

The waterfall model is a type of methodology used in businesses or whenever any project is needed to be created. It is one of the lesser flexible methodologies as progress typically flows in a single direction with concrete steps that need to be completed every time. There are 5 phases in the unmodified waterfall methodology. The first phase is requirements, in this step the group behind the project is writing up a product requirements document. This document includes what is needed to create a product. The next phase is design, during this step the group figures out a way how to actually solve the problem and how to create a product. Following the design phase is the implementation phase, during which the group actually builds or creates their product and implements it. The following phase is verification, during which the group makes sure that everything works exactly how it needs to and verifies everything. The last phase is maintenance, this phase is pretty self-explanatory but the group maintains the project and makes sure no problems arise. The maintenance phase also includes updating the product so that problems don't arise in the future. The whole methodology is called the waterfall method because every step flows downward from one to another.

The agile development is different from the waterfall method and doesn't have concrete phases like the waterfall methodology. Agile development focuses on 4 key aspects being individuals and interactions, working software, customer collaboration and responding to change. Individuals and interactions refers to competent people working together efficiently rather than having established processes and tools with a bad workforce. Working software refers to every part of a solution or program working exactly as intended and not having problems arise. Customer collaboration is a simple one, it just means working together with customers to ensure customer satisfaction. Responding to change, the last step is similar to the

maintenance step in the waterfall method. Responding to change as problems arise is a lot simpler than always having to follow the same steps and having to go through a whole process to make a minor change.

One of the differences between agile development and the waterfall method is the approach to quality and testing. In agile development software development is completed in the same phase as programming, whereas, in the waterfall model testing and the build phase are separate. Agile development is also in a whole different field of developments method than the waterfall model is. Agile development is a value-driven method compared to the waterfall method which is a formal method. In agile development there is a strong focus on low criticality, senior developers, requirements that change over, a small number of developers and a culture that responds to change. In the waterfall method there is a strong focus on extreme criticality, senior developers, limited requirements, requirements that can be modeled and extreme quality. To break this down a bit criticality is how important it is to have everything be perfect the first time around. Since agile is a lot less formal it is not as important because it will always change. Though for waterfall, by the end of the project everything needs to be perfect. Senior developers are required for both methodologies. In agile development requirements change often so its experienced developers need to adapt quickly, while in the waterfall method there are the same 5 phases for every project. Agile development typically has a small number of developers and this is very beneficial to have information passed from one person to another. In the waterfall method there are typically a lot of developers and information flow is typically a lot slower. Additionally, requirements can be modeled in the waterfall method because the same requirements are used for everything, however, in agile development there

is no strong focus on getting all requirements to be modeled. Moreover, agile development has a culture that responds to change. With its customer service and customer interaction it does just that. In the waterfall methodology, there is a strong focus on extreme quality and that is why waterfall takes longer to do because by the end of the project everything has to be perfect.