Agile Methodology and Scrum

Overview

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What is Agile Methodology?

The word *Agile* itself means fast or swift. Agile is a software development methodology based on **iterative development**. Agile promotes project management through frequent inspection and course correction. It is favoured by teams that need to rapidly adapt to changing requirements and develop high quality software.

There are various Agile Frameworks like Scrum and XP which use different techniques to achieve this goal.

Agile frameworks
- **Scrum**
- **Extreme Programming (XP)**
- Kanban
- Lean
- Crystal

Why we use Agile

With more generic methodologies of SDLC like the waterfall model for example, the entire project is built first and then reviewed by the clients where feedbacks are received.
This process tends to go slow and if project requirements change, then it is very difficult to incorporate into the project.

In situations like these we use the Agile Methodology because every sprint in the Agile methodology traverses through every step of the SDLC from Planning to Deployment. This tends to make the incorporation of new features easy and is more flexible to changes in the project.

In complex projects its necessary to keep the stakeholders aware of the development made in the project, hence to keep all parties on board, we use this feature driven approach where, the

development team takes chunks of the developed project for review and asks for feedback rather than presenting the entire project at once and altering the product from the beginning and possibly break the code.

Usage of Agile helps us achieve the following goals:
- Adaptability - Able to respond to changes in requirements and priorities.
- Improved quality of project delivery due to collaboration between stakeholders and continuous improvements.
- Faster Delivery of software products due to short cycles of development
- Greater customer satisfaction due to hands on approach and inclusivity of stakeholders throughout the development process ensuring all needs are met.
- Reduced risks from complete project failure.

Use Cases:

- Agile is used in projects that are complex and have changing requirements.
- Agile can also be used in projects where the time to market time is less.
- Agile methodology is used in Software development, Project Management and IT Projects.

The Scrum Framework

A *process framework* is a particular set of practices that must be followed in order for a process to be consistent with the framework.
Scrum is one such process framework, and a subset of the Agile Methodology. It uses requires the use of short, lightweight development cycles called Sprints.

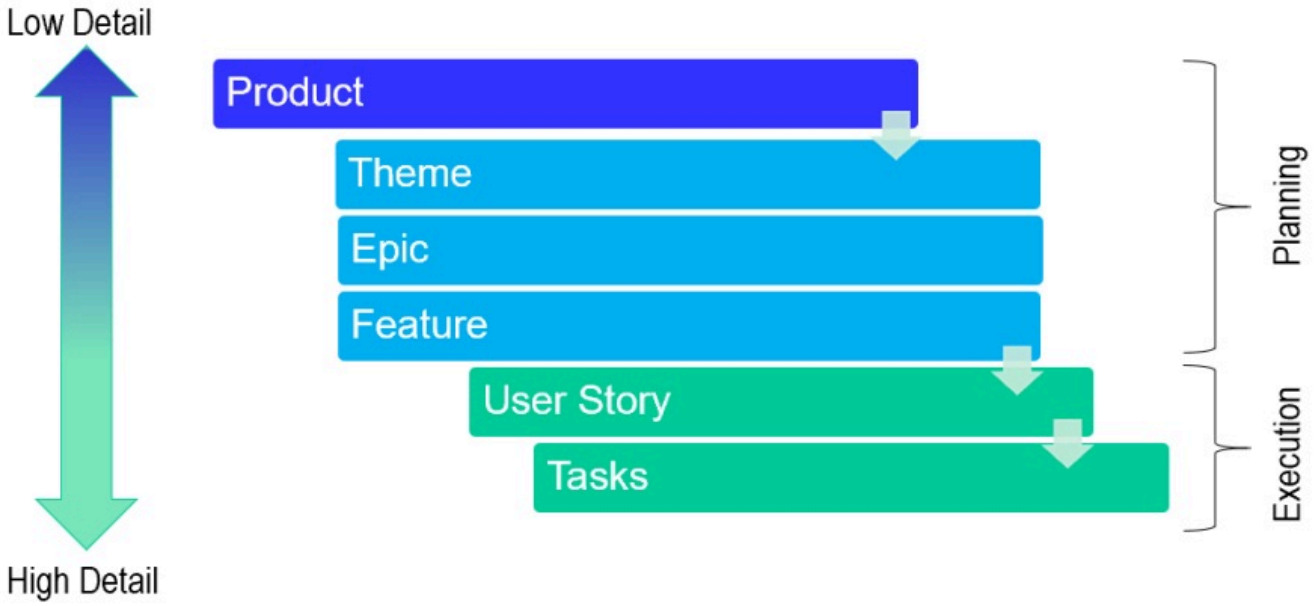
Scrum Terms
- Sprint
- User Story
- Backlog
- Product Owner
- Customer
- Scrum Master

Each iteration requires every step of the SDLC
- Planning/Brainstorming
- Requirement Analysis
- Design

- Development/coding
- Testing/ Quality Assurance
- Deployment

Components and Terms

- Agile methodology deals with breaking a project into smaller iterations and chunks of manageable sizes, and completing them one by one.
- Each layer of these chunks have specific names and duration.



What are sprints?

- A sprint is a time-boxed iteration in which a specific goal is achieved or a task is accomplished.
- A sprint can last anywhere from 1-4 weeks.
- We need sprints in order to tackle a project efficiently and increase productivity as well as build features and receive feedback on them, they also help in adapting in changes in the project scope.
- Sprint also help in reducing scope creep.
- Sprints focus on short term goals and eliminate the need for a long-term planning strategy, this helps in all stakeholders stay in touch with the immediate deliverable of the project and not lose track of the project.

Planning a sprint

1. Set clear and measurable sprint goals
2. Prioritise the tasks involved in the sprint depending on complexity, business value and other dependencies
3. Estimate efforts for each tasks and check if the goals are achievable in the given sprint
4. Create a sprint backlog i.e list of all tasks to be completed in the sprint.
5. Once the sprint is over we can move over to reviewing the progress and address any issues faced in the previous sprints and change the method/ adjust plans according to project needs and team requirements.

Scrum roles

There are three roles in a scrum environment

- Product Owner
- ScrumMaster
- Development Team

The **Product Owner** is responsible for defining and prioritising the product backlog i.e list of all features to be developed or tasks to be completed. They are also responsible in creating user stories and collaborating with the stakeholder and ensuring all parties have a clear understanding of the project vision.

The **ScrumMaster** ensures the smooth process of a project and tackle any hinderances in the team's progress. Responsibilities include -

- Help the Product Owner maximize ROI, and meet his/her objectives through Scrum.
- Encourage creativity, innovation and productivity in the development team.
- Improve the engineering practices and tools so that each increment of functionality is potentially shippable.
- Keep information about the Team’s progress up to date and visible to all parties.

A **Development Team** consists of cross functional members who work towards building and delivering the product. Team members decide how to break work into tasks, and how to allocate tasks to individuals, throughout the Sprint. Team size is usually between five to nine people.

Why scrum is suitable for MNCs

- Allows team to adapt to changing requirements for complex projects
- Scrum teams are usually cross functional and self adjusting allowing them to adjust their workflows without depending on external factors

- Clearly defined roles.
- With scrum having sprints, its easier to predict an estimated time of completion, fostering transparent communication across all stakeholders.
- Scrum teams work on the tasks on a priority basis, this helps keeps the scrum team focused, be productive and reduce scope creep.
- Scrum is relatively more scalable than other frameworks for larger teams and organisations.

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