

**The Waterfall Model:** Is a sequential design process, used in software development processes, in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of conception, initiation, analysis, design, construction, testing, production/implementation and maintenance.

**Agile Development:** Is a group of software development methods in which solutions evolve through collaboration between self-organizing, cross-functional teams. It promotes adaptive planning, evolutionary development, early delivery, continuous improvement, and encourages rapid and flexible response to change.

**Advantages of Waterfall Model:**

- Simple and easy to use.
- Easy to manage due to the rigidity of the model- each phase has specific deliverables and a review process.
- Phases are processed and completed one at a time.
- Works well for smaller projects where requirements are very well understood.

**Disadvantages of Waterfall Model:**

- No working software is produced until late during the life cycle
- High amount of risk and uncertainty
- Poor model for complex and object-oriented projects.
- Poor model for Long and ongoing projects.
- Poor Model where requirements are at a moderate to high risk of changing.

**Advantages of Agile Model:**

- Adaptive to the changing environment.
- Agile helps to speed up the SDLC phases and bypasses process steps that add little value to the project.
- Engages the stakeholders continuously so that the new requirements are gathered faster and there is no scope for guess work by the teams.
- Saves cost, time and efforts by following iterative incremental work delivery and thereby identifying deviations early.
- Least documentation.
- Provides the end result of higher quality of the software delivered and a highly satisfied customer.

**Disadvantage of Agile Model:**

- Time consuming and wastage of resources because of constant change of requirements.
- More helpful for management than developer.
- Only senior developers are in a better position to take the decisions necessary for the agile type of development.
- Once teams become bigger, agile methodologies begin to fail, as they don't scale to large teams, or teams spread across geographies.
- If the projects are large then it becomes difficult to judge the efforts and the time required for the project in the software development life cycle.