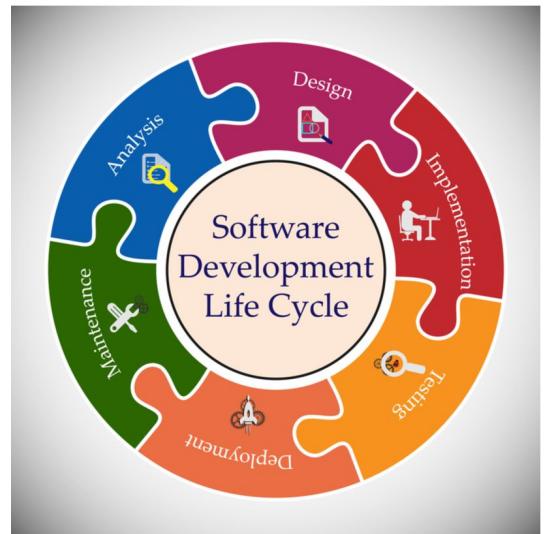


# SDLC



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SDLC

## Software Development Life Cycle

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## XYZ TABLE AND CHAIR COMPANY



**Table Production Life Cycle  
(TPLC)**



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# Table of Contents

- ▶ What is SDLC ?
- ▶ Phases of SDLC
- ▶ SDLC Models
- ▶ Waterfall Model
- ▶ Agile
- ▶ SCRUM

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1

## What is SDLC ?

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## What is SDLC



- Systematic process to be followed for a software project.
- Structured way to create and develop software.

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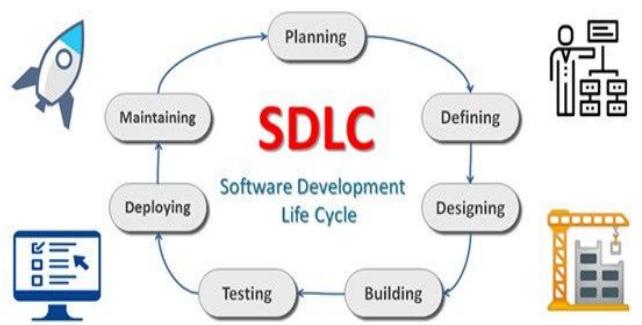
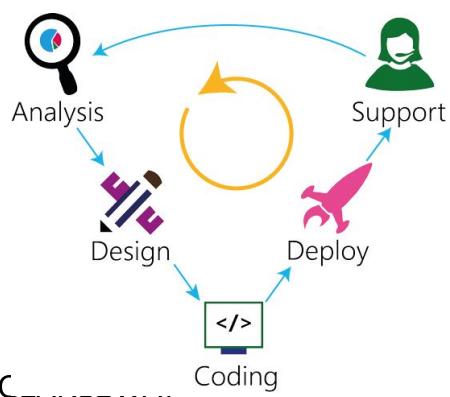
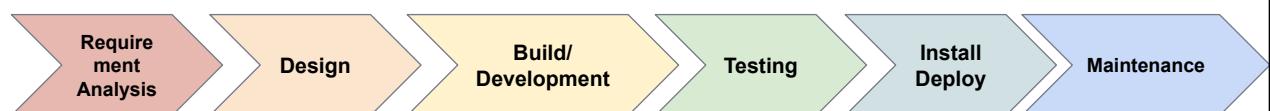


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# Phases of SDLC

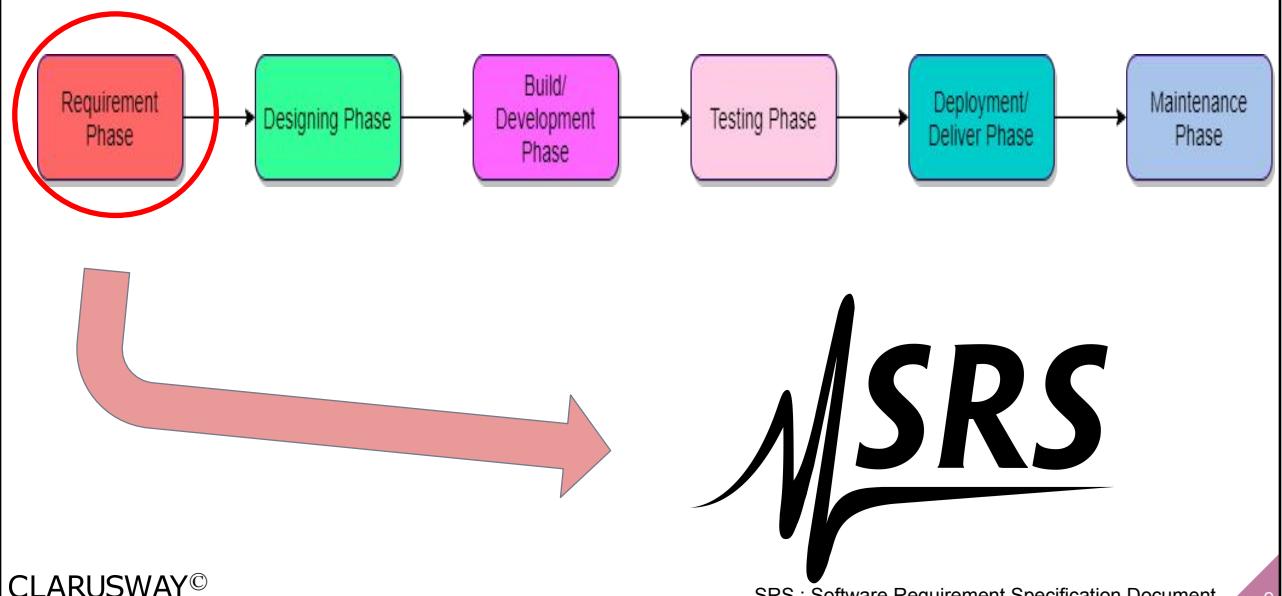
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## Phases of SDLC



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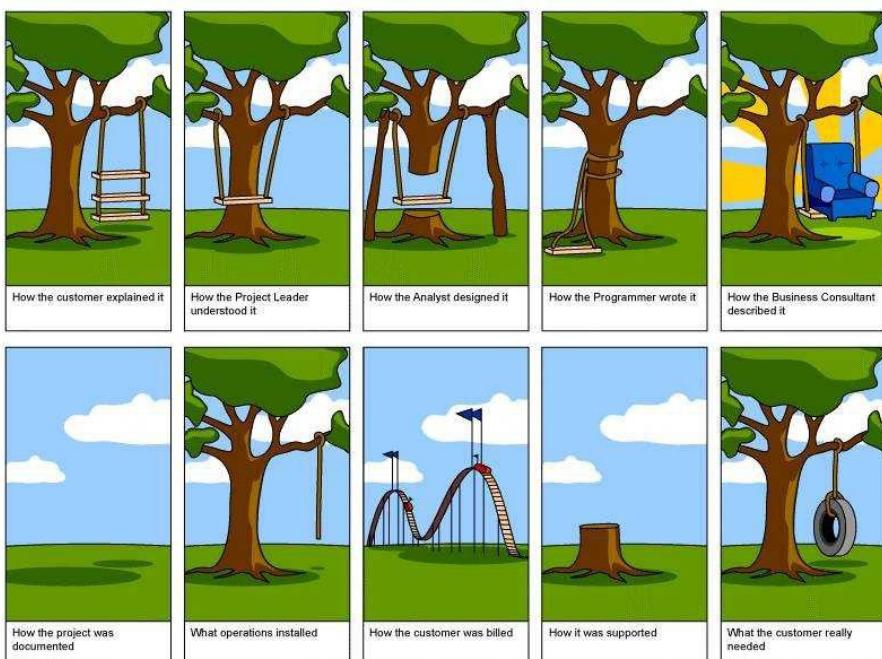
# ► Requirements Phase



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SRS : Software Requirement Specification Document

9

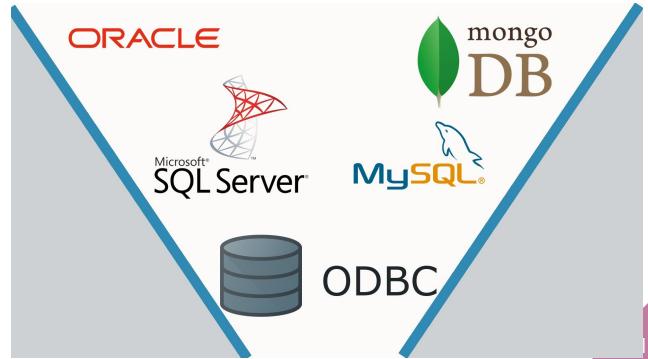
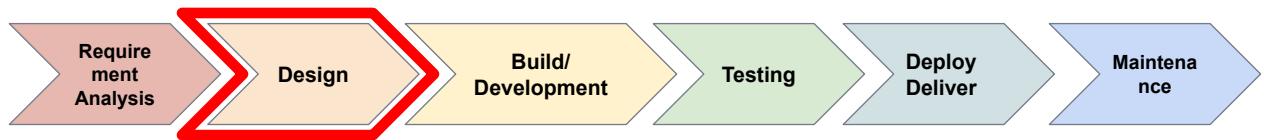


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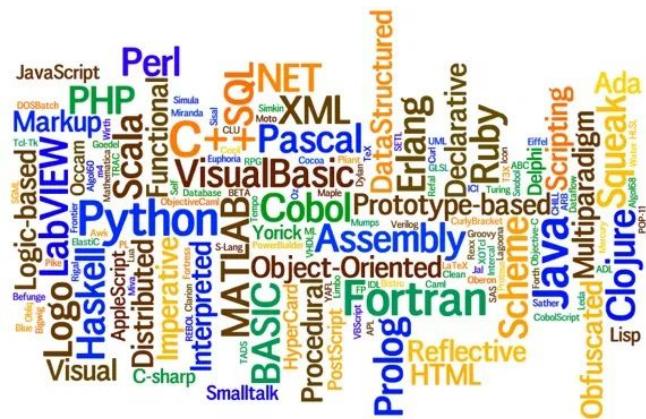
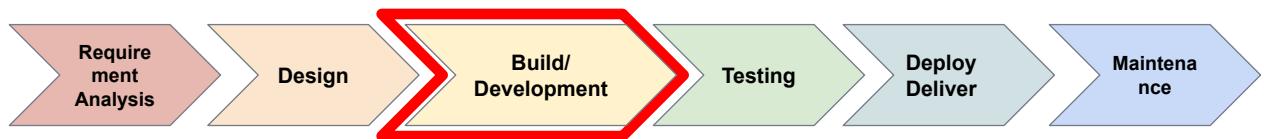
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## ► Design Phase



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## Build/Development Phase



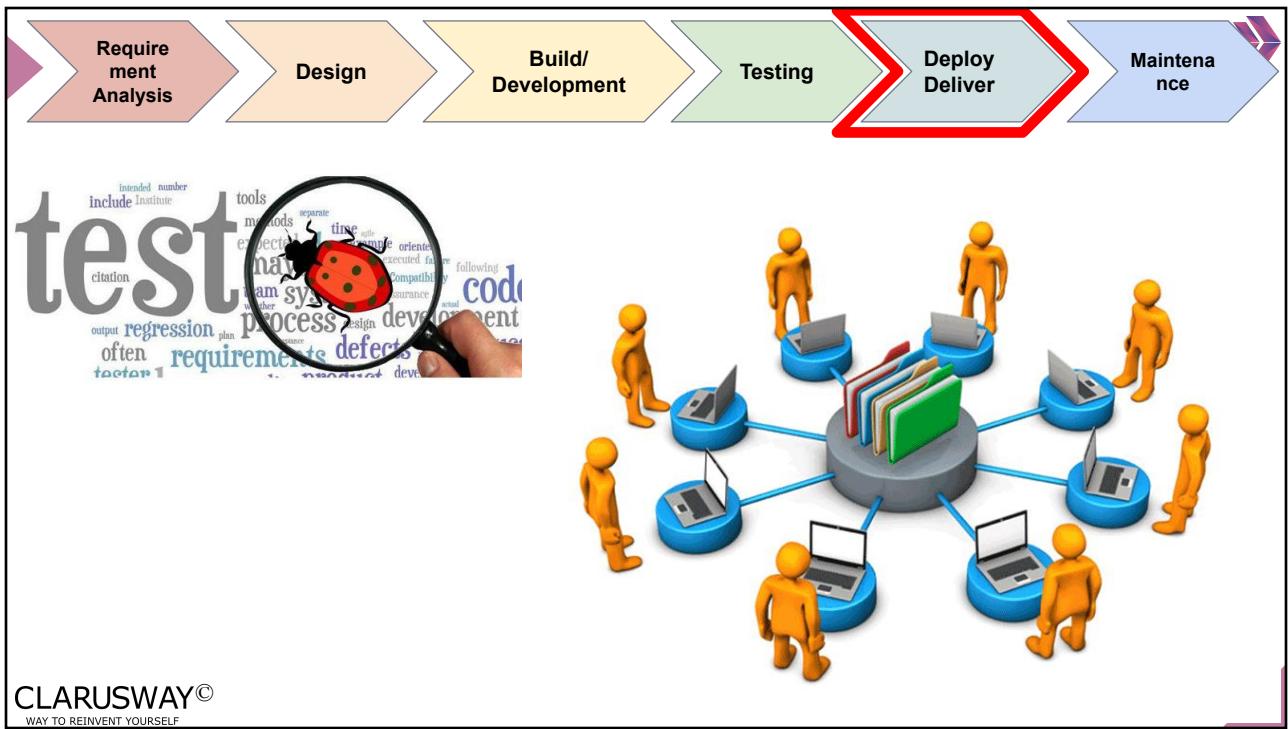
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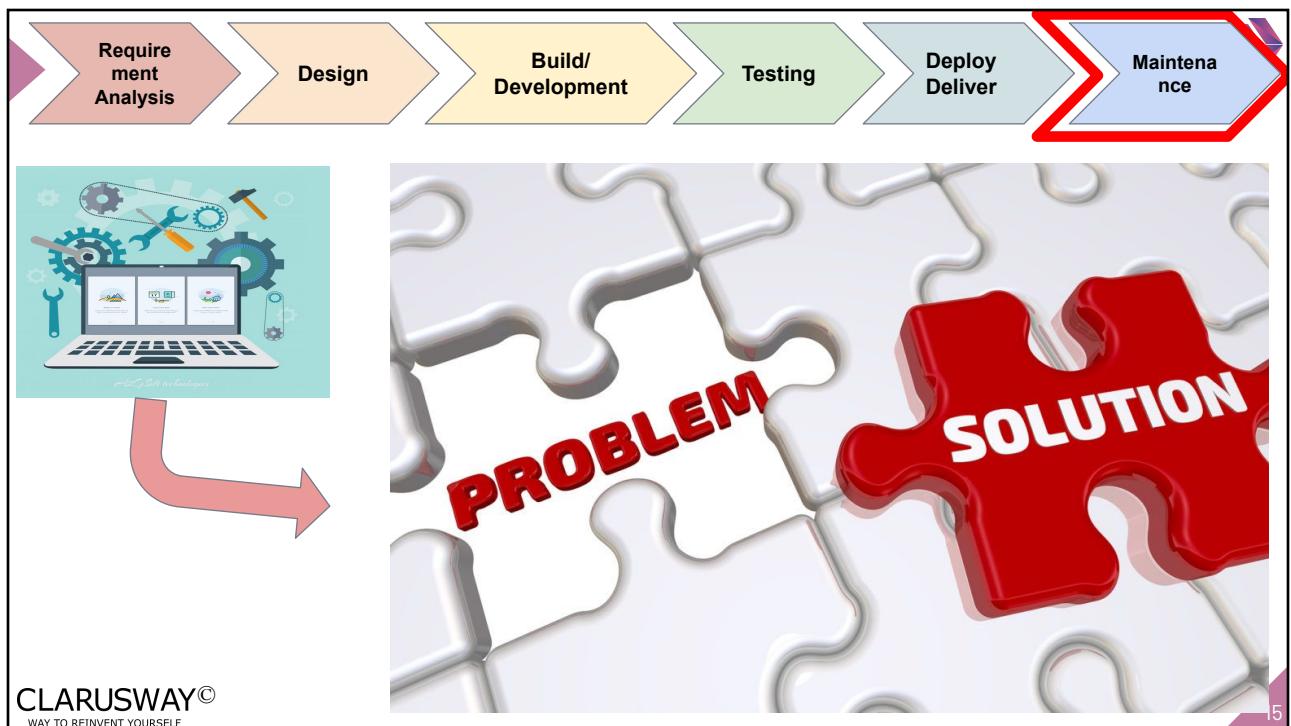
# Testing Phase



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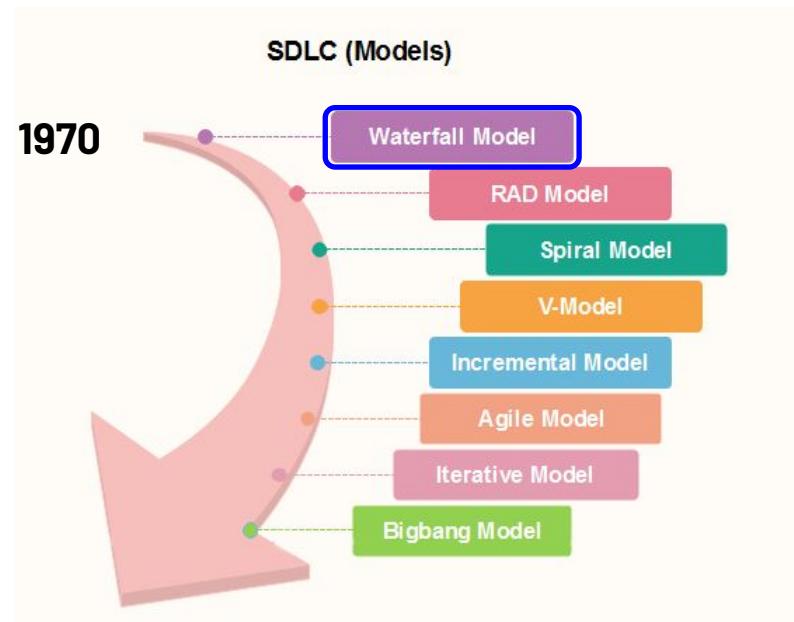
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## SDLC Models

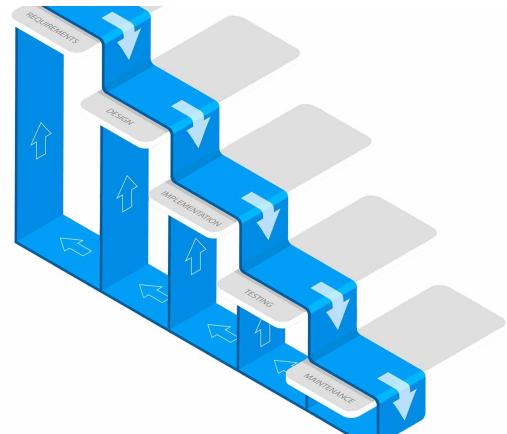
## Waterfall Model



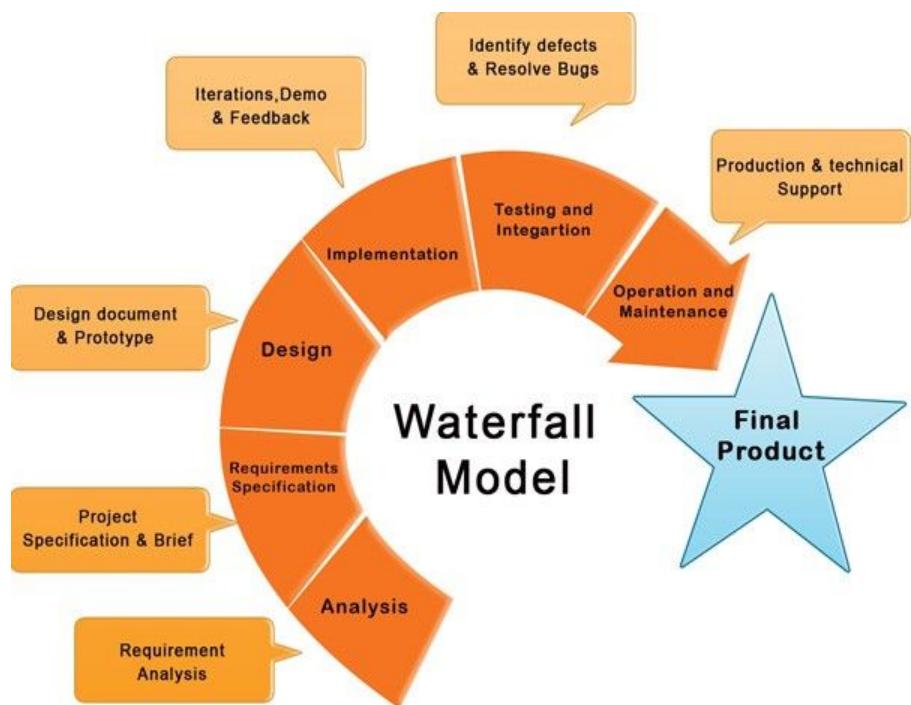
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## Waterfall Model

# Waterfall Model



# Waterfall Model



## Waterfall Model



### ADVANTAGES OF WATERFALL

- ✓ Simple method and easy to use
- ✓ Phases are clear
- ✓ Suitable for smaller projects
- ✓ Easy to manage



### DISADVANTAGES OF WATERFALL

- ✓ Does not allow much revision
- ✓ Not suitable for complex projects
- ✓ Risk and uncertainty are high
- ✓ Does not include a feedback path

## Agile

# 1 Agile Manifesto

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## The Agile Manifesto

A group of 17 people thought:

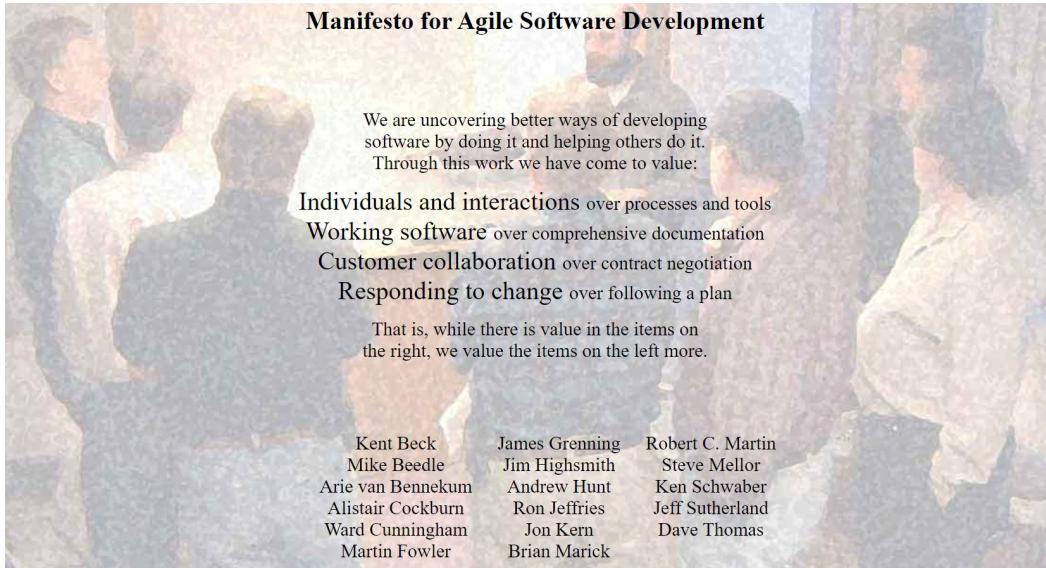
“We’re all doing these different approaches to developing software. We ought to get together and see where there are commonalities in what we’re thinking about.”

The result was a meeting at a ski resort in Snowbird, Utah in 2001.

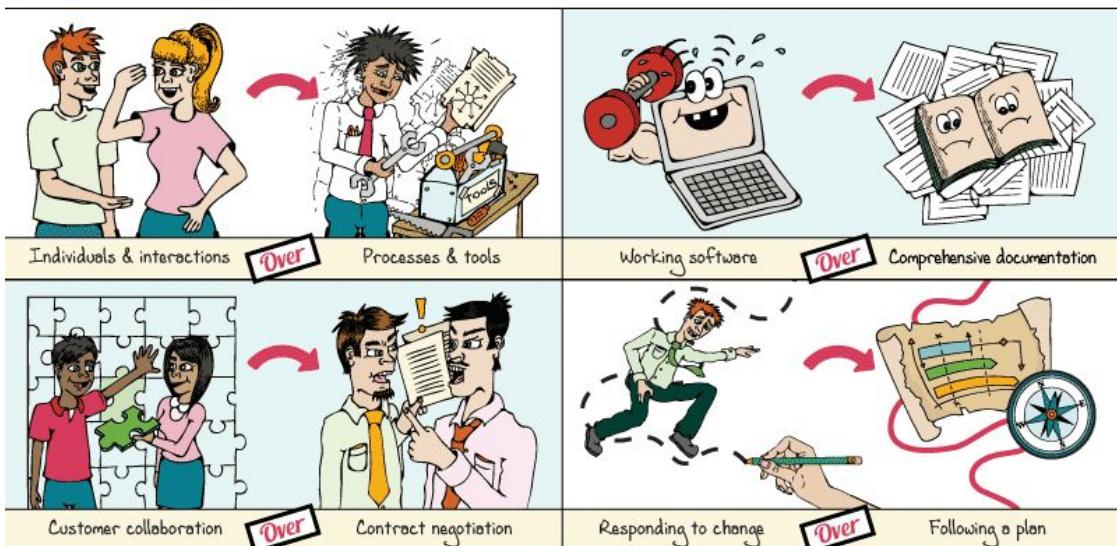


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# The Agile Manifesto



## The Four Values of the Manifesto

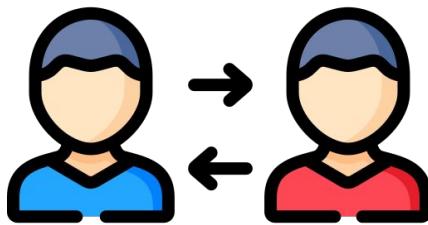


That is, while there is value in the items on the right, we value the items on the **left more**."

## ► Outlining the Four Values



**Individuals and Interactions**  
over  
Processes and Tools



## ► Outlining the Four Values



**Working Software**  
over  
Comprehensive Documentation



# ► Outlining the Four Values



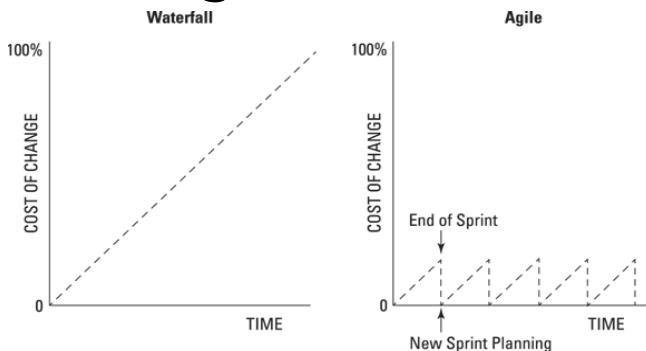
**Customer collaboration**  
over  
**Contract Negotiation**



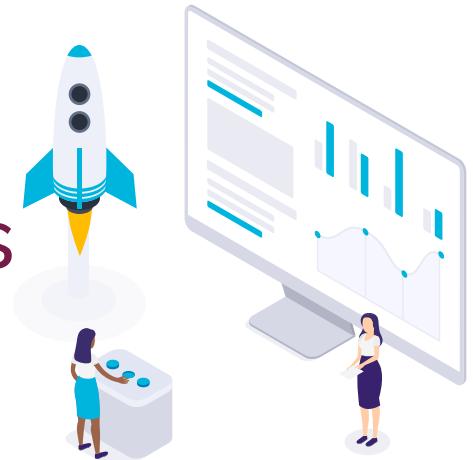
# ► Outlining the Four Values



**Responding to change**  
over  
**Following a Plan**



## 2 Agile Principles



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## Agile Principles

1 Our highest priority is to **satisfy the customer** through early and continuous delivery of valuable software.



2 **Welcome changing requirements**, even late in development. Agile processes harness change for the customer's competitive advantage.



3 **Deliver working software frequently**, from a couple of weeks to a couple of months, with a preference to the shorter timescale.



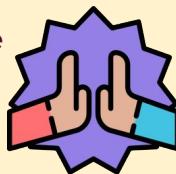
4 **Business people and developers must work together** daily throughout the project.



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# ► Agile Principles

**5** Build projects around motivated individuals. Give them the environment and **support** they need, and **trust** them to get the job done.



**7** **Working software** is the primary measure of progress.



**6** The most efficient and effective method of conveying information to and within a development team is **face-to-face conversation**.

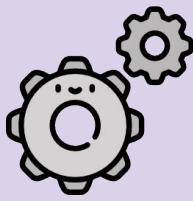


**8** Agile processes promote **sustainable development**. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.



# ► Agile Principles

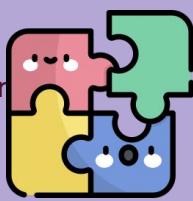
**9** Continuous attention to technical excellence and good design enhances agility.



**10** **Simplicity**--the art of maximizing the amount of work not done--is essential.



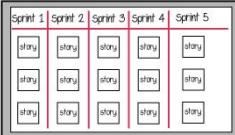
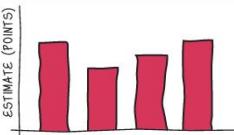
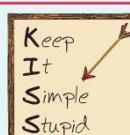
**11** The best architectures, requirements, and designs emerge from **self-organizing teams**.



**12** At regular intervals, the team **reflects** on how to become more effective, then tunes and **adjusts** its behavior accordingly.



# 12 Agile Principles

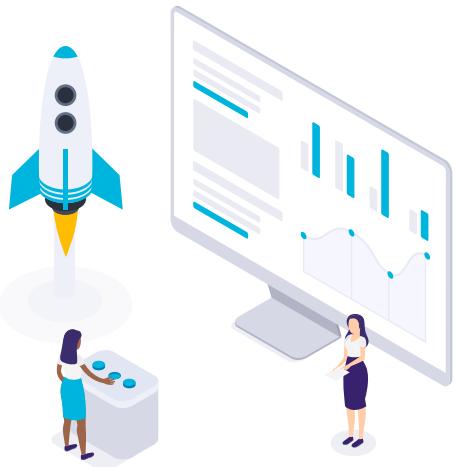
<b>1</b> Satisfy the <b>customer</b>	<b>2</b> Welcome <b>change</b>	<b>3</b> Deliver <b>frequently</b>	<b>4</b> Work <b>together</b>
			
<b>5</b> Trust and <b>support</b>	<b>6</b> Face-to-face <b>conversation</b>	<b>7</b> Working <b>software</b>	<b>8</b> Sustainable <b>development</b>
			
<b>9</b> Continuous <b>attention</b>	<b>10</b> Maintain <b>simplicity</b>	<b>11</b> Self-organizing <b>teams</b>	<b>12</b> Reflect and <b>adjust</b>
			

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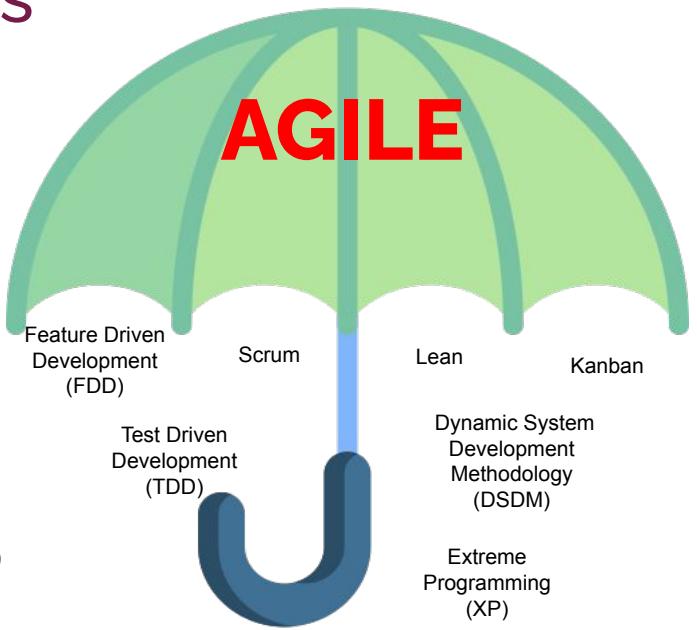
# Agile Methods



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# Agile Methods

Agile is an umbrella under which many specific methodologies have been developed and are thriving.

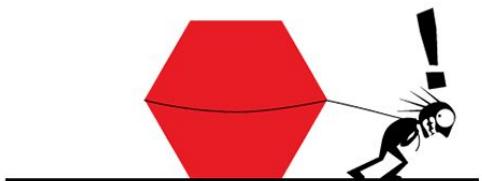


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## Let's Wrap it Up

### THE WATERFALL PROCESS



*'This project has got so big,  
I'm not sure I'll be able to deliver it!'*

### THE AGILE PROCESS



*'It's so much better delivering this  
project in bite-sized sections'*

The product can be easily and rapidly developed and tested by dividing it into small pieces.

Small pieces are produced in iteration cycles.

By using iterations, changes can be made without having to wait for the final product.

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## 4 Scrum



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## What is Scrum?

A framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value.



Lightweight



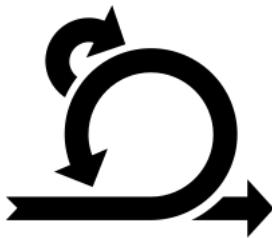
Simple to understand



Difficult to master

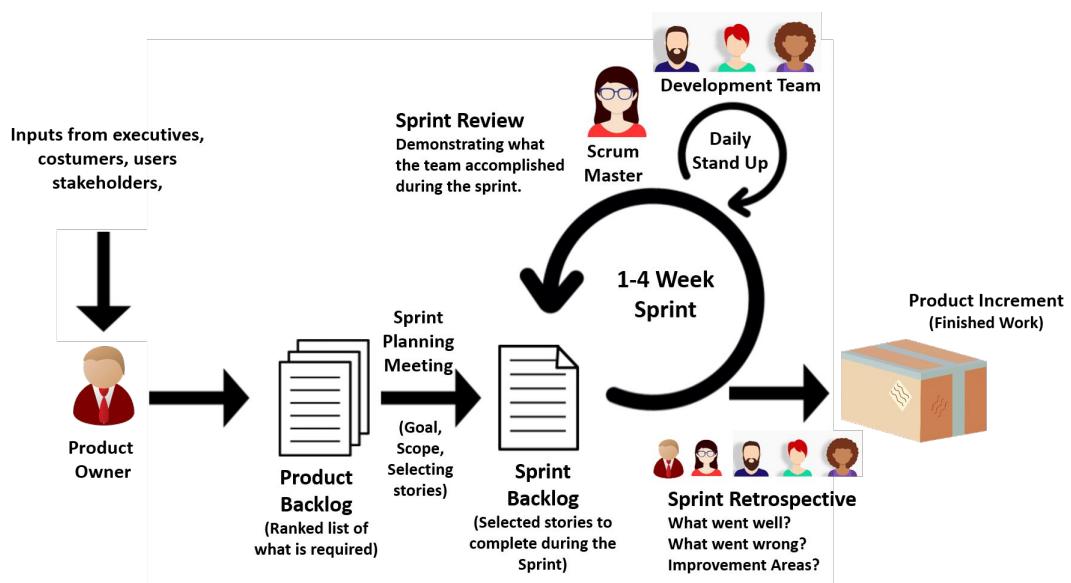
# What is Scrum?

Scrum emphasizes delivering business value frequently through short iterations known as sprints.

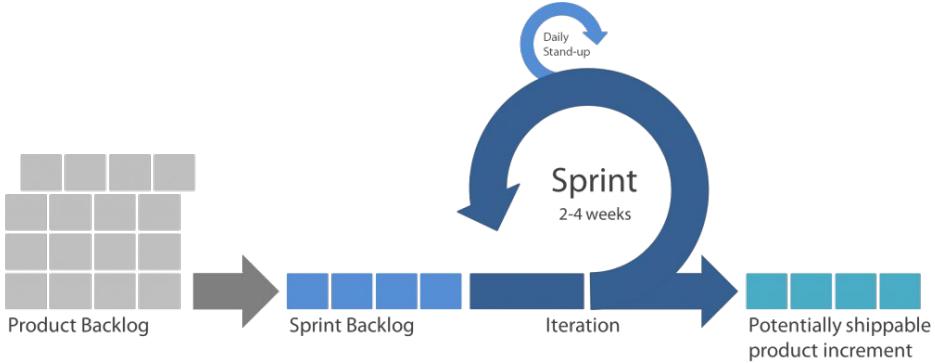


This gives visibility to the work that's being done and creates opportunities for feedback.

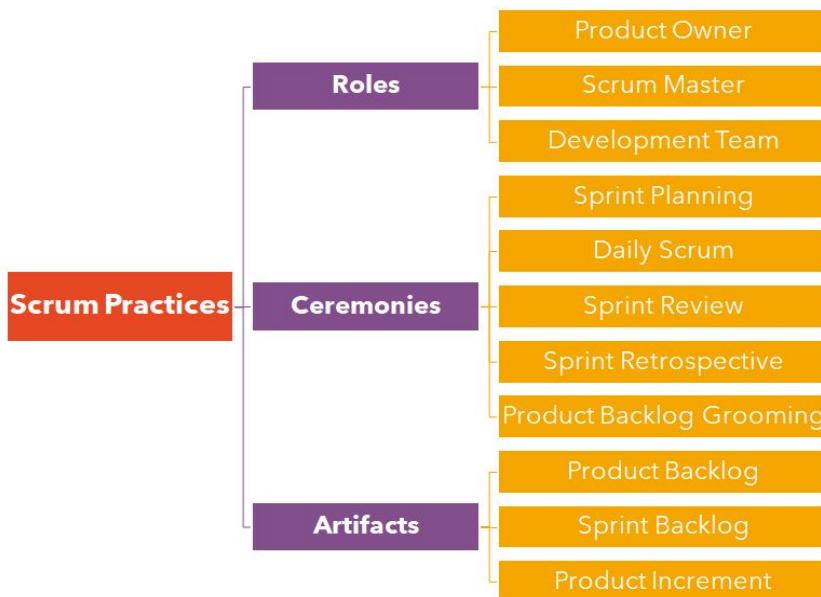
# Scrum Framework



# Scrum Framework



## Scrum Practices



# 5 Scrum Roles



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## Scrum Roles

### Product Owner



Responsible for the project's success by defining the project vision, requirements, and priorities

### Scrum Master



Accountable to the team to remove impediments that will prevent them from achieving the goals of the Product Owner

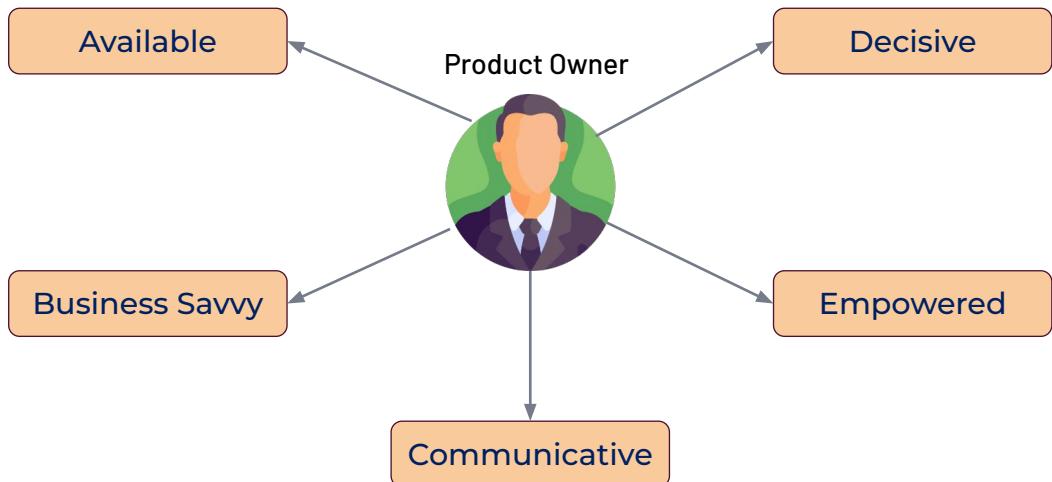
### Development Team



Team comprises 3-9 people, with a mix of roles, and self-organizes to determine how to best meet the goals of the Product Owner

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# ► Product Owner

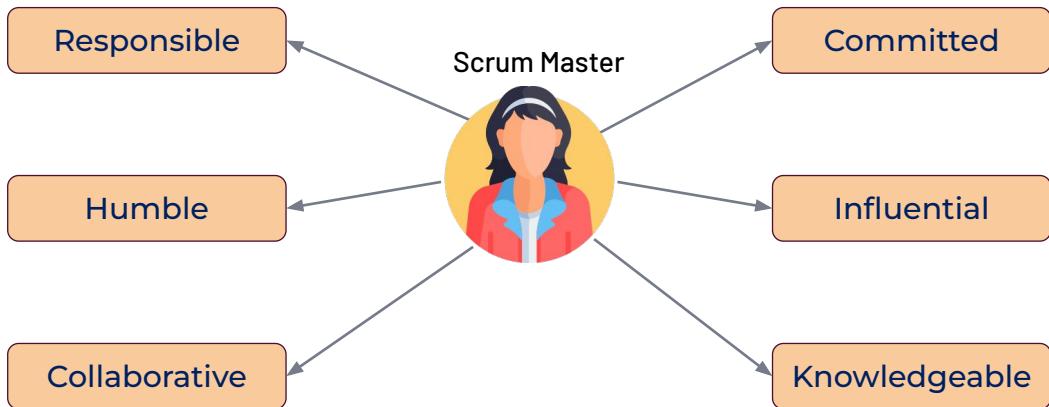


# ► Product Owner

- Clearly expressing Product Backlog items
- Ordering the items in the Product Backlog to best achieve goals and missions
- Optimizing the value of the work the Development Team performs
- Ensuring that the Product Backlog is visible, transparent, and clear to all, and shows what the Scrum Team will work on next
- Ensuring the Development Team understands items in the Product Backlog to the level needed

# Scrum Master

The Scrum Master is responsible for promoting and supporting Scrum



# Scrum Master

## Scrum Master Service to the Product Owner



Ensuring that goals, scope, and product domain are understood



Finding techniques for effective Product Backlog management



Helping the Scrum Team understand the need for clear and concise Product Backlog items



Understanding product planning in an empirical environment



Ensuring the Product Owner knows how to arrange the Product Backlog to maximize value



Understanding and practicing agility



Facilitating Scrum events as requested or needed

# ► Scrum Master

## Scrum Master Service to the Development Team



Coaching the Development Team in self-organization and cross-functionality



Helping the Development Team to create high-value products



Removing impediments to the Development Team's progress



Facilitating Scrum events as requested or needed

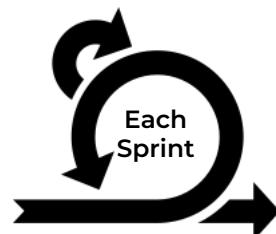


Coaching the Development Team in organizational environments in which Scrum is not yet fully adopted and understood

# ► Development Team

The Development Team consists of professionals who do the work of delivering a potentially releasable Increment of “Done” product at the end of each Sprint.

Development Team



Product Increment



# ► Development Team



They are self-organizing.



Development Teams are cross-functional.



Scrum recognizes no titles for Development Team members.



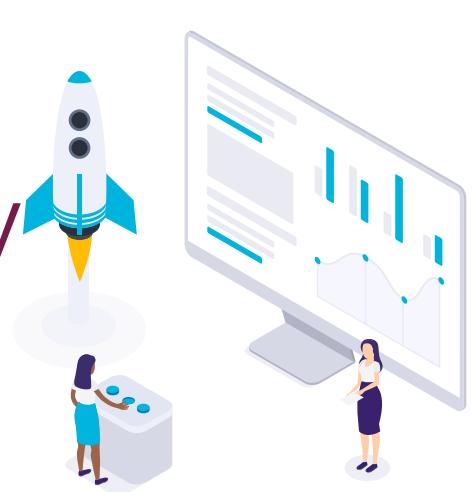
Scrum recognizes no sub-teams in the Development Team.



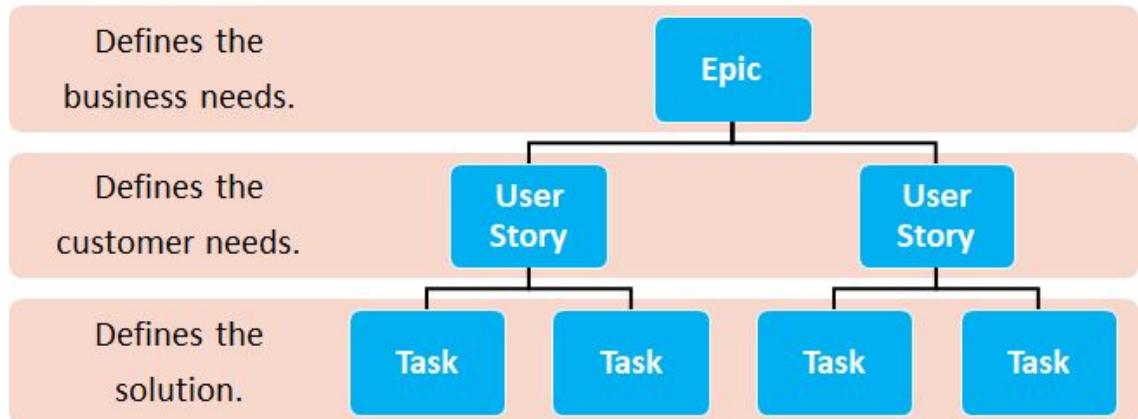
Accountability belongs to the Development Team as a whole

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# Epic, User Story and Task



# Epic, User Story and Task



## Epic



- Big chunk of work.
- Few lines of description.
- More than one sprint to complete.

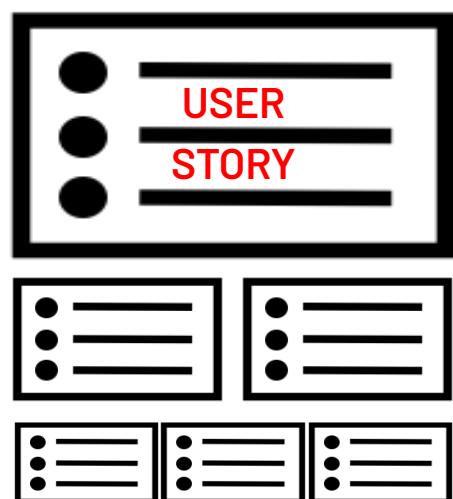
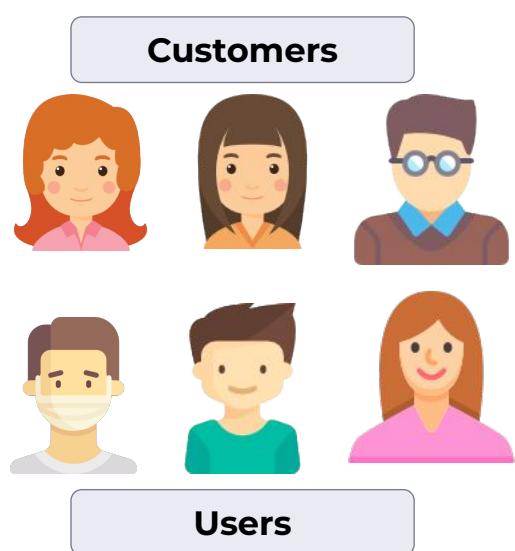
### Examples of Epics:

- As a bank, we want a facial recognition system in our branches.
- As the marketing department, we want a mobile application and a website to reach more customers.

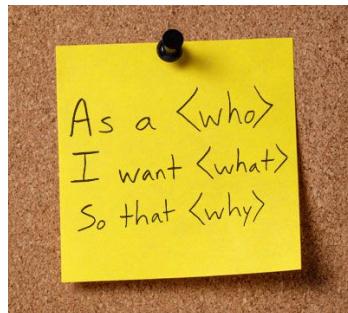
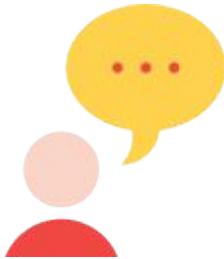
# Import things when creating epics

- Create epics that leadership team at your work would want to track.
- An epic should be a product feature, customer request or business requirement.
- Let your organisational culture decide/ direct the size of your epic.
- Epics should not be too short or too long.

## User Story



# User Story



- User Needs.
- Few lines of description.
- Deliver during a sprint.

## Examples of User Stories:

- As a registered user, I want to add items to the cart so that I can purchase multiple items at once.
- As a student, I want to apply for the exam online so that I can save time.

# How to write User Story?

As a <type of user>, I want <some goal> so that <some reason>.

## Examples of User Stories

As a user, I want to migrate all my data backup in a cloud system to free up my device.

As a consumer, I want to shop grocery items from a mobile app so that I could skip the lines in the store.

# Import things when creating user stories

- Should be short, simple descriptions written through the agile project.
- Anyone can write the user story.
- It is expressed in plain language so the customer can understand what the final product is all about
- Should answer the ‘who’, ‘what’ and ‘why’.
- “Heart of Scrum” because they serve as the ‘building blocks’ of the sprint.

## Task



• Represents a technical activity

• Description of individual work item

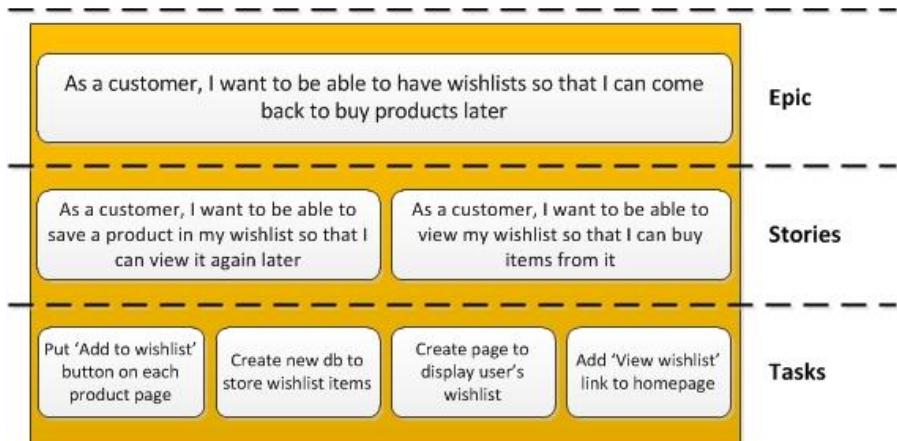
• Created by anyone

### **Examples of Tasks:**

- Redesign a single web page
- Create a new logo
- Perform usability testing

# ► Epic, User Story and Task

- Ecommerce website
  - Customer wants a wishlist section



# ► Estimation of User Stories

T-Shirt Sizing



Story Points

**1, 2, 3, 5, 8, 13, 21**

# ▶ Estimation

## Story Points Estimation Cheat Sheet

How much is known about the task	Everything	Almost everything	Something	Almost nothing	Nothing	Nothing
Dependencies	None	Almost none	Some	Few	More than few	Unknown
How much work effort	Less than 2 hours	Half a day	Up to two days	Few days	Around a week	More than one week
Story Points	<b>1</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>8</b> Should be split into smaller items	<b>13</b> Must be split into smaller items

# ▶ The Benefits and Who to Include

- ▶ Estimating tasks relative to each other.
- ▶ Lending an equal voice to everyone on the team.
- ▶ Identifying gaps in requirement and implementation.

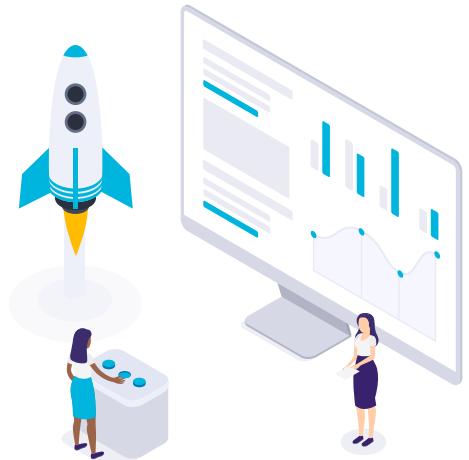
## Scrum team members

**Scrum master**

**Product owner**

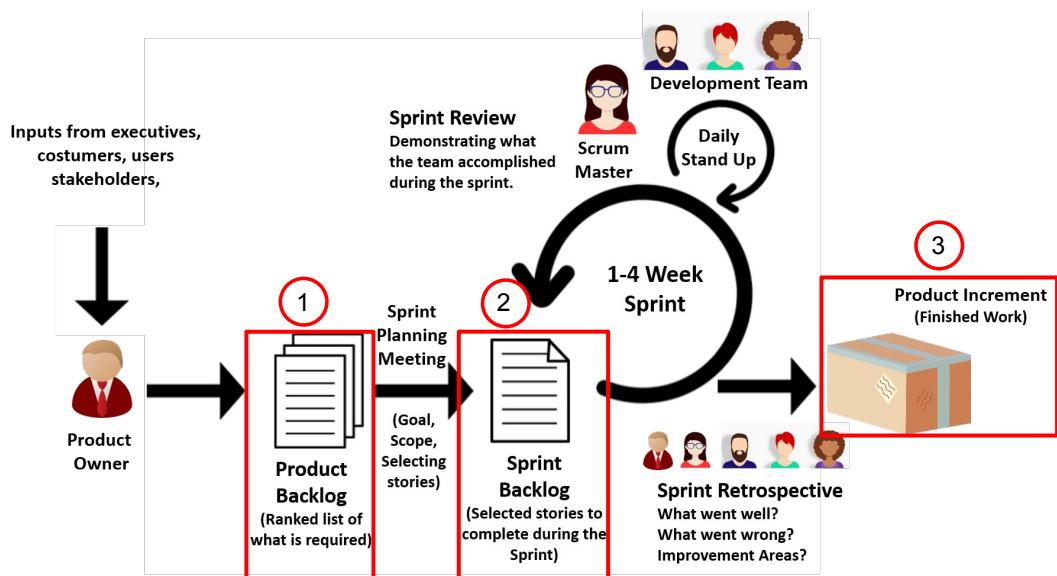
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# Scrum Artifacts



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## Main Scrum Artifacts



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# Product Backlog

User story	Story point(s)	Priority
As a user, I am able to search for documents so I can find them more easily	2	1
As a site visitor, I can compare different types of accounts to see which account type suites me best	1	2
As a user, I can submit questions through the website so I know how to better use the product	1	3
As a site visitor, I am shown what I can do in the product so I know whether or not this product will fill my needs	2	4
As a user, I want to be able to retrieve documents that were deleted so I can reclaim documents that were deleted on accident	3	5
As a site visitor and user, I can sign up for newsletters to remain up to date on the product	2	6
As a user, I am notified when a new feature is released so I know what is possible	1	7
As a user, I can change my user name if desired	3	8
As an admin, I need the ability to update which team a user belongs to so I can make sure all teams are up to date	3	9
As a user, I can enable spell check so I can be confident my final document has no spelling errors	4	10

High priority ↑

Low priority ↓

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- Ordered list of everything

- List of prioritized items

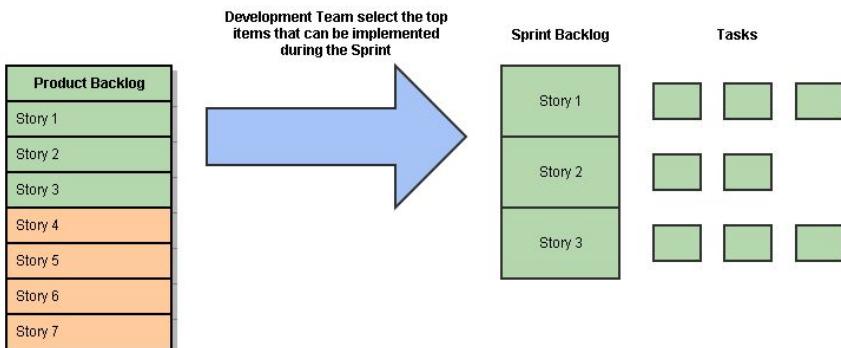
- Product Owner is responsible

- Dynamic

- Should be refined regularly

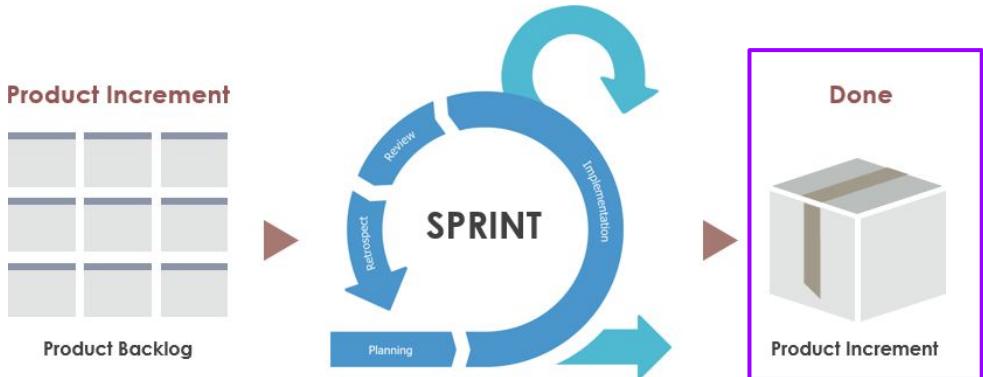
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# Sprint Backlog



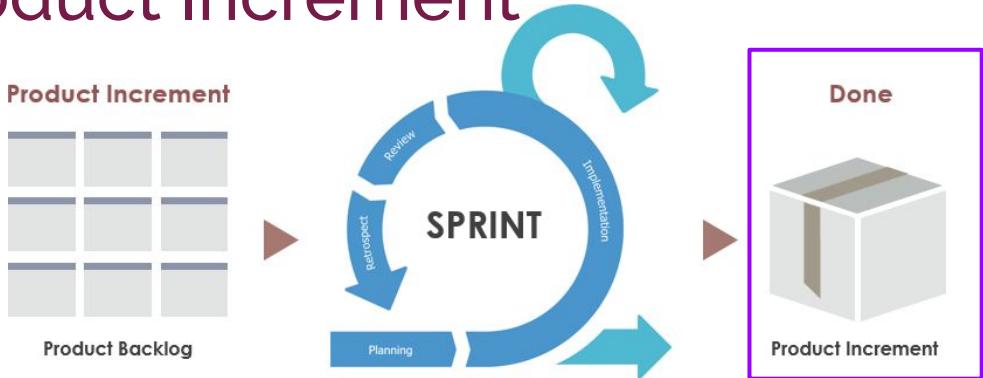
- The set of Product Backlog items selected for the Sprint
- A plan for delivering the product Increment and realizing Sprint Goal
- Highly visible, real-time picture of the work

# Product Increment



- The sum of all the Product Backlog items completed during a Sprint and the value of the increments of all previous Sprints.
- At the end of a Sprint, the new Increment must be “Done”.

# Product Increment

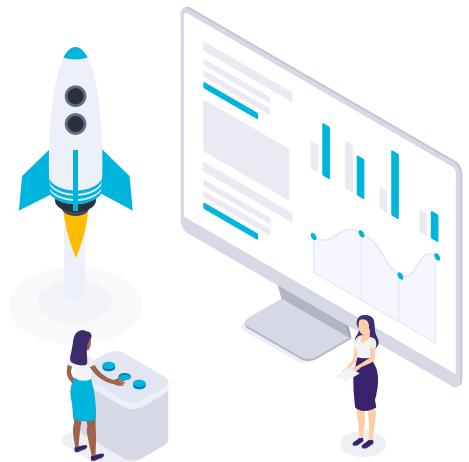


**Definition Done**

- Tests written and passing
- Continuous Integration build passing
- Cross-browser testing done on current top 5 browsers according to analytics
- Mobile testing done on current top 3 mobile devices according to analytics
- Code coverage is at least 80%
- Code reviewed
- Documentation updated
- Acceptance criteria met

Status
✓
✓
✓
□
□
✓
□
✓

# Scrum Ceremonies



CLARUSWAY<sup>©</sup>  
WAY TO REINVENT YOURSELF

## Scrum Meetings

### Sprint Planning

Determine what work will be completed in the upcoming sprint based on the backlog.

### Daily Standup

A 15-minute meeting for team to share what they did yesterday, what they'll do today, and blockers.

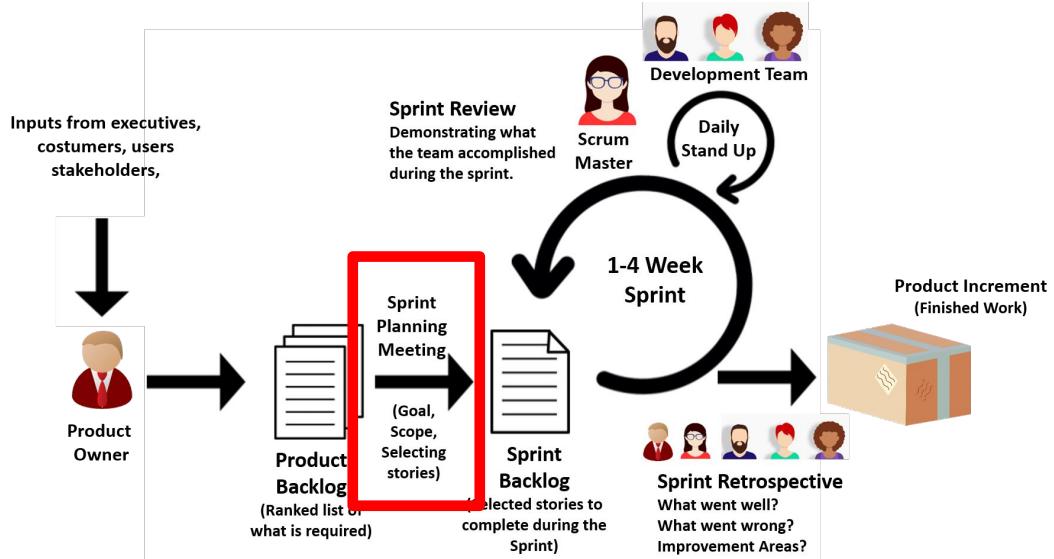
### Sprint Review

Share work completed in the sprint and get feedback from stakeholders.

### Retrospective

Reflect on what did/did not go well in the previous sprint and identify improvements.

# Sprint Planning



# Sprint Planning

Determine what work will be completed in the upcoming sprint based on the backlog.

- Maximum 8 Hours.
- Assign points to user stories to indicate the level of effort.
- Agree on what work will be done and by whom.

Sprint 2 0 issues Start Sprint

Plan a sprint by dragging the sprint footer down below some issues, or by dragging issues here

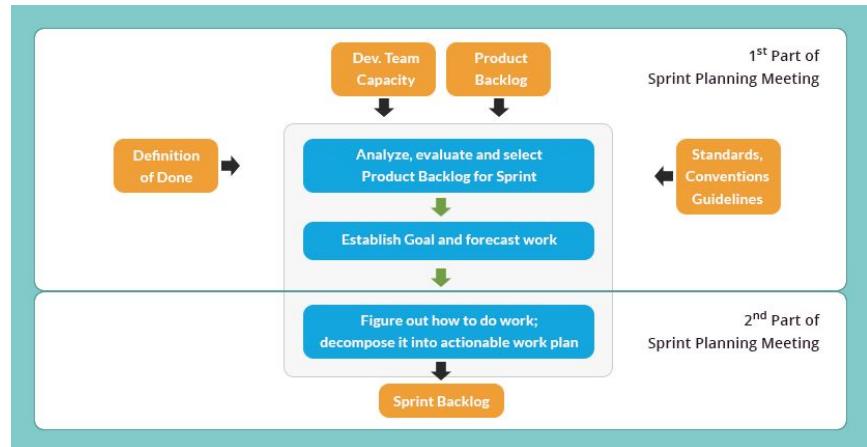
0 issues Estimate 0

Backlog 36 issues Create Sprint

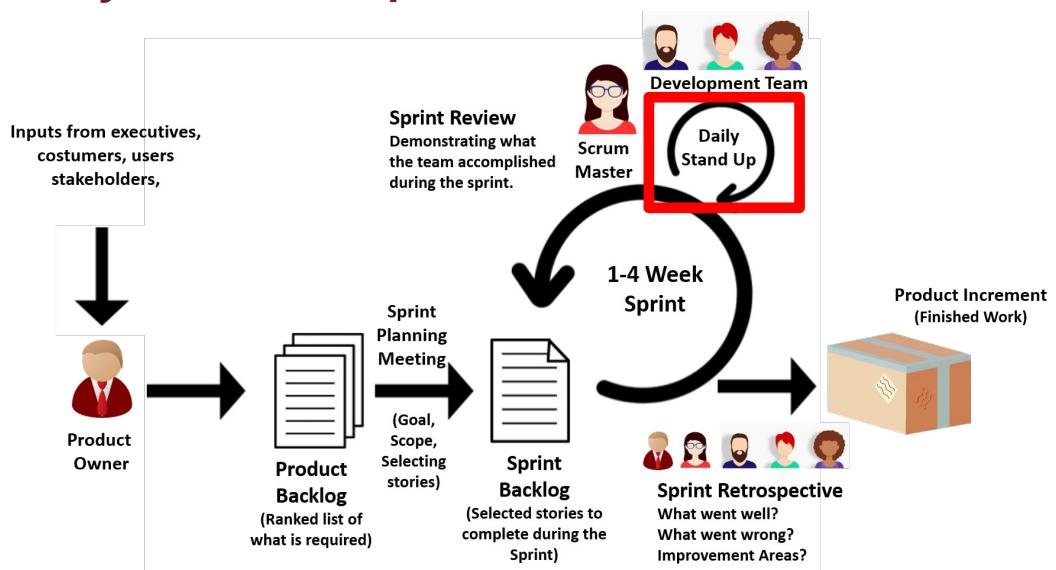
Issue ID	Description	Priority	Assignee	Estimate	Status
TIS-45	Update LocalTransportController to handle...	3.0	Large Team Support	0	Pending
TIS-42	Extend booking experience in UI to includ...	3.0	Large Team Support	0	Pending
TIS-43	Extend booking experience in UI to includ...	3.0	Large Team Support	0	Pending
TIS-40	Update FlightController to handle multiple...	3.0	Large Team Support	0	Pending
TIS-44	Reward Customers an extra 5-10% when...	3.0	Large Team Support	0	Pending
TIS-39	Update UI controls on travel booking pag...	3.0	Large Team Support	0	Pending
TIS-25	Engage Jupiter Express for outer solar ...	3.0	Space Travel Partners	0	Pending
TIS-27	Add Phobos and Deimos Tours as a Pr...	3.0	Space Travel Partners	0	Pending
TIS-21	Create Email Campaign for Saturn Sum...	2.2	Space Travel Partners	0	Pending

# Sprint Planning

Determine what work will be completed in the upcoming sprint based on the backlog.



# Daily Standup



# Daily Standup

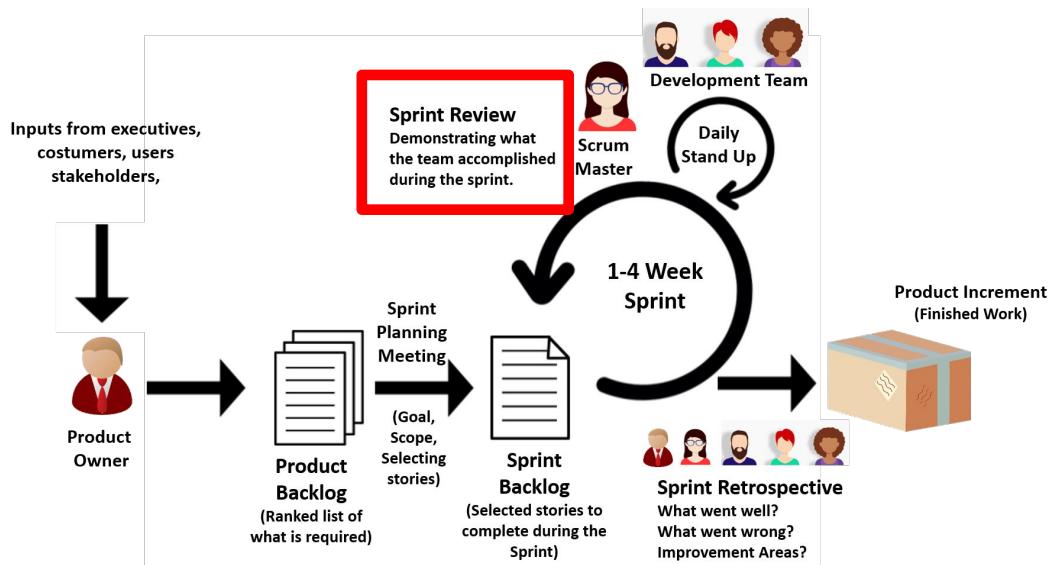
A 15-minute meeting for team to share what they did yesterday, what they'll do today, and blockers.

- 15 minutes max: Additional conversations can happen after standup.
- Happen on a daily basis during a sprint.
- Everyone answers three questions.

1. What did I do yesterday?
2. What will I do today?
3. What blockers do I have?



# Sprint Review



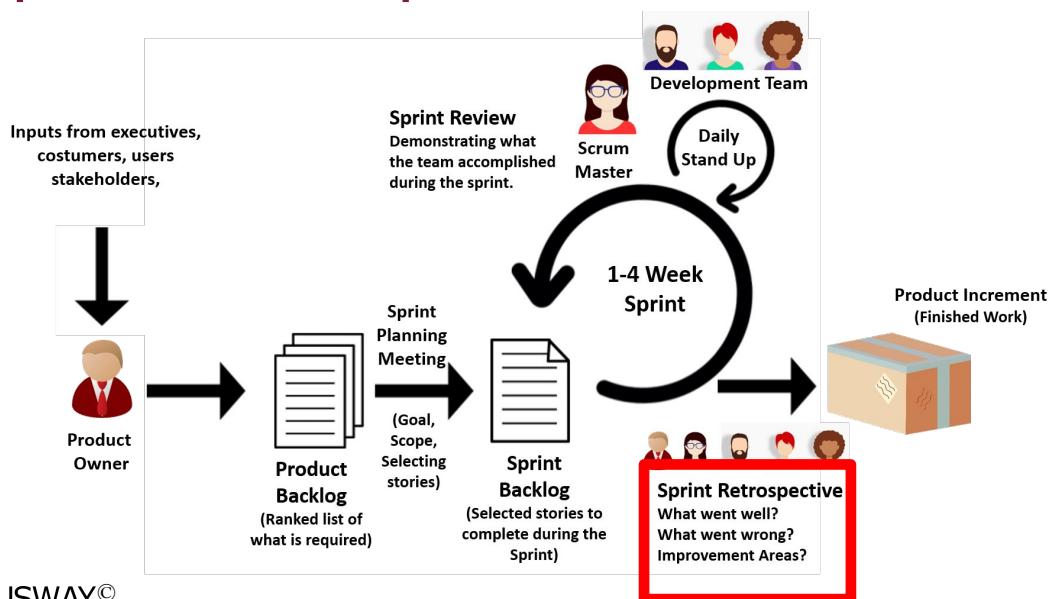
# Sprint Review

Share work completed in the sprint and get feedback from stakeholders.

- Team members share the work that they completed in the sprint.
- Stakeholders share feedback that's incorporated into future sprints.
- Celebrate progress and achievements.



# Sprint Retrospective



# Sprint Retrospective

Reflect on what did/did not go well in the previous sprint and identify improvements.

- Opportunity for the Scrum Team to inspect itself.
- Learnings are incorporated into future sprints.
- Make it more effective and enjoyable for the next Sprint.

1. What went well?
2. What didn't go well?
3. What can we do differently?



# Project Management Tools

# ► Project Management Tools



THANKS!  
**Any questions?**