**REPORT**

General introduction to the agile and iterative methodologies.

“Agile – denoting “the quality of being agile, readiness for motion, nimbleness, activity, dexterity in motion. “

While each of the agile methodologies is different in itself and follow a different practices, they all share a common idea and central values. These methods use the process of regular iteration with continuous feedback. They are all lightweight, as these development processes break a large phase of work into small iterations not like  the traditional waterfall-style processes. Agile methods focus on empowering people to work together and make appropriate decisions quickly and effectively.

Methodology 1

Extreme Programming

Extreme Programming development process is used where the information about the system to be developed is vague and incomplete and where the workforce of the teams are small to medium in size. Short iterations with frequent releases and rapid feedback help the system to grow in a stable way. Customer participation, communication and coordination help in guiding the changes in the project. Continuous integration and testing help in seeing the project as a whole. Collective ownership of the code, limited documentation and pair programming help in reducing the error that is generated. These and other are among the main characteristics of XP.

As the project is quite dependent of the owner of the product and brokers so the system should be both flexible and easy to understand and with the lowest amount to of documentation to go through in the shortest amount of time which can be achieved by Extreme programming.

As the requirements of the brokers might change along the line of the development of the system of the development should be done in tight iteration this is an integral part of extreme programming.

Advantages

1.     It is iterative so specification can be changed. This ensures that the client gets what he wants even if the needs are changed over the period of time.

2.     The developer can change the code in the middle of an iteration.

3.     It incorporates pair programming.

Disadvantages

1.     The task is performed in a strict priority order this order cannot be changed during an iteration.

2.     It is focused on code rather than a design which is an important part of software projects

3.     It does not measure code quality assurance.

4.     XP will not work properly be the programmers are distributed geographically.

Methodology 2

Scrum

Scrum is a software development model used to manage complex software and product development. The iteration are of fixed size and fixed duration and are known as Sprints. Each sprints lasts from two to three weeks long, allow the team to release newer version of the software product on a regular cadence. After every Sprint all stockholders and development team met in order to discuss the next iteration.  It does not define any specific software development techniques for the implementation of a software. Scrum concentrates on how the team members should function in order to produce the system flexibly in a constantly changing environment.

As it is mentioned OZES is a young business and there are not many employee this kind of development is good for small projects. Also the initial plans seems clear from the case that was presented so it will be easy to start the work for the first few iterations. The priorities and the tasks are defined so it will easy and efficient to apply this method.

Advantages

1.     Short sprints and constant feedback, it’s easier to cope with and apply changes.

2.     Constant communication help in keeping the team aware of all the issues.by coding and testing the code in smaller chunks we can get continuous feedback of the system working.

Disadvantages

1.     If there is no end date specified it can cause the risk of scope creep. Stakeholders may be tempted to keep requesting additional functionality.

2.     You cannot make changes in the task in between an ongoing sprint.

3.     If the initial goals are unclear, planning becomes difficult and sprints can take more time than originally estimated.

Methodology 3

Feature Driven Development

The project is divided into features. These features are small pieces of a complete project. Now all the features are listed in a list of backlog and are sorted on the basis of priority. After these, each feature is developed individually and then integrated into the project. With the help of FDD, you can create design, code, and code inspection schedules without going into elaborate paperwork. The focus is more on relying on people and their roles for development.

As the different features are well defined as the creation of the information system, sale item system and customer relationship it is easy to gather specification and develop a feature in the system. This kind of work can be handled by the feature Driven approach.

Advantages

1.     Costing is easy to analysis as it depends on the number of features.

2.     Time allocated can be managed on the basics on the number of features added or deleted and the end date can set to accuracy.

3.     Good for long-term projects.

Disadvantages

1.     If the high-level scope of the system is not clear this system will fail.

2.     No written documentation, so there are no records or any proves.

3.     There is a lot of dependencies that lie on the head programmer as he has to do all the work like coordinating lead designing and to lead the team.

Methodology 4

Kanban

In Kanban the main emphasis is on continual delivery while not overstraining the development team. In Kanban system follow the simple three rules. Firstly, Visualize what to do today i.e. in this model we develop a plan for very short iteration and start the work. Limit the amount of work in progress. To progress flow i.e. if some work is completed the next higher thing in the backlog is taken up.

Kanban promotes continuous collaboration and encourages active, ongoing learning and improving by defining the best possible team workflow.

As the OZES is a new company even if it has a predefined requirement but these can change and if it change’s it can be easily incorporated in this development process. But this has a downside as it can overcomplicate things and may increase the time taken to do work. Or may also affect the whole project time.

Advantages

1.     Rapid feedback loops improve the changes of less amount on error and higher-performance of the team as a whole.

2.     The iteration is small of features are delivered faster

3.     Changes can be made at any time in the development cycle

4.     Reduces waste as the project requirements are always up to date so the team does not make anything that is not required.

Disadvantages

1.     No roles are prescribed. Of if something’s goes wrong there is less accountability on a specific person.

2.     Less effective in shared resource systems

3.     The quality of the product is low.

4.     Due to freeness on the changes the team can complicate the task at hand.

Recommendation

Form my study of your companies’ case and after understanding your need for the case study. I would like to recommend the Feature-based approach to development for the project because of the following reasons:

1.     The features of each of the different system are well defined

-For example, in Sale Item System you need a feature to record data of buyers, owner, items, and broker.

2.     As you are in the business of electrical parts for a while so there will be no drastic change in requirement.

3.     It will be good to integrate a feature and test as all the system are mostly work independently of each other. Even though they use data from each other but for testing purposes on trial basics it can be independent.

4.     As people are not used to changes to it will be easy to change slowly with one feature at a time rather than a new system as a whole like in waterfall model.

5.     Costing is easy to analysis as it depends on the number of features.

6.     Time allocated can be managed on the basics on the number of features added or deleted and the end date can set to accuracy.

7.     Good for long-term projects.