AGILE-PARADIGM SHIFT IN SDLC

Session - 9

Scrum

Objectives

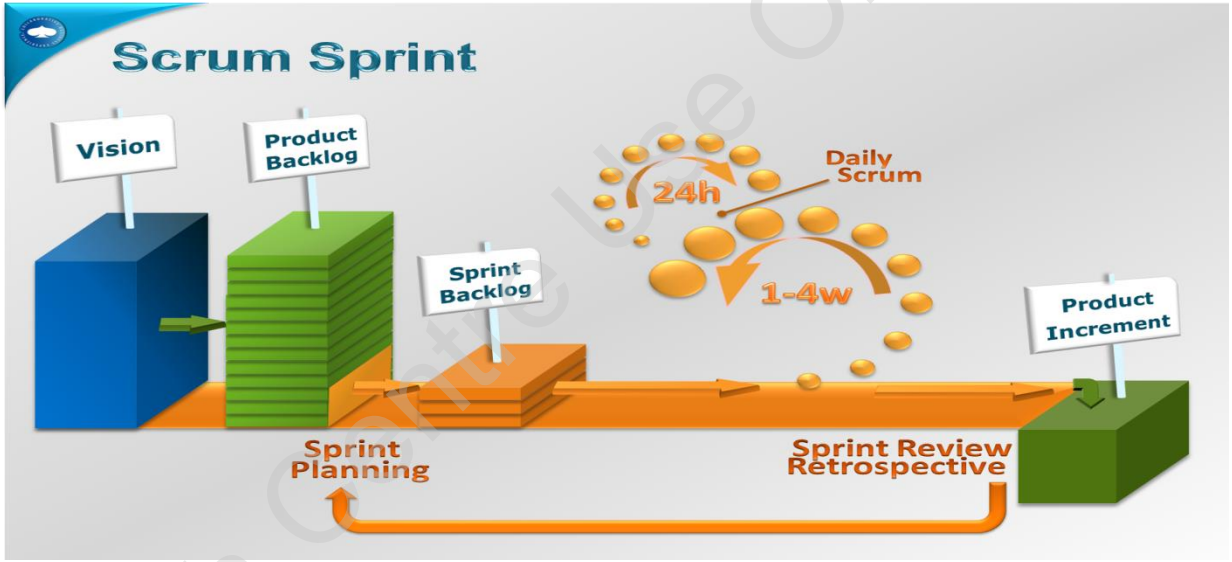
- Describe the characteristics, rules, principles, and values of Scrum
- Explain the Scrum lifecycle and events
- Describe the different roles in a Scrum team
- Describe the documents and artifacts used in Scrum
- Explain the advantages of using Scrum

Introduction to Scrum

Scrum is defined as: "**A framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value.**"

Scrum Framework 1-2

- Scrum is a team process that begins when stakeholders make a request for a product.



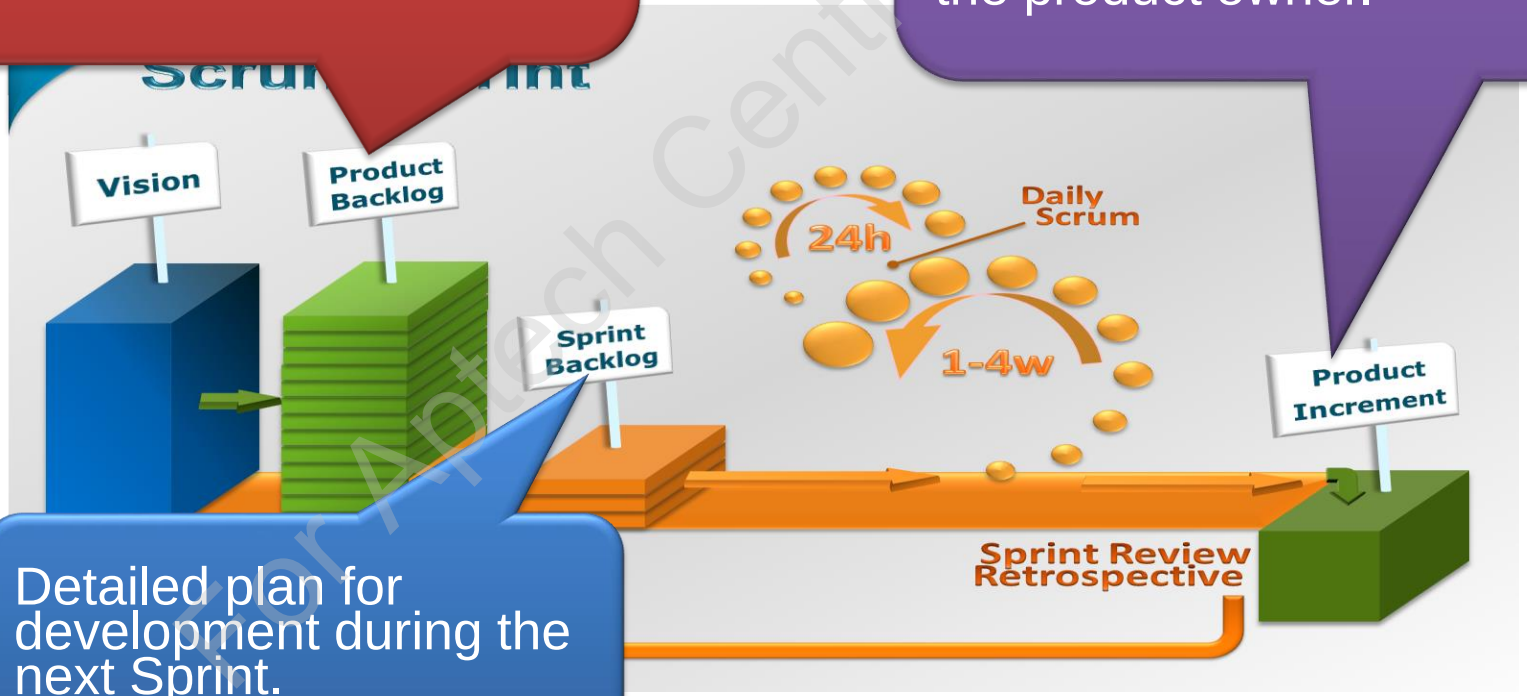
- The scrum team:
  - Builds the product incrementally in short Sprints.
  - A Sprint is for fixed time period with a maximum duration of four weeks, but with preference towards a shorter duration.
  - Delivers a product increment during each Sprint.
  - Each increment is a recognizable, visually enhanced, operating subset of the final product.
  - Leads to visible displays of plans and progress.
  - Binds together events, roles, and artifacts, managing the relationships, and communication between them.

Scrum Framework 2-2

- The three essential artifacts of Scrum are:

List of requirements for the product, in the order in which they are to be built.

An integrated high quality version of the product which is ready to be delivered at the request of the product owner.



Detailed plan for development during the next Sprint.

Scrum Theory

- Scrum is based on the empirical process control theory, or empiricism which states that all the basis of all knowledge is experience derived from what is already known.
- Scrum uses an incremental, iterative approach to improve consistency and control risk.
- Each implementation is guided by the following factors:

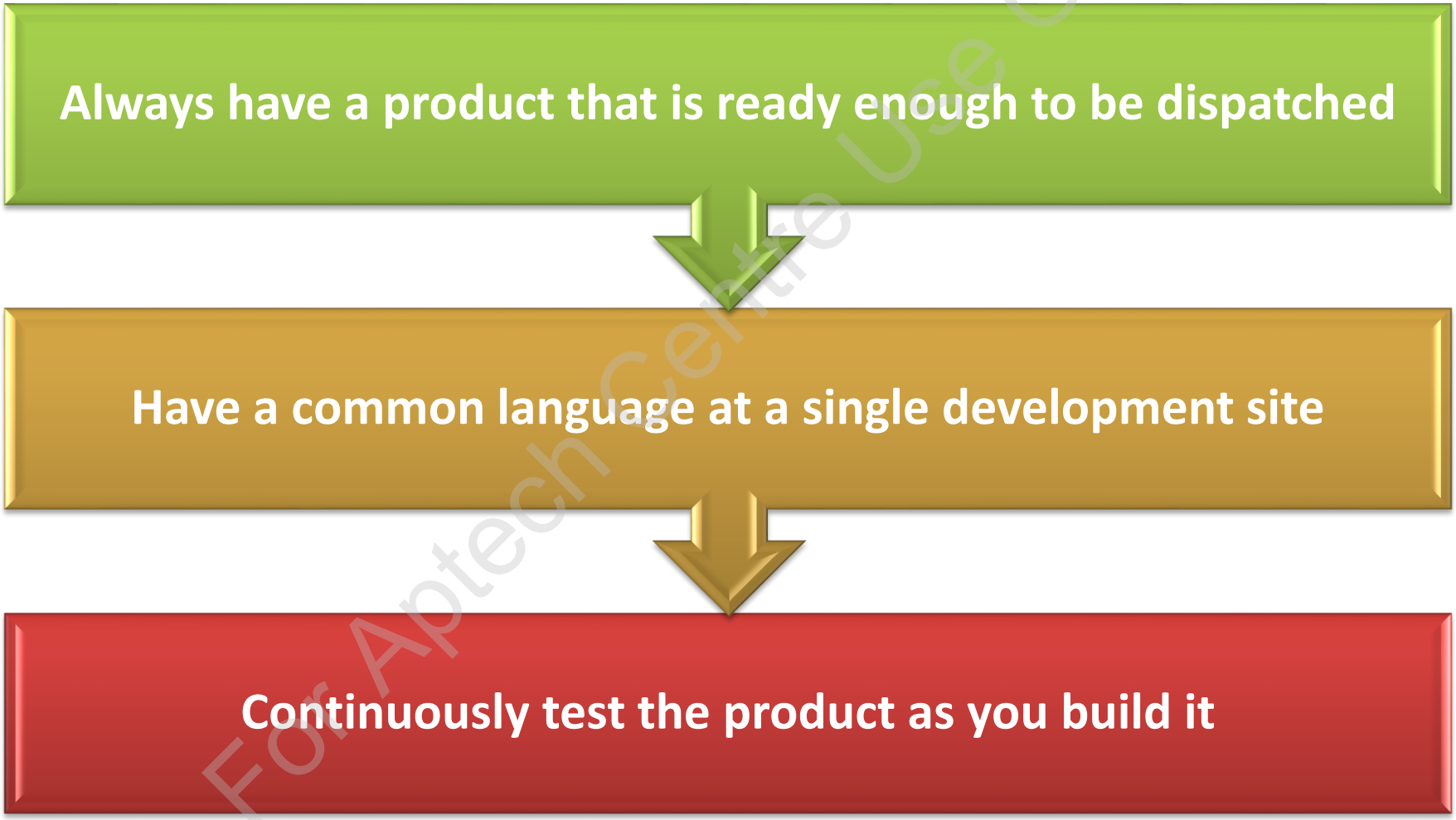
Transparency	• Important aspects of the process must be evident to the responsible people.
Inspection	• Team needs to inspect Scrum artifacts and progress towards a goal to identify unwelcome diversions.
Adaptation	• Processes that deviate from acceptable limits are adjusted quickly in order to prevent them from deviating any further.

Essence of Scrum

- The essence of Scrum is as follows:
  - The team is given clearly defined goals.
  - The team organizes itself around the work.
  - The team routinely delivers the most valuable features.
  - The team receives constant feedback from the customers.
  - The team reviews the work done in order to improves on its way of working.
  - The entire organization has visibility into the progress of the team.
  - The team and management honestly communicate about progress and risks.

Rules and Characteristics of Scrum

- Scrum follows some common rules. They are:



Characteristics of Scrum

- The important characteristics of Scrum are as follows:

Breaks down large products into smaller manageable chunks.

Project proceeds systematically even when a complete product design is not ready at the beginning.

Divides the work, develops it in parallel, and synchronizing continuously.

Facilitates competition based on customer feedback, and short development times by incorporating customer inputs, setting priorities, and then changing less important features.

Scrum Principles

- The Agile manifesto values apply directly to Scrum. Scrum principle are as follows:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

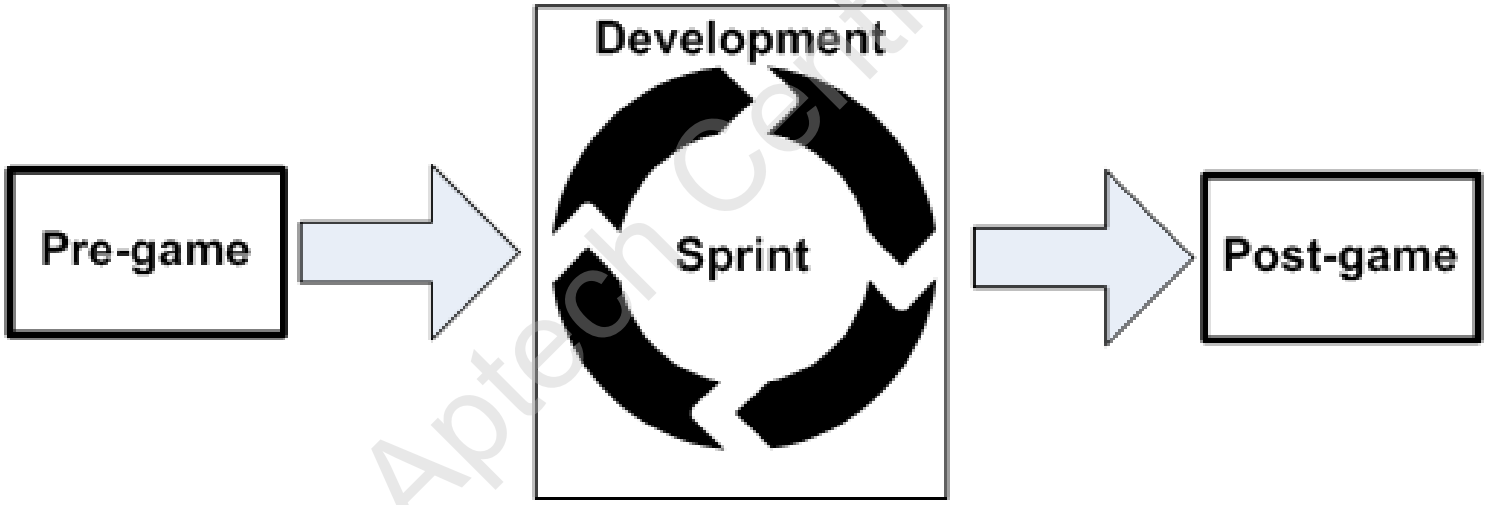
Responding to change over following a plan

Scrum Values

- The five values on which Scrum team's process and principles are found are:

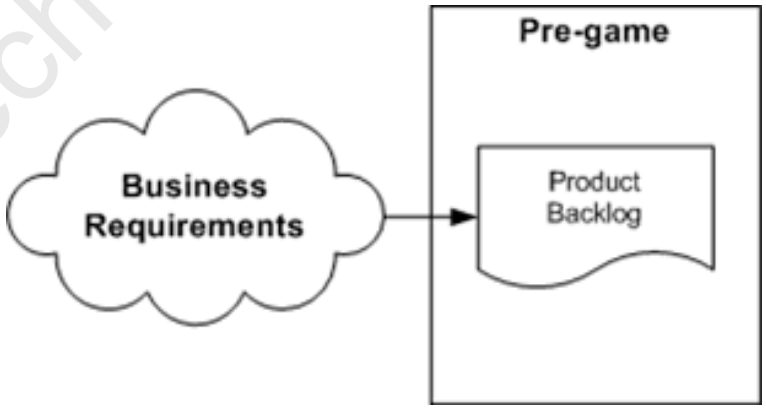
Scrum Process

- The Scrum process consists of the following phases:
  - Pre-game
  - Game
  - Postgame



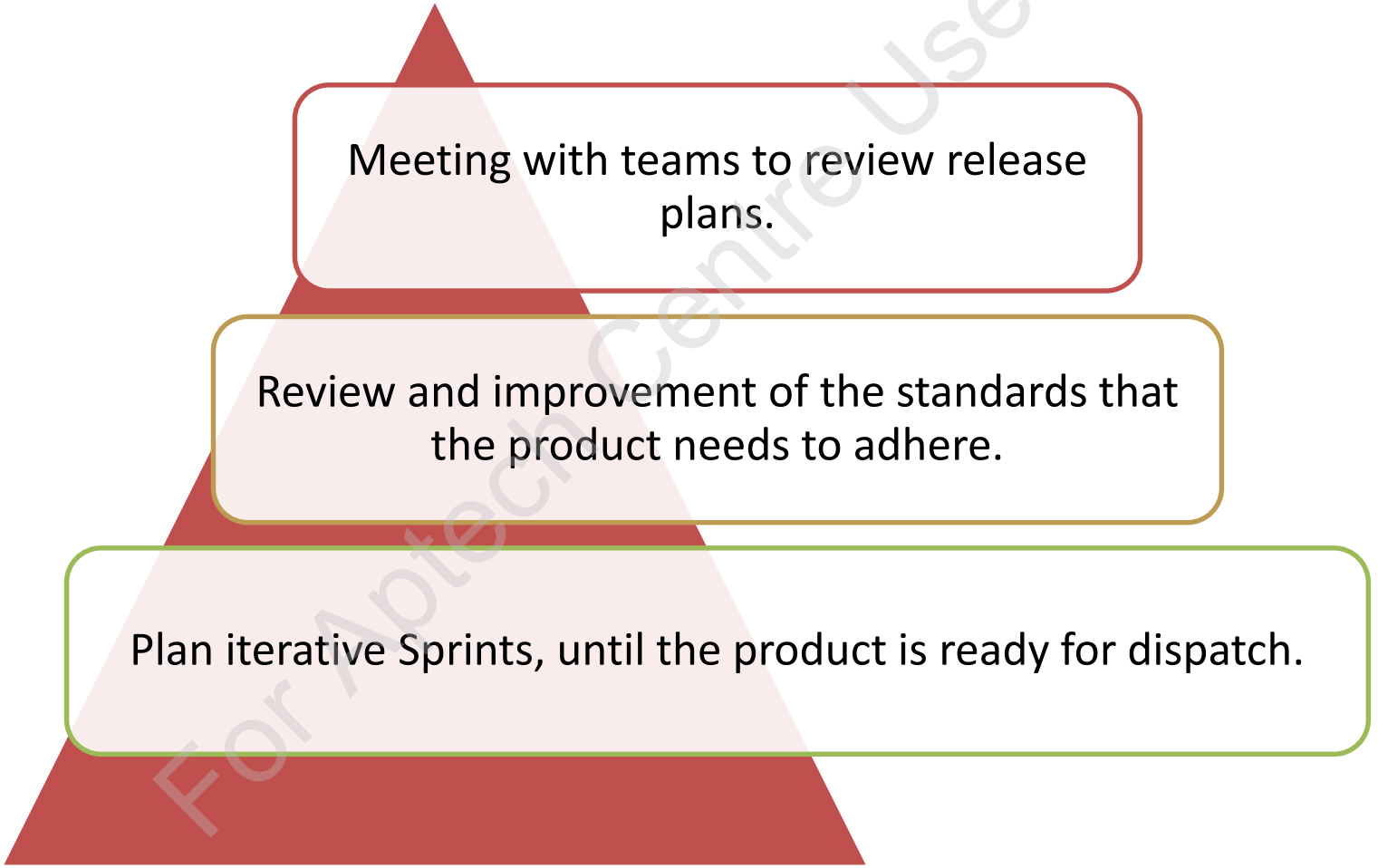
Pre-game

- Consist of two phases:
  - **Planning Phase** – Defines the system being developed. A product backlog list is created which contains all the current requirements, and information on the project plan.
  - **Architecture Phase** – Using the product backlog list, the high level design is created. To make decision on design and implementation, the team holds a design review meeting and goes over the proposals.



Game [1-2]

- System is developed in '**Sprints**'.
- Development consists of:

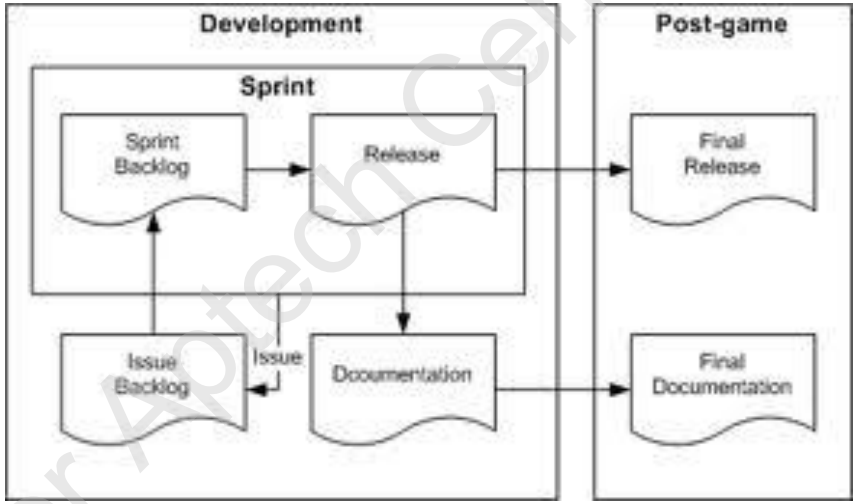


Game [2-2]

- Each Sprint consists of the following steps:
  - Wrap
  - Review
  - Adjust

Post-game

- The preparation for release, final documentation, pre-release testing, and release happens during the closure phase.
- The management team declares a release '**closed**' when the variables of time, competition, requirements, cost, and quality meet the requirements.
- Closure includes tasks such as integration, system test, user documentation, training material preparation, and marketing material preparation.

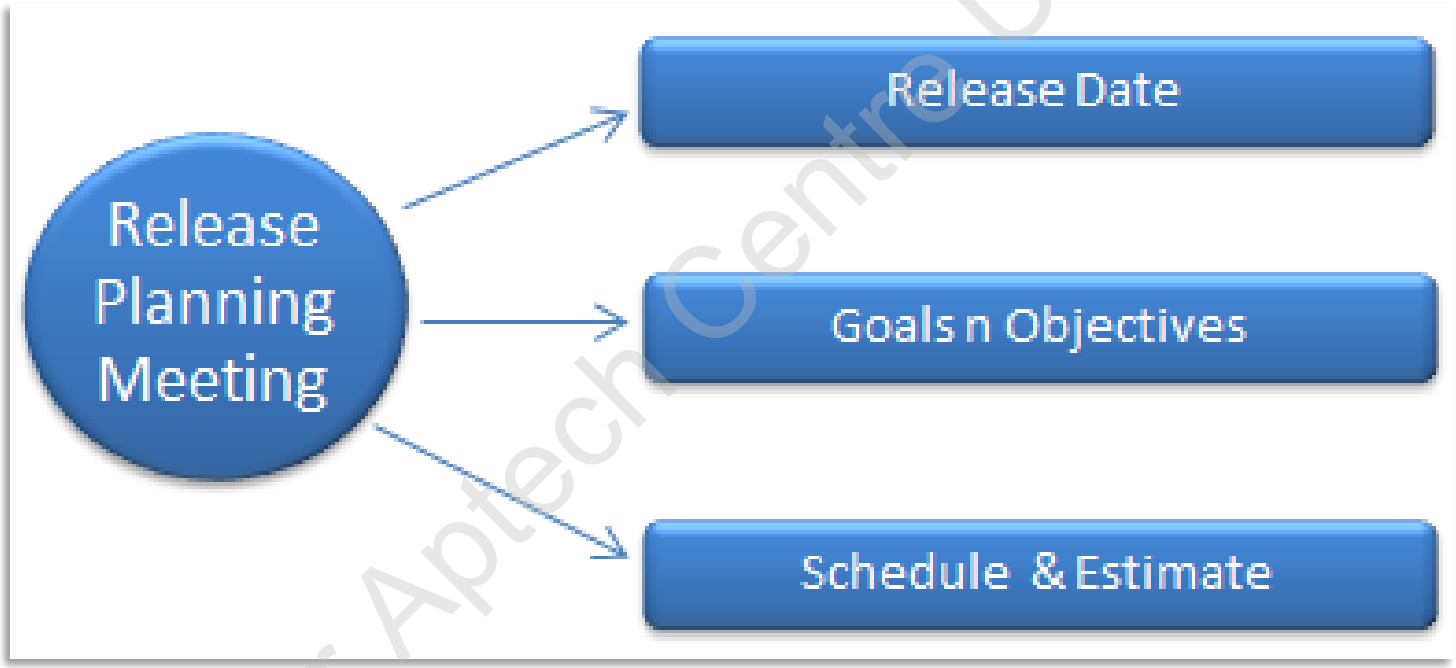


Scrum Lifecyle and Events

- The time boxes in Scrum are:
  - Release Planning Meeting
  - Sprint
  - Sprint Planning Meeting
  - Daily Scrum
  - Sprint Review
  - Sprint Retrospective

Release Planning Meeting

- Release planning answers the questions:
  - Which is the best possible way to turn the vision into a quality product?
  - How can customer satisfaction be met or exceeded?



Sprint [1-2]

- Sprint is a repeatable work cycle during which a useable, and potentially shippable product increment is created.
- The duration of a Sprint is usually one month or less.
- A new Sprint begins immediately after the conclusion of the previous Sprint.

- Each Sprints consist of:
  - Sprint Planning Meeting
  - Daily Scrums
  - Development work
  - Sprint Review
  - Sprint Retrospective

Sprint [2-2]

- During the course of a Sprint:

The development team remains unchanged.

No changes that would affect the Sprint goal are made.

Quality goals remain unchanged.

Scope of the project may be clarified and worked out between the product owner and development team as understanding improves.

Sprint Planning Meeting

- Used to plan the work to be performed in the next Sprint.
- Entire Scrum team collaborates to create this plan.
- Time-boxed to eight hours for a one-month Sprint.
- Answers the following questions:

What will be the deliverable in the upcoming Sprint?

How will the work get done?

Daily Scrum

If I have a daily scrum...	My daily scrum should last...
Daily	15 minutes

3 important questions

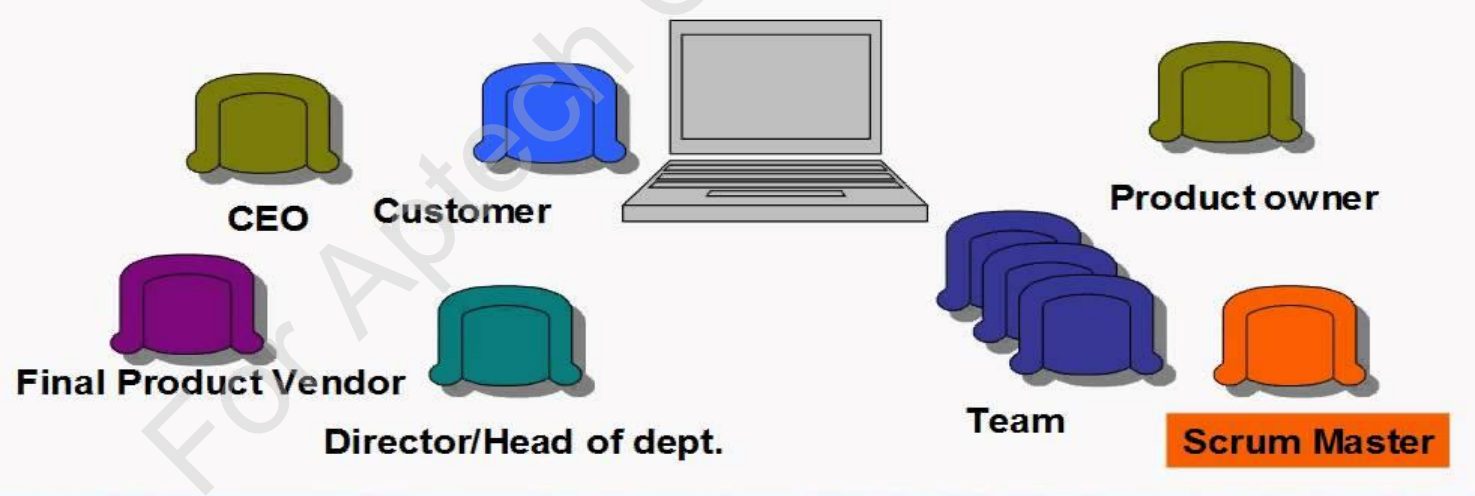
1. What work did you complete yesterday?
2. What have you planned for today?
3. Are you facing any problems or issues?

Sprint Review

The Sprint Review

4 hour time-boxed meeting

- Product owner identifies what has been done
- Team discusses what went well, what problems it ran into & those that were solved
- Team demonstrates what it has done in a demo
- Product owner discusses the backlog as it stands
- Entire group collaborates on what to do next

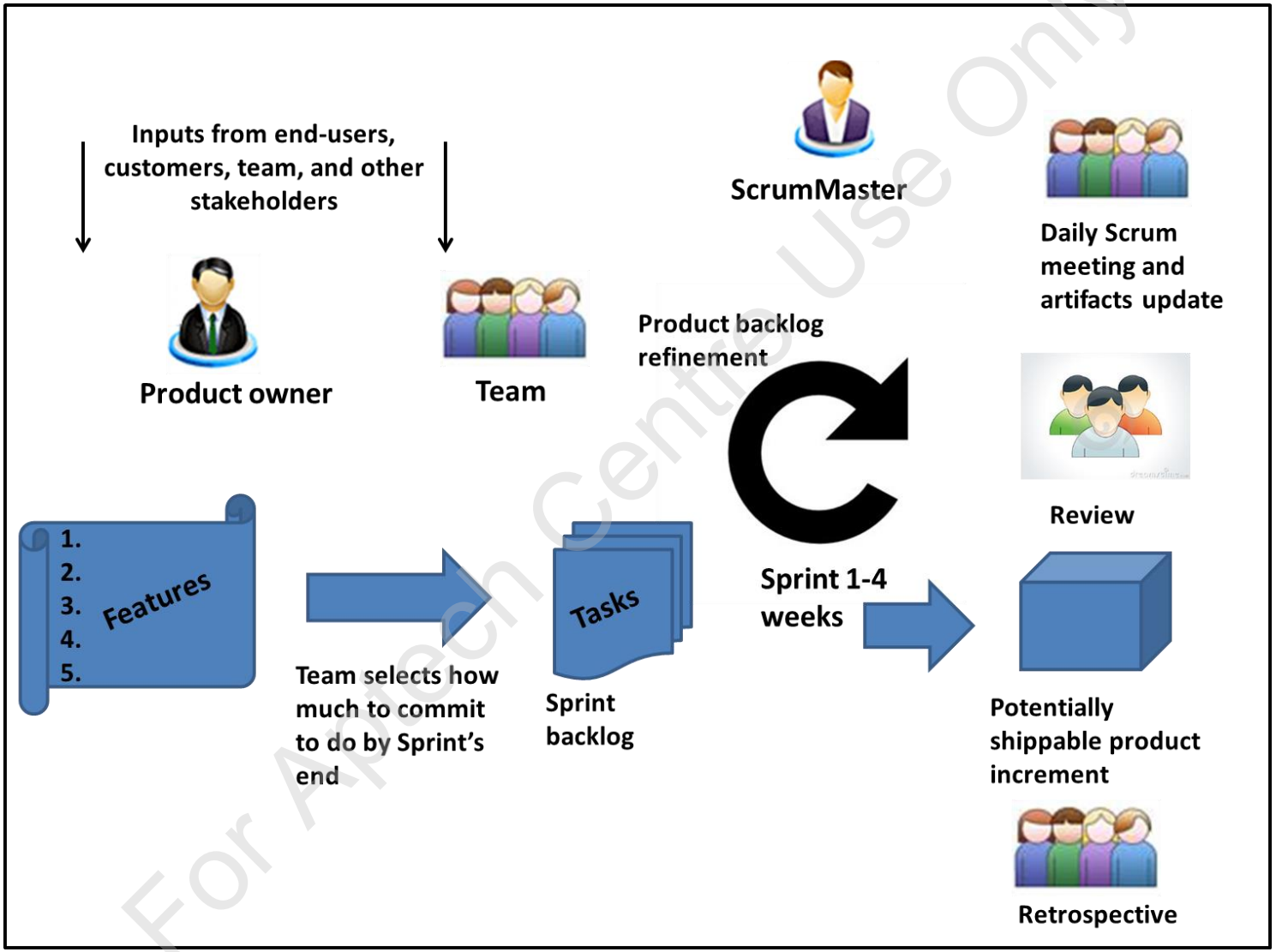


The Sprint Retrospective

Improves the process

- Inspect how the last Sprint went
- Identify and order the major items that went well and potential improvements; and,
- Create a plan for implementing improvements

Scrum Lifecycle



Roles in Scrum

- Scrum teams are cross-functional and self-organizing. Self-organizing teams choose how best to organize and accomplish their work.
- The Scrum team consists of:
  - Product Owner

  - Development Team

  - Scrum Master

The Product Owner

- The Product Owner:
  - Is the only person responsible for managing the product backlog.
  - Is also responsible for the work of the development team and maximizing the value of the product.
- Product backlog management includes:
  - Distinctly listing the product backlog items.
  - Prioritizing the items in the product backlog in order to achieve best results.
  - Ensuring that the product backlog is visible, transparent, and clear to all, and reflects the status of development.
  - Ensuring that the development team understands the items in the product backlog.
  - Ensuring the value of the work done by the development team.

The Development Team

- The development team:
  - Is responsible for developing and delivering a potentially releasable increment at the end of each Sprint.
  - Is empowered by the management to organize and manage their own work.
- The characteristics of the Development Team are:
  - Self-organizing.
  - Cross-functional, and possess all the skills necessary to create a product increment.
  - All development team members are referred to as Developers regardless of the work performed by the person.
  - Accountability is by the team as a whole even though individual team members may have specialized skills and areas of focus.
  - They are not further divided into sub-teams for testing or business analysis.

Scrum Master [1-3]

- The Scrum Master is a servant-leader for the Scrum team.
- The responsibility of the Scrum Master is to ensure that the Scrum team follows the Scrum practices and rules.
- The Scrum Master Serves the Product Owner in several ways including :

  - Communicating vision, goals, and product backlog items to the development team with clarity.
  - Finding effective strategies for product backlog management.
  - Educating the Scrum Team to create clear and compact backlog items.
  - Practicing agility.
  - Promote Scrum events as needed or requested.

Scrum Master [2-3]

- The Scrum Master serves the development team in several ways including:

  - Teaching self-organization and cross-functionality to the development team.
  - Coaching and leading the development team in creating products of high-value.
  - Removing obstacles that hinder the progress of the team.
  - Facilitating Scrum events as needed or requested.
  - Coaching the development team in environments where Scrum has been newly introduced.

Scrum Master [3-3]

- The Scrum Master serves the organization in several ways including:

  - Leading and coaching the organization in Scrum.
  - Arrange for Scrum implementations within the organization.
  - Helping employees and stakeholders understand and work on Scrum.
  - Bringing about alterations that increases the productivity of the Scrum Team.
  - Working with other Scrum Masters to further promote the effectiveness of Scrum in the organization.

Documents and Artifacts [1-7]

- The main Scrum artifacts are as follows:

Documents and Artifacts [2-7]

- **The product backlog**:
  - Is an ordered list of requirements and features to be included in the product.
  - Single source of reference for any changes to be made to the product.
  - Is ordered by order, risk, priority, and necessity.
  - Items are characterized by description, order, and estimate.
- The product owner is responsible for the product backlog including its content, availability, and ordering.
- Product backlog grooming is the act of adding order, detail, and estimates to the items in the product backlog.

Documents and Artifacts [3-7]

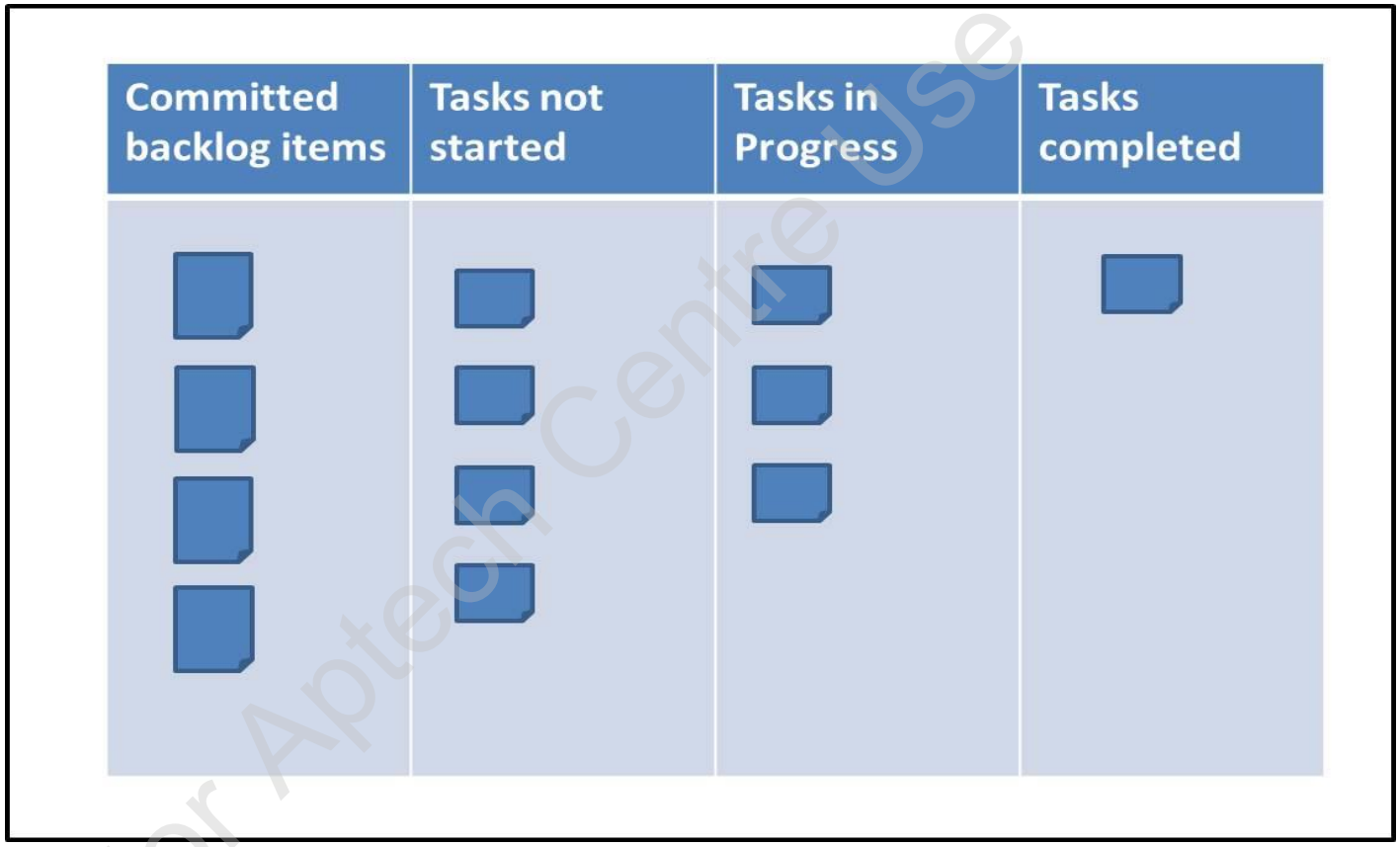
- **The Sprint backlog is:**

  - The set of product backlog items that have been chosen for the current Sprint.
  - Modified by the development team throughout the Sprint and new requirements are added to it.
  - Tracked by the development team on a daily basis.

- The Sprint backlog is used to track the remaining work and is used to project the possibility of achieving the Sprint Goal.

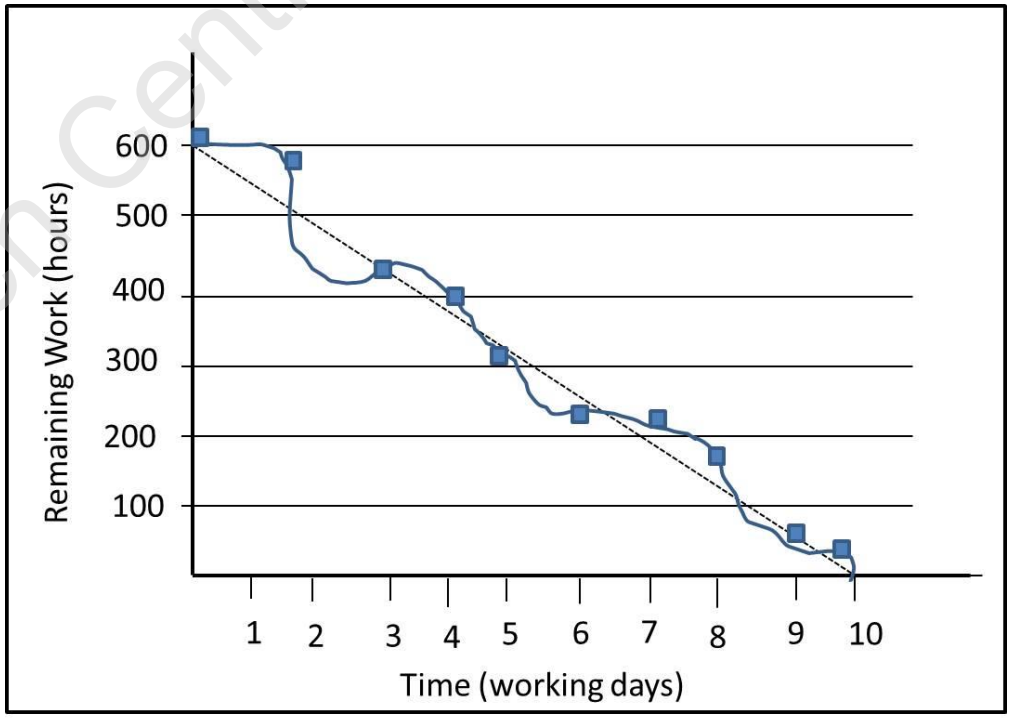
Documents and Artifacts [4-7]

- The Sprint backlog is represented as:



Documents and Artifacts [5-7]

- **The Sprint burndown chart is:**
  - Used by the team to monitor its progress.
  - A leading indicator of whether the team will meet its goals at the end of the Sprint.
  - The format requires teams to estimate on a daily basis the duration of each task in hours to chart the total remaining hours for the tasks not completed.



Documents and Artifacts [6-7]

- **Product or Release Burndown chart**:

The product burndown chart is also known as the release burndown chart, and measures the team's velocity which is the rate of delivery of a stream of running, tested, features over time.

As features vary in complexity, effort, and time, a scale known as story points is used to compare their size.

Product Owners use velocity to predict the output rate of the team for future deliverables.

Documents and Artifacts [7-7]

- **Impediment backlog**:

The impediment backlog is a current list of things that prevent the team from progressing or improving.

A good Scrum Master will try to remove these obstacles within 24 hours of them being identified in order for the team to achieve best results.

Advantages of Scrum

- The Scrum methodology, unlike traditional development methodologies, is designed to be flexible throughout the process.
- Scrum provides mechanisms for planning a product release and for managing the variables as the project progresses.
- Scrum methodology allows developers to devise the most innovative solutions, as the environment changes and more learning happens.
- Small, collaborative teams of developers are able to share knowledge about development processes.

Summary

- Scrum is an Agile framework that lets you create your own lightweight process for developing new products.
- The process control in Scrum is based on three factors namely, Transparency, Inspection, and Adaptation.
- The five values on which the Scrum team's process and principles are Focus, Courage, Openness, Commitment, and Respect.
- The Scrum life cycle consists of three phases are namely, Pre-game, Game, and Post-game.
- Scrum uses time-boxed events such that each event has maximum duration fixed. This ensures that no more than the fixed amount of time is wasted in planning.
- The Scrum team consists of Product Owner, Development Team, and Scrum Master.
- Scrum artifacts are specifically designed to maximize transparency of vital information needed to ensure successful delivery of Scrum increments.