Agile

***What is Agile***

Agile is an approach to manage projects where it breaks down a project into small chunks of tasks or increments and that the requirements, plans and results are evaluated continuously so the team has a quick response to changes.

***Agile history and core values***

Agile methodology was brought up by 17 engineers/designers at a ski resort in Utah in 2001 as an effort to reverse the existing waterfall model of software development. What happens in the waterfall model is that the top management issues an order that slowly trickles down to the developers below and none one would consult the programmers. As a result, a lot of projects failed due to being out of date by the time they were done. In contrast, Agile system encourages flexibility, adaptability and individual motivation. The 17 engineers wrote the Agile Manifesto that has 4 core values and 12 principles to clarify the method. Basically, Agile redefines the relationship between people and process, working software and heavy documentation, customers and development team and changes and responses.

* Individuals and interactions over processes and tools: Agile values individual’s motivation and innovation over a rigid process or tools. If an issue can be resolved through communication and interaction, then strictly following a process is not preferred due to inefficiency.
* Working software over comprehensive documentation: Agile saves developers from heavy documentation so they can focus on their tasks at hand. However, it does not mean there should be no documentation. Agile believes documentation should sever each development phase such as architectural and test case documentation but there is no need for a full documentation.
* Customer collaboration over contract negotiation: Previously customers only get involved in the pre-design meetings to discuss the product requirement and in the feedback session when the product is delivered. With Agile, customers have a collaborative relationship with the development team. Every two weeks or so, the team delivers an element, and the customer decides if it succeeds or fails. The team then goes back with the new requirements from the customers to make modifications and comes back in another two weeks to demonstrate the modifications or new features. With this on-going process there is stronger involvement of customers in the project, as a result there is significant increase in customer confidence and satisfaction, decrease in development cost and better product.
* Responding to change over following a plan: contrary to the Waterfall model, Agile welcomes changes, and values changes as the origin of innovation. Through communication, prioritization and planning the team responds to the customer changing requirements, product users’ feedback and market changes in every step of the project to make sure the success of the project.

***Agile implementation with Scrum***

* Scrum is one of the most popular methodologies to implement Agile projects. Many companies use Scrum or a hybrid of methods to achieve agile. It is perceived as a methodology or a platform.
* A scrum team is self-organized and there is no team leader to decide who works on what task. The team works together to solve any issues.
* The Scrum team consists of Scrum master, Product Owner and the team. Scrum master supports the team and makes sure everyone is performing at their highest level. Product owner makes sure the product development aligns with business requirements.

*Scrum process*

During a scrum process a project is broken down into several sprints. Each sprint usually takes two weeks and is focusing on one element.

* At the start of each sprint, the team has a planning meeting where they figure out how many features they can work on and create a sprint backlog.
* The scrum team then works on the features from idea to coding and testing.
* The team has a stand-up meeting every day in each sprint to share what they have worked on, what they will work on and any blockers.
* At the end of each sprint, the team demonstrate new functionality and receive feedback that will be reflected in the next sprint.

*Scrum artifacts/tools*

Scrum artifacts are the tools the team uses to get the work done. They are Product Backlog, Sprint backlog and the Product Increment.

* Product Backlog: The product backlog is a list of the functionality that remains to be added to the product. The product backlog is constantly revised and updated by the Product Owner. Product Owner also owns the product backlog.
* The Sprint backlog: The Scrum team members create the sprint backlog on the first day of a sprint at the planning meeting. The sprint backlog is the list of tasks the team needs to perform for each sprint.
* Increment: Increment is the end-product of each sprint.

***Agile implementation with Kanban & Extreme Programming***

Kanban is the Japanese word for “visual signal”. It uses a Kanban board either physically or a digital board to present work items for team members to better visualize the state of each work item. A Kanban board can contain five items: Cards/stickers, each of them contains a user story, Columns, which represents the steps in the workflow, WIP, or Work-In-Progress limit that limits the number of cards that can be in each column, Commitment Point and Delivery Point, which are simply the moment the team starts to work on the task and are ready to deliver the product.

### Extreme programing (XP) is another approach for Agile implementation. It takes its name from the idea that the beneficial elements of traditional software engineering practices are taken to "extreme" levels. For example, if code reviews are considered a beneficial practice it needs to be taken to extreme and therefore code will be reviewed continuously. XP has four areas: Pair programming where two programmers programming on one task, Planning game, which is a team planning meeting, Test driven development and Whole team where customer is regarded a team member and available for questions.

***Benefits of Agile and Agile application to non-software projects***

What happened to the companies that have adopted Agile principles? Harvard Business Review states in one of its blogs that over the past 25 to 30 years agile methods “have greatly increased success rates in software development, improved quality and speed to market and boosted the motivation and productivity of IT teams.”

Additionally, agile has spread over to other industries like manufacturing and retail. You may even find Agile in your personal life. For example, when you prepare a Thanksgiving party, the tasks are split. Someone prepares the food; someone sets the table, and someone greets visitors at the door. And each one is held accountable for his job. Bruce Feiler, the author of “The Secrets of Happy Family” went to Ted Talk and shared how he goes Agile to deal with the stress of everyday family life. The way they do it is they hold a weekly family meeting and in the meeting each family member would go through three questions. What have done well, what did not go well and what can we do about it. In this way kids are invited to join their parents to think about the issues and share their solutions to solve the problem. The benefits are not only that the stress level is reduced for the parents, but children learn to become more control of their lives. They adopted agile when their kids were five and three years later, they are still doing it and they love it.