**COMPARISON AND EFFICIENCY OF THE VARIOUS METHODOLOGY**

**WATER FALL**

The **waterfall model** is a breakdown of project activities into linear [sequential](https://en.wikipedia.org/wiki/Sequence) phases, where each phase depends on the deliverables of the previous one and corresponds to a specialization of tasks.[[1]](https://en.wikipedia.org/wiki/Waterfall_model#cite_note-:0-1) The approach is typical for certain areas of [engineering design](https://en.wikipedia.org/wiki/Engineering_design). In [software development](https://en.wikipedia.org/wiki/Software_development_process),[[1]](https://en.wikipedia.org/wiki/Waterfall_model#cite_note-:0-1) it tends to be among the less iterative and flexible approaches, as progress flows in largely one direction ("downwards" like a [waterfall](https://en.wikipedia.org/wiki/Waterfall)) through the phases of conception, initiation, [analysis](https://en.wikipedia.org/wiki/Analysis), [design](https://en.wikipedia.org/wiki/Software_design), [construction](https://en.wikipedia.org/wiki/Software_construction), [testing](https://en.wikipedia.org/wiki/Software_testing), [deployment](https://en.wikipedia.org/wiki/Implementation) and [maintenance](https://en.wikipedia.org/wiki/Software_maintenance). The waterfall development model originated in the [manufacturing](https://en.wikipedia.org/wiki/Manufacturing) and [construction](https://en.wikipedia.org/wiki/Construction) industries,[] where the highly structured physical environments meant that design changes became prohibitively expensive much sooner in the development process. When first adopted for software development, there were no recognised alternatives for knowledge-based creative work.

**AGILE**

An agile methodology is an**iterative approach to software development**. Each iteration of agile methodology takes a short time interval of 1 to 4 weeks. The agile development process is aligned to deliver the changing business requirement. Each iteration of agile methodology takes a short time interval of 1 to 4 weeks. The agile development process is aligned to deliver the changing business requirement. It distributes the software with faster and fewer changes.

**SCRUM**

The Scrum methodology is an agile framework that helps organizations facilitate team collaboration and simplifies complex projects by indicating what the Scrum team needs to do, how they should do the tasks but not in detail. So, in essence, it's not a formal methodology as it only presents the methodology's structure, leaving scrum teams to create their own, emphasizing teamwork.The Scrum methodology suggests that cross-functional teams should work on progress through a series of sprints or time-boxed periods to ensure the quality of products and allowing the development team to adapt to changes along the way.Before a sprint starts, the Scrum team will undergo 'sprint planning' to discuss the product backlog items they need to prioritize and place in the sprint backlog. Each phase, iteration, or sprint can last between 2 weeks and a month, where each sprint aims to build essential features first, coming out with a potentially 'releasable' or 'usable' product. At the end of the sprint, these deliverable products should be ready for the customer's use, and the Scrum approach encourages a Scrum team to review each sprint through a sprint review or sprint retrospective. Doing this allows team members to see what areas they lagged on this sprint and make changes for the upcoming sprint.

NB**: THE EFFICIENCY ANY OF THE METHODOLOGY ADOPTED DEPENDS ON THE NATURE OF THE PROJECT**