

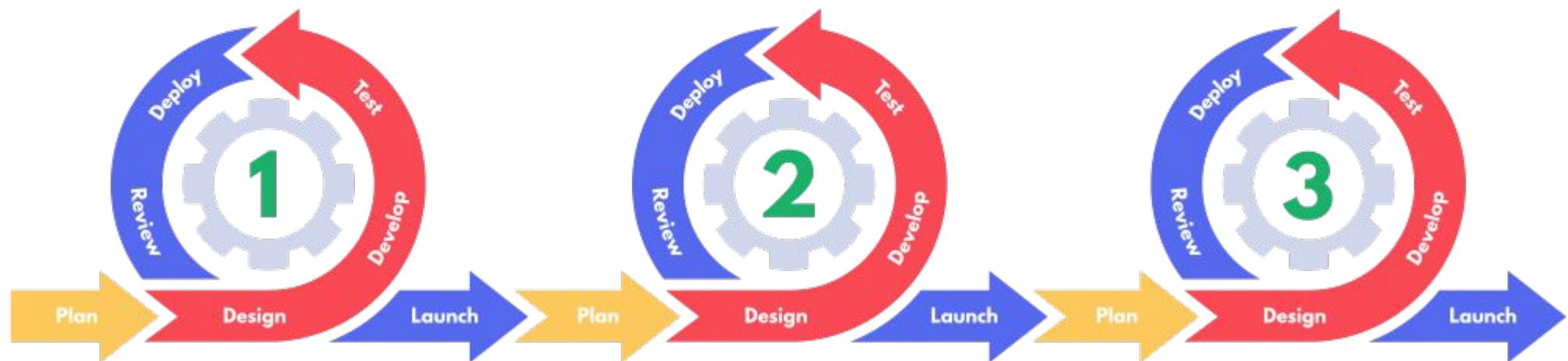
Agile Software Model

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What is agile software development?

- Agile software development is an iterative and incremental approach to building software that emphasizes flexibility, customer collaboration, continuous feedback, and continuous improvement.

AGILE DEVELOPMENT



A large blue diamond shape containing the word "Agile" in white, bold, sans-serif font.

Agile

VS

A large blue diamond shape containing the word "Waterfall" in white, bold, sans-serif font.

Waterfall

AGILE

Agile teams are **largely self-organizing**, placing a large **emphasis on self-reliance** over-reliance on a project manager for guidance. Communication is **frequent and less formal**.

Planning and structure are **highly fluid components** that can **shift and adjust as evolving situations demand**.

Agile projects **move much more quickly** than Waterfall projects due to a higher level of flexibility.

In Agile projects, clients and external stakeholders are **involved at every step of the way**.

Deliverables and products are turned over **throughout the project lifecycle**, not only at the conclusion.

Documentation is **less formal throughout the project lifecycle**.

FACTORS TO CONSIDER

Team Roles & Communication Style

Planning & Structure

Speed

Client Involvement

Delivery

Documentation

WATERFALL

Each team member has a **pre-determined role and does not deviate** from that role throughout the project. Communication is **less frequent and more formal** in nature.

The project structure is **laid out in detail before work begins**.

Waterfall projects often **take longer** than Agile projects, **especially in the project planning phase**.

Clients and external stakeholders are **not involved in any project details** until the conclusion.

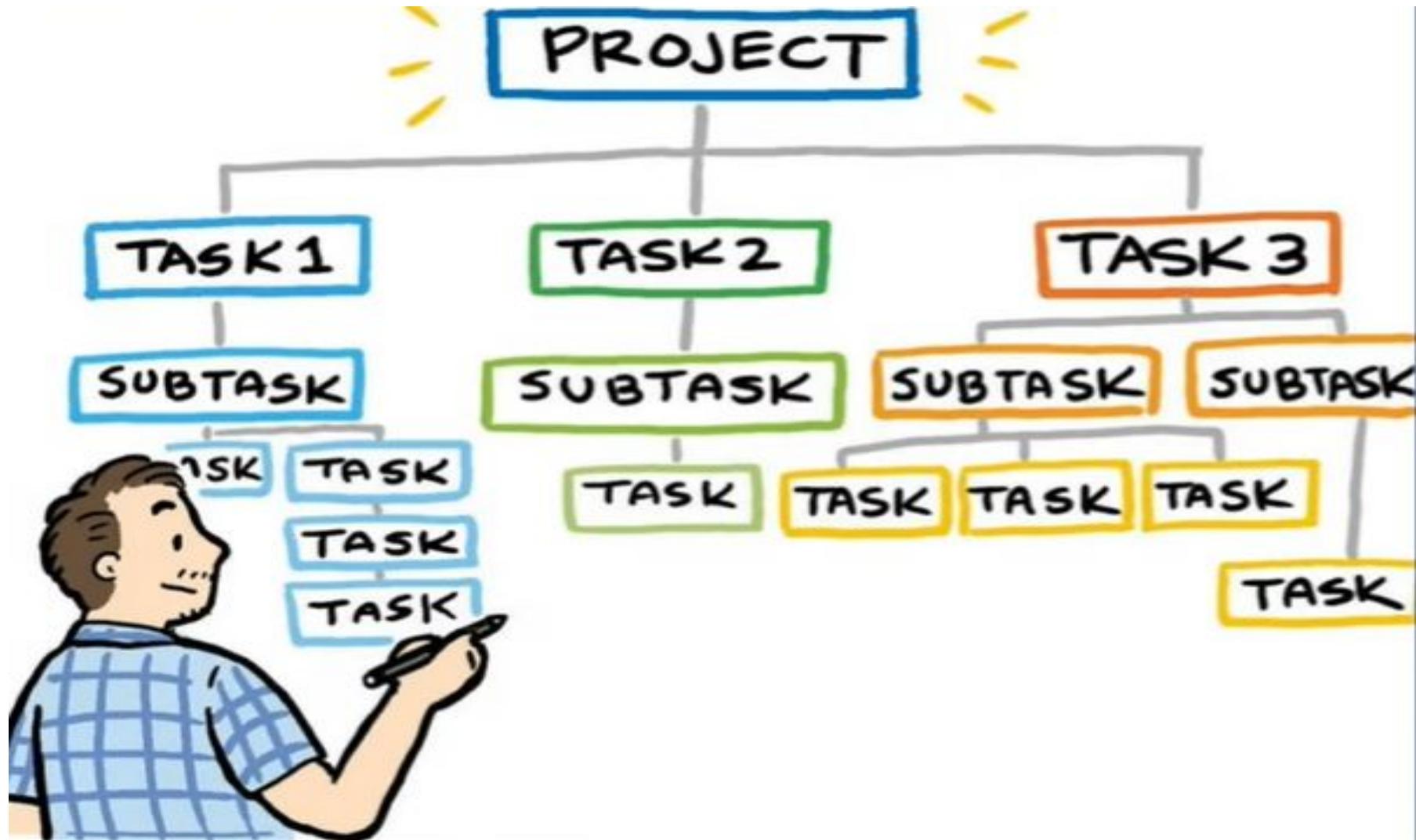
Deliverables and products are **only delivered to stakeholders upon project completion**.

Each step of the project lifecycle is **heavily documented** in a formal setting.

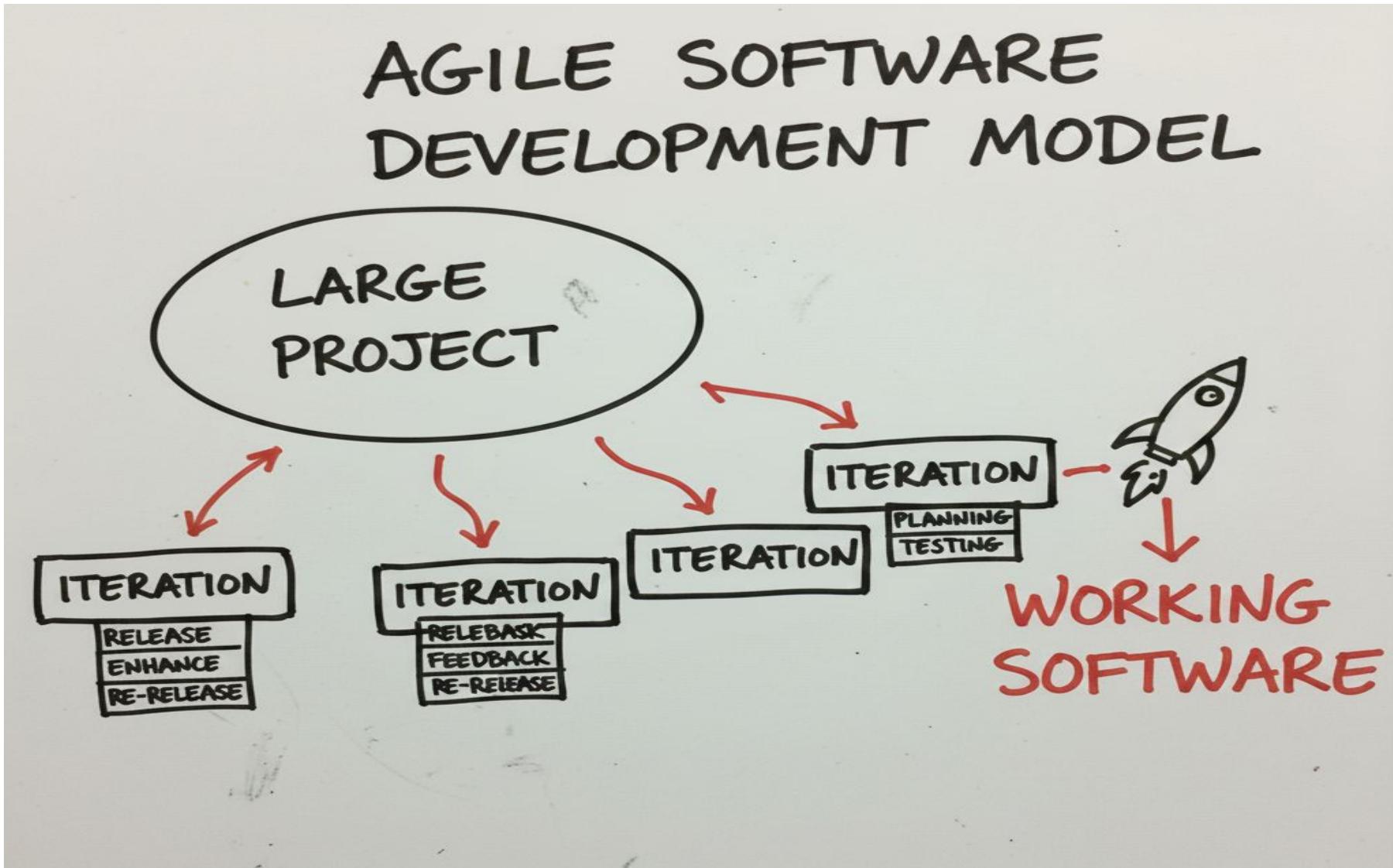
Agile Vs Waterfall



Working procedure of Agile



Working procedure of Agile

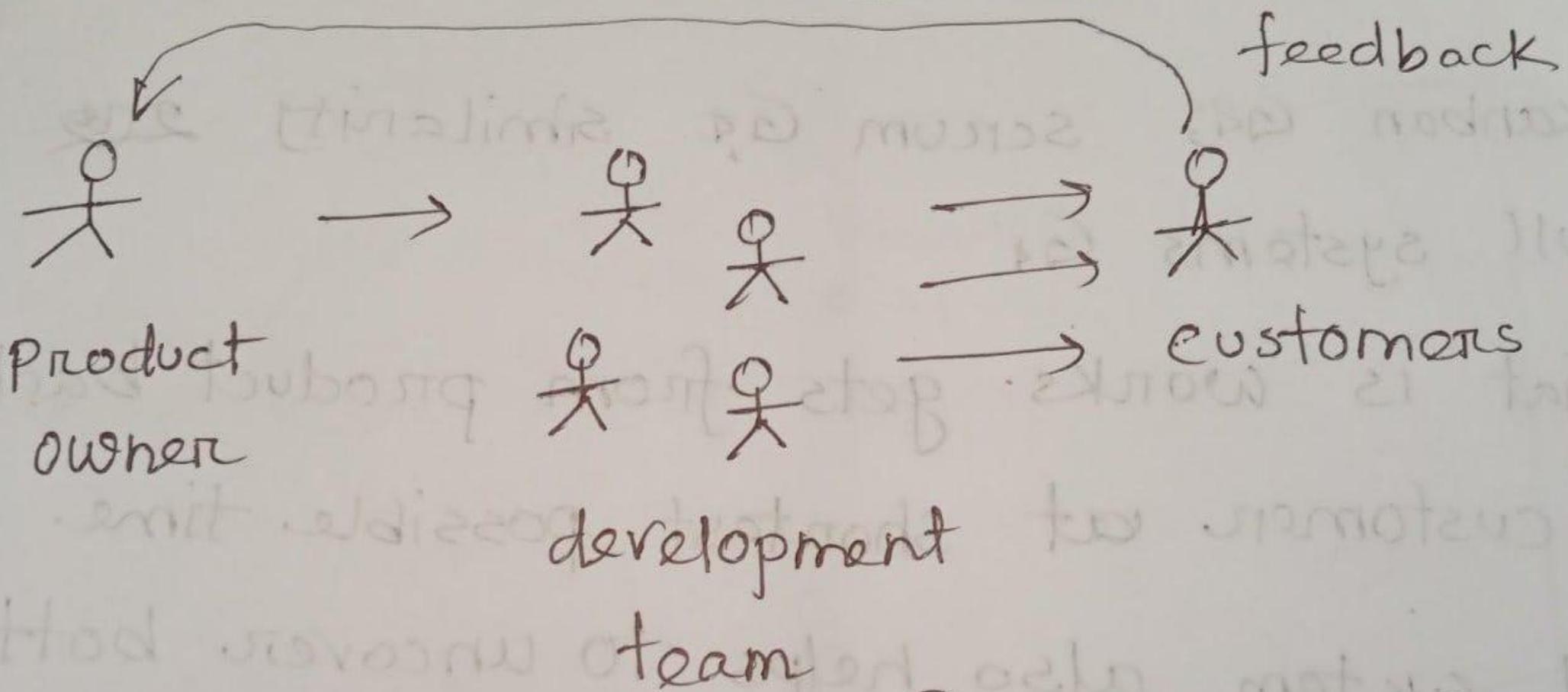


Key features of Agile Software development model

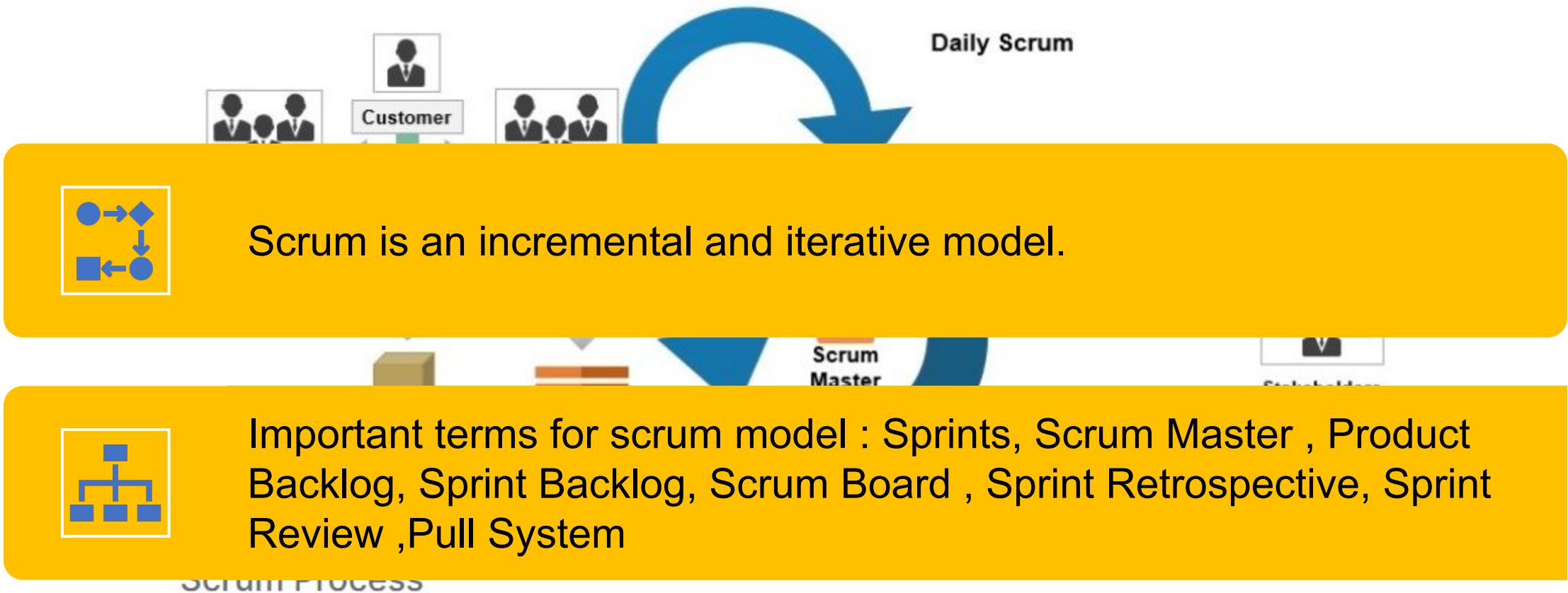
1. Customer Collaboration : Agile focuses on what the customer actually needs, and this can evolve as the project goes on.
2. Flexibility : If something changes , e.g., technology , customer needs, or market trends , teams can fire and adapt easily.
3. Team Collaboration :Everyone in the team from developers to customers , communicate regularly to stay aligned.

Several Frameworks of Agile

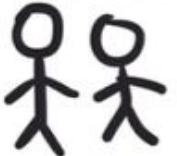
1. Kanban
2. Scrum
3. XP
4. DSDM
5. FDD
6. AUP
7. Agile Modeling



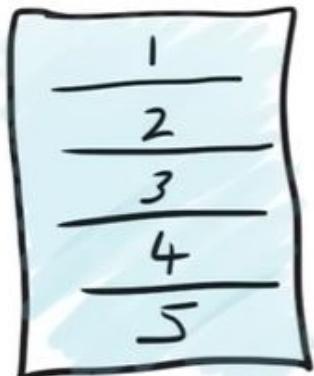
Scrum Model



STAKEHOLDERS



PRODUCT OWNER



PRODUCT BACKLOG

SCRUM MASTER



DEVELOPMENT TEAM



CUSTOMERS

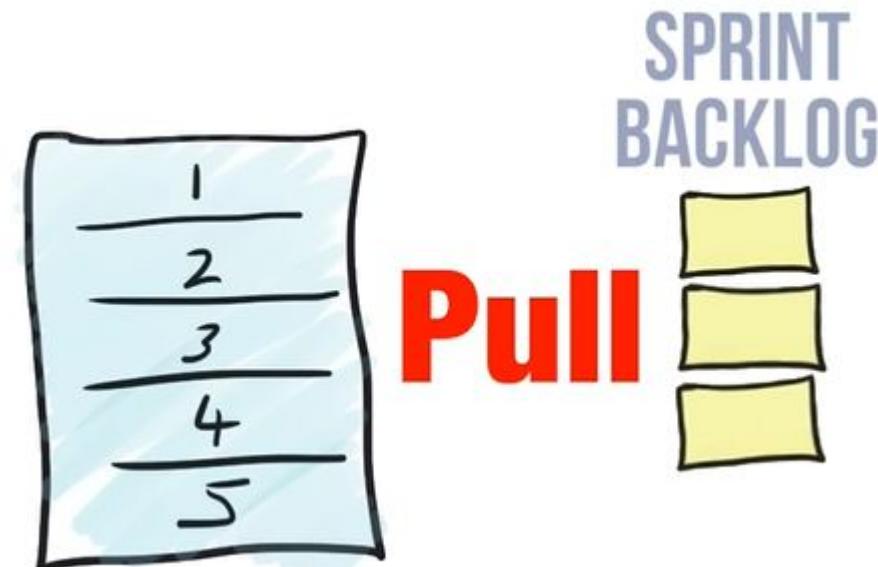
Sprint Planning Meeting

M | T | W | Th | F | Sat | Sun | M | T | W | Th | F |

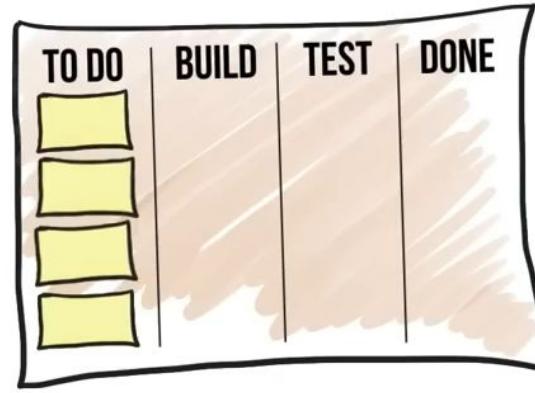
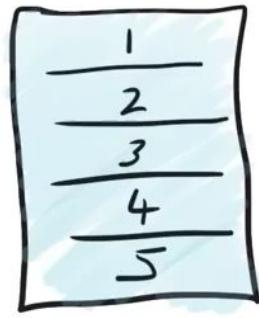
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1. Product owner collects the feedback from customers/users and stakeholders and creates a priority list according to the features and user stories , which is known as **product backlog**.
2. In Scrum, the team divides the overall work into iterations called sprints. A **sprint** is a time-bounded cycle during which a specific set of tasks (from the product backlog) is completed. Each sprint usually lasts 2 weeks to 1 month. Scrum teams work in series of sprints. Each sprint starts with sprint planning meeting which is run by scrum master and attended by the product owner and development team.

- The product owner and development team have their own rituals and routines. **Scrum master** is the person whose task is to maintain the routines of product owner and development team and help them to adapt them (routines).
- Delivering items from the product backlog to the customer in the shortest possible time is called a **pull system**. Pull system also helps to uncover the bottlenecks in the process.
- Together they select high priority items from product backlog and development team believe that it(the prioritized items) can commit to deliver in a single backlog and these items are in **sprint backlog** now.



- Next two weeks to 1 month, the developer teams work with only those items in the sprint backlog , if further adjustment or any new features need to included it will be available for next sprint.
- Scrum team keep a board called **scrum board or agile board** to keep track of the work progress.
- Each day of the sprint there is a scrum meeting. It's a stand-up meeting where the team takes a maximum of 15 minutes to discuss progress.
- At the end of the sprint , the worked completed during the sprint is packaged for release, any incomplete items are returned to the product backlog.



- Sprint end with two rituals:

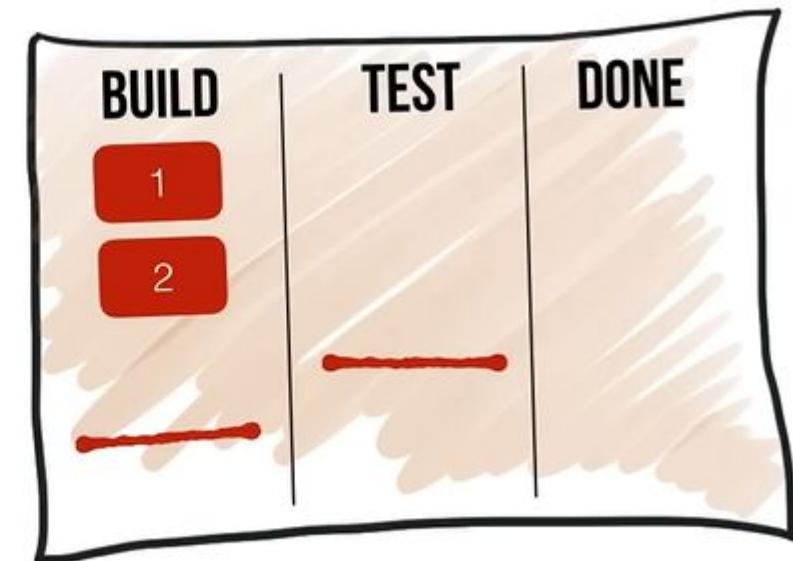
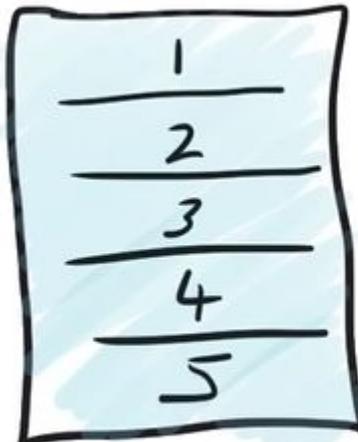
Sprint Review is a demonstration of new functionality to stakeholders.

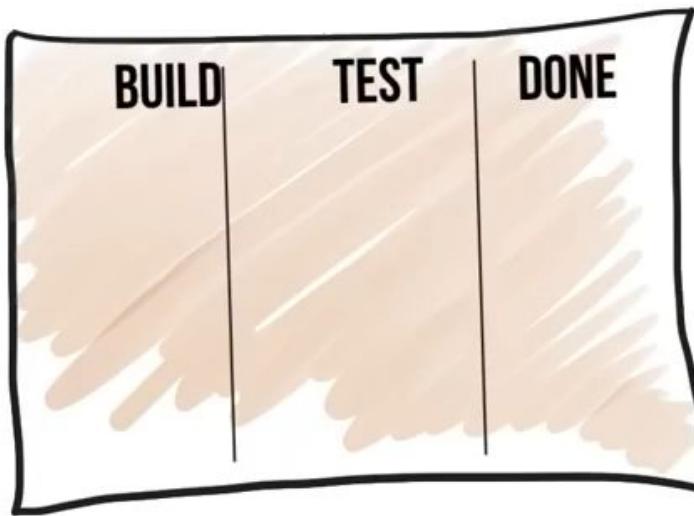
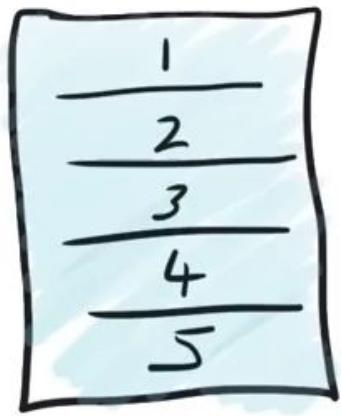
Sprint Retrospective is an examination of what went well, what went badly and what could be improved.

The aim of the retrospective is the next sprint should be more sprint than the previous one.

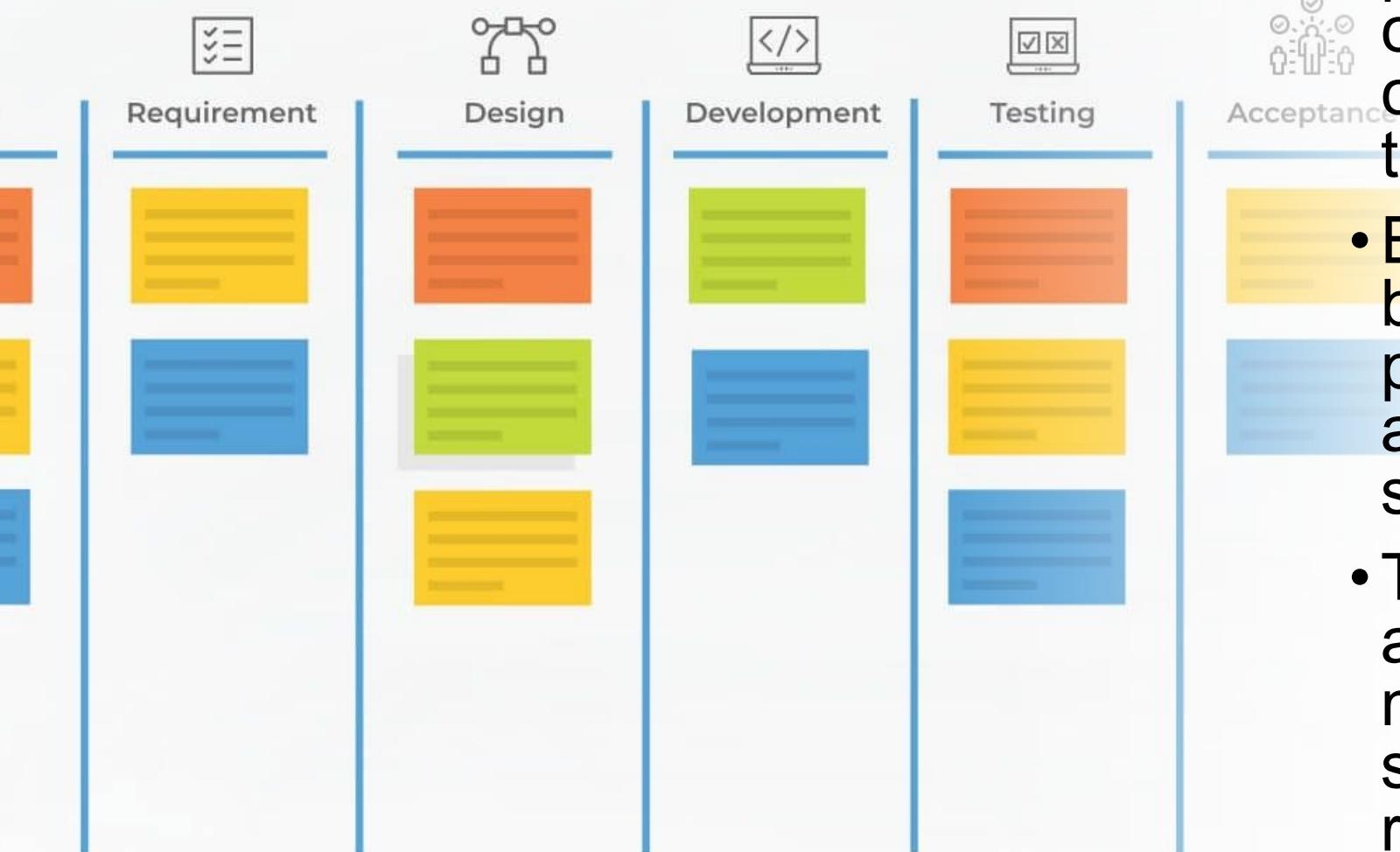
Kanban Model

1. Kanban is a continuous process.
2. There is no sprint backlog. The pull system in kanban happens in different way, Work In Progress Limits.
3. Each Kanban board's column has a Work in Progress Limit, related to teams' capacity.
4. The role of scrum master here is known as agile coach.





Kanban Board



- When testing of a particular feature or item is completed the corresponding item move to done .
- Empty column in kanban board is a signal to the previous column to send an item , that's pull system.
- The terms used for kanban are daily stand-up meeting, demo for stakeholders and retrospective.

Question

Then how pull happens between build to product backlog in kanban model? When to use kanban or Scrum model??

