**Advantages of Waterfall Model:**

* It is one the easiest model to manage. Because of its nature, each phase has specific deliverables and a review process.
* It works well for smaller size projects where requirements are easily understandable.
* Faster delivery of the project
* Process and results are well documented.
* Easily adaptable method for shifting teams
* This project management methodology is beneficial to manage dependencies.

**Advantages of the Agile Model:**

* It is focused client process. So, it makes sure that the client is continuously involved during every stage.
* Agile teams are extremely motivated and self-organized so it likely to provide a better result from the development projects.
* Agile software development method assures that quality of the development is maintained
* The process is completely based on the incremental progress. Therefore, the client and team know exactly what is complete and what is not. This reduces risk in the development process.

**Limitations of Waterfall Model:**

* It is not an ideal model for a large size project
* If the requirement is not clear at the beginning, it is a less effective method.
* Very difficult to move back to makes changes in the previous phases.
* The testing process starts once development is over. Hence, it has high chances of bugs to be found later in development where they are expensive to fix.

**Limitations of Agile Model**

* It is not useful method for small development projects.
* It requires an expert to take important decisions in the meeting.
* Cost of implementing an agile method is little more compared to other development methodologies.
* The project can easily go off track if the project manager is not clear what outcome he/she wants.

## Difference between Agile and Waterfall Model:

Below is a difference between Agile and Waterfall methodologies:

|  |  |
| --- | --- |
| **Agile** | **Waterfall** |
| It separates the project development lifecycle into sprints. | Software development process is divided into distinct phases. |
| It follows an incremental approach | Waterfall methodology is a sequential design process. |
| Agile methodology is known for its flexibility. | Waterfall is a structured software development methodology so most times it can be quite rigid. |
| Agile can be considered as a collection of many different projects. | Software development will be completed as one single project. |
| Agile is quite a flexible method which allows changes to be made in the project development requirements even if the initial planning has been completed. | There is no scope of changing the requirements once the project development starts. |
| Agile methodology, follow an iterative development approach because of this planning, development, prototyping and other software development phases may appear more than once. | All the project development phases like designing, development, testing, etc. are completed once in the Waterfall model. | <https://scontent.fhan14-1.fna.fbcdn.net/v/t39.30808-6/298616763_139370518782677_5058457625330332159_n.png?_nc_cat=102&ccb=1-7&_nc_sid=dbeb18&_nc_ohc=Rc8ZVF92c3oAX9TdPrW&_nc_ht=scontent.fhan14-1.fna&oh=00_AT8hltYPFfPuNN3vf3rvO8URFpFtogLk_ayjCGTB8ePfcQ&oe=62FBEC33> |
| Test plan is reviewed after each sprint | The test plan is rarely discussed during the test phase. |
| Agile development is a process in which the requirements are expected to change and evolve. | The method is ideal for projects which have definite requirements and changes not at all expected. |
| In Agile methodology, testing is performed concurrently with software development. | In this methodology, the “Testing” phase comes after the “Build” phase |
| Agile introduces a product mindset where the software product satisfies needs of its end customers and changes itself as per the customer’s demands. | This model shows a project mindset and places its focus completely on accomplishing the project. |
| Agile methdology works exceptionally well with Time & Materials or non-fixed funding. It may increase stress in fixed-price scenarios. | Reduces risk in the firm fixed price contracts by getting risk agreement at the beginning of the process. |
| Prefers small but dedicated teams with a high degree of coordination and synchronization. | Team coordination/synchronization is very limited. |
| Products owner with team prepares requirements just about every day during a project. | Business analysis prepares requirements before the beginning of the project. |
| Test team can take part in the requirements change without problems. | It is difficult for the test to initiate any change in requirements. |
| Description of project details can be altered anytime during the SDLC process. | Detail description needs to implement waterfall software development approach. |
| The Agile Team members are interchangeable, as a result, they work faster. There is also no need for project managers because the projects are managed by the entire team | In the waterfall method, the process is always straightforward so, project manager plays an essential role during every stage of SDLC. |

