Harmony IT Solution

learning Hub

Agile Methodology
Scrum Master

Tahaluf Training Center 2022

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Objective

1. Understanding Traditional Versus Agile Project Management

2. Understanding of the Agile Manifesto

3. Understand Scrum Overview

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Project Life Cycle

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Project Life Cycle

- The series of phases that a project passes through from its start till completion.

- It provides the basic framework for managing g the project.

- Phases may be sequential, iterative, or overlapping.

| Predictive | Iterative | Incremental | Agile |

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Predictive Life Cycle

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Predictive Life Cycle

- Waterfall/Predictive/Plan-Driven/Traditional.

- Requires detailed plan at the beginning, changes are carefully managed.

- Business value is delivered at the end of the project, it's suitable for construction projects.

Analyze → Design → Build → Test → Deliver

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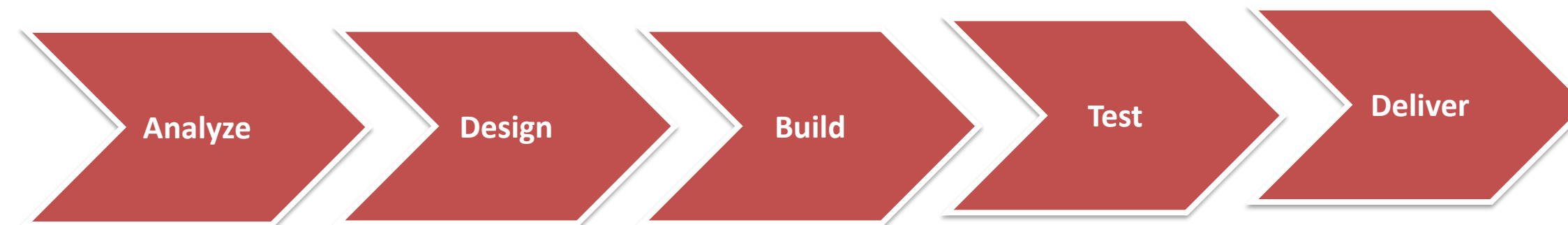
What is the Iron Triangle?

The Iron Triangle of Project Management: also known as triple constraint, project management triangle, or flexibility matrix, models the constraints project managers work within on every project they oversee.
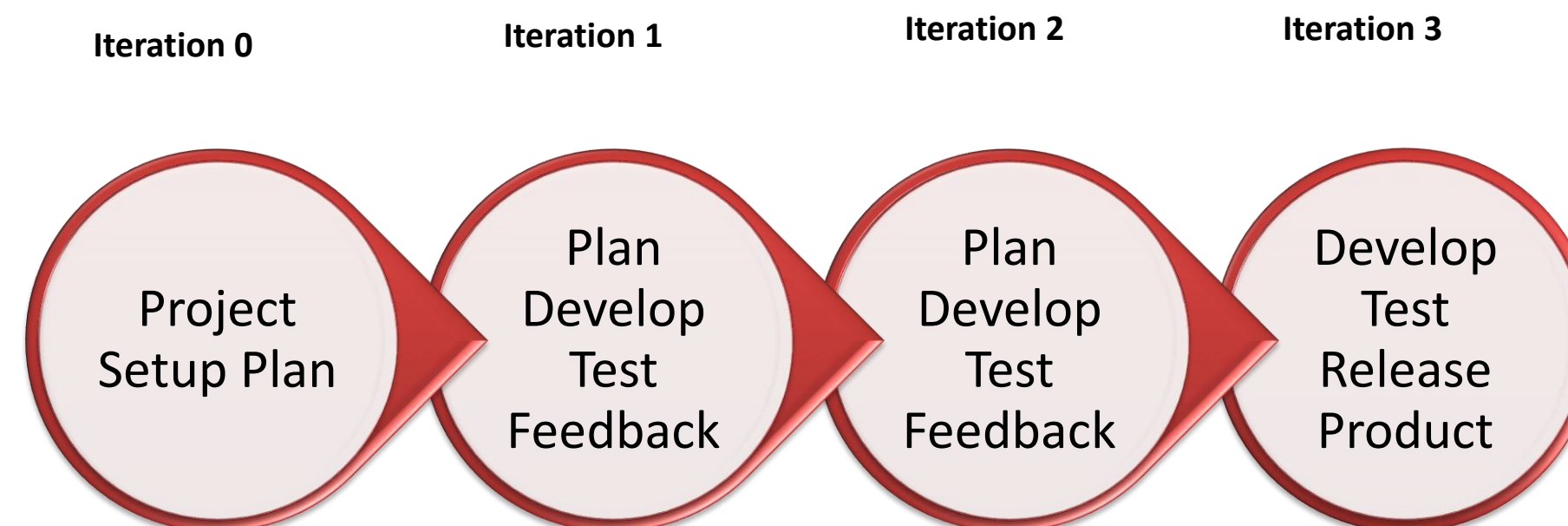
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Iterative Life Cycle

Iterative Life Cycle

- Improve the product through successive Prototypes or Proof of Concepts.

- Suitable for complex projects with expected frequent changes and different stakeholders' opinions about the final product.

- Iterative live cycles may take longer, as they are optimized for learning rather than speed delivery.

Iteration 0	Iteration 1	Iteration 2	Iteration 3
Project Setup Plan	Plan Develop Test Feedback	Plan Develop Test Feedback	Develop Test Release Product

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Incremental Life Cycle

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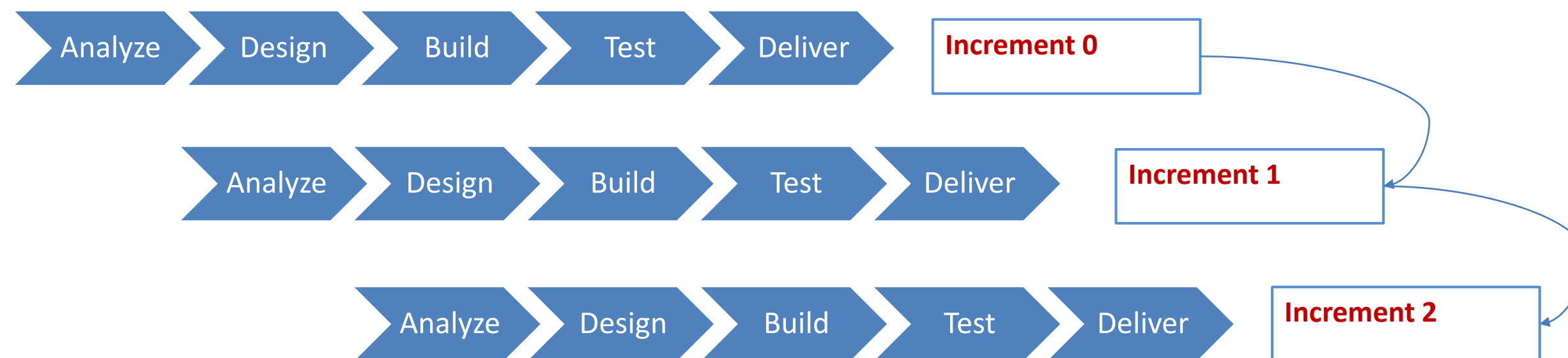
Incremental Life Cycle

- Customer cannot wait for the complete product but is willing to receive completed subsets of it.

- Optimized for speed delivery, small deliverables, and varying size increments.

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Scrum Life Cycle

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Scrum Life Cycle

- Combines Iterative and Incremental approaches to adapt to the high degree of change and deliver project value more often.

- Welcome and expect changes, and utilizes feedback loops, Continuous learning through discovery and experiment.

- Constantly Improve upon the project and the project work.

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Exercises

➢ What are the Differences Between Agile and Waterfall Models?

Note: Upload your answer in the learning hub.

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The Brief History of Scrum

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What is the history of scrum?

Scrum is not only one of the most widely used software development methods in the agile world but also one of the most popular frameworks.

The history of the Scrum method starts in 1986. That year, two Japanese business experts introduced the term in the context of product development.

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What is the history of scrum?

Hirotaka Takeuchi and **Ikujiro Nonaka** published the article, "New New Product Development Game" (the double "New" is indeed part of the title).

The authors described a new approach to commercial product development that would increase speed and flexibility.

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Understanding the Basics

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What is a Scrum?

▪ Scrum is an agile framework In order to develop, deliver, and sustain complex products.

▪ Scrum is a **framework**, not a process, or a definitive method.

▪ A framework in which people can address complex problems, while productively and creatively delivering products with the highest possible value.

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What is a Scrum?

Scrum tells you what needs to be done and lets you figure out how to do it, but does not tell you how to do things, at a high level, Scrum is lightweight and easy to understand, but it is difficult to master.

What Scrum continuously improves:
1. The product
2. The team
3. The working environment.

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What is the characteristic of Scrum?

Light Weight

Simple to Understand

Difficult to Master

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Scrum Overview

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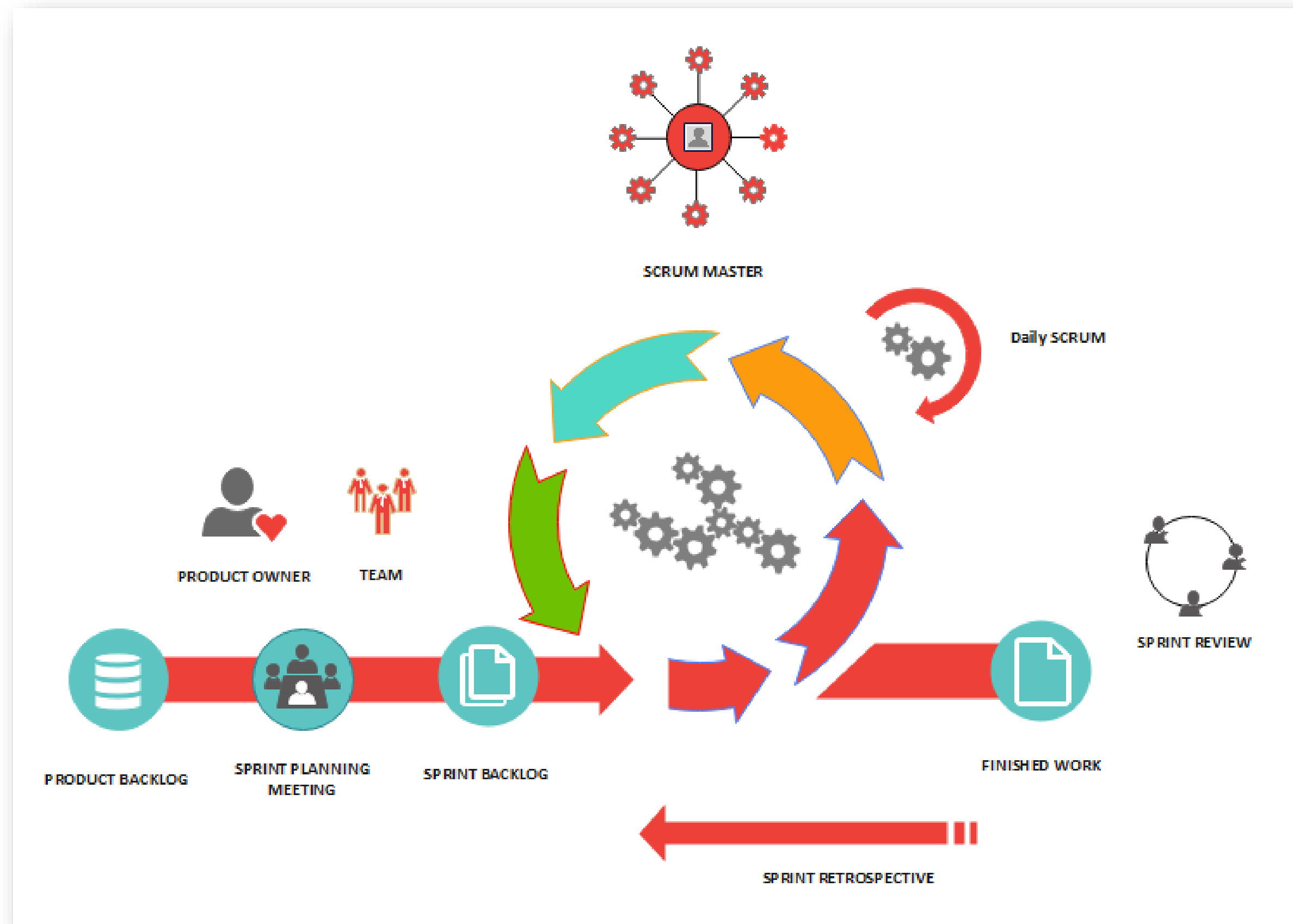
Scrum Overview

Where to use Scrum?

1. Develop, Release and enhance products.

2. Sustain products and renew.

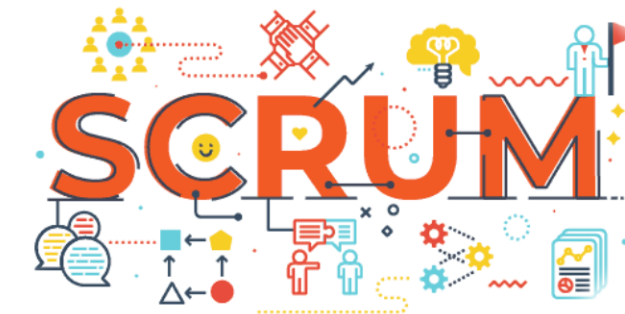3. Research and identify viable markets, and product capabilities.

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1	Scrum Theory
2	Scrum Framework components
3	Scrum Values
4	Scrum Events

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Objective

1. Scrum Framework and Theory

2. Understanding the Three Pillars

3. Understanding the Scrum Roles

4. Managing the Release Planning

5. Understanding effective Users Stories

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Scrum Theory

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Agile Manifesto :

- Individual and interactions over processes and tools.

- Working software over comprehensive documentation.

- Customer collaboration over contract negotiation.

- Responding to change over following a plan.

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Scrum Theory

- Scrum is founded on Empirical Process Control Theory or Empiricism.

- Knowledge comes from experience, making decisions based on what is known.

- Scrum employs an iterative and incremental approach to optimize predictability and control risk.

- 3 Pillars of Empirical Process Control are:

  ✓ Transparency
  ✓ Inspection
  ✓ Adaption

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Scrum Theory

- **Transparency**

  For there to be transparency, those aspects need to be defined by a common standard, so that observers are able to understand what is happening.

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Scrum Theory

- **Inspection**

   Detect undesirable deviations within Scrum artifacts and progress toward Sprint Goals frequently.
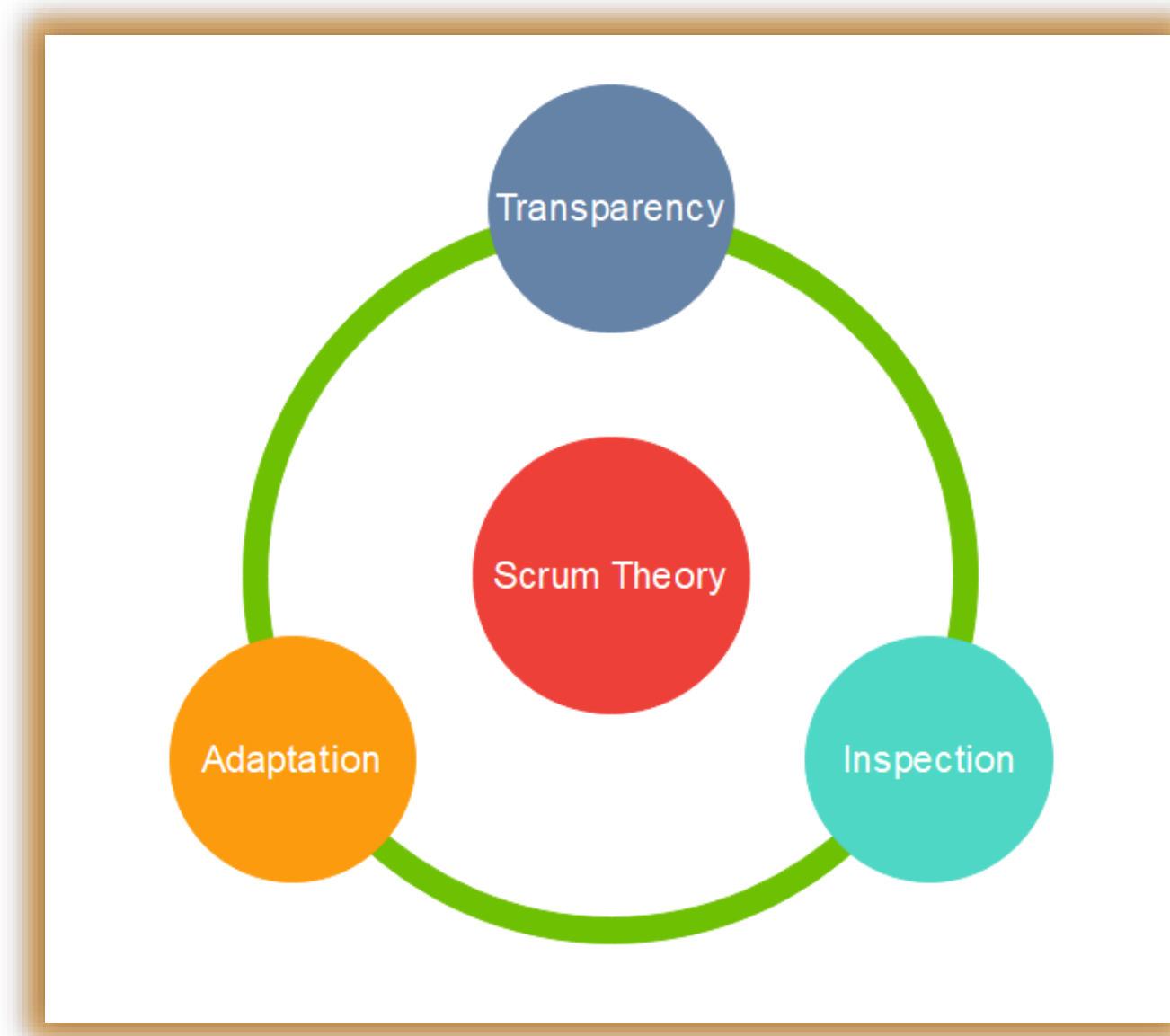
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Scrum Theory

- **Adaptation**

  To minimize further deviations, it is essential to adjust the deviated process as soon as possible after inspection.

Scrum Theory

For **Inspection** and **Adaptation**, four scrum events are used (Sprint Planning, Daily Scrum, Sprint Review, and Sprint Retrospective).

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Exercises

➢ In accordance with Scrum theory, how should a group of 100 people be divided into multiple Development Teams?

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Scrum Framework component

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➢ **Scrum Framework Components:**

1. Team

2. Rules

3. Artifacts

4. Events

5. Roles

SCRUM PROCESS

VISION

SPRINT BACKLOG

24 hours

Daily Scrum

2-4 WEEK SPRINT

NEW FUNCTIONALITY

USER STORIES

Sprint Planning

PRODUCT BACKLOG

SELECTED PRODUCT BACKLOG

RETROSPECTIVE

SPRINT VIEW

Sprint Planning

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Scrum Values

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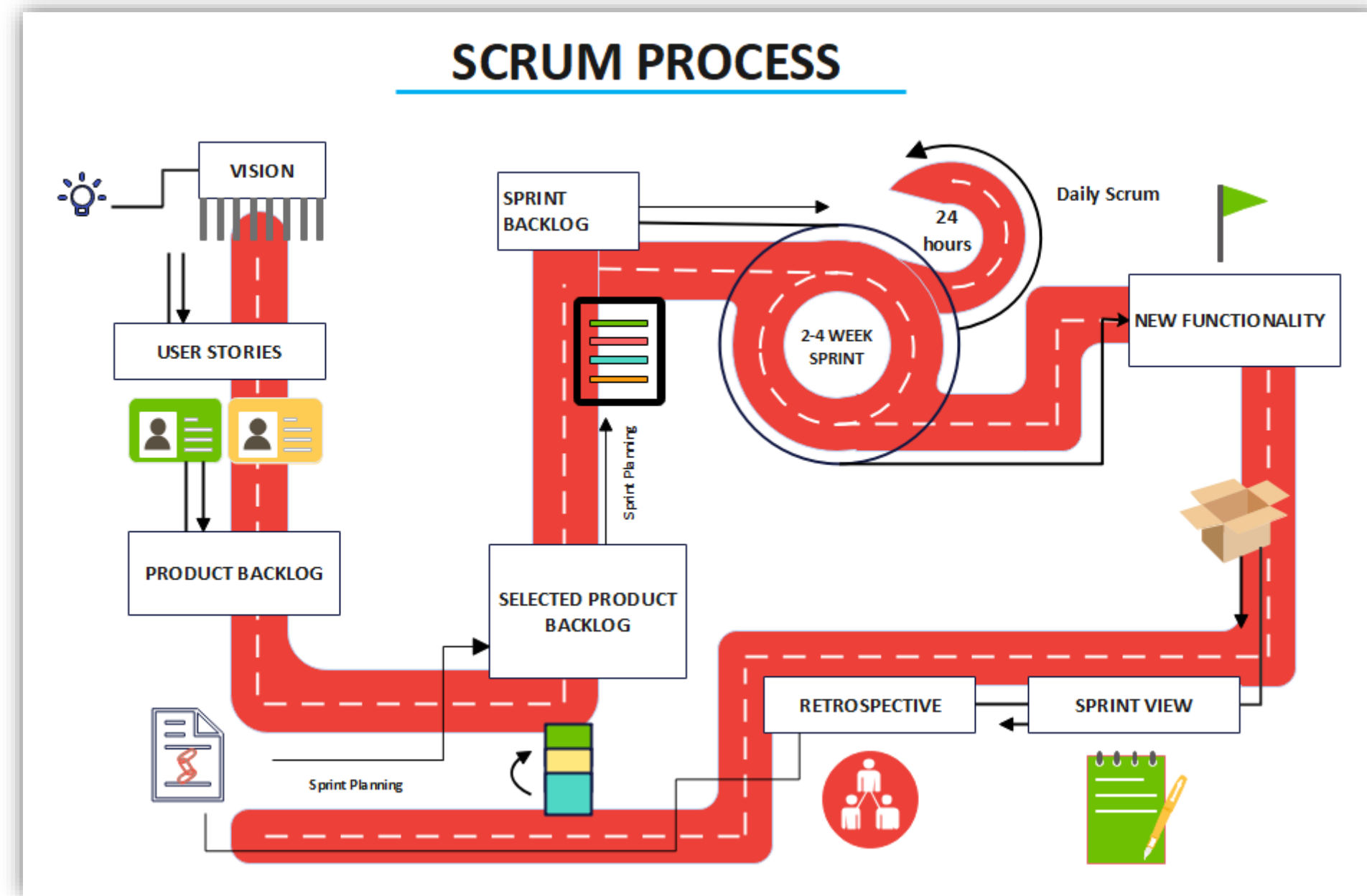
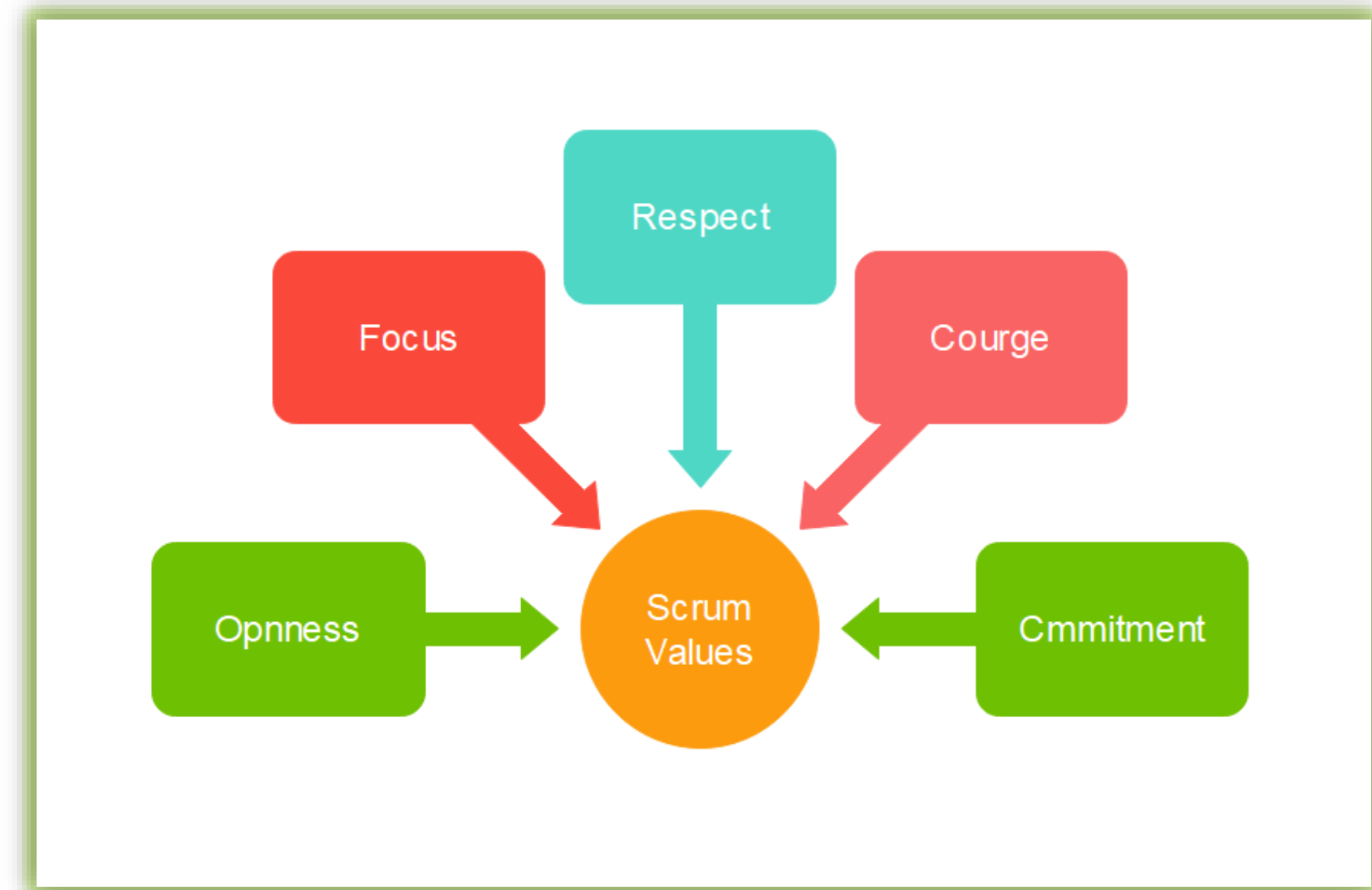## Scrum Values

When the values are embodied and lived by the Scrum Team, the Scrum pillars of **Transparency, Inspection, and Adaptation** come to life and build trust for everyone.

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Scrum Values

- **Courage:** Scrum team members have the courage to do the right thing and work on tough problems.

- **Focus:** Everyone focuses on the work of the Sprint and the goals of the Scrum Team.

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Scrum Values

- **Commitment:** People's personalities commit to achieving the goals of the scrum team.

- **Respect:** Scrum Team members respect each other to be capable, independent people.

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Scrum Values

- **Openness:** the scrum team and its stakeholders agree to be open about all the work.

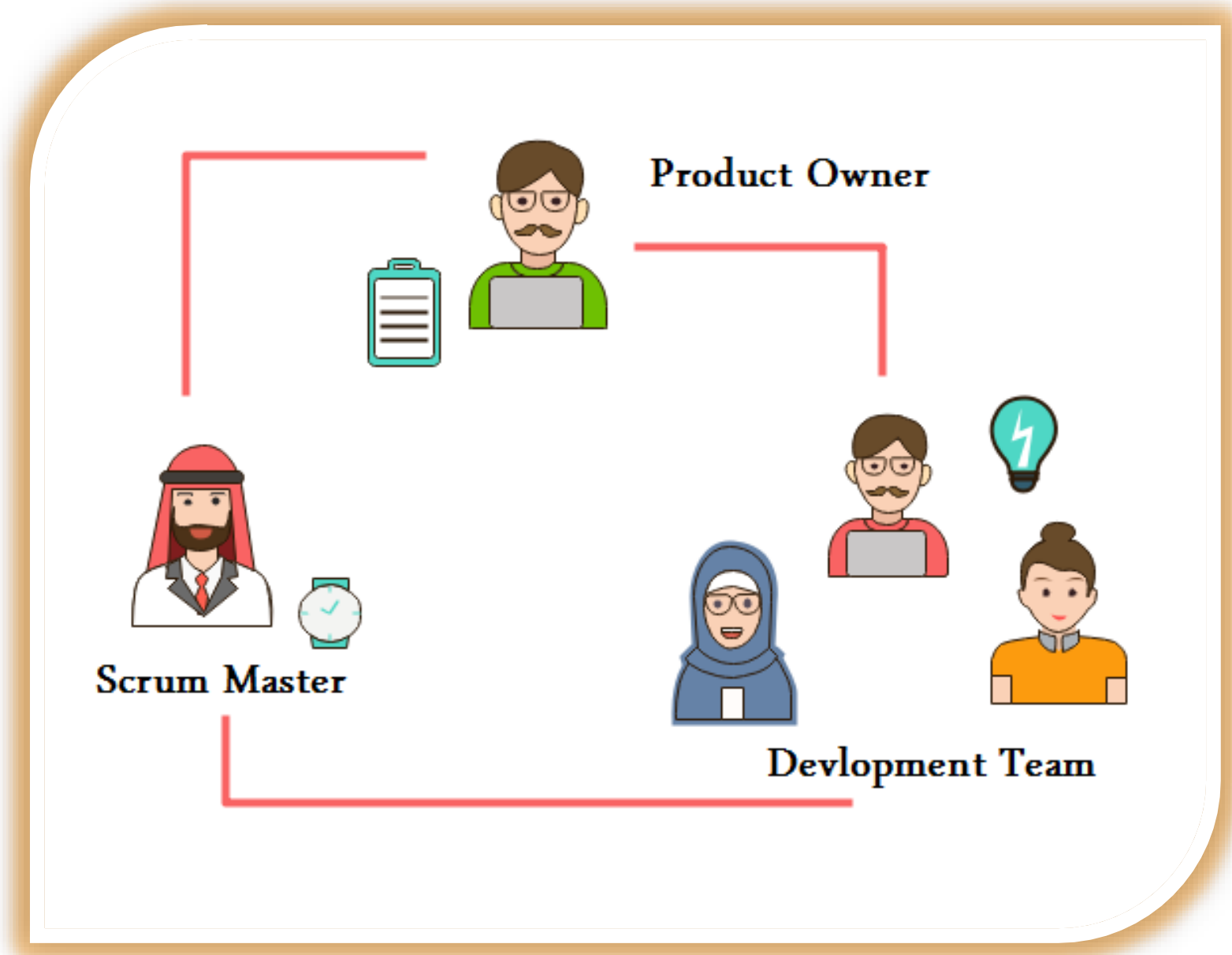# Scrum Roles

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Scrum Roles

Scrum Team :

1. Scrum Master

2. Development Team

3. Product owner

Scrum Roles

Scrum Team Characteristics:

1. Self-organized.

2. Cross-Functional.

3. Team Model is designed to optimize **Flexibility**, **Creativity**, and **Productivity**.

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Scrum Roles

- Delivers the product iteratively & Incrementally to maximize feedback opportunities.

- Incremental delivery of the Done product ensures the availability of a potentially releasable version of the product.

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Product Owner

- Aims to maximize the value of the product produced by the development

  team.

- Rather than a committee, it should be one person.

- Manages the Product Backlog.

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Product Owner

➢ **As part of the Product Backlog, the product owner does the following:**

- Ordering the items.

- Optimizing the value of the work.

- Clearly expressing items.

- Ensure the Development Team understands the backlog at the needed level.

- Ensuring that is visible, transparent, clear, and shows what is next.

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Development Team

- Teams of professionals who work to produce releasable increments at the end of each

  sprint.

- The team should consist of 10 or fewer members.

- Empowered by the organization to organize and manage their own work.

- No titles (no tester, no graphic designer).

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Development Team

➢ **Development Team characteristics:**

- **<u>Self-organized</u>**: No one tells him how to work.

- **<u>Cross-Functional</u>** with all skills necessary to finish the increment.

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Scrum Master

A scrum master who Removes impediments, shields the team from interruption, Communicates continuously with project vision, and will be like whom carries food and water to support the team.

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Scrum Master

- Scrum Master is a **Servant Leader** which is a leadership philosophy in which an individual interacts with others with the aim of achieving authority rather than power.

- The responsibility of promoting and supporting Scrum is to assist in understanding the theory, practices, rules, and values of Scrum.

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Scrum Master

- Helps everyone change these interactions to maximize the value created by the Scrum Team.

- Facilitating Scrum events as requested or needed.

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Management Focus VS. Leadership Focus

Management Focus	Leadership Focus
Tasks	People
Control	Empowerment
Efficiency	Effectiveness
Doing things right	Doing the right things
Speed	Direction
Practices	Principles
Command	Communication

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Scrum Master Services to Product Owner :

- Ensure that goals, scope, and product domain are understood by the scrum team.

- Find techniques for effective Product Backlog management.

- Understanding and practicing agility.

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

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Scrum Master Services to Development Team:

- Coaching the development team in self-organization and cross-functionality.

- Removing Impediments to the team's progress, helping the team to create high-value products.

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Exercises

➢ A new developer is having continuing conflicts with existing Development Team members and creating a hostile environment. If necessary, who is responsible for removing the team member?

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Scrum Events

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Scrum Events

➤ **The sprint is the container for other events**

- Sprint Planning

- Daily Scrums.

- Sprint Review.

- Sprint Retrospective.

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Scrum Events

All events are time-boxed, once a sprint begins the duration is fixed and can't

be changed, Each event in scrum is an opportunity to inspect and adapt, any

failure to include any of these events it's reduced transparency.

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The Sprint

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The Sprint

- Time-boxed to **<u>1 month or less</u>** to produce releasable increment.

- Each sprint may be considered as a project that has a goal of what is to be built.

- A new Sprint starts immediately after the conclusion of the previous one.

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The Sprint

- Throughout a sprint, progress toward a goal is inspected and adapted to ensure predictability.

- Sprints risk one calendar month of cost.

- Only the product owner has the authority to cancel the sprint if the sprint goal is obsolete.

- Incomplete Product Backlog items are re-estimated and put back on the PBL.

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Exercises

➢ The CEO asks the Development Team to add a "very important" item to a Sprint that is in progress. What should the Development Team do?

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Exercises

➢ One week through a four-week sprint, the Development Team has realized that they won't be able to deliver half of the Sprint Backlog items. The Product Owner is not happy with this, because the customer is expecting most of those features for a release at the end of the Sprint. What is the best course of action as the Scrum Master?
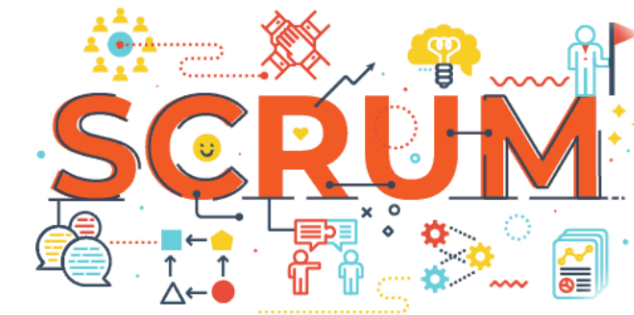
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1. Scrum Planning

2. Daily Scrum

3. Scrum Review

4. Scrum Retrospective

5. Scrum Artifacts

6. Scrum of scrum

7. Burn-Down Chart

SCRUM

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Objective

1. Grooming The Product Backlog

2. Working on g The Sprint Backlog

3. Running The Sprint/Iteration

4. Sprint/Iteration Review

5. Sprint/Iteration Retrospective

6. Collecting Artifacts

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Sprint Planning

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What about Sprint Planning?

- A sprint of one month is time-boxed to 8 hours.

- During the sprint planning meeting, a sprint goal is created.

- It is the scrum master's responsibility to ensure that the event is held, that

  the attendees understand its purpose, and that it stays on time.

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Sprint Planning

This meeting is based on the PBL items, the latest increment, and the past performance of the development team, During the planning meeting, the team should answer these two questions:

- **In this sprint, what can we accomplish?**
- **What are the plans for completing the work?**

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Daily Scrum Meeting

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Daily Scrum Meeting

- Developers on the Scrum Team participate in the Daily Scrum for 15 minutes each day.

- In order to reduce complexity, it is held every working day of the Sprint at the same time and location.

- In the Sprint Backlog, Product Owners or Scrum Masters can participate as Developers if they are actively working on the items.

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Daily Scrum Meeting

What are the Daily Scrums Meeting improves:

- communications

- identify impediments

- promote quick decision-making

- consequently, eliminating the need for other meetings.

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- **In the Daily Scrum meeting should the team ask these questions :**

  - What did I do yesterday that helped the Development Team meet the Sprint Goal?

  - What will I do to help the development team to meet the Sprint Goal?

  - Do I see any impediment that prevents me or the development team from meeting the Sprint Goal?

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Sprint Review

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Sprint Review

- A sprint of one month is time-boxed to 4 hours.

- Participants are **invited** by the product owner, including the Scrum Team and stakeholders.

- Rather than a status meeting, this is **an informal** gathering to share the increment and foster collaboration.

- After each Sprint, this meeting is held to **assess** the increments and **develop** the product backlog.

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What happened in the Sprint Review meeting?

1. The Product Owner explains what Product Backlog items have been done.

2. The Development Team demonstrates the Done work and answers questions about

   the increment.

3. The Development Team discusses what went well during the Sprint, what problems it

   ran into, and how those problems were solved.

4. The group collaborates on what to do next sprint.

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Sprint Retrospective

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Sprint Retrospective

- A one-month sprint is time-boxed to **3** hours.

- It's a great opportunity to **inspect** the relationships between people, processes, and tools.

- Identify improvements the scrum team can make to the way it works.

- Adapting the definition of done will **reflect** on product **quality**, it is an opportunity to **enhance** product quality.

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Sprint Retrospective

During the Sprint Retrospective, the team discusses:

1. What went well in the Sprint?

2. What could be improved?

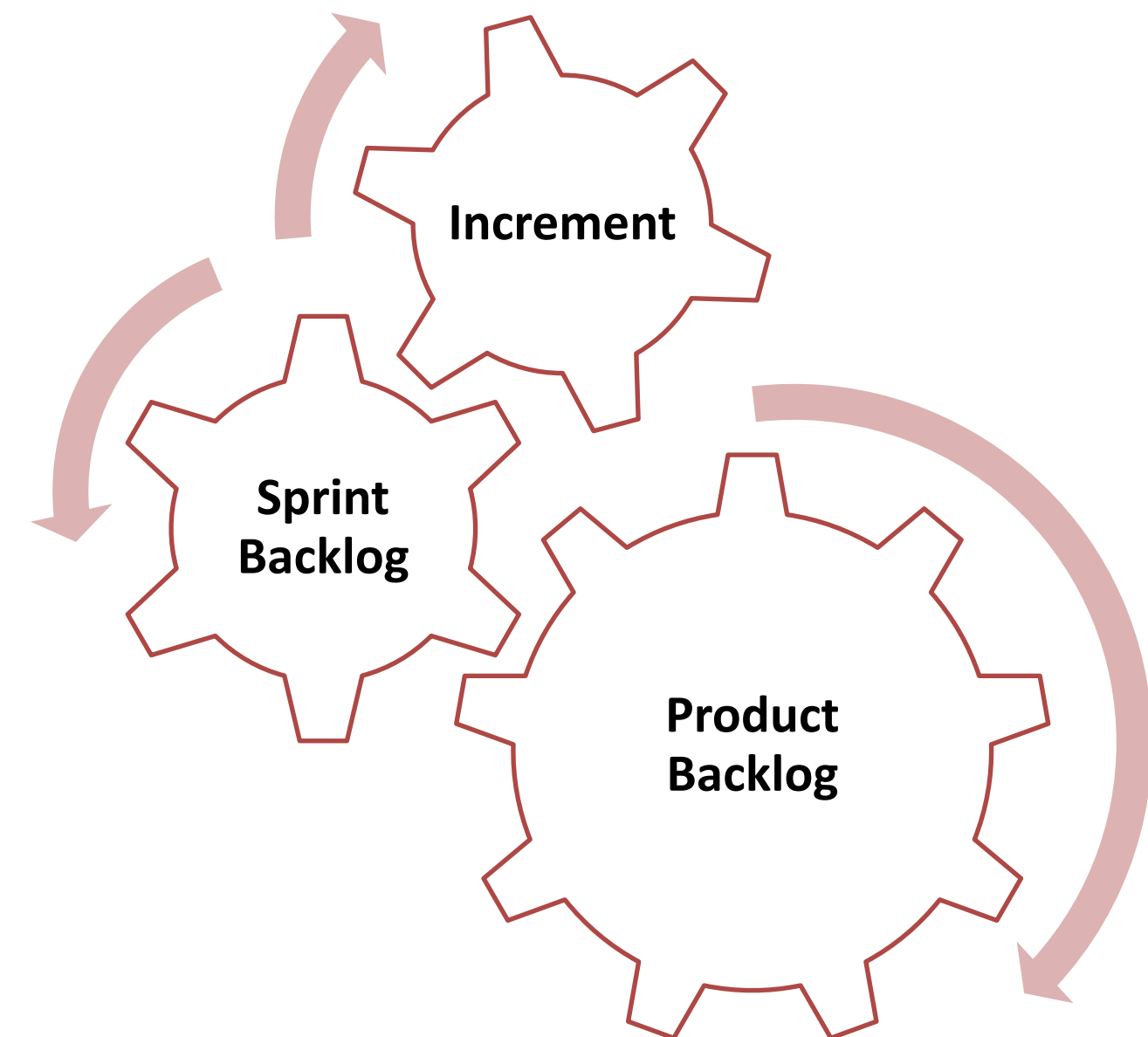3. What will we commit to improving in the next Sprint?

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Sprint Artifacts

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Sprint Artifacts

- ✓ **Product Backlog.**

- ✓ **Sprint Backlog.**

- ✓ **Increment.**

Increment

Sprint
Backlog

Product
Backlog

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Sprint Artifacts

As part of Scrum, artifacts act as indicators of work or value for a project, providing transparency and opportunities for inspection and adaptation.

To maximize transparency, artifacts are specifically designed so that everyone has the same understanding of key information.

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Artifact Transparency

A scrum master can detect incomplete transparency by:

1. Inspecting the artifacts

2. Sensing patterns

3. Detecting between expected and real results.

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Product Backlog

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Product Backlog

Backlogs are ordered lists of all the features and functionalities that will be included in the product.

Whenever changes need to be made to the product, this is the source of requirements.

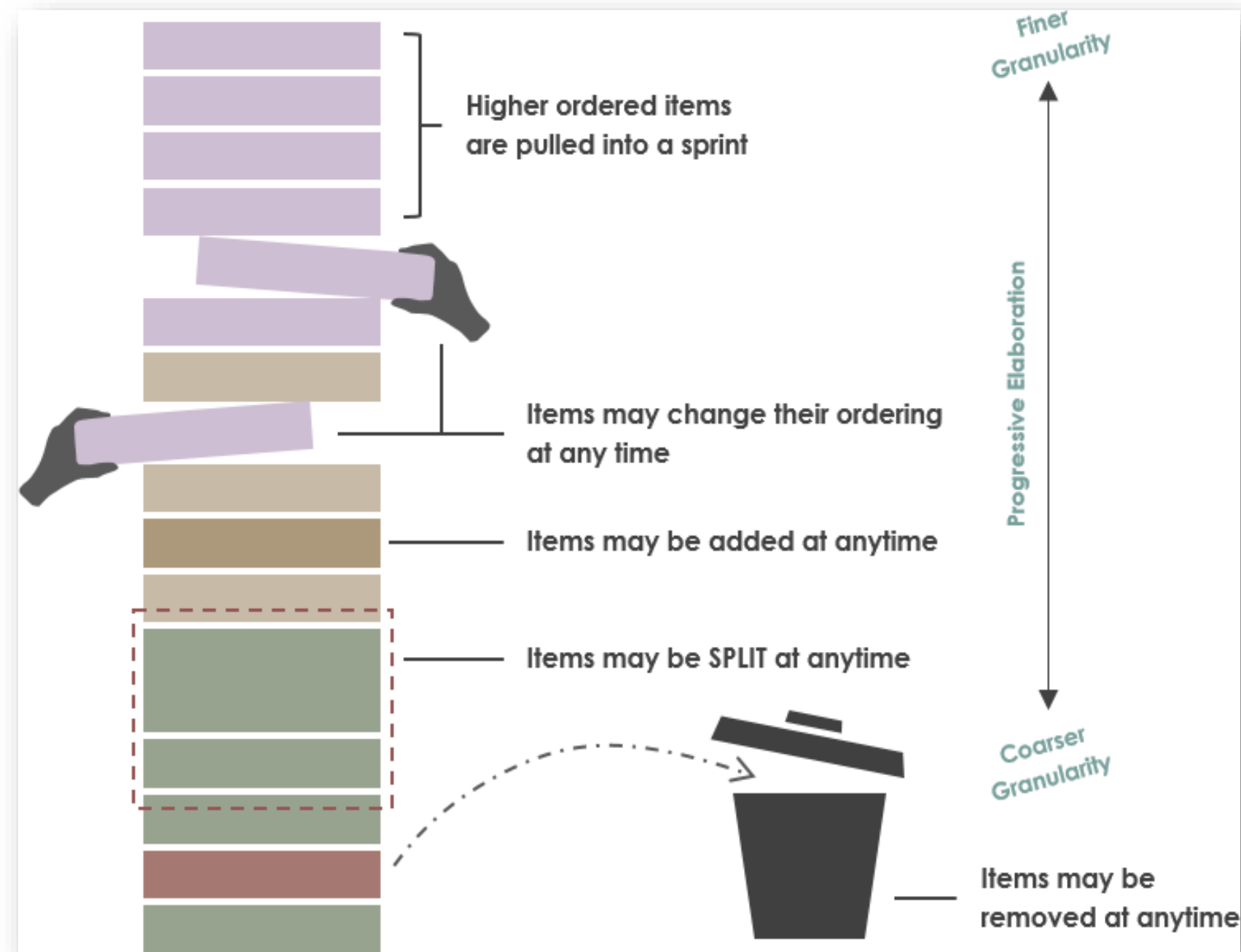| Description	Order	Estimate	Value

Product Backlog Attributes

Product Backlog

It is the Product Owner's responsibility to maintain the product backlog and to ensure that it contains relevant content, is available, and can be ordered, Is never complete, and is a living artifact.

Features	Functions	Fixes	Test Description	Requirements	Enhancement

Product Backlog component

Higher ordered items are pulled into a sprint

Finer Granularity

Items may change their ordering at any time

Progressive Elaboration

Items may be added at anytime

Items may be SPLIT at anytime

Coarser Granularity

Items may be removed at anytime

Sprint Backlog 4

Requirement
Requirement
Requirement

Sprint Backlog 3

Requirement
Requirement
Requirement

Sprint Backlog 2

Requirement
Requirement
Requirement

Sprint Backlog 1

Requirement
Requirement
Requirement
Requirement

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Sprint Backlog

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Sprint Backlog

➢ It's a combination of selected Product items backlog and plans to deliver the increment.

➢ One or more high-priority improvements identified in the previous meeting are included.

➢ The Development team modifies the sprint backlog throughout the sprint.

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Sprint Backlog

➢ If new work is required, the development team adds it to the sprint backlog.

➢ Only the development team can change the sprint backlog during a sprint.

➢ The Development Team tracks this total work remaining at least for every daily scrum.

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Definition of Done

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Definition of Done

- Mabey the organization has a fixed structure, or the development team agreed on when the increments are done.

- When the increment achieves all the requirements and the sprint goal.

- The Scrum team should define how the project it's done.

DONE

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Definition of Done

- This helps the development of how to **choose** features in each sprint backlog.

- All the team should **agree** on the same meaning of DOD.

DONE

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The Increment

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The Increment

It is the summation of all the product backlog items that complete during a sprint and the value of the increments in all previous sprints.

At the end of a sprint, the new increment must be "Done" which means it must be in **useable condition** and **meet the scrum team DOD.**

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The Increment

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Scrum Of Scrum

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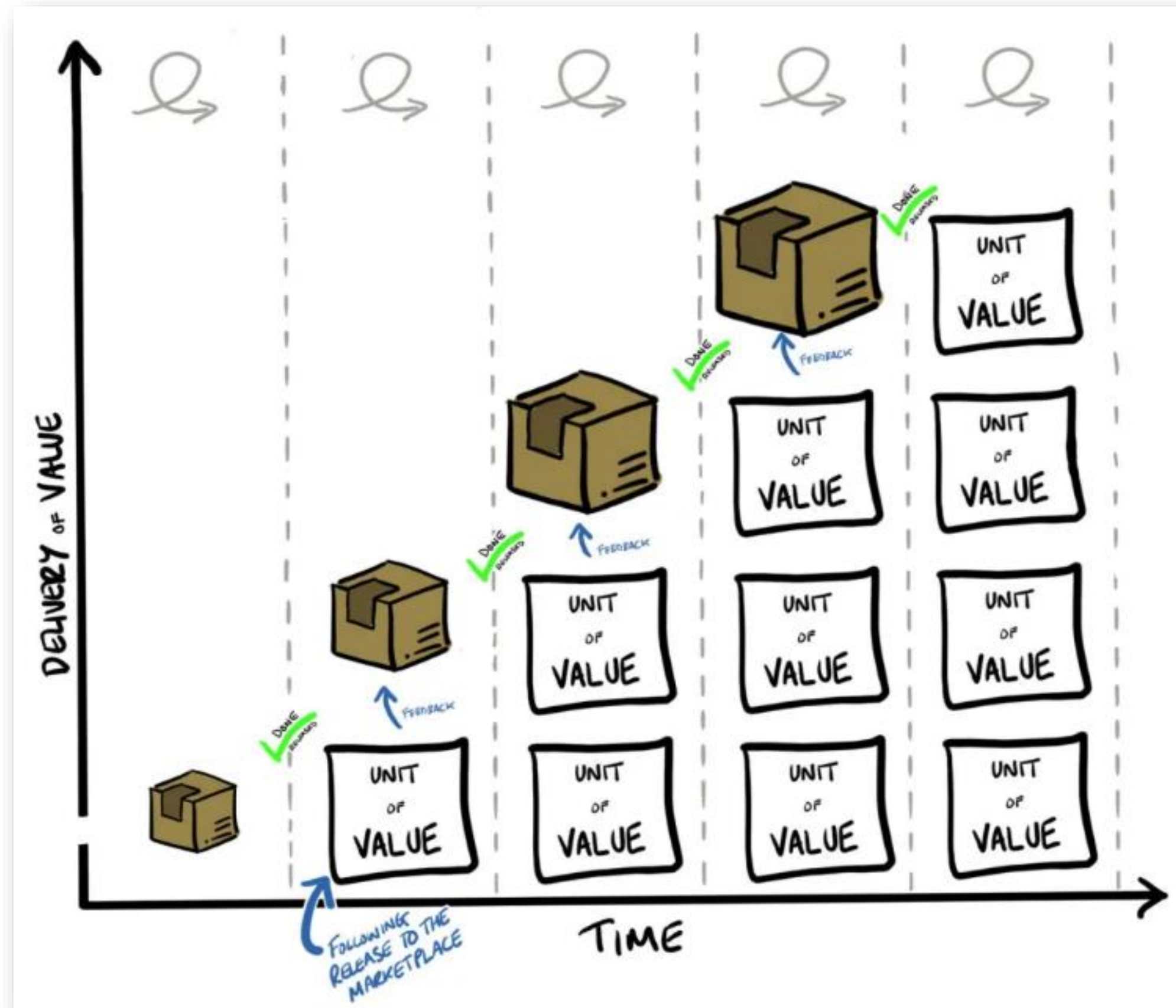
Scrum of Scrum

- Multiple Scrum Teams work together on the same product.

- One product backlog, a product backlog attributes that groups items may then be employed.

- The Development Teams on all the Scrum Teams must mutually define the DOD.

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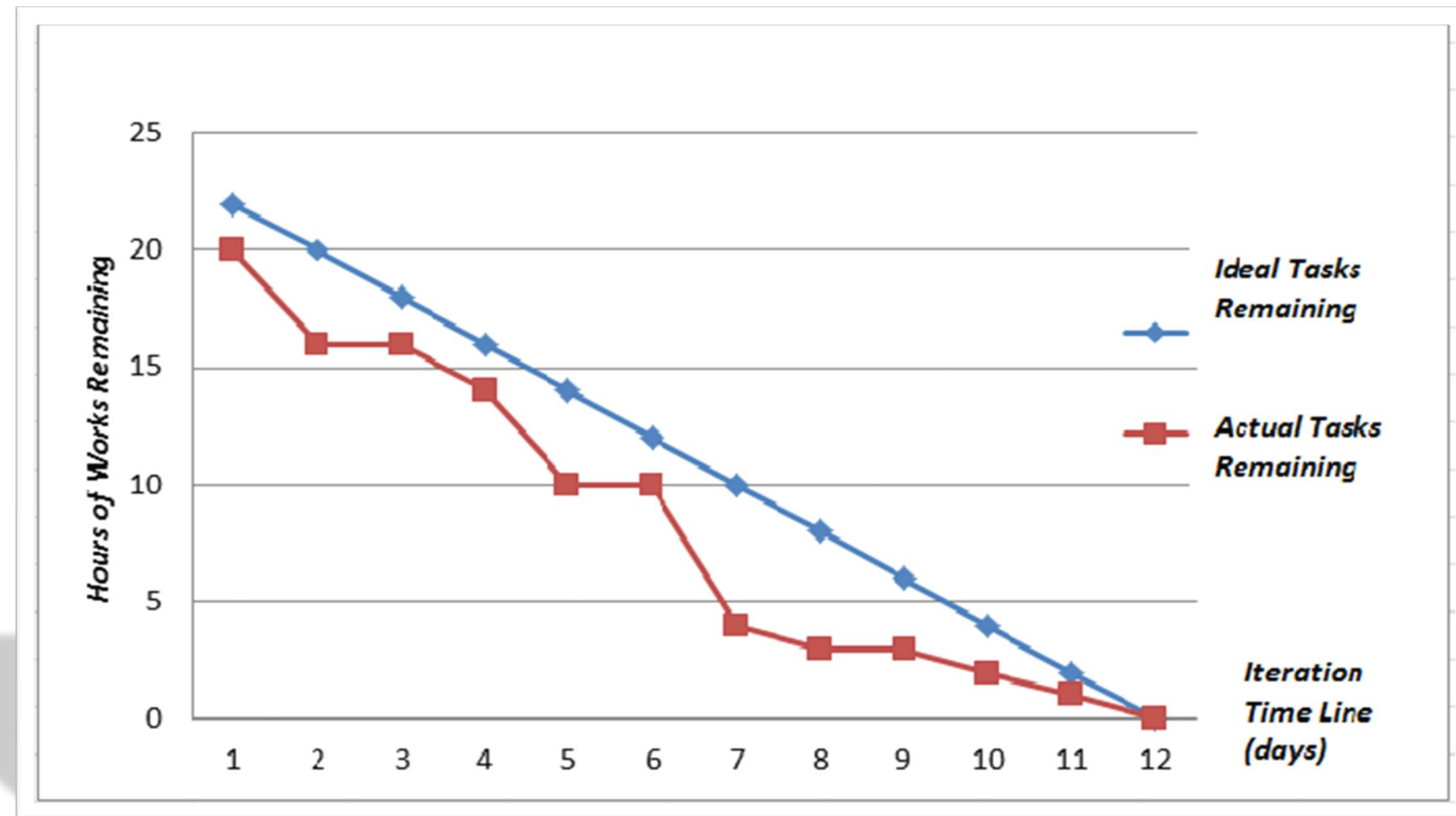# Burn-Down Chart

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Burn Down Chart

A graphic representation of how quickly a team is working through a customer's user stories.

The tool captures the description of a feature from an end-user perspective and shows the total effort against the amount of work for each iteration.

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Burn Down Chart

*Note: If the actual work line is above the ideal work line, it means there is more work left than originally thought. In other words, the project is behind schedule.

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➢ **Ideal Work Remaining Line**

▪ As its name suggests, the ideal work remaining line indicates the remaining work that a team has at a specific point of the project or sprint under ideal conditions.

▪ Managers use past data to estimate this baseline and draft a straight line across the burndown chart. The ideal work remaining line should always have a negative slope.

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➢ **Actual Work Remaining Line**

▪ The actual work remaining line indicates the remaining work a team has at any point of the project or sprint. Unlike the ideal work remaining line, this is not an estimate, but rather a realistic depiction of the team's performance.

▪ Actual work remaining lines are usually not straight as teams work at different paces as projects are completed.

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Exercises

➢ You are the Scrum Master of a new, to be developed product. Development is going to require 45 people. What is a good first question for you to suggest the group thinks about when forming into teams?

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Exercises

➢ How much work must a Development Team do to a Product Backlog item it selects for a Sprint?

Exercises

➢ User documentation is part of your definition of "Done". However, there aren't enough technical writers for all teams. Your Development Team doesn't have a technical writer. What should you do?

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Exercises

➢ You have just been hired by a company new to Scrum. Your management has assigned you to be the Scrum Master of six new Scrum Teams. These teams will build one product. Select conditions you should strive for in this scenario?

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Exercises

➢ If burndown charts are used to visualize progress, what does a trend line through a release burndown chart indicate?

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Exercises

➢ If burndown charts are used to visualize progress, what does a trend line through a release burndown chart indicate?

References:

1. "The Scrum Guide." *Scrum.org*, 2019, www.scrum.org/resources/scrum-guide.

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Thank You