|  |  |
| --- | --- |
| **Traditional Project** | **Agile Project** |
| Testers job is to independently validate developers work against the requirement | Testers are not considered independently from developers. Sometime they worked as a tester developer pair. |
| Test planning needs to be done months before actual testing starts | Test planning is done almost every day and it is restricted for that day only |
| Apart from defects and test status the testing team cannot share other details with stakeholders | High transparency so every member in project is aware about current status of the project and each task |
| Automation not mandatory | Strict timelines, high productivity is essential so automation is required. |

**Agile Methodology:** - Agile is a software development methodology which describe some set of principles under which requirement and solutions evolve through collaborative efforts of self-organizing cross functional team.

**Unit**

**Functional Testing**

**Web**

**Agile Pyramid**

**Self-Organizing Team:** - How best to accomplish their work rather than being guided by others.

**Cross-Functional Team:** - Team have all capabilities needed to complete work rather than depending on others.

**When to use Agile:** -

1. Lack of clearly defined requirements due to high complexity of the required system and high degree of novelty (a complete new idea without any reference document).
2. Very aggressive deadlines.

**Agile Manifesto:** - The set of principles based on which agile projects are executed is called agile manifesto.

1. Communication through process and tools carries risk of miscommunication and time delays. In agile use minimum of process and tools.
2. Not possible to document everything to client but looking of working software give more confidence rather than report and status.
3. Contact with developers not only sufficient to get required product. In agile customer evolved throughout the project and provide regular feedback.
4. Gantt charts have failed as we made it more complex and difficult. In agile we prepare burn down charts which are better to accommodate changes.

**Types of Agile Methods:** -

1. **Crystal Clear:** - Recognized team member’s skill and making best of use that in best suited task.
2. **Extreme Programming:** - All tasks are centered around coding, reviews and unit testing.
3. **FDD (Feature Driven Development):** - Feature list is prepared on regular time intervals.
4. **Scrum:** - Daily communication and collaboration between team members.

**Scrum Methodology:** - Scrum is an iterative and incremental agile software development methodology using a team structure which is self-organized, works as a single unit, responds to changes, create a deployable working product in desired time.

1. Eliminates delay in communication and decision making.
2. Everyone has the visibility into work.
3. Ensures effective use of time, money and people.

**Sprint:** - Sprint is a heart of scrum methodology. Sprint is a single iteration of a product development lifecycle.

1. It must have a time box.
2. Deliver a DONE as a spring goal.
3. A new sprint starts after a conclusion of 1 sprint. It is nothing but a sequence of product.

**Sprint Planning:** - It is done before beginning of each sprint.

1. It has a time box of 8 hours or less than that.
2. What components of product can be delivered in current sprint?
3. How will work get done? i.e. Sprint plan.

**Daily Scrum:** - It happens every day on regular basis.

1. Same place and time.
2. It has a time box of 15 min or less than that.
3. What was accomplished/not accomplished since last meeting?
4. What is planned for that day?
5. What are the roadblocks seen in general?

**Sprint Review:** - At the end of each sprint when product development work is stopped.

1. It has a time box of 4 hours or less than that.
2. Whether sprint goal is achieved?
3. What are the deviations seen?
4. Is current status fine for delivery or not?

**Sprint Retrospective:** - After the sprint review meeting. It inspects all non-product aspects.

1. It has a time box of 3 hours or less than that.
2. Which aspects operated well?
3. Which aspects need improvement?
4. How to implement the improvement in next sprint?

**Product Backlog:** - It is an ordered list of everything that might be needed such as features, requirements, functionalities etc.

1. It is used by all the team members and considered only source of requirement.
2. Each item may have sequence no, efforts estimated, cost assigned to it.
3. It is living document.
4. It exists till end.
5. Remaining worked can be summed.

**Sprint Backlog:** - It is a set of product backlog items selected for a particular sprint.

1. Dynamic document which may change during daily scrum.
2. Exists till the current sprint.
3. It is visible to entire scrum team.
4. Remaining worked can be summed.

**Increment:** - Sum of all product backlog items completed in every sprint. It is not a document but a product itself. Its size increased after every sprint. It exists till the scrum project exists.

**Roles in Scrum Team:** -

1. **Product Owner:** - It is nothing but a client who needed the product. It is responsible for maximizing the value of product. Creating product backlog. Ensuring that it is accessible to everyone and must be transparent, clear. It defines scope of each sprint. Also, it keeps track of overall work. He can cancel the sprint if it seems to be obsolete.
2. **Development Team:** - Authority to provide efforts estimate of items in product backlog. Create and maintain sprint backlog. All are equal. Developers, testers, operations, infra team provided important role to decide “Definition of Done”.
3. **Scrum Master:** - The scrum master is considered as a servant leader. He ensures that scrum team adheres to the scrum theory and practice. He is a moderator for all scrum events. He is the only POC to the entire scrum team. He also trains new members on scrum methodology. He inspects sprint backlog.

**Agile Roadmap:** -

**Sprint Planning**

**Release Planning**

**Daily Scrum**

**Sprint Review**

**Sprint Release**

**Product Roadmap**

**Increment**

**Vision**

1. **Vision:** - A definition of a product and who will use this product. It is done before beginning of project. Scrum is implemented in this step.
2. **Product Roadmap:** -
3. Identify product requirements.
4. Prioritize the requirements.
5. Roughly estimated efforts.
6. Implementation Plan.

It is created only once before beginning of project.

1. **Release Planning:** -
2. Finalize no. of. resources/sprints.
3. Date and timelines for each sprint.
4. Identify project team.

Project Owner gives an overview of entire product and its plan.

Scrum Master trains development team on scrum practices.

Rest of the steps we have already seen on earlier pages.