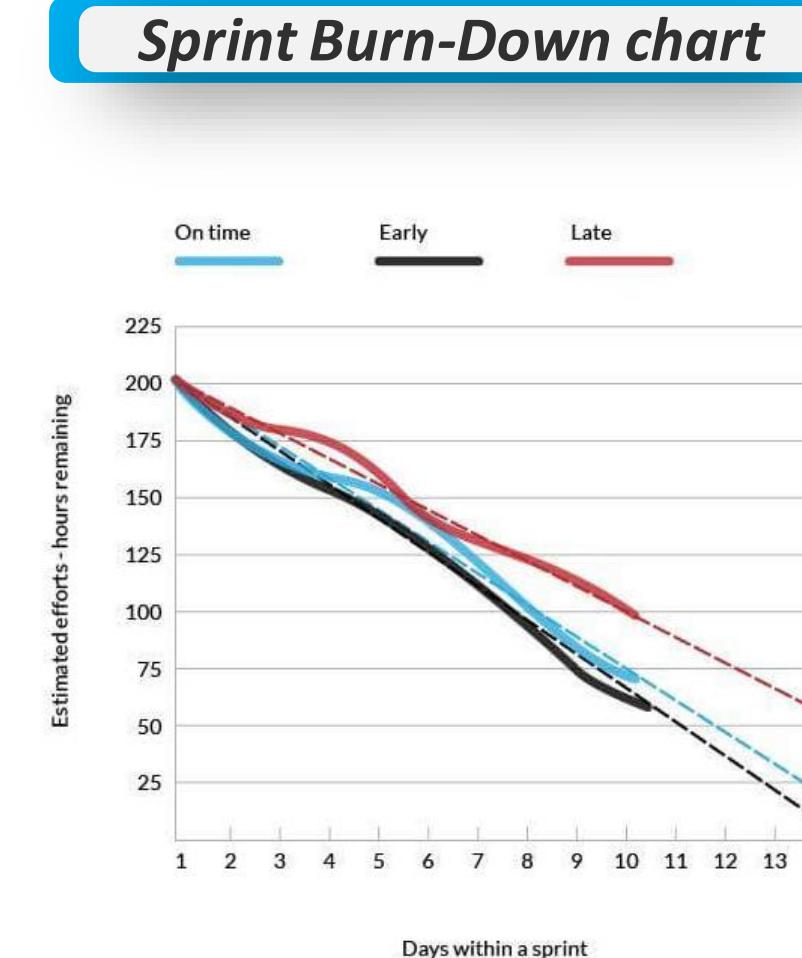
Task Performance

Communicating

**Communication is done through 3 ways:**

**Task Board**

Story	To Do	In Progress	Done
User Story A		Task	Task
User Story B	Task	Task	Task
User Story C		Task	Task



# **Definition Of Done (DOD)**

# Definition Of Done (DoD)

DoD is a checklist of the work types that the team is supposed to finish successfully before declaring the work to be potentially shippable or ‘Done’

These work types depend on several variables like

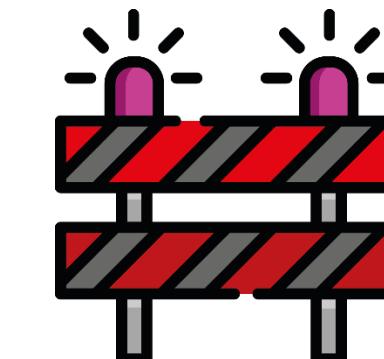
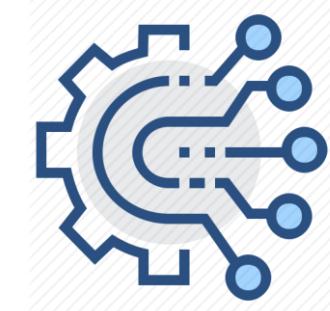


Nature the product being developed

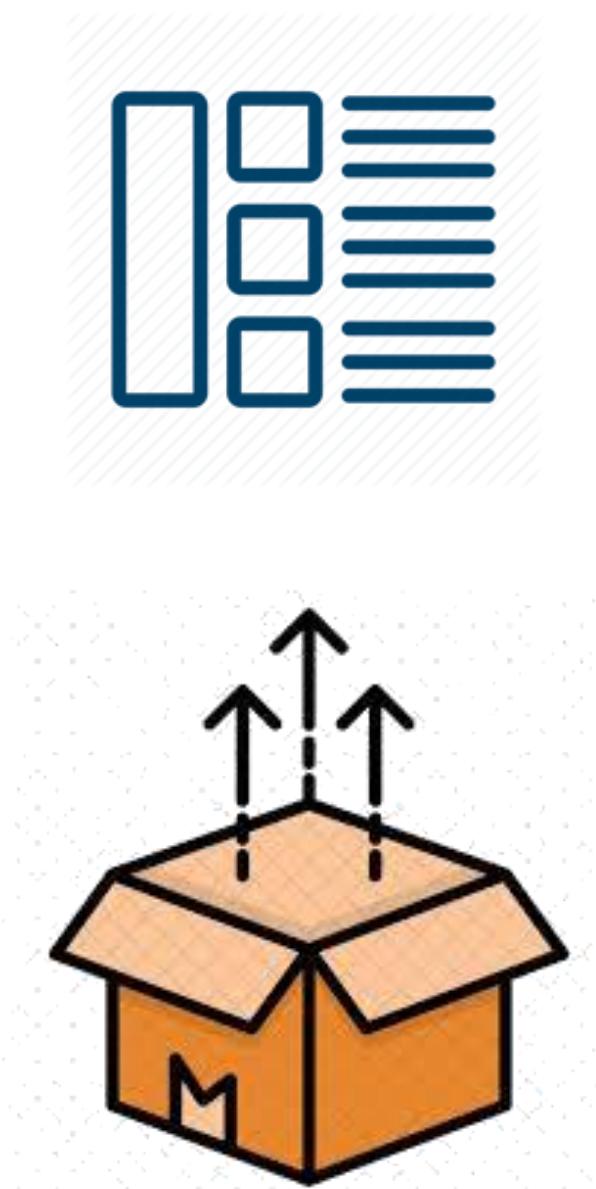


Organization that is building the product

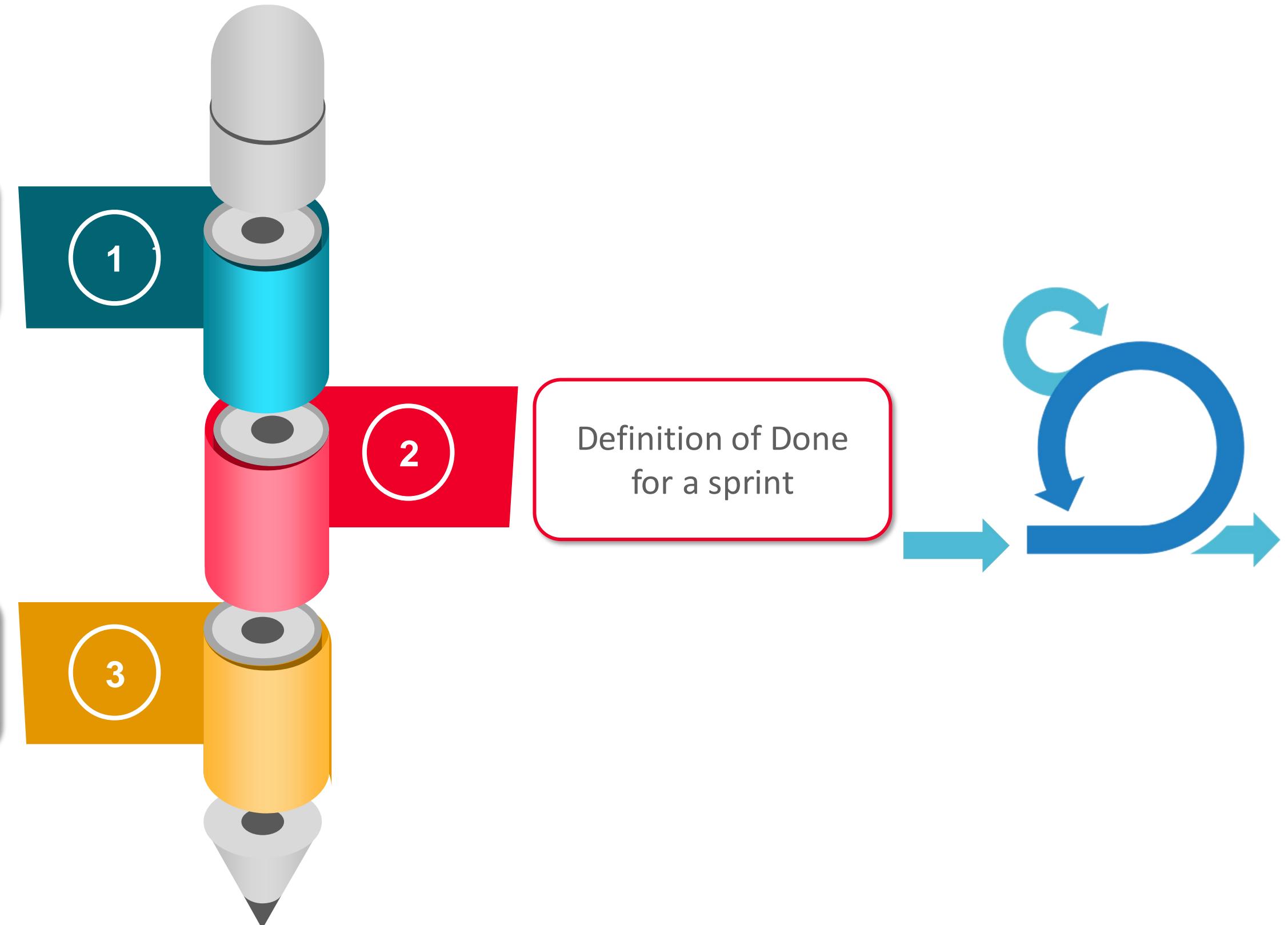
Present obstacles that impact the possibility



# Different Types Of Done



Definition of Done  
for user story

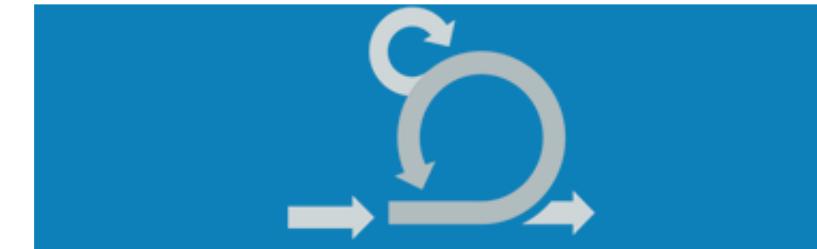


# Different Types Of Done



User Story

- Code builds with no error
- Unit testing
- Code review
- Localization and translation
- Localization testing passed



Sprint

- Satisfied DOD for each user story in the sprint
- Marketing Feedback is implemented
- Compliance review
- User help guide is created
- Training videos are created



Release

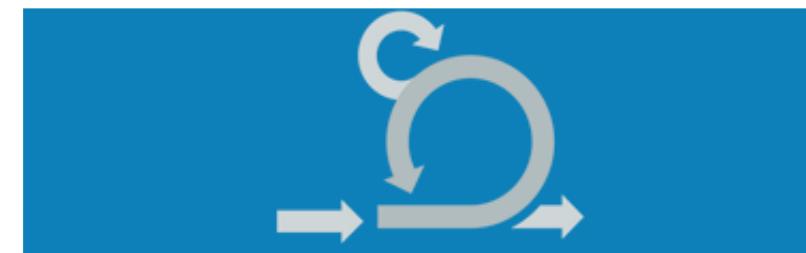
- Satisfied DOD for each user story in the sprint
- Production environment is ready
- CI/CD verified and working
- User help guide localized
- Training video localized

# Different Types Of Done



## User Story

- Browser or device compatibility test
- Regression testing
- Automated tests are written and passed
- Acceptance criteria
- Signed off by product owner



## Sprint

- Refactoring
- Configuration changes documented
- Performance testing
- Security testing
- Sprint marked as ready



## Release

- Rollback process is documented
- Smoke testing scenarios are ready
- Customer support team is trained
- Release communication are sent
- All stakeholders signed off the release

# Acceptance Criteria v/s Definition of Done

## Acceptance criteria

During a sprint, each product backlog item should satisfy a set of condition, stated by the Product Owner known as acceptance criteria

## Definition of Done

A product backlog item can be said 'done' only if the item-specific acceptance criteria and the sprint level definition-of-done (e.g., "live on the production server") have been met

# Done v/s Done-Done

## Done

Teams use this term to convey that the task performed during the Sprint is really done

Task is done to the point that the customer could think that the work is ‘done’ (potentially shippable product)

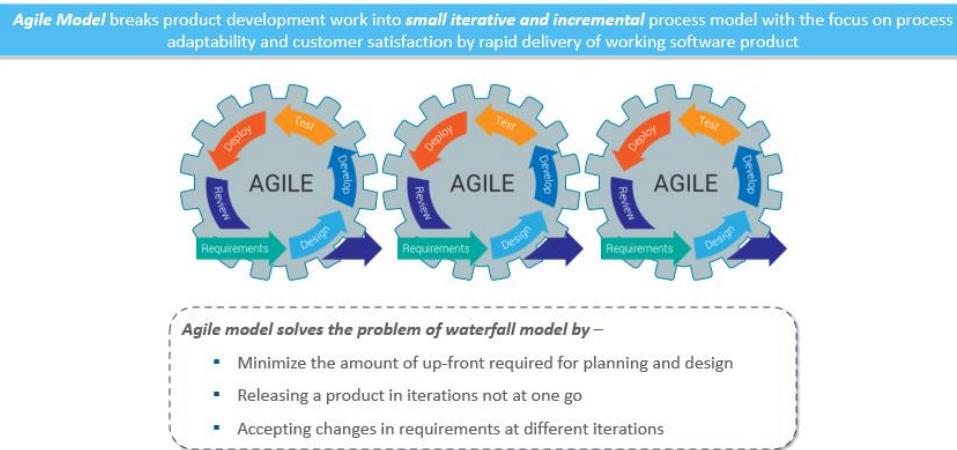
## Done-Done

Teams use this term to convey that we performed as much work as we were prepared to do

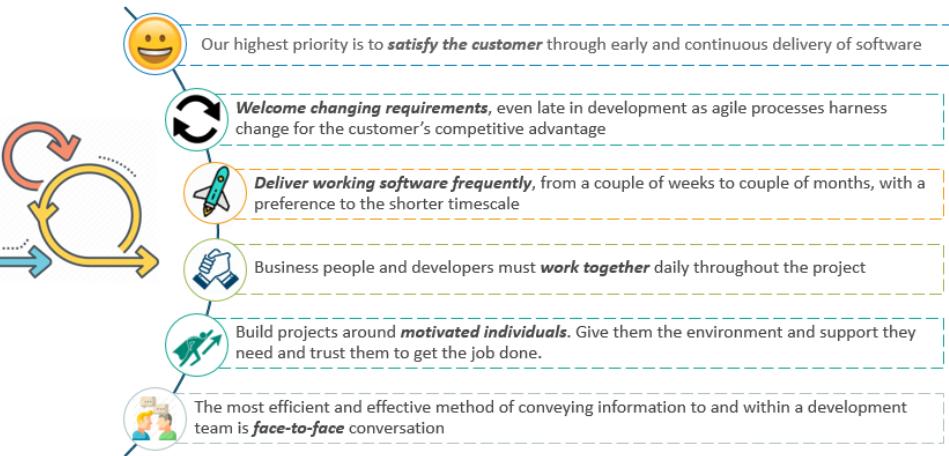
Scrum teams don’t need those two concepts to exhibit their performance, for such teams ‘done’ really means ‘done-done’

# Summary

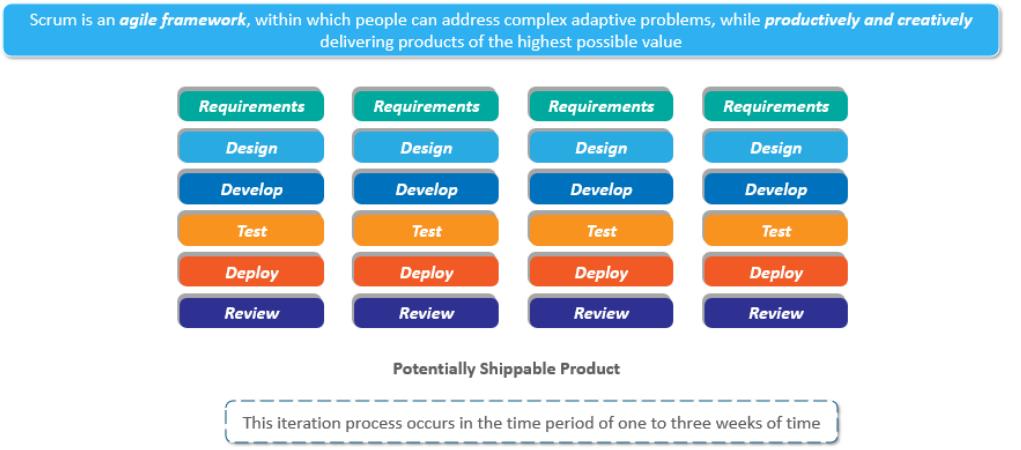
## What Is Agile Model?



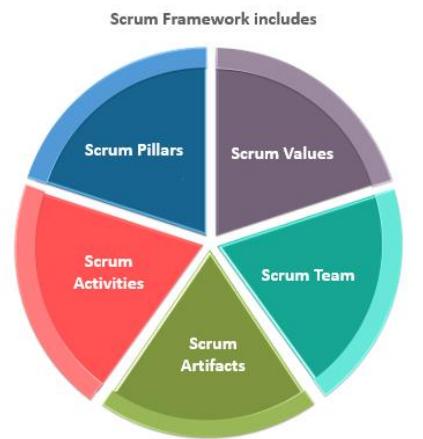
## Principle Behind Agile Manifesto



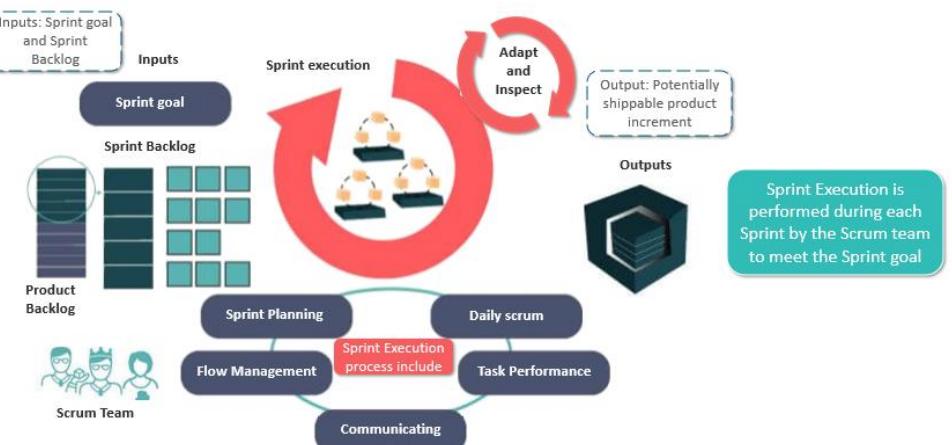
## What Is Scrum?



## Scrum Framework



## How Does Sprint Execution Work?



## Definition Of Done (DoD)

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These work types depend on several variables like







