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Agile Research

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Research purpose

The purpose of this research is to come to understand the philosophy behind agile software development and to acquire the required knowledge to decide on what agile method works best for personal use.

Research methods

This research was done following the DOT framework. The following methods were used:

- Literature study
- Expert interview

What is Agile?

Agile is: “The ability to create and respond to change. It is a way of dealing with, and ultimately succeeding in, an uncertain and turbulent environment.” (agilealliance, n.d., What is Agile?)

Furthermore Agile is described as a mindset based upon the agile manifesto. From this mindset multiple methodologies followed. (agilealliance, n.d., Agile is a Mindset)

From these citations we can say that agile is a mindset that allows one to adapt and overcome changing environments.

What is agile development?

Agile software development follows the Agile mindset. Cprime (n.d., WHAT IS AGILE?) explains agile development in the following way:

“Agile software development refers to a group of software development methodologies based on iterative development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams.” And provides the following detail “Agile development refers to any development process that is aligned with the concepts of the Agile Manifesto.”

Agile development is developing with the focus on iterative development, meaning that developers should focus on quick release development so that feedback can be given and alterations can be made to the released product.

Agile manifesto

The agile manifesto came from a meeting of many industry leading developers and outlines the core ideas of agile. These ideas are as follows:

“We are uncovering better ways of developing
software by doing it and helping others do it.
Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on
the right, we value the items on the left more.” (agilemanifesto, 2001)

Agile principles

The agile manifesto are further supported by the agile principles. These principles are made in the spirit of the agile manifesto and are:

> "Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
>
> Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
>
> Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
>
> Business people and developers must work together daily throughout the project.
>
> Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
>
> The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
>
> Working software is the primary measure of progress.
>
> Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
>
> Continuous attention to technical excellence and good design enhances agility.
>
> Simplicity--the art of maximizing the amount of work not done--is essential.
>
> The best architectures, requirements, and designs emerge from self-organizing teams.
>
> At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly." (agilemanifesto, 2001)

Agile methods

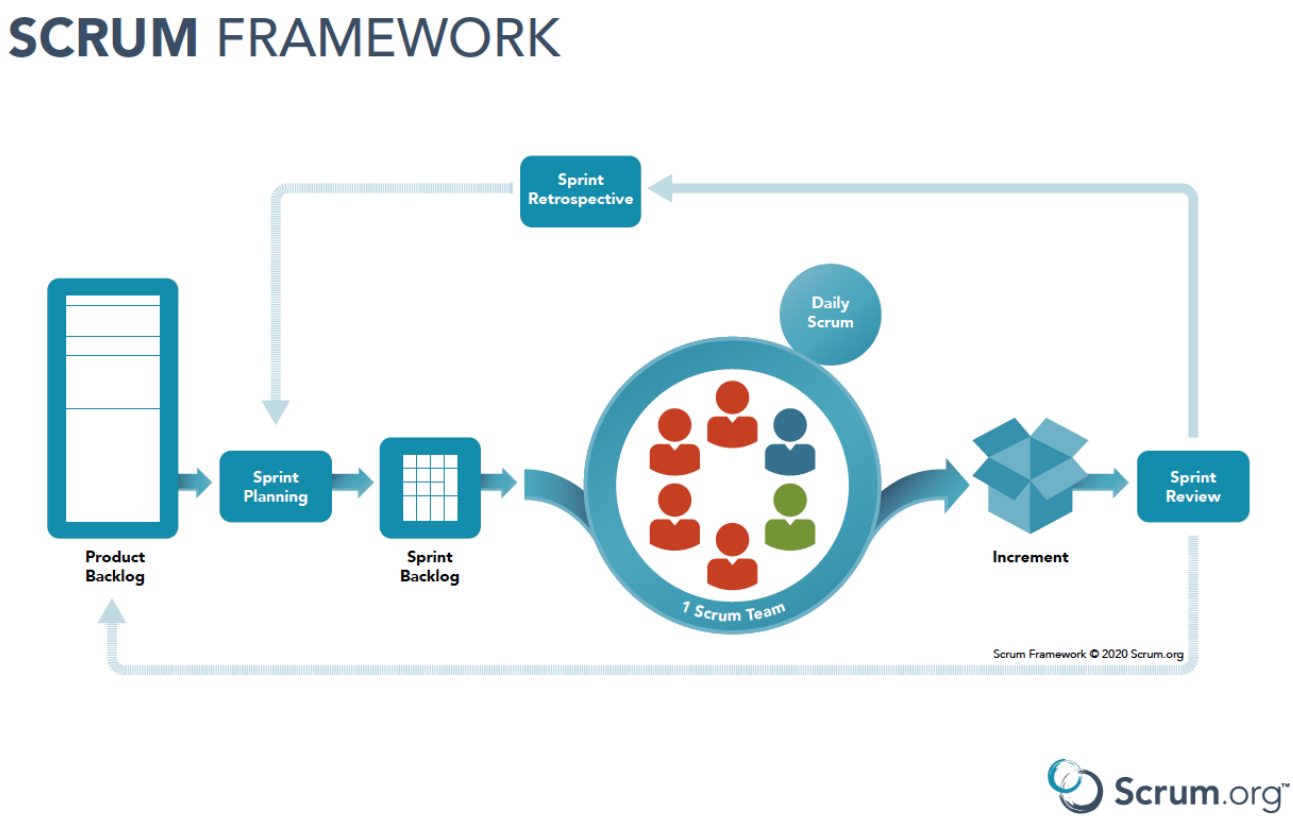
Multiple ways of following the agile manifesto have since been invented. All of these are methods to achieve the philosophy set out by agile software development.

Scrum

Scrum describes itself as:

"Scrum replaces a programmed algorithmic approach with a heuristic one, with respect for people and self-organization to deal with unpredictability and solving complex problems." (scrum, n.d.)

The flow of scrum can be seen in the following picture.



The fundament of scrum is the Scrum Team. This team consists of at least 1 product owner, 1 scrum master and multiple developers. There are no further subdivisions in this team, all professionals are focused on one objective at a time.

Scrum accepts that the requirements for a solution to a problem can not be known upfront and thus works on quick, iterative releases.

Extreme programming

Extreme programming has the core values of a flat hierarchy, quick releases, programming features when needed and having the goal of customer satisfaction.

Notable ideas in extreme programming are for example: programming in pairs, unit testing all code and code simplicity.
The name comes from the idea that normal programming practices taken to the extreme can be beneficial.

Kanban

Kanban literally means Billboard. This method was invented in Japan to be used in manufacturing. The idea of this method is to have a billboard upon which one can place notes. These notes signify tasks and their movements. In software development this can take the form of having a billboard with multiple columns such as To Do, In Progress, Review and Done. A task can be moved when its status changes.

Kanban is about continuous delivery and flow. (Atlassian, n.d.)

Agile in practice

To see how software development and software developers use agile in practice I, and other members of my group project, asked Timothy, employee of Mediaan and product owner of our group project, how they implement agile. I also asked Martin Drost, lead back-end developer at Hulan how they implemented agile.

Timothy showed us that their team uses scrum combined with Kanban. This Kanban board involved a large amount of columns including a blocked column which contained issues that were unable to progress due to external factors. Timothy described how pair programming was used in rare cases but the primary development method involved sprints and issues deriving from a user story and displayed on a Kanban.

Martin told me the following about Hulan's agile implementation. At Hulan they use a modified version of scrum in their projects. They work in sprints of two weeks and follow the sprint with a retrospective. They diverge from scrum in that they stopped using physical standups and instead use slack and an automated slackbot so that team members can give a concise report on their daily tasks.

After the two week sprint duration deployment follows a week later. This is so that a sprint can be properly tested, even with requested changes.

Martin mentions that a benefit of working this way is the low amount of time spend on unproductive meetings and the flexibility that you get as a developer. He however does recognise that this method of working is trust based and that trust violations will likely only come to light at the end of a sprint.

Agile tool for personal use

For my own group project I would recommend using scrum. The sprint iterations allow for us developers to dive into the chosen problems and learn how to best tackle them without worry that the given problems will change within the same sprint. As we are still learning a lot about different technologies this time to focus is very valuable.

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