International Journal of Research Publication and Reviews

Agile Software Development : In Context with Sehat Sang

NIKHIL SHARMA[1], Dr. VISHAL SHRIVASTAVA[2], Dr. AKHIL PANDEY[3]

[1]B.TECH. Scholar, [2,3]Professor
Computer Science & Engineering
Arya College of Engineering & I.T. India, Jaipur
[1]nikhilsharma9060@gmail.com, [2]vishalshrivastava.cs@aryacollege.in, [3]akhil@aryacollege.in

ABSTRACT :

Agile Software Development plays a vital role in modern software development. The term "Agile" refers to the repetitive assessment, adaption of predefined techniques & planning strategies along with breaking up larger tasks into smaller ones for the better efficiency of the software. Agile Software Development is considerably different from regular software development methodologies as it aims adapts the concept of iterations. The required features of software are delivered in small, continuous and progressive steps called iterations within less period of time before the deadline for completion of its development. Hence, in today's fast paced modern software industry, it is highly recommended to use Agile Software Development Methodologies. This paper gives a brief introduction to "Sehat Sang" and elaborated description about Agile Software Development Methodologies along with their adaption in context with "Sehat Sang".

1. Introduction to Agile Software Development

In today's world, the software industry is a quick paced industry that calls for fast responses for ever-changing demands. Also, with the appearance of globalization, organizations are not just restricted to single geographic vicinity but they have multiplied their horizons to a world of countless opportunities. Traditional software development methodologies are unable to satisfy these ever-changing demands which lead to failures. Hence, an "Agile Process Model" has been developed for handling such failures and the software development using this agile process model came to be known as "Agile Software Development".

Now, the agile software development process is most famous and widely adapted software development strategy. In traditional software development processes, the designing and the requirement analysis of the project is limited to initial stage of the process only. Commonly, they follow a sequential order. Later, any addition of fresh requirement in project can increase the cost exponentially. It makes it compulsory for the customer to provide all the requirements of the software at the initial stage of the development only; hence, it is not adaptive to changes in requirements of the software. Conversely, Agile adheres to a small, iterative improvement model with an incremental delivery approach. This iterative and incremental framework empowers agile software developers to deliver frequent, incremental updates to customers, enhancing customer satisfaction. These inherent features and principles make the agile process well-suited for use in fast-paced and sustainable development environments that confront rapid and frequent changes.

2. Introduction to Sehat Sang

Sehat Sang is a website that addresses the lack of awareness about nutrition and fitness & no access to reliable and accurate fitness information. This lack of information is due to various reasons which could be lack of education about how importance it is for humans to have proper nutrition, also the cost of existing healthy options can be one of the major reasons. The Sehat Sang addresses this problem by providing an online platform that offers various services which are nutrition courses, in-budget customizable diet plans, live sessions, fitness influencer's podcasts and personal training. The website aims to make reliable health and fitness information accessible to all irrespective of their financial status.

3. Traditional v/s Agile Software Development Model

Agile Software Development Model differs from traditional software development model on the basis of certain parameters. These parameters are :

- **Approach**
  Traditional Software Development Model follows linear and sequential approach where as Agile Software Development Model has adopted Iterative and Incremental Approach.

- **Planning Strategy**

  Traditional Software Development Model follows Extensive Pre-planning Strategy where as Agile Software Development Model follows Adaptive Planning Strategy.

- **Customer Involvement**

  Traditional Software Development Model has limited and early customer involvement where as Agile Software Development Model has frequent customer involvement.

- **Duration of Development**

  Traditional Software Development Model takes longer duration of time for development where as Agile Software Development Model takes smaller duration of time for development.

- **Risk Mangement**

  Traditional Software Development Model has Preemptive Risk Management where as Agile Software Development Model has Adaptive Risk Management.

4. Advantages of Agile Software Development :

Agile Software Development has many advantages over traditional software development model.
Some of the key advantages are :

- Flexibility & Adaptibility
- Customer Centric Approach
- Faster & Incremental Delivery
- Optimised Risk Management
- Better Efficiency & Higher Quality
- Customer Satisfaction
- Effective Resource Utilisation
- Adaptive to New Technologies

5. Agile Planning Lifecycle

During the earlier stages of the project, picture is there as to what needs to be built to be included, time duration of completion and the estimation of the cost of the project. Project planning helps in finding solutions to such questions.

The main aim of planning is to eliminate such questions of uncertainty and building a plan to meet the final customer requirements and objectives of the project.

In Traditional software development lifecycle, project is implemented as a single large model whereas the in Agile method the down into small iterations.

These steps of agile planning lifecycle are discussed below:

5.1 Pre – Planning

The lifecycle begins with a preplanning includes identifying project vision, scope, roadmap, collecting as well as emphasizing technical requirements, formation of team with selection of members with required expertise, time and cost estimation. The product catalog is formulated which consists of list of all the requirements as well as desired work be done on the project. Every item listed in the product catalog is allocated a priority by team owner. An expert team assesses and provides estimates each feature required for inclusion in the project. Consequently, this initial estimation enables the determination of the estimated time frame, cost, and scope for the project. Also, the number of iterations is selected through this evaluation process

5.2 Planning

Planning consists of making decisions regarding the release timings of iterations, the order of iterations, the duration of iterations, and the development speed to align with customer requirements. Also, the project size estimation will be determined.

5.3 Release Planning

The project team, in collaboration with the customers, formulated the product backlog, associating all project features and tasks, into distinct iterations. These iterations are allocated to each release, enabling the delivery of a functional model to the customer with the specific features outlined for that particular iteration. With the release planning of the iterations, it becomes possible to predict dates for subsequent iterations and derive an estimated date for the final project model. Furthermore, an estimation of the overall project implementation costs can be roughly calculated based on the factors such as the number of iterations, iteration durations, and associated costs.

5.4 Iteration Planning

The planning process operates in an iterative manner. Following the release of each iteration, a project team meeting is conducted to define the scope of the subsequent iteration. During this meeting, the team receives feedback on the current iteration and engages in discussions regarding modifications to be made in the product backlog, including the reassigning the priorities to the features. Once this step is completed, the team proceeds to allocate the various tasks discussed in the meeting to the respective team members. Each iteration is assigned a specific time frame, providing the team the flexibility to incorporate or remove features discussed in the meeting to ensure timely implementation of the project.

5.5 Product Backlog Management

The process of managing the Product Backlog involves summarizing changes in the project's scope, priority, and estimates. It can be implemented as mandatory after each iteration to enhance or eliminate features. The priority of items within the product backlog can likewise be modified following each iteration release, based on the customer needs and feedback.

As changes are made to the project implementation after each iteration, this naturally impacts the estimated time for project completion. Furthermore, release planning is entirely connected to these changes, and it is also adjusted after each iteration to align with the evolving project scope and priorities.

6. Adoption of Agile Methodologies in Sehat Sang

The Agile Software Development has played a vital role in the development process of Sehat Sang. The Agile Software Development Methodologies have been used throughout the development of our project "Sehat Sang". The planning strategies for the development of Sehat Sang have been adopted from Agile Planning Lifecycle. From initial stage of the development to the final deployment of the project, the whole process has been influenced from Agile Software Development Methodologies.

The whole process of development of Sehat Sang had been divided into following steps :

6.1 Planning

We conducted the market survey to identify the target audience and our existing and potential competition. After gathering his information, we started to develop a business plan that outlines all the features of the website, content and revenue model. After research, we started to determine the budget and resources for the development of the website.

6.2 Website Designing & Development

In this stage, we started to design the website's User Interface (UI). We first focused on developing the front end part of the website and later we developed the backend of the website and connected them together. After that, we developed the functionality of the front end at the back end. In the last, we tested the functionality of the website along with its user experience.

6.3 Courses Development

In this stage, we first contacted the nutritionist and started identifying the topics that should be available on our website and what would be the learning objectives for the courses. Later on, we started developing the course content and materials which includes video lectures, interesting quizzes and practical exercises for more indulged learning and then we created a system for learners to track their progress, and on which they can receive feedback on their work, and how well did they do it.

6.4 Resources Development

In this stage we started developing the resources that would be needed by the website. We started developing a range of resources including articles, recipes and videos that provide practical advice and guidance on adopting healthy and sustainable diet. After that, we created a community forum where learners can interact with each other, share their experiences and seek advice from nutrition experts.

6.5 Testing

In the testing phase we tested or website on multiple devices the different screen sizes to as the responsiveness of the website and give also tested multiple data to see if the website database is working well.

6.6 Launch & Promotion

In the launch and promotion phase, we plan to launch the website and courses to the public. We also developed a marketing strategy to promote the website and courses to the targeted audience and for which we contacted some of the social media influencers for the influencer marketing. We also monitor and analyse the website traffic and learner engagement to inform ongoing improvements to the website and courses.

7. Conclusion :

Agile makes huge impact on the quality of the software product by reducing the maximum number of defects while developing the product itself. Agile is therefore used by various organizations both at small scale and at large scale levels. Due to all this, the future of the project management will be the agile development.

Considering all of above mentioned factors, the whole development of Sehat Sang has been carried out with the influence of Agile Software Development Model.

REFRENCES:

[1]. Gonen B. and Sawant D. (2020). Significance of Agile Software Development and SQA Powered by Automation. In 2020 3rd International Conference on Information and Computer Technologies (ICICT)

[2]. Jain P., Sharma A., and Ahuja L. (2018). The Impact of Agile Software Development Process on the Quality of Software Product. In 2018 7th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO)

[3]. Pawar R.P. (2015) A Comparative Study of Agile Software Development Methodology and Traditional Waterfall Model. IOSR Journal of Computer Engineering

[4]. Gopalkrishna Waja, Jill Shah, Pankti Nanavati (2021) KJSCE Mumbai, India. Agile Software Development