

II. AGILE SOFTWARE DEVELOPMENT

For over a while the Agile approach has been heavily used but few people know the exact meaning of Agile.

Agile means 'flexible' which is a term being widely used in Software Development under the "Agile Development Model". So this model practices identifying and discovering requirements by the involvement of a collaborative team and environment along with the customers which make the software building process smooth and results in a high-end quality product.

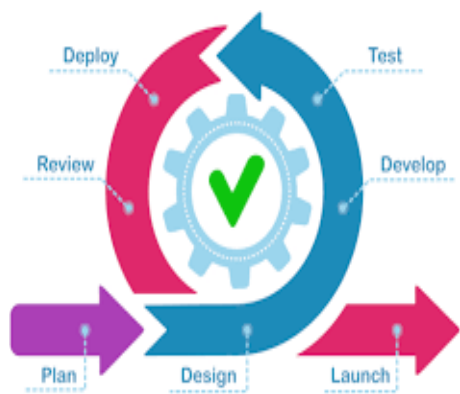


Image1 – Agile Methodology Approach

The main advantages of using Agile Software Development are:-

- 1. Pragmatic and practical Customer Expectations:** the customer is treated as apart of the agile team as they contribute to the development of the product by giving their feedback and ideas to the development team which leads to realistic and reasonable expectations resulting in no conflict.
- 2. Agile results in good quality software:** the constant interaction of customers and the development team assures usability of the product in real-time without having any defects. Also, the technical focus of the peers helps to make reliable and maintainable software.
- 3. Transparency in Management:** due to small milestones and a structured roadmap, the manager's visibility of the project goes high and there is no such chance of chaos in the understanding of the working project. The manager will easily

III. TRADITIONAL VS AGILE

The Traditional software development models include the Waterfall model and various more but the short coming of these models led to the the evolvement of Agile model.

These are some major agile benefits in comparison to the traditional approach:-

- 1. More tolerant in dynamic requirements:** one of the major drawbacks of the traditional model like Waterfall was the user requirements should be completely at the first stage which was merely impossible to achieve. So in a dynamic environment where the requirements get changed multiple times as per the expectation of the user, the Agile approach lighted the way.
- 2. Fast and rapid product delivery:** in the traditional life cycle-based approach the product is delivered to the user only after the full completion of software due to which the customer has no idea for along time about what the is getting at the end, Where as the agile approach works iteratively and evolutionarily, thus giving an important initial released product to the user while continuously working on it which helps the customer to get the idea of the final product.

IV. SCRUM

SCRUM is treated as one of the major subsets of agile methodology and was first termed and used in a 1986 paper entitled "The New Product Development Game" by Hirotaka Takeuchi and Ikujiro Nonaka. This term was taken from Rugby by sport, where team formation is referred to as SCRUM which was used to emphasize teamwork.

It is an iterative, light in weight, and an incremental framework majorly used to manage high complexity processes and work. This was introduced to challenge the traditional approaches towards software development stating that no volatile changes will affect the production of software, instead, it will increase the quality of it.

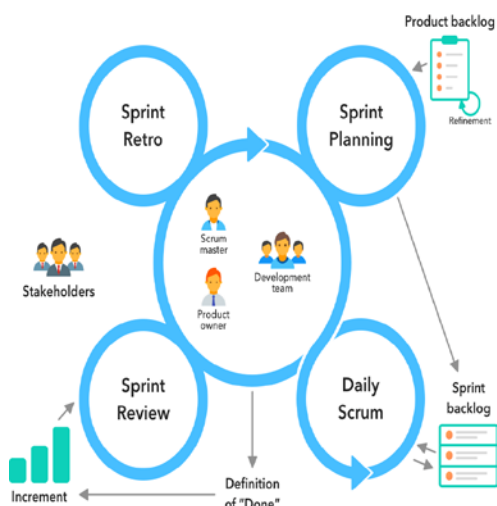


Image2–ScrumFlowchart

The fundamental and main team of SCRUM includes a SCRUM master, product owner, and developers who are collaborative and strongly aim at a single objective.

- a. **SCRUM master:** the Scrum master acts as a bridge between the product owner and the scrum team while making sure of the working of various processes and functioning. It also makes sure of the sprint planning by the scrum team.

- b. **Product owner:** the product owner is termed as the leader of the team who prioritizes the tasks and delivers the final product to the customers as per his requirements and expectations. In case of any mishap, the product owner is responsible.
- c. **SCRUM team:** this is a team of usually five to seven who are responsible for the actual making and development of the product by planning sprints and doing the tasks from backlog while communicating with others.

V. WHY SCRUM IS THE WIDELY USED AGILE METHODOLOGY?

Scrum is the widely adapted agile technology in today's world due to its great abilities to do efficient work in less time. Many companies use Scrum as well as Kanban or XP but the number of companies and developers using Scrum is much higher than any one else. There are reasons for it are:-

- a) It is an efficient and cost-effective approach where changes are also reversible.
- b) High quality is maintained throughout in scrum.
- c) One of the most important reasons to adopt scrum is that it offers a quick and effective response to the market needs and rapid changes.
- d) Customer satisfaction is the main criteria that are always taken into consideration.
- e) It is also easy to adapt to corporate rapid changes as the work is done in various iterations.

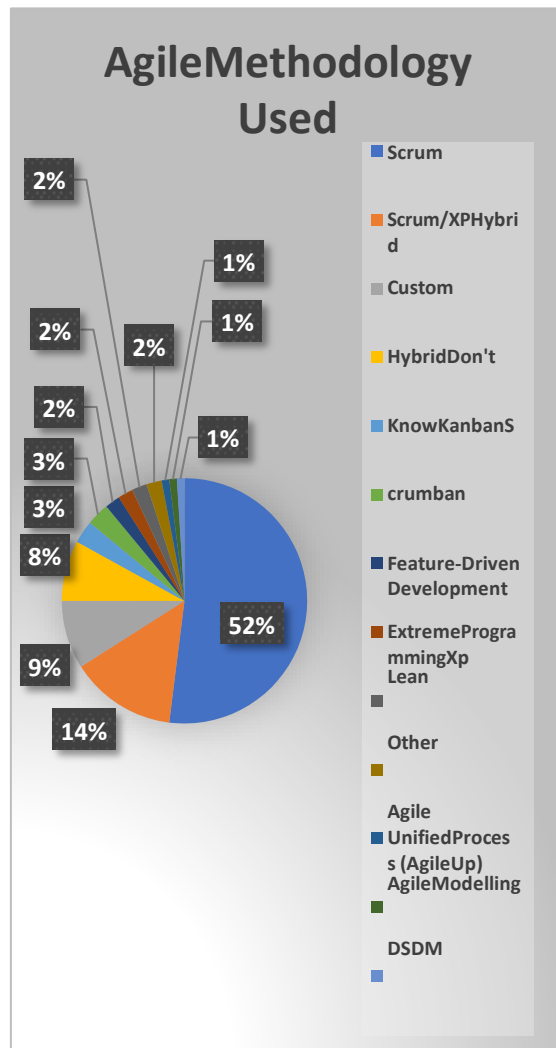


Image 3 – Pie Chart (% of Agile Methodology Used)

VI. CONCLUSION & FUTURE WORK

With the change in user's requirements, the traditional models and approaches like Waterfall and V-model are not able to cope up, so the Agile Software Development is considered as the best approach to handle dynamic requirements change and to meet user's expectations in time due to its amazing features and characteristics.

In this paper, the major advantages and

characteristics of Agile Software development have been described and a brief comparison with the Traditional Software Development Approach is shown along with one of its key frameworks–

SCRUM. So it can be concluded that Agile Software development will lead the development industry to great heights and more use of it will be there in the future.

Also, future research can be done on the comparison of different types of frameworks of Agile with their characteristics and features. This research will be amazingly helpful for developers in deciding which framework to use as per their requirements.

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