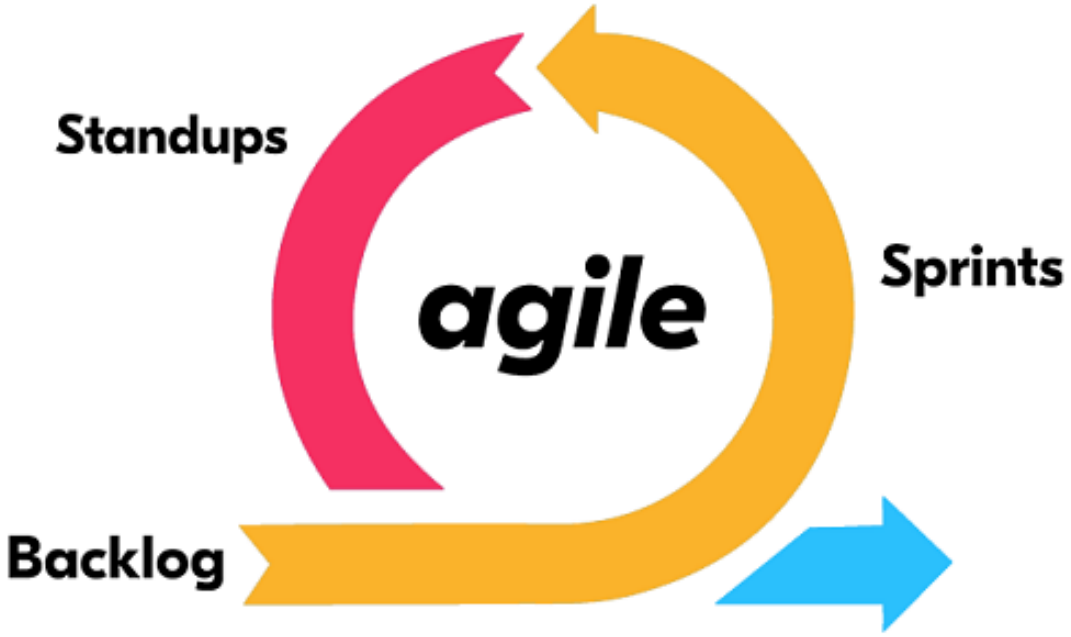
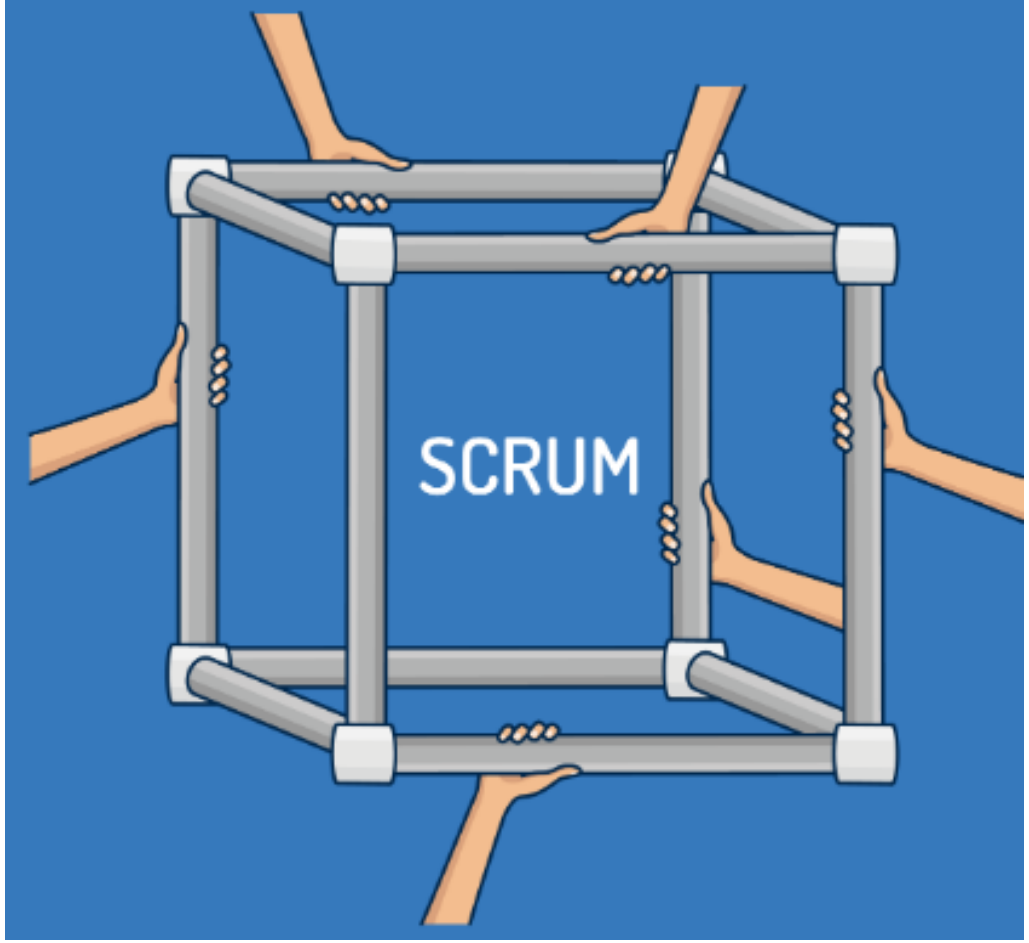


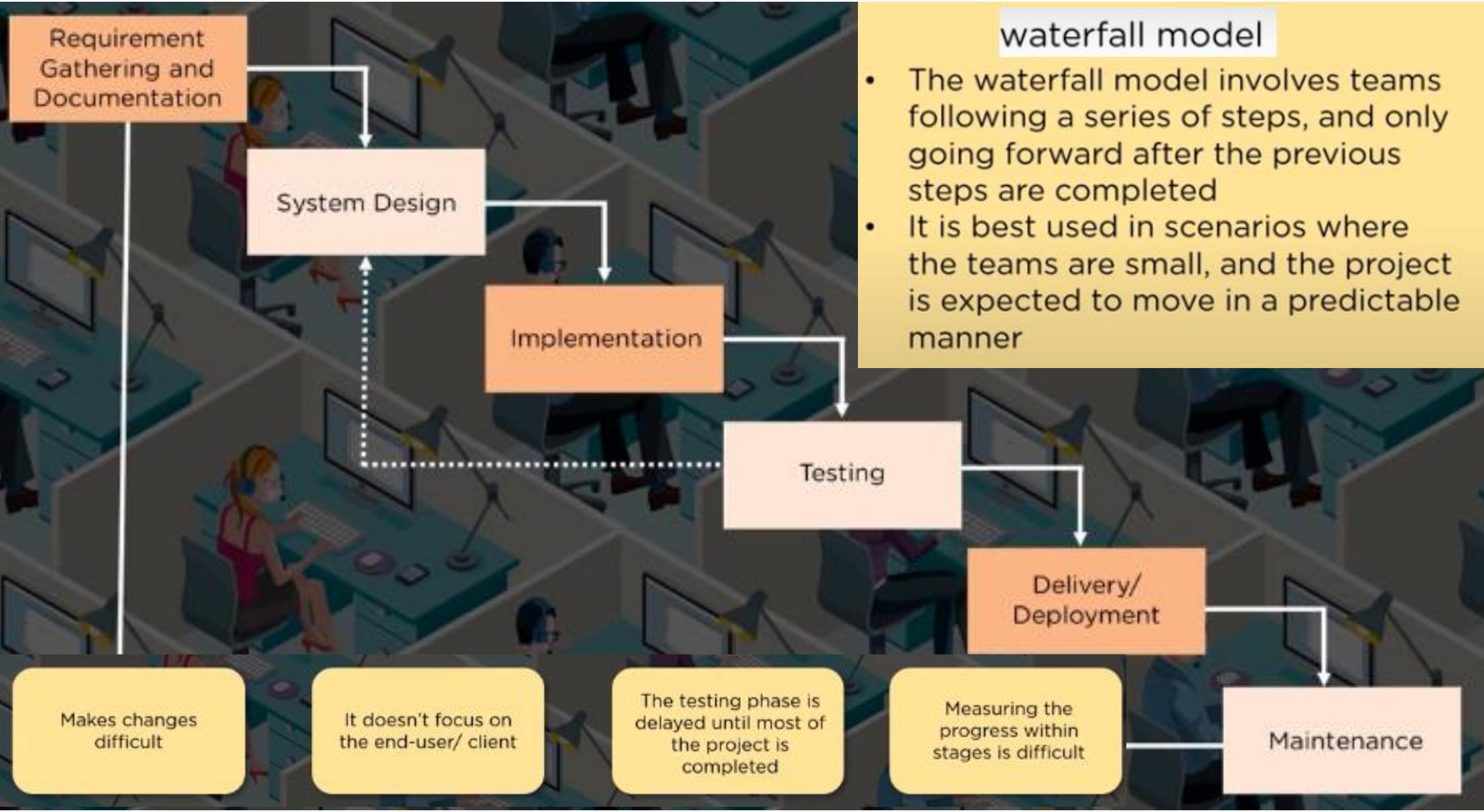


Agile

Division of tasks into short phases of work and frequent reassessment and adaptation of plans

What Is Agile?

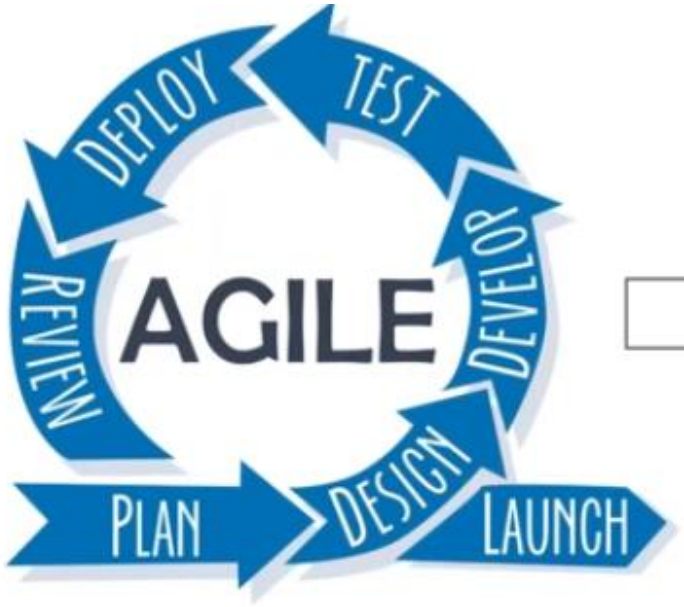
Agile is a process by which a team can manage a project by breaking it up into several stages and involving constant collaboration with stakeholders and continuous improvement and iteration at every stage. The Agile methodology begins with clients describing how the end product will be used and what problem it will solve. This clarifies the customer's expectations to the project team. Once the work begins, teams cycle through a process of planning, executing, and evaluating — which might just change the final deliverable to fit the customer's needs better. Continuous collaboration is key, both among team members and with project stakeholders, to make fully-informed decisions



waterfall model

- The waterfall model involves teams following a series of steps, and only going forward after the previous steps are completed
- It is best used in scenarios where the teams are small, and the project is expected to move in a predictable manner

1st Iteration



2nd Iteration

3rd Iteration

PEOPLE OVER PROCESSES AND TOOLS

WORKING SOFTWARE OVER COMPREHENSIVE DOCUMENTATION

CUSTOMER COLLABORATION OVER RIGID CONTRACTS

RESPONDING TO CHANGE RATHER THAN FOLLOWING A PLAN

UAT
Testing
Development
Design
Analysis
Requirement Gathering

Water Fall

Long term
in Year

UAT
Testing
Development
Design
Analysis
Requirement Gathering

Sprints

2 / 3 Weeks

Release 1.0 Release 2.0 Release 3.0







W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20	W21
Sprint 1			Sprint 2			Sprint 3			Sprint 4			Sprint 5			Sprint 6			Sprint 7		
Analysis Design Development Testing UAT			Analysis Design Development Testing UAT			Analysis Design Development Testing UAT			Analysis Design Development Testing UAT			Analysis Design Development Testing UAT			Analysis Design Development Testing UAT			Analysis Design Development Testing UAT		

Requirement Gathering & Understanding

Prioritization

Definitions

AGILE MANIFESTO

4 values

Individuals and interactions

over processes and tools

Working software

over comprehensive documentation

Customer collaboration

over contract negotiation

Responding to change

over following a plan

What Is Agile?

Agile is a set of principles used in project management and software development

- It enables teams to deliver value to their customers with ease
- Agile teams deliver work in small, but usable increments
- Evaluation of the requirements, plans, and results take place continuously. This allows teams to respond to changes quickly

12 Principles

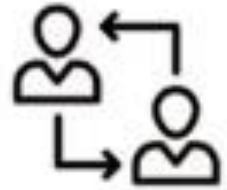
Customer Satisfaction

Welcome Change

Frequent Delivery

Working Together

Motivated Team

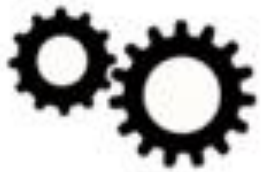


Face-to-face

Working Software

Constant Pace

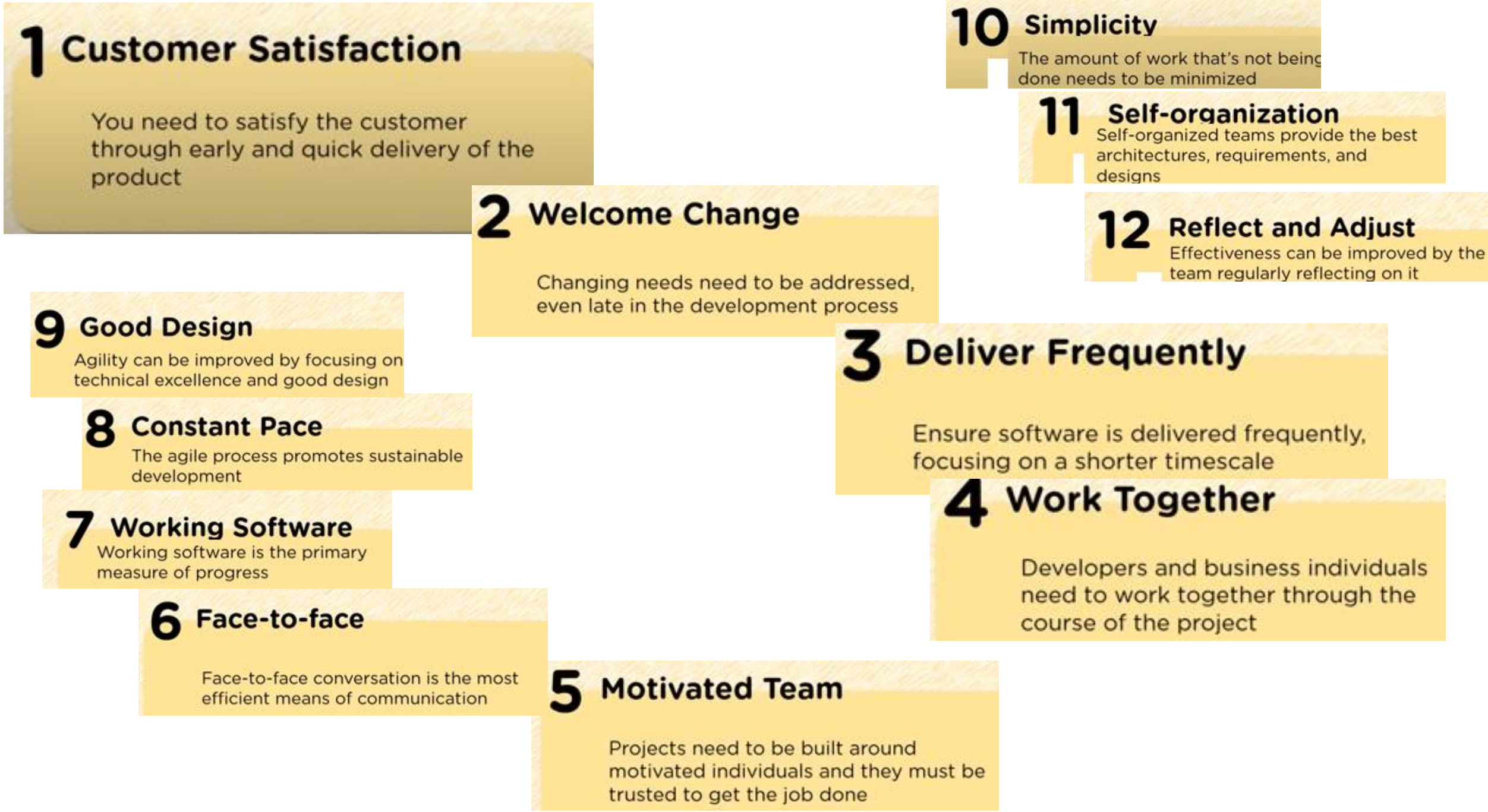
Good Design



Simplicity

Self-Organization

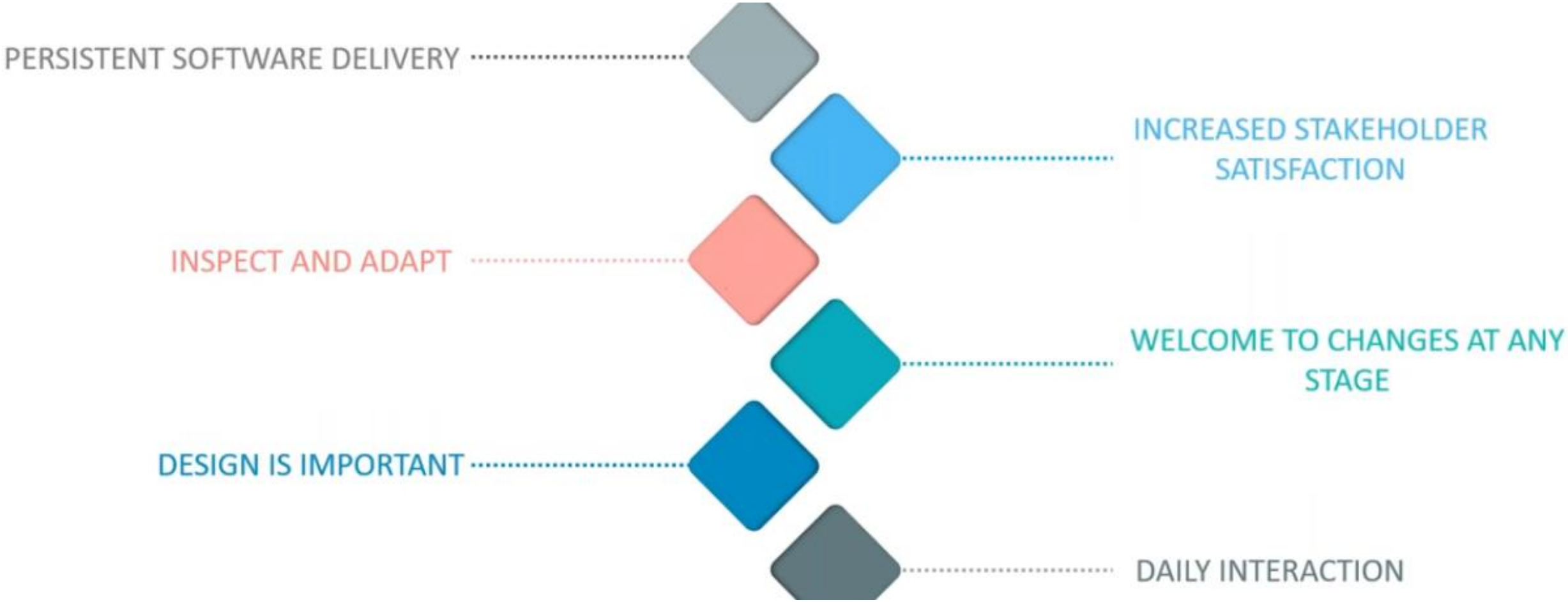
Reflect & Adjust


1 Customer Satisfaction
You need to satisfy the customer through early and quick delivery of the product
2 Welcome Change
Changing needs need to be addressed, even late in the development process
3 Deliver Frequently
Ensure software is delivered frequently, focusing on a shorter timescale
4 Work Together
Developers and business individuals need to work together through the course of the project
5 Motivated Team
Projects need to be built around motivated individuals and they must be trusted to get the job done
6 Face-to-face
Face-to-face conversation is the most efficient means of communication
7 Working Software
Working software is the primary measure of progress
8 Constant Pace
The agile process promotes sustainable development
9 Good Design
Agility can be improved by focusing on technical excellence and good design
10 Simplicity
The amount of work that's not being done needs to be minimized
11 Self-organization
Self-organized teams provide the best architectures, requirements, and designs
12 Reflect and Adjust
Effectiveness can be improved by the team regularly reflecting on it

PRINCPILES OF AGILE

- Satisfy the Customer
- Welcome Changing Requirements
- Deliver Working Software Frequently
- Frequent Interaction with Stakeholders
- Motivated Individuals
- Face-to-Face Communication
- Measure by working software
- Maintain constant pace
- Sustain technical excellence and good design
- Keep it simple
- Empower self-organizing teams
- Reflect and Adjust continuously

ADVANTAGES OF AGILE



Popular Frame works

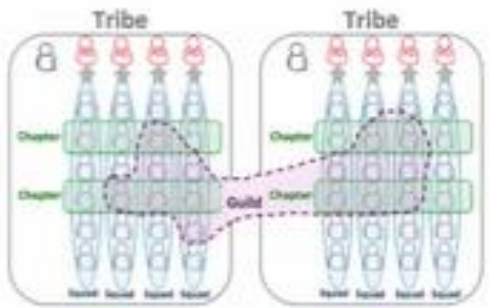
Scrum

Kanban

SAFe

DAD

LeSS



Spotify

Agile Methodologies

Extreme Programming

- It is a framework that enables teams to create high-quality software and improves their quality of life
- It enables software development with the appropriate engineering practices

Kanban

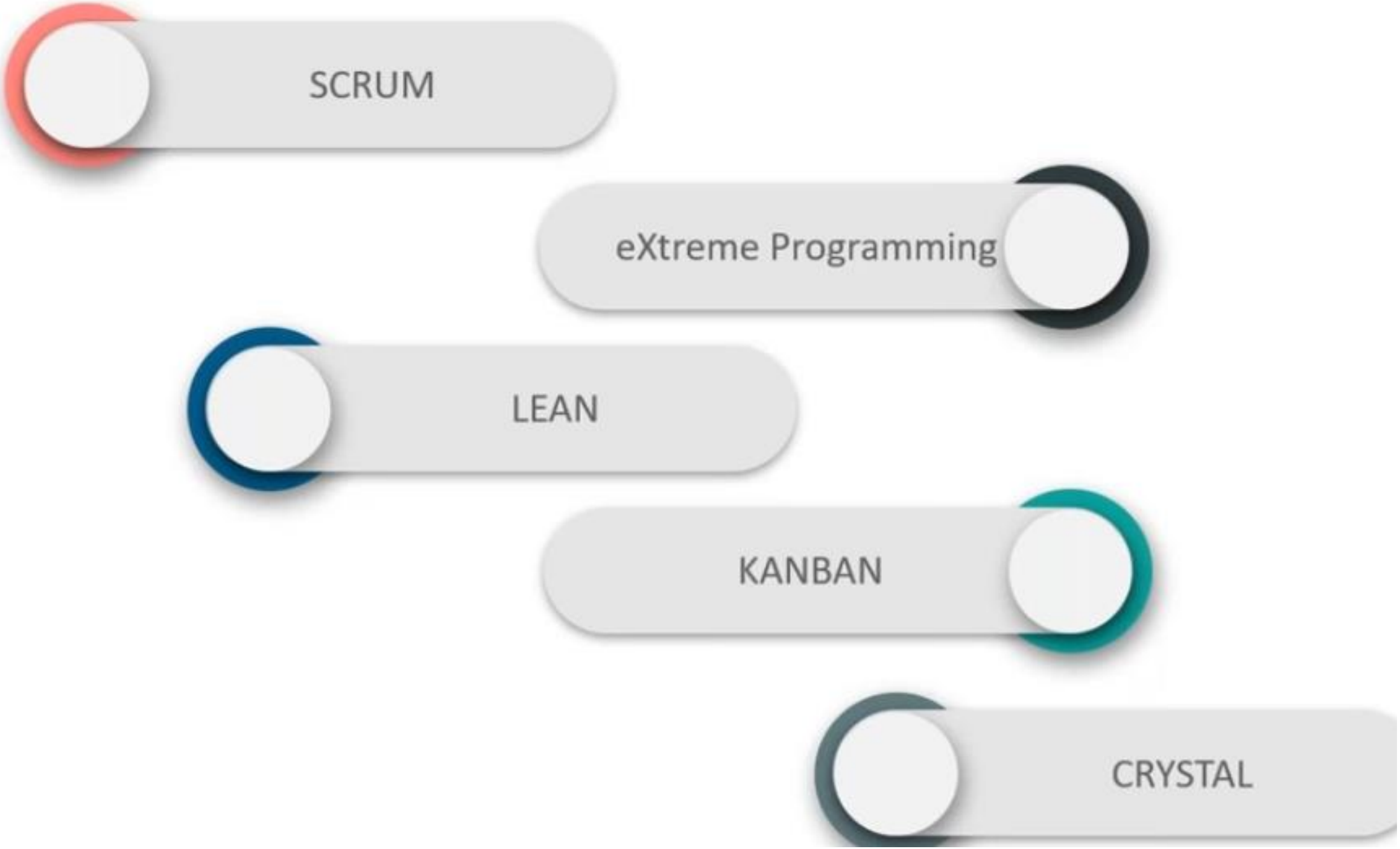
- This method is used to design, manage and improve the flow of systems
- Organizations can visualize their flow of work and limiting their work in progress

Lean

- Lean is a set of tools and principles that aims to identify and remove waste to increase the speed of process development
- It focuses on maximizing value to the client, ensuring waste is minimized

Scrum

- Scrum is a framework that is used by teams to establish a hypothesis, try it out, reflect on the experience and adjust
- It is used to enable teams to incorporate practices from other frameworks depending on the team's requirements


SCRUM
eXtreme Programming
LEAN
KANBAN
CRYSTAL

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."

Scrum is:

- Lightweight
- Simple to understand
- Difficult to master

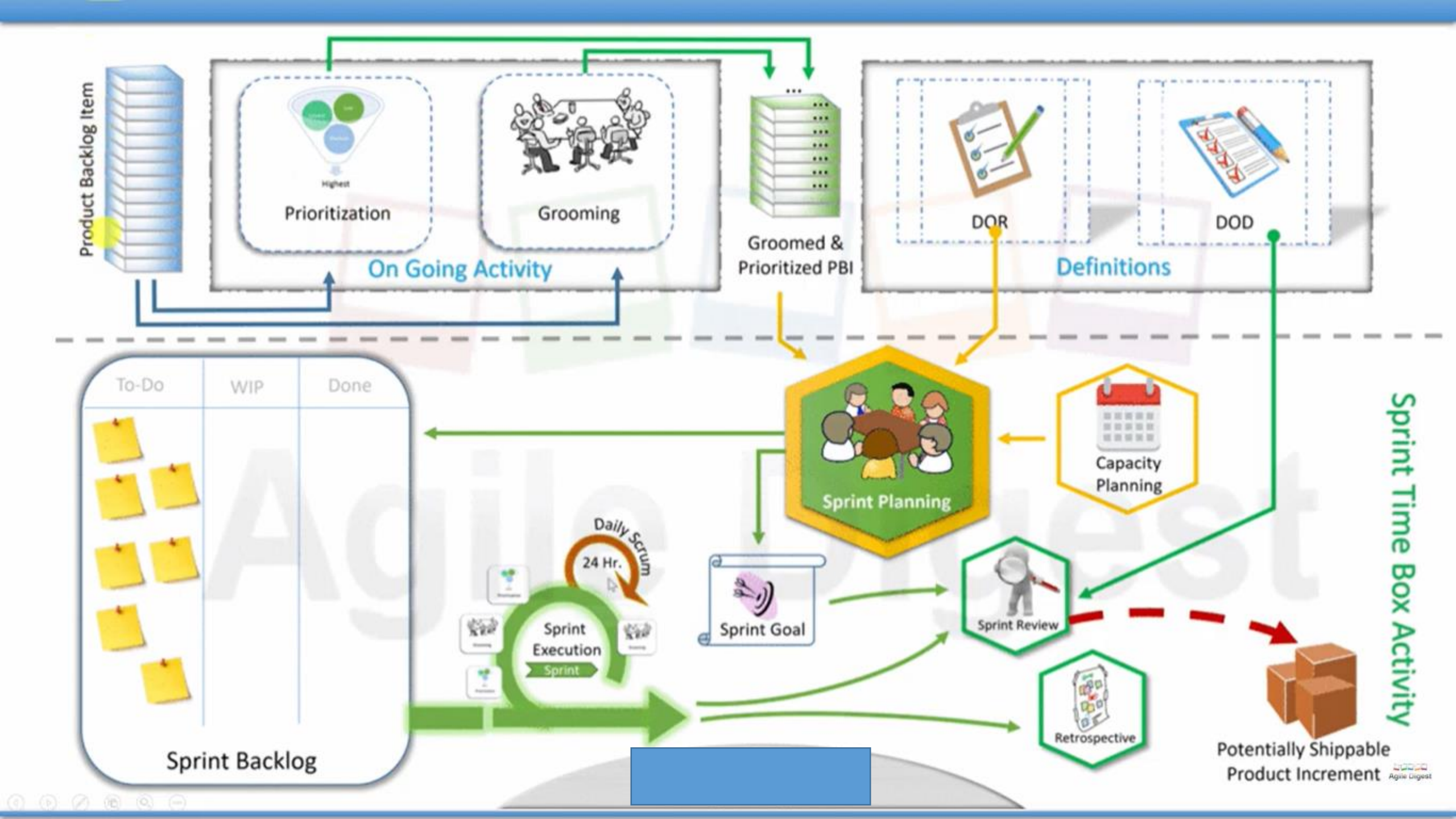
Scrum Values

- Team members know they have the courage to work through conflict and challenges together so that they can do the right thing.

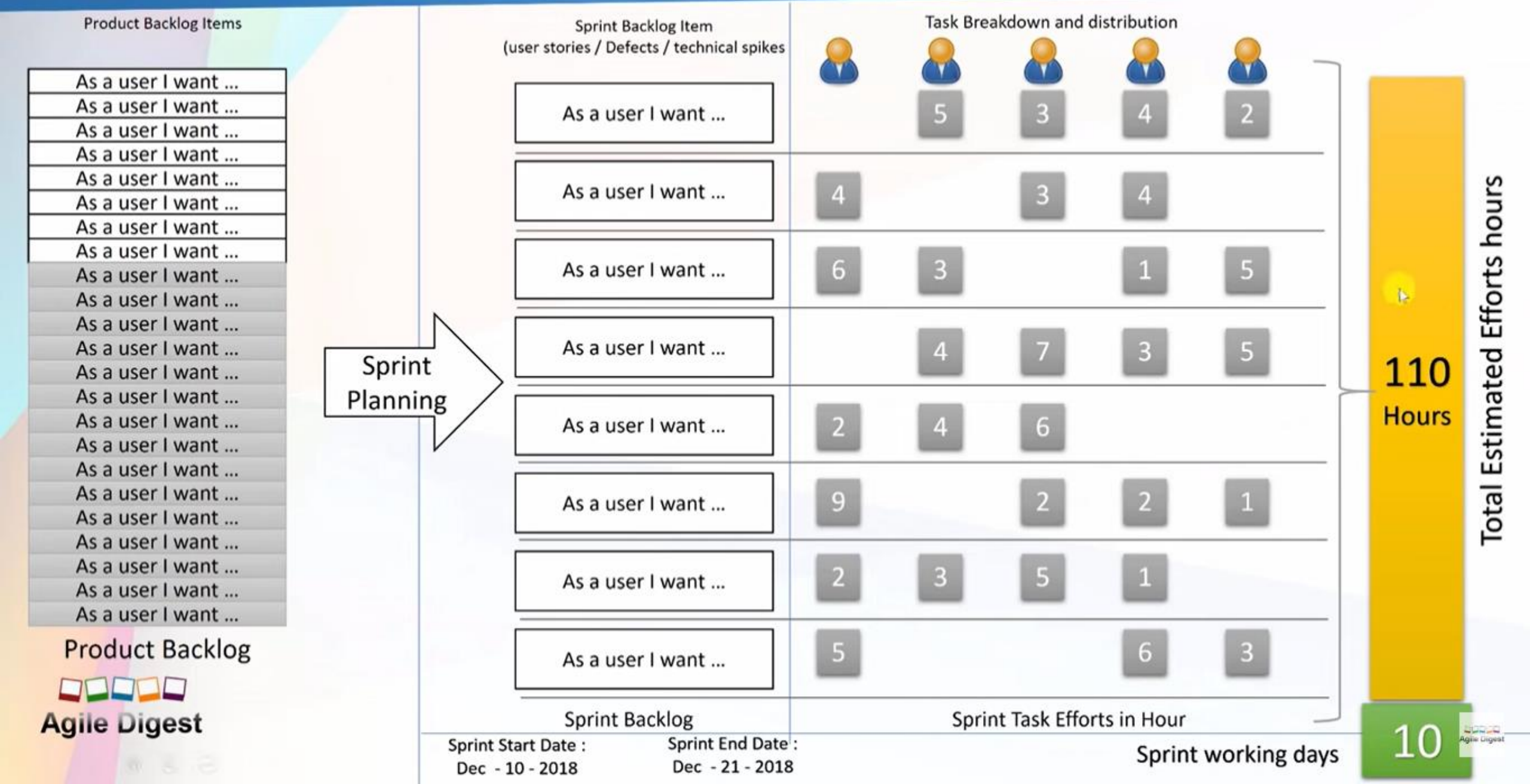
- Team members individually commit to achieving their team goals, each and every sprint.

- Team members focus exclusively on their team goals and the sprint backlog; there should be no work done other than through their backlog.

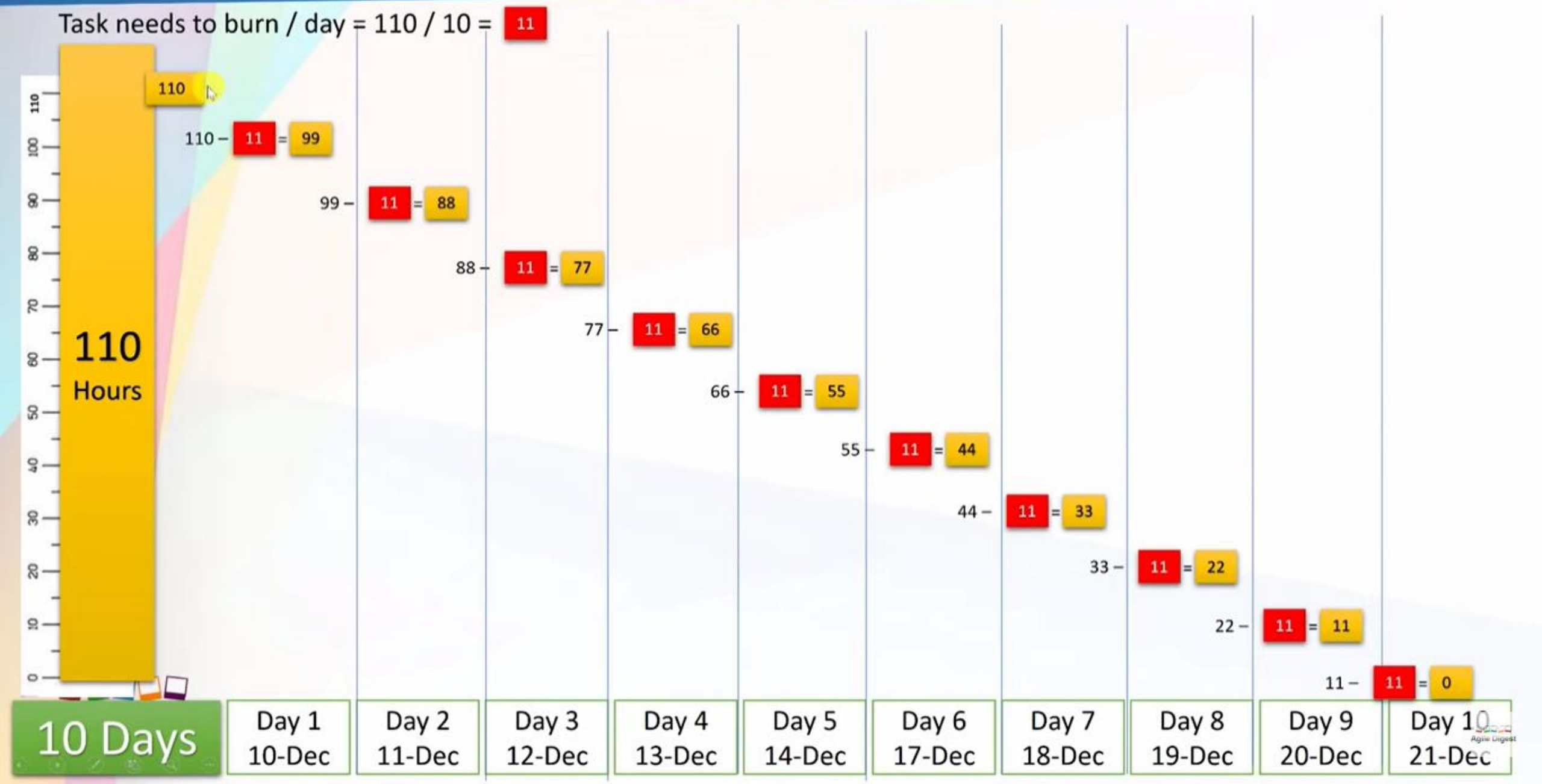
- Team members respect each other to be technically capable and to work with good intent.


Product Backlog Item
Highest
Prioritization
Grooming
On Going Activity
Groomed & Prioritized PBI
DOR
DOD
Definitions
To-Do
WIP
Done
Sprint Backlog
Daily Scrum
24 Hr.
Sprint Execution
Sprint
Sprint Planning
Capacity Planning
Sprint Goal
Sprint Review
Retrospective
Potentially Shippable Product Increment
Sprint Time Box Activity

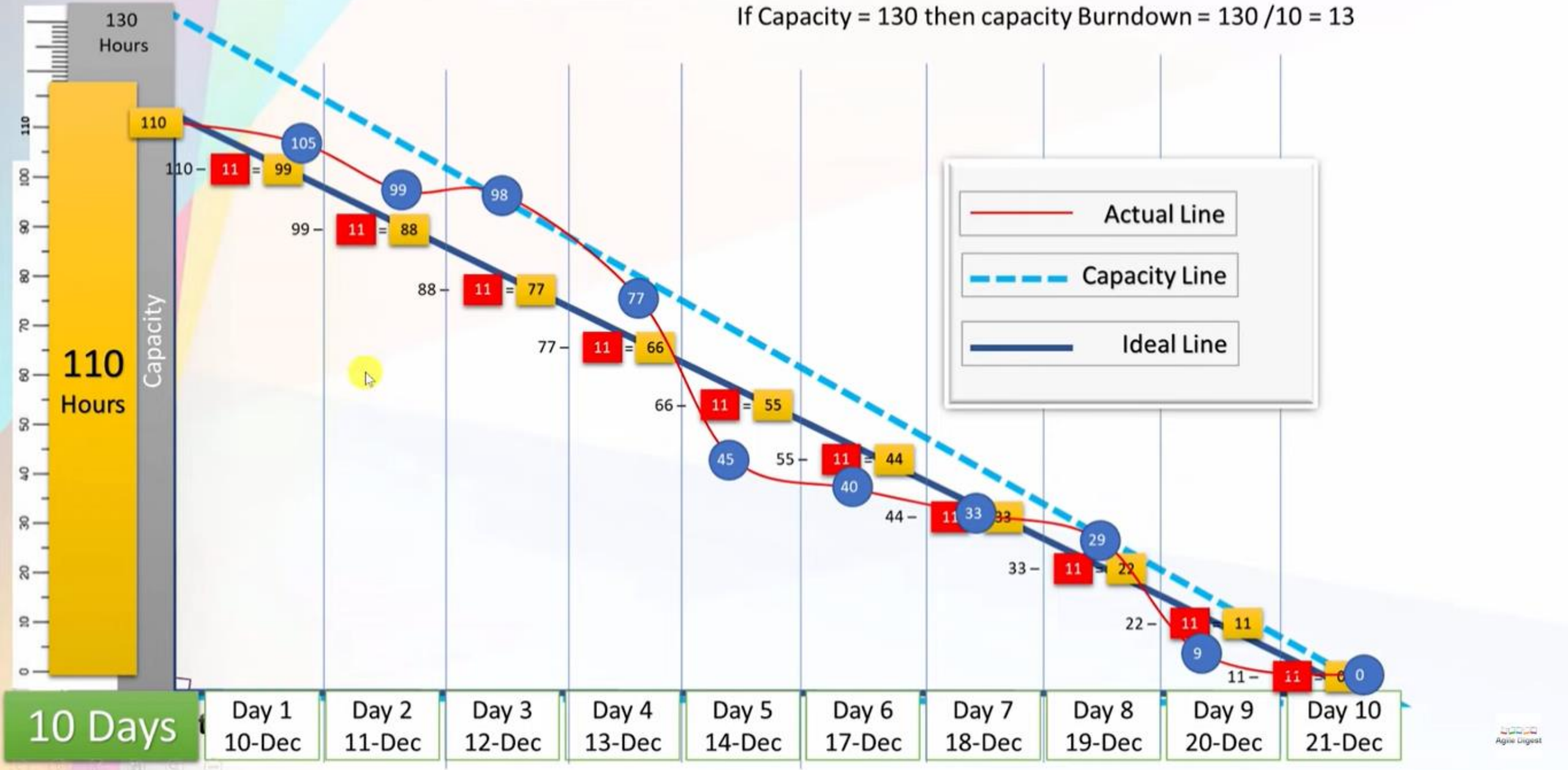
How Sprint burn-down chart gets generated and what exactly it represents?



...How Sprint burn-down chart gets generated and what exactly it represents?



...How Sprint burn-down chart gets generated and what exactly it represents?



Scrum insights

Ceremonies/Events of scrum

1. Capacity & Sprint Planning
2. Daily Scrum Call
3. Sprint Review
4. Sprint Retrospective
5. Backlog Refinement / Grooming
6. Prioritization

Key Areas of Scrum

1. Estimation
2. Requirements
3. Visual Boards (Scrum Boards)

Roles and Responsibility in Scrum

1. Product Owner
2. Scrum Master
3. Dev team

Artifacts of Scrum

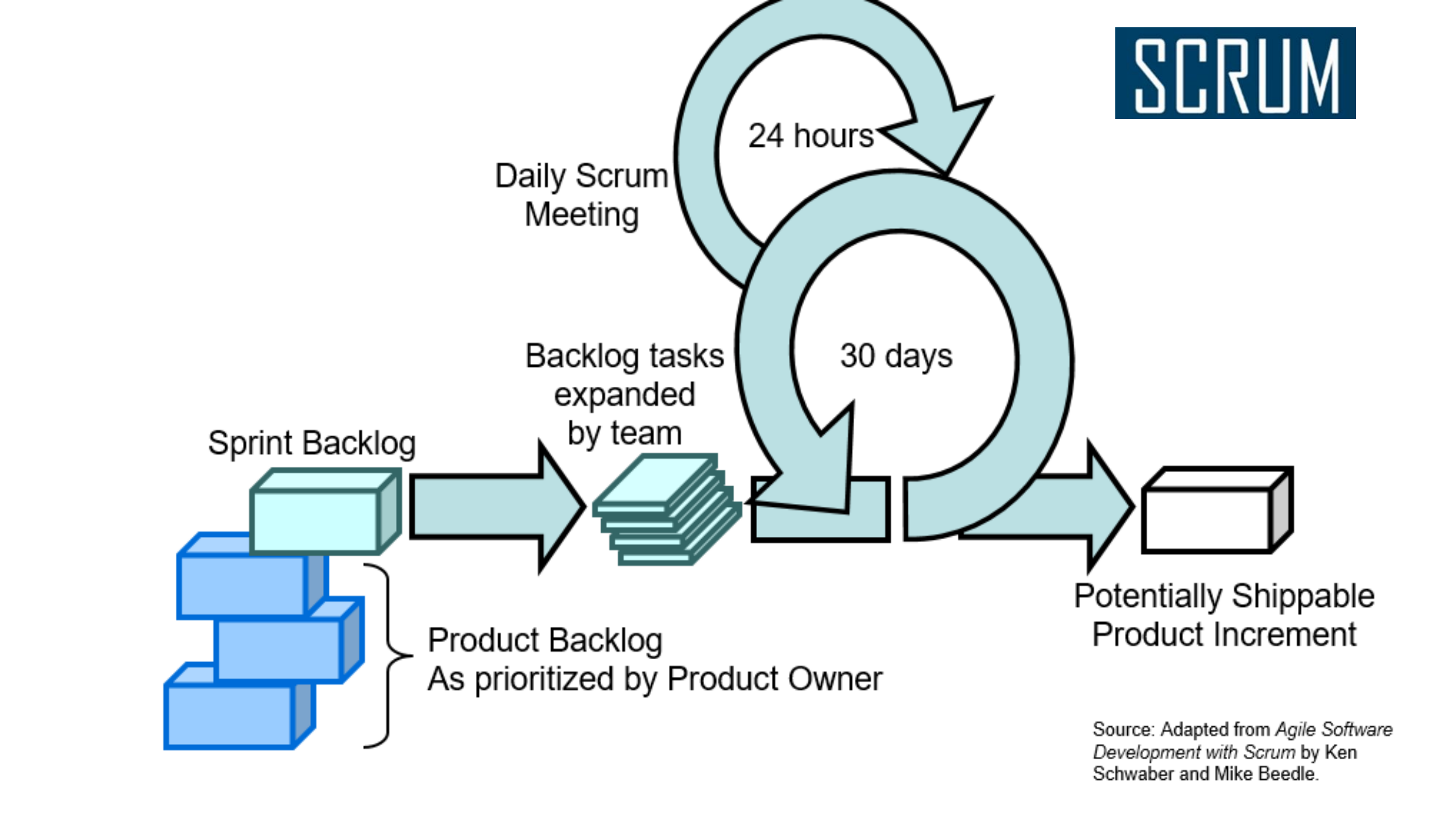
1. Product Backlog
2. Sprint Backlog
3. Burn down Chart
4. DOR
5. DOD

Reporting in Scrum

1. Grooming Updates
2. Sprint Planning Summary
3. Mid week Progress Summary
4. Sprint closure summary
5. Retrospective Action Item

Scrum Metrics.

1. Velocity Trends
2. Commitment Reliability
3. Capacity Utilization
4. Scope Change
5. Defect leakage
6. Backlog Health

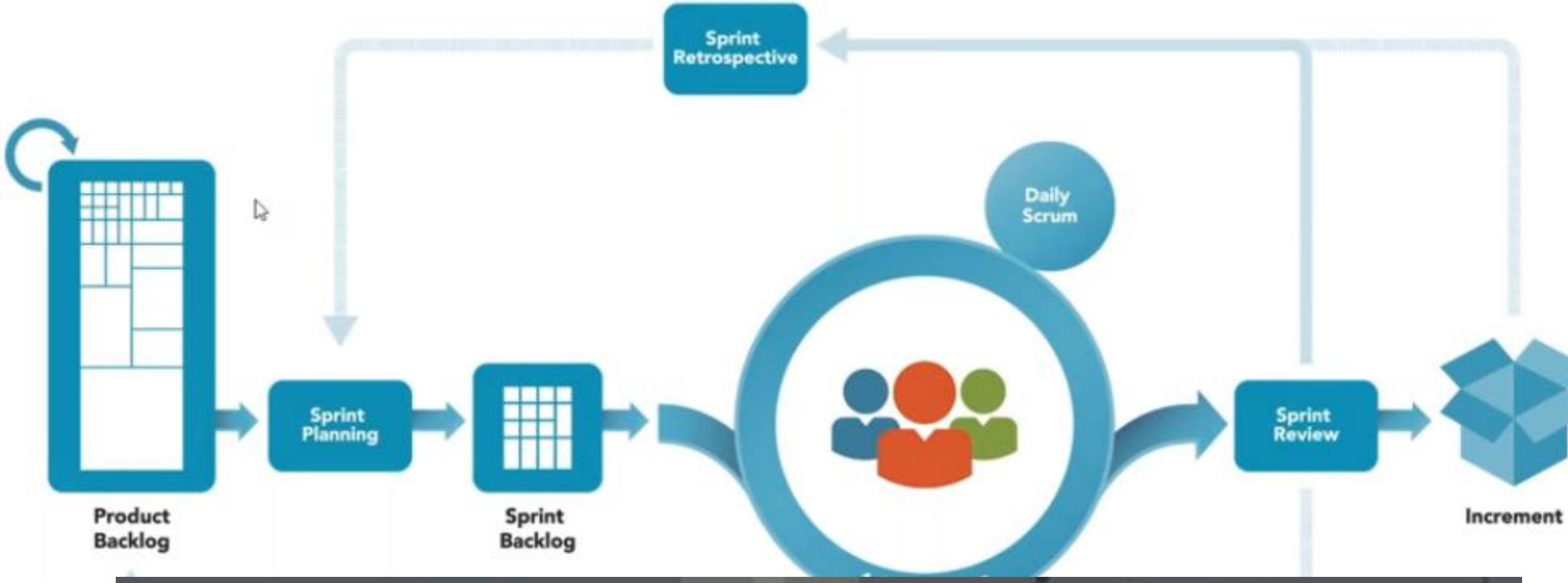


Source: Adapted from *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle.

SCRUM


DAILY SCRUM
24hr
MILESTONES
SPRINT PLANNING
BACKLOG PLANNING
SPRINT
Product Backlog
RETROSPECTIVE
COMPLETED INCREMEN

SCRUM



- Teams can provide project deliverables and in an efficient manner
- Time and money are used efficiently
- Projects are divided into smaller units called sprints
- Works best for fast moving projects

What is epic – Large scale of solution

What is user story – short description of requirement

Product backlog – Repository to store all the user stories

What is sprint – collection of user stories which are we developing based on the priority normally sprints will be calculated in to weeks

For ex:- 1,2, 3 , 4 week sprint

Sprint1 – 3 User stories ---- 2 weeks

Sprint 2 - 4 User stories – 3 weeks

Sprint 3 – 2 User stories – 1 week

Sprint 4 – 3 user stories – 4 weeks

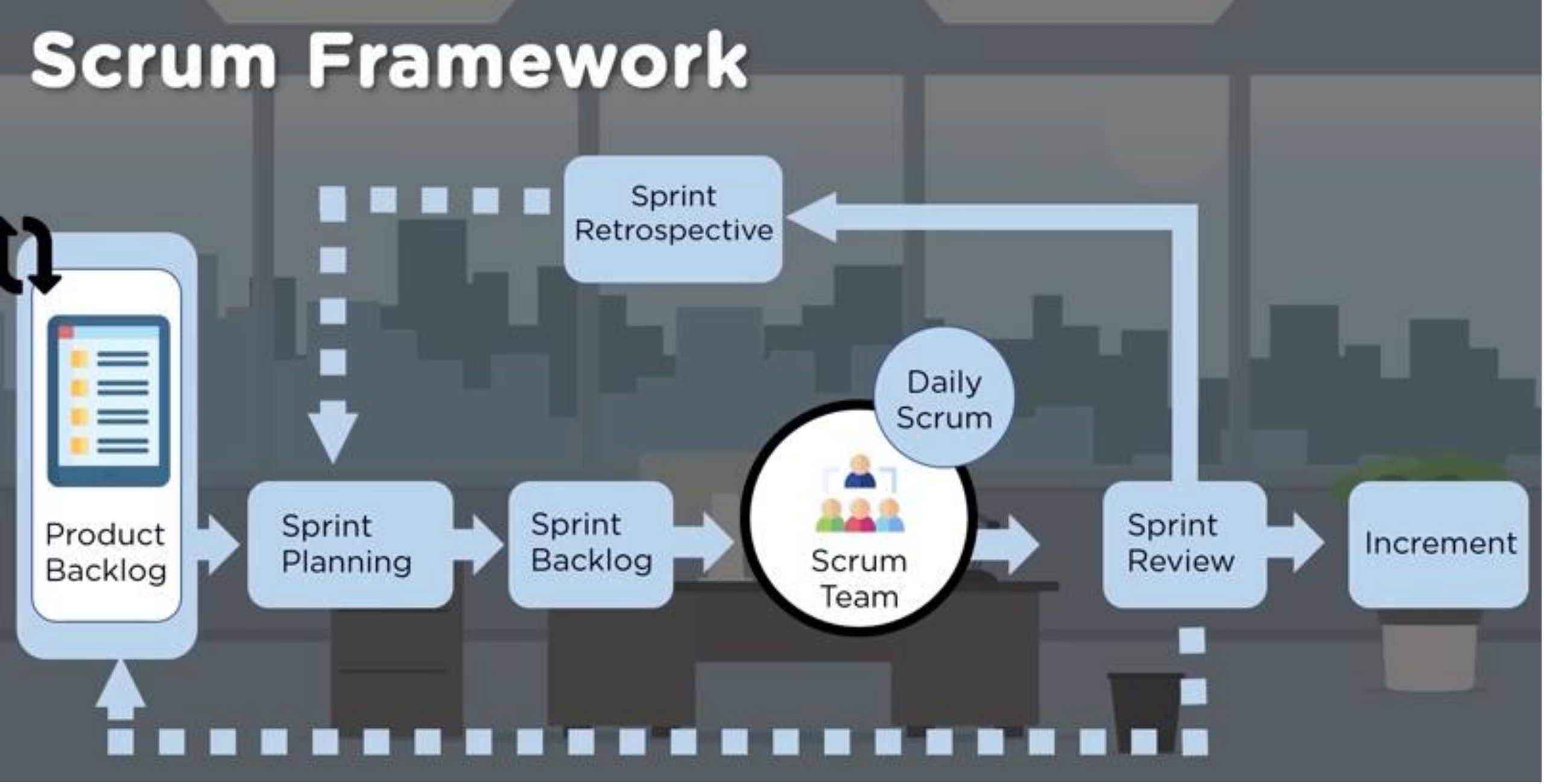
Product is developed in Sprints

People work as a single team

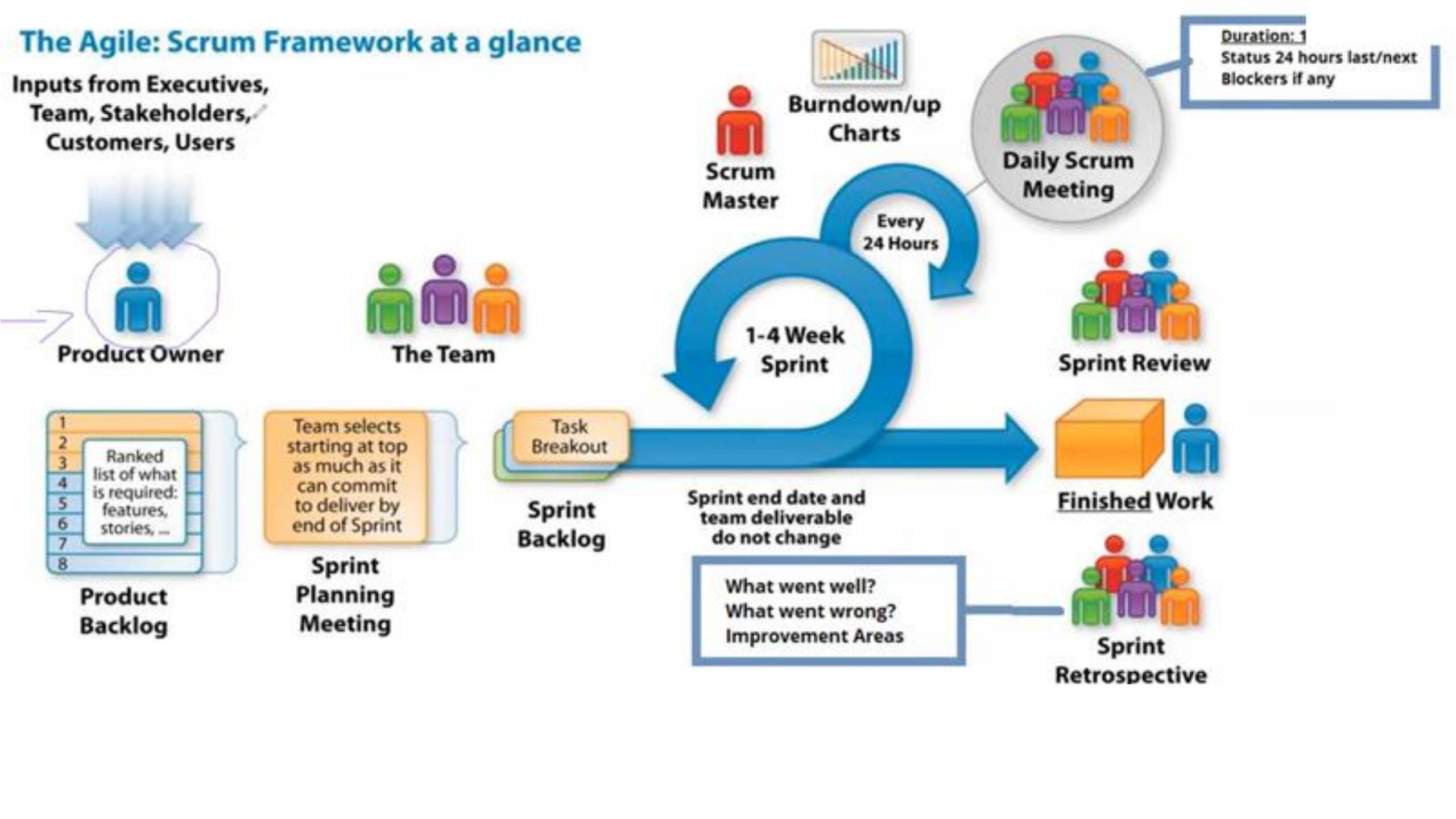
Constantly deliver functioning products

Continuous customer feedback

Scrum Framework



The Agile: Scrum Framework at a glance



its an ordered List of Everything that might be needed in the Product and is the single source of requirements for any change to be made to the Product

What goes in to Product backlog

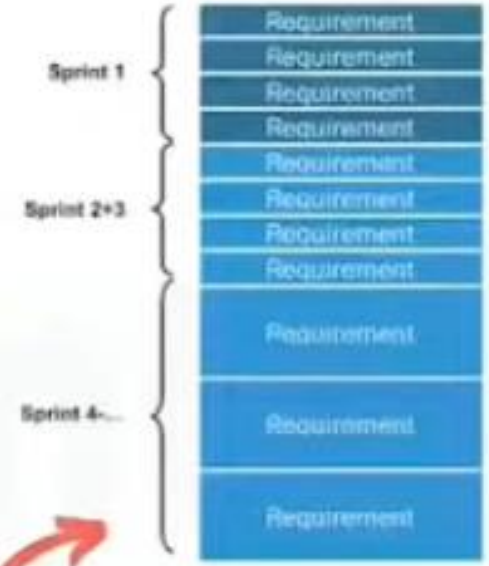
Product idea

Product vision

EPICS

EPICS

Product backlog



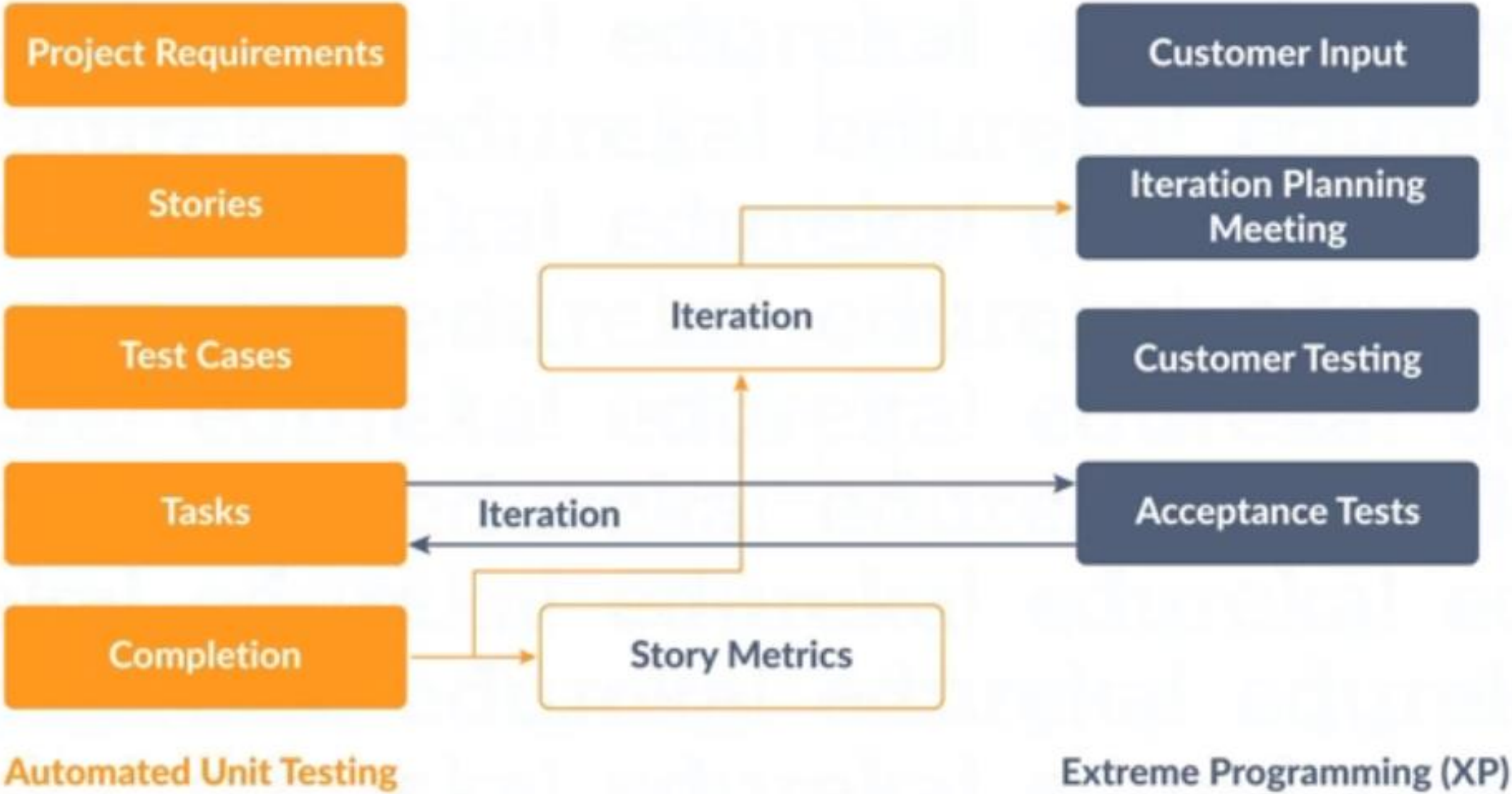
User stories

Technical requirements

Code spikes

Technical debt

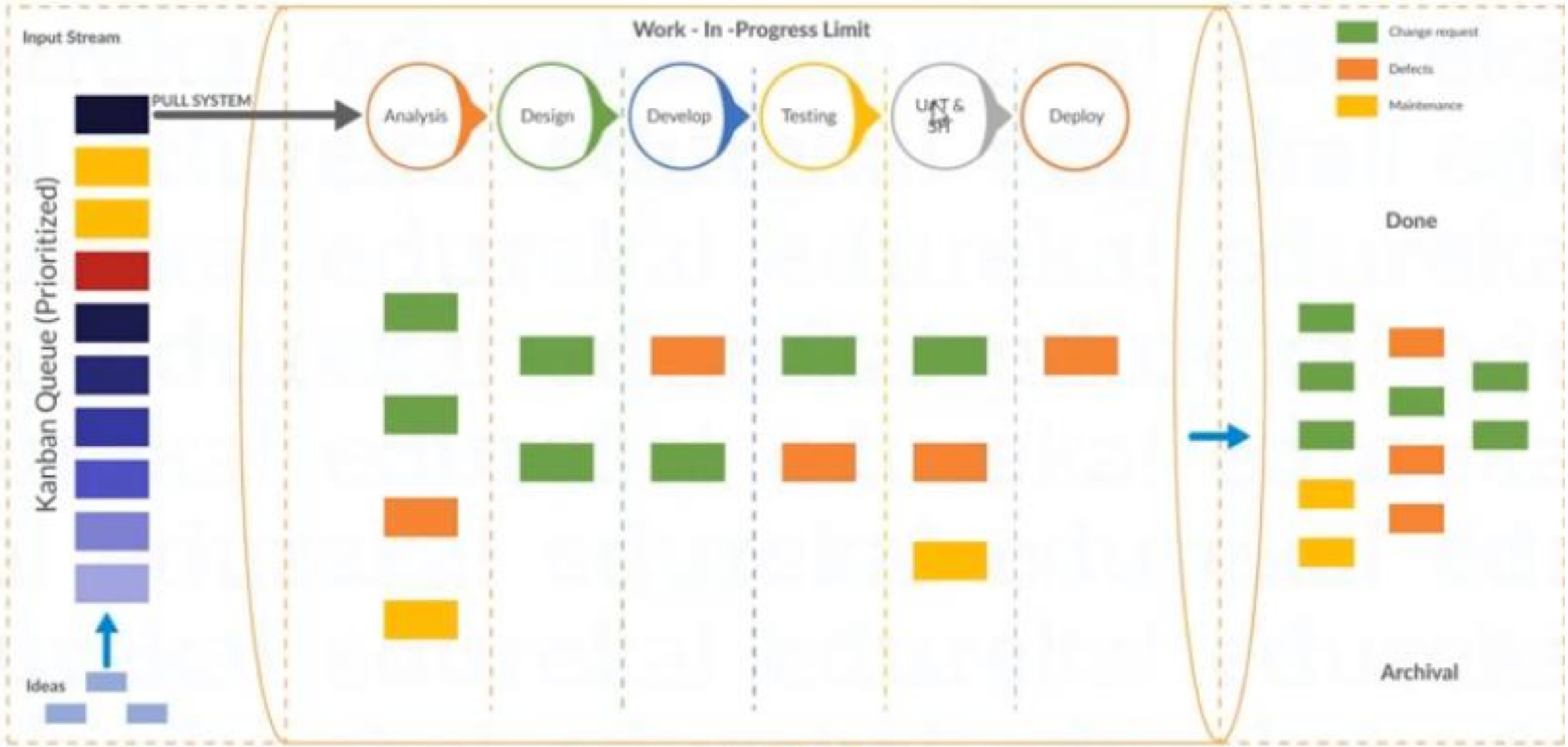
Bugs


Project Requirements
Stories
Test Cases
Tasks
Completion
Automated Unit Testing
Iteration
Iteration
Story Metrics
Customer Input
Iteration Planning Meeting
Customer Testing
Acceptance Tests
Extreme Programming (XP)

LEAN


ELIMINATE WASTE
SEE THE WHOLE
AMPLIFY LEARNING
LEAN
PRINCIPLES
BUILD INTEGRITY
DECIDE AS LATE AS POSSIBLE
EMPOWER THE TEAM
DECIDE AS FAST AS POSSIBLE

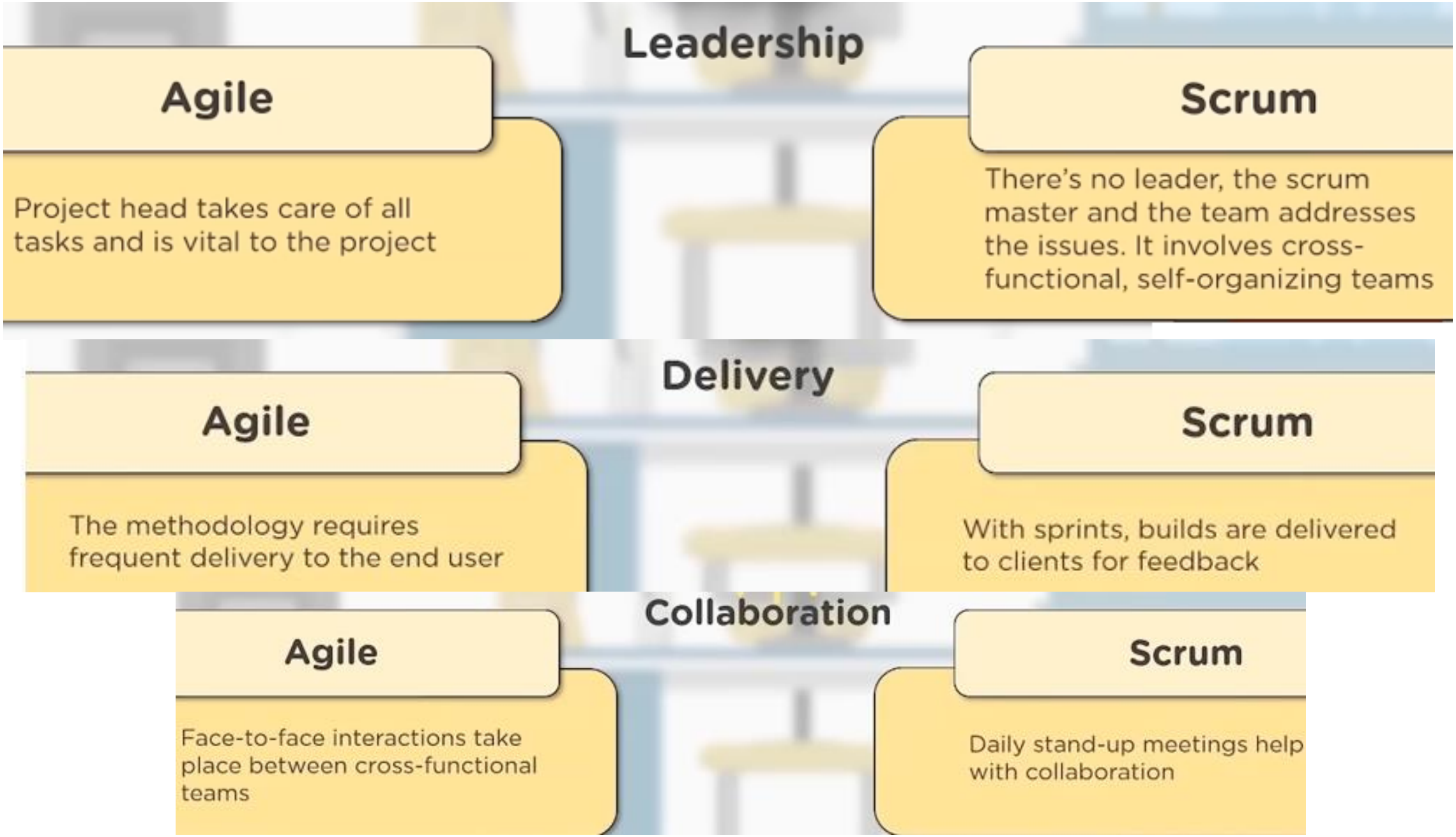
Kanban System

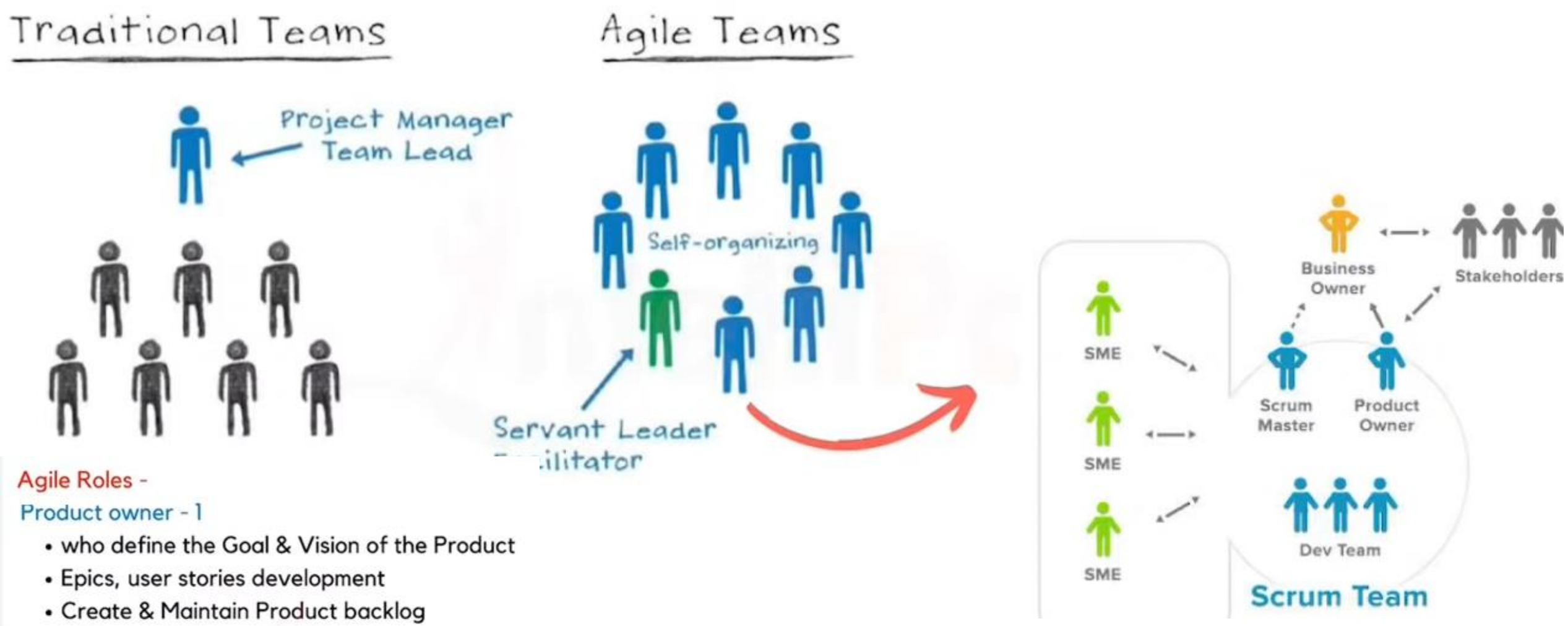


		Crystal Methodologies				
		Clear	Yellow	Orange	Red	Maroon
Criticality of the Project	Life (L)	L6	L20	L40	L80	L200
	Essential Money (E)	E6	E20	E40	E80	E200
	Discretionary Money (D)	D6	D20	D40	D80	D200
	Comfort (C)	C6	C20	C40	C80	C200
		1 to 6	7 to 20	21 to 40	41 to 80	81 to 200
		Number of People involved in the Project				

Stages of the Agile Life Cycle

Release or production phase is when the product or project is deployed and is now being used by end users. The stages are monitored for bugs and defects


Leadership
Agile
Project head takes care of all tasks and is vital to the project
Scrum
There's no leader, the scrum master and the team addresses the issues. It involves cross-functional, self-organizing teams
Delivery
Agile
The methodology requires frequent delivery to the end user
Scrum
With sprints, builds are delivered to clients for feedback
Collaboration
Agile
Face-to-face interactions take place between cross-functional teams
Scrum
Daily stand-up meetings help with collaboration



Agile Roles -

Product owner - 1

- who define the Goal & Vision of the Product
- Epics, user stories development
- Create & Maintain Product backlog

scrum Team - 7-8

- combination of Development, Testing & others
- responsible to complete sprint on time

scrum Master - 1

- Manages the scrum Team
- Managing daily scrum, review, retrospection
- Tracking the progress of work
- Velocity Etc

Scrum

Scrum is a framework through which we build software product by following Agile Principles.
Scrum includes group of people called as Scrum team. Normally contains 5-9 members.

1) Product Owner
2) Scrum Master
3) Dev Team
4) QA Team

Product Owner :
- Define the features of the product
- Prioritize features according to market value
- Adjust features and priority every iteration, as needed
- Accept or reject work results.

Scrum Master:
- The main role is facilitating and driving the agile process.

Developers and QA:
- Develop and Test the software.

Scrum Terminology

User Story : A Feature/module in a software

Epic : Collection of user stories.

Product backlog : Contains list of user stories. Prepared by product owner.

Sprint/Iteration : Period of time to complete the user stories, decided by the product owner and team, usually 2-4 weeks of time.

Sprint planning meeting: Meating conducts with the team to define what can be delivered in the sprint and duration.

Sprint backlog : List of committed stories by Dev/QA for specific sprint.

Scrum meeting : Meating conducted by Scrum Master everyday 15 mins. Called as scrum call/Standup meeting.

- What did you do yesterday?
- What will you do today?
- Are there any impediments in your way?

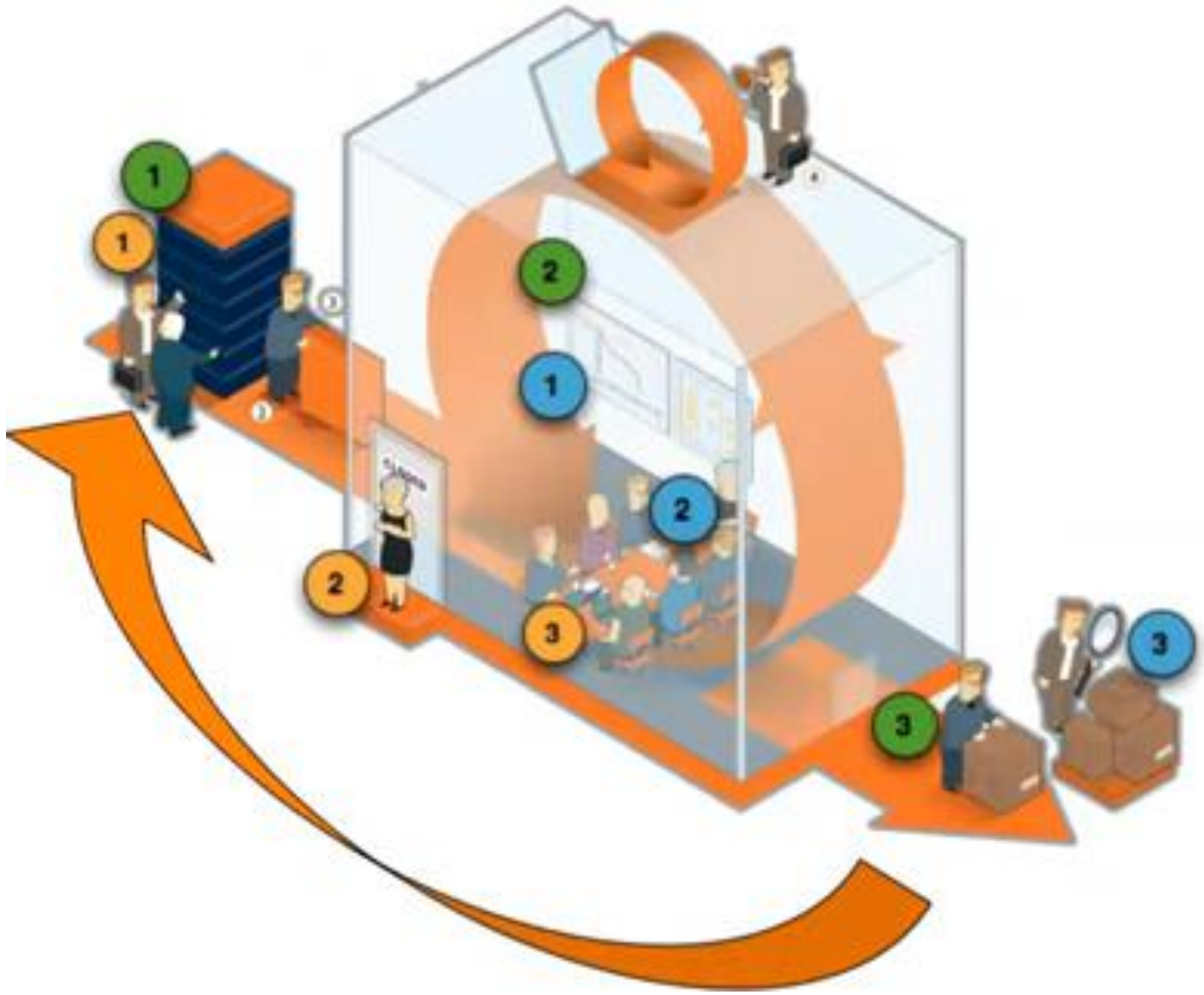
Sprint retrospective meeting: conducts meeting after completion of sprint. The entire team, including both the ScrumMaster and the product owner should participate.

Story point : Rough estimation of user stories, will be given by Dev & QA in the form of Fibonacci series.

Story points are units of measure for expressing an estimate of the overall effort required to fully implement a product backlog item. One way to measure story points is through Fibonacci Numbers.

Fibonacci Series: 0, 1, 2, 3, 5, 8, 13, 20, 40, 100....

Suggested to break down the story into multiple user stories.



Roles

1. Product Owner
2. Scrum Master
3. Team

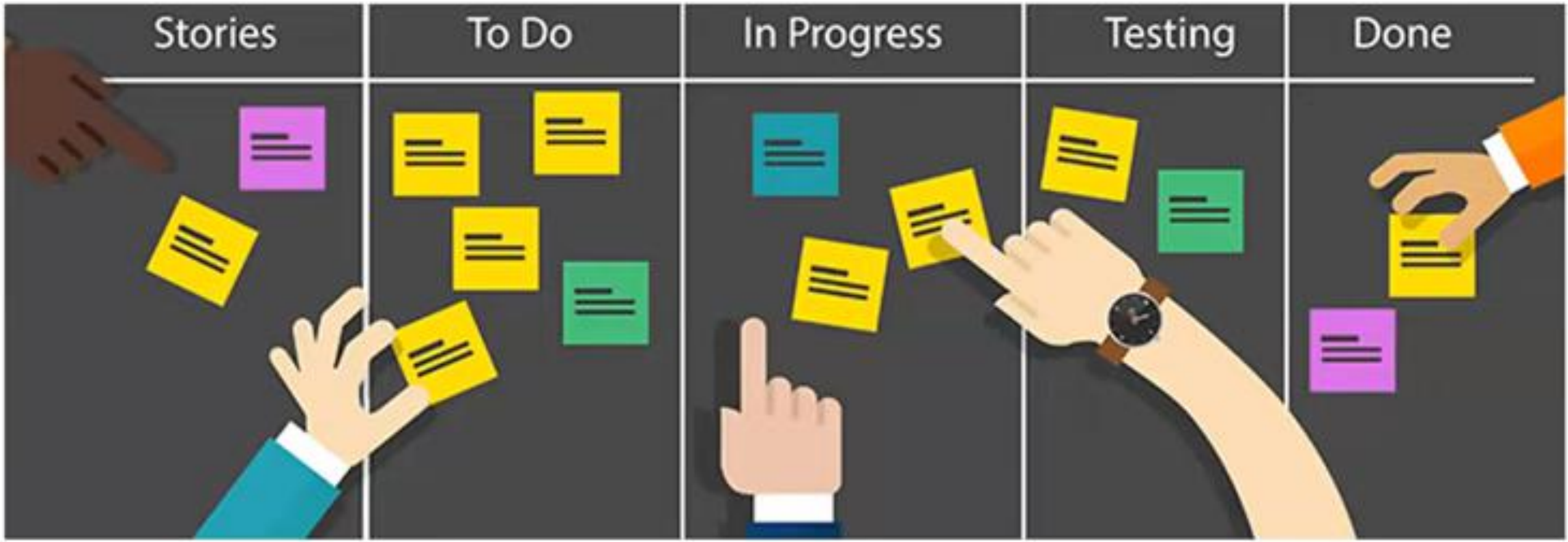
Artefacts

1. Product Backlog
2. Sprint Backlog
   Burndown chart

Ceremonies

1. Sprint Planning
2. Daily Scrum
3. Sprint Review

Scrum Board



Definition of Ready (DoR) & Definition of Done (DoD)

Definition of Ready (DoR)

- User Story is clear
- User Story is testable
- User Story is feasible
- User Story defined
- User Story Acceptance Criteria defined
- User Story dependencies identified
- User Story sized by Development Team
- Scrum Team accepts User Experience artefacts
- Performance criteria identified, where appropriate
- Team has a good idea what it will mean to Demo the User Story

Definition of Done (DoD)

- Code produced (all 'to do' items in code completed)
- Code commented, checked in and run against current version in source control
- Peer reviewed (or produced with pair programming) and meeting development standards
- Builds without errors
- Unit tests written and passing
- Deployed to system test environment and passed system tests
- Passed UAT (User Acceptance Testing) and signed off as meeting requirements
- Any build / deployment / configuration changes are implemented / documented / communicated
- Relevant documentation / diagrams produced and / or updated
- Remaining hours for task set to zero and task

Created By	Name of the Product Owner
Creation Date	DD-MM-YYYY
Approval Date	DD-MM-YYYY

Epic	User Story ID	Feature/Title	User Story	Status	Acceptance Creteria
OpenCart_Epic_001 : **For a new e-commerce website to launch, the highest Business Value will be when a new user is able to buy an item from the website.**	US001	Registration	As a First-time visitor to the e-commerce website, I want to register my account, So that I can login to application.	New	New user should able to Register account with valid data.
	US002	Login	As a registered user, I want to login to the website, So that I can see my account details etc..	New	System must validate user credentials and allow login credentials are correct..
	US003	Logout	As a registered user, I want to logout from website, So that no one else can't access my account.	New	System must logout after login.
	US004	User search products	As a user, I want to be able to search items, So that I can add them to cart and do payment.	New	User should able to search products and add them to cart.

Project Name	OpenCart (Frontend)
Client	OpenCart
Created By	Name of the Scrum Master
Attendees	Scrum Team
Creation Date	DD-MM-YYYY

Epic	User Story ID	Feature/Title	User Story	Story Points	Sprint
OpenCart_Epic_001 : For a new e-commerce website to launch, the highest Business Value will be when a new user is able to buy an item from the website.	US001	Registration	As a First-time visitor to the e-commerce website, I want to register my account, So that I can login to application.	8	1
	US002	Login	As a registered user, I want to login to the website, So that I can see my account details etc..	5	1
	US003	Logout	As a registered user, I want to logout from website, So that no one else can't access my account.	3	1
	US004	User search products	As a user, I want to be able to search items, So that I can add them to cart and do payment.	5	3

Story Points	Hours
1	1 Hour/ Day (Depends on company)

Website 100 pages

10 pages
Continuous delivery
Continuous Feedback
Requirement changes in the middle
Client Satisfaction is very high
Less Developement time
Less Development cost

Agile User Stories

As a
website visitor
I want to
susbscribe to the mailing list for a product
So I can
get product updates through email

As a
mobile app user
I want to
save all my data to the cloud
So I can
access it from another device

As an
admin user
I want to
disable a user
So I can
prevent unauthorized logins by past employees

Developer Tasks	QA Tasks
Under standing Requirements	Under standing Requirements
Desing	Writing Test Scenarios
Coding	Writing Test Cases
Unit Testing	Test Case Reviews
Integration Testing	Test Data Preparation
Code Review	Test Environment Setup
Bug Fixes	Test Execution
Team Meetings	Re-Testing Bugs
Any other...	Team Meetings
	Automation
	Any other...

Roles

Product Owner:
Set priorities

ScrumMaster:
Manage process,
remove blocks

Team: Develop
product

Stakeholders:
observe & advise

Key Artifacts

Product Backlog

- List of requirements &issues
- Owned by Product Owner
- Anybody can add to it

Sprint Goal

- One-sentence summary
- Declared by Product Owner

Sprint Backlog

- List of tasks
- Owned by team

Blocks List

- List of blocks & unmade decisions
- Owned by ScrumMaster

Increment

- Version of the product
- Shippable functionality (tested,

Key Meetings

Sprint Planning Meeting

- Hosted by ScrumMaster; ½-1 day
- In: Product Backlog, existing product, business &technology conditions

1. Select highest priority items in Product Backlog; declare Sprint Goal

2. Team turns selected items into

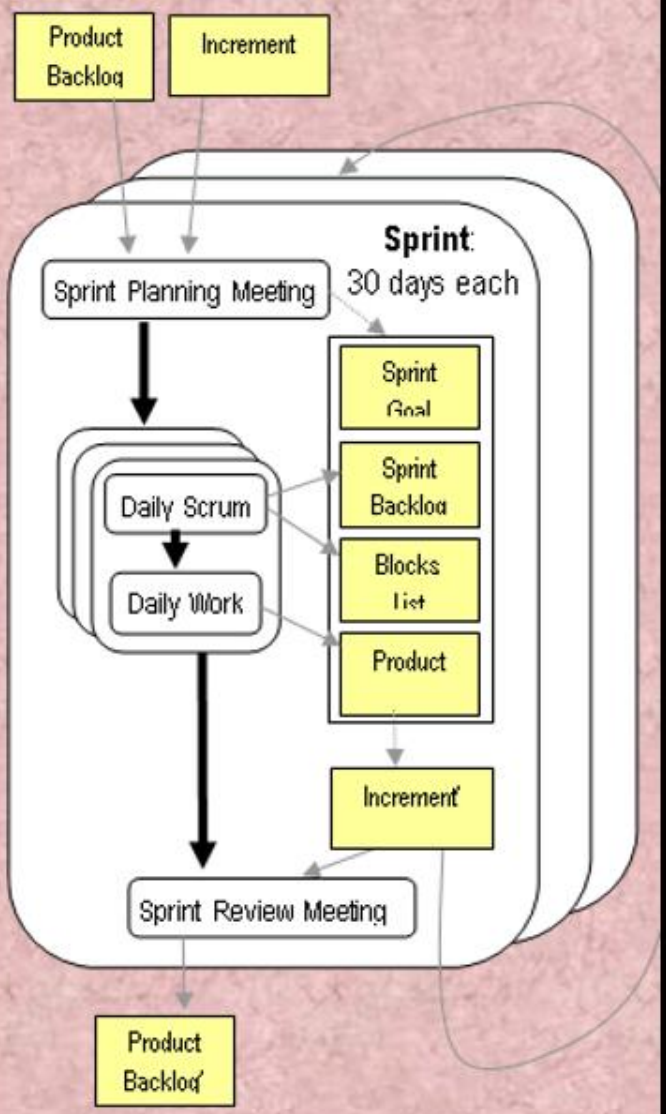
Daily Scrum

- Hosted by ScrumMaster
- Attended by all, but Stakeholders don't speak
- Same time every day
- Answer: 1) What did you do yesterday? 2) What will you do today? 3) What's in your way?
- Team updates Sprint Backlog;

Sprint Review Meeting

- Hosted by ScrumMaster
- Attended by all
- Informal, 4-hour, informational
- Team demos Increment
- All discuss
- Hold retrospective
- Announce next Sprint Planning

Development Process



Scrum Framework Guide

Single Owner of the product

Product Owner

- Create product backlog, product goal and prioritization
- Continuous feedback to team on product increment
- Ensure right product is built considering changing market need, competition & vision
- Liaise between scrum team and business stakeholder
- Creating stories or delegate, do backlog refinement, sprint review with stakeholder on product increment after each sprint

Domain expert with in-depth knowledge of product and competition

Key role to build cross functional, self motivated team and ensure scrum is understood and practiced in true spirit

Scrum Master

- Coach team and organization on scrum framework
- Enable team on tool setup and customization
- Review and help team to set up workflows in tool
- Create guidelines for - creating stories, estimation, defining acceptance criteria, definition of done, ticket life cycle etc.
- Work with team to define metrices for e.g. burn down chart, velocity
- Protecting team with external intervenes, remove impediments, resolve conflicts and let team to focus on creating increment
- Help PO for efficient backlog grooming and prioritization
- Asses team maturity and provide feedback (let team learn transparency, inspection and adaption)
- Guide team to improve its practices, follow empiricism

SM to be PSM1 or equivalent certified with hands on experience

Create Increment after each Sprint which is deployable and meet acceptance criteria

Developers

- Assist PO for product backlog prioritization and story creation
  - Backlog refinement (Desc, Order & Size) and estimation
- Work with PO for user story grooming
- Sprint Planning (8 Hrs or less), create sprint backlog (what & how), Sprint Goal & Definition of Done
- Define architecture & create design document
- Create task, subtask and log effort
- Share risk, issues, challenges with team in daily stand up, progress is measured on daily basis against Sprint Goal
- Coding, Testing and demo to stakeholders as part of Sprint review (4 Hrs or less)
- Self Managed Team (decide who, what, when and how), improving via inspect & adapt. Retrospective (3 Hrs or less) after each sprint
- Focus on team velocity, burn down chart, slippage etc.
- Transition handbook creation and handover to operations
- Warranty support
- Elevate competency
- Assist Scrum Master for team maturity

Skill with capacity of developer, tech lead, architect, DB, Unix, CI/CD etc. to deliver an usable increment

How to Measure Success?

#Working product & stakeholder Feedback

#Product quality post deployment

#Lean processes, Early 2 market

#Upfront backlog & Prioritization

#Team achieving Sprint goal

#Definition of Done is defined

#Metrices compliances

#Increasing velocity trend

#Skill elevation

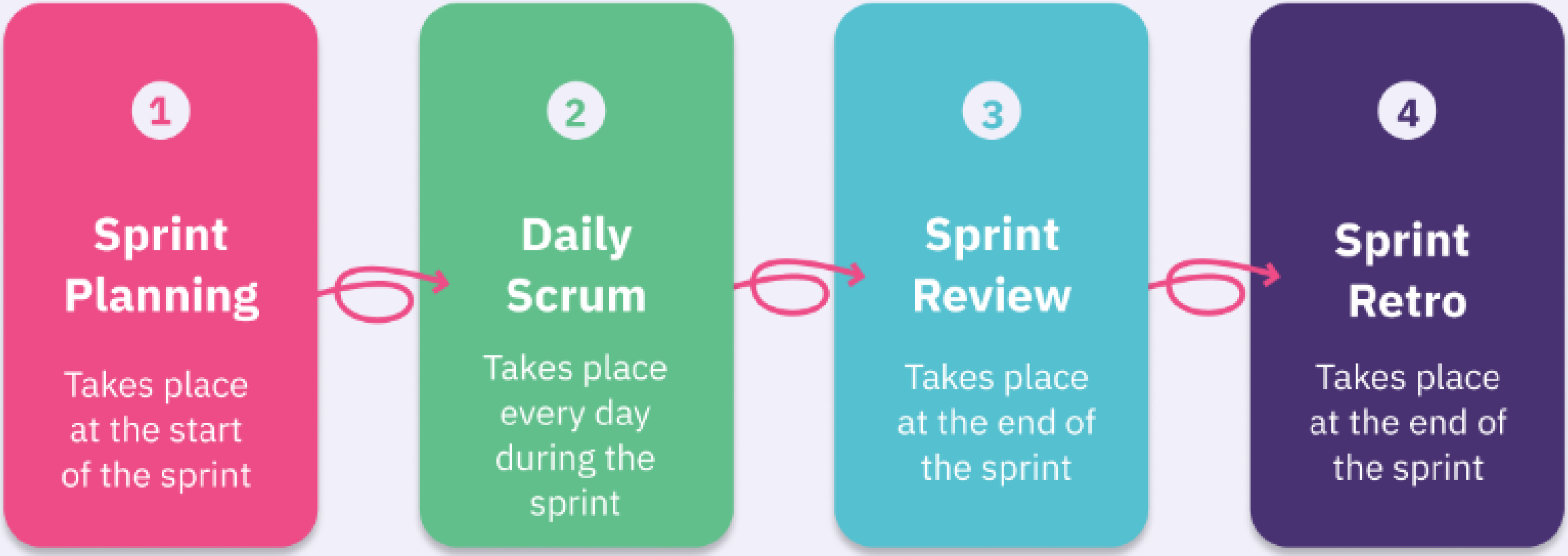
#DevOps maturity

#Innovation

Scrum Team - Self motivated, cross functional, fail fast, transparent, inspect & adapt, measure of success is working product

Scrum Values (Commitment, Courage, Focus, Openness, Respect)

The 5 Scrum Ceremonies



5 **Backlog Refinement** Takes place continuously

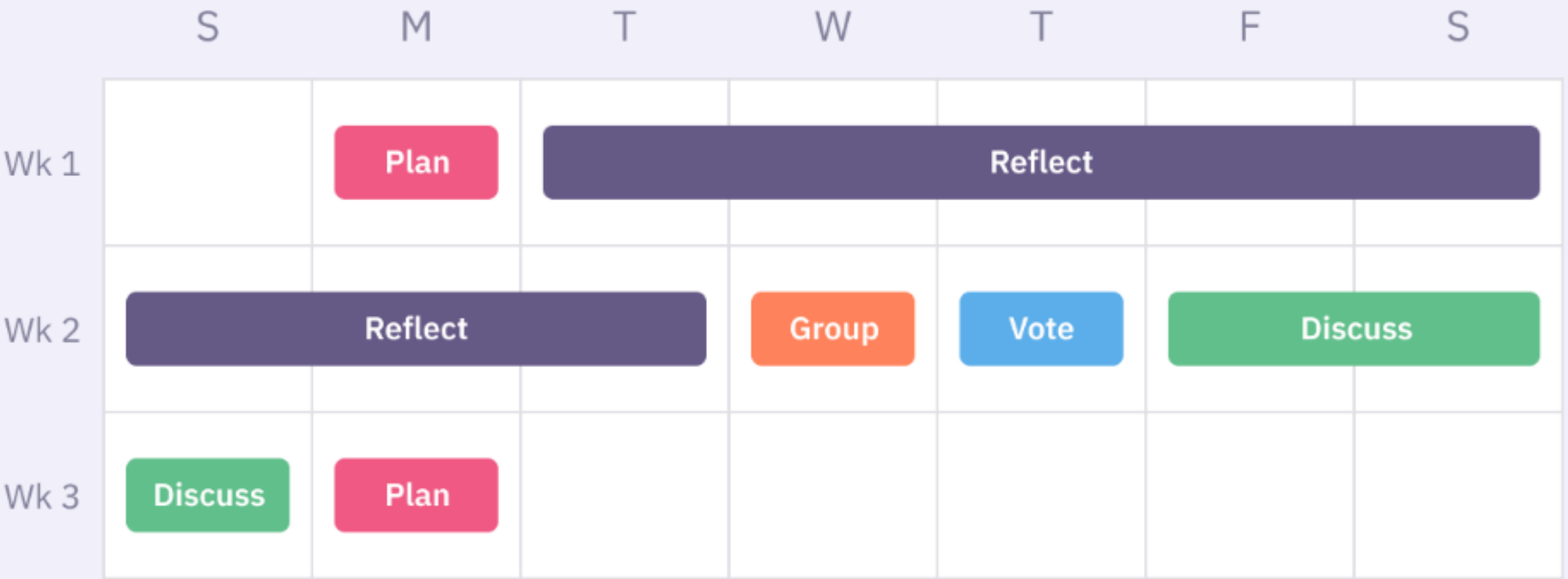
Sprint Reviews

focus on the
product

Sprint Retrospectives

focus on the
process

Sprint Retrospective looks like asynchronously, spread across one sprint.



backlog refinement