waterfall model

Advantages of waterfall model

1)This model is simple and easy to understand and use.
2)It is easy to manage due to the rigidity of the model – each phase has specific deliverables and a review process.
3)In this model phases are processed and completed one at a time. Phases do not overlap.
4)Waterfall model works well for smaller projects where requirements are clearly defined and very well understood.

Disadvantages of waterfall model

1)Once an application is in the testing stage, it is very difficult to go back and change something that was not well-thought out in the concept stage.

2)No working software is produced until late during the life cycle.

3)High amounts of risk and uncertainty.

4)Not a good model for complex and object-oriented projects.

5)Poor model for long and ongoing projects.

6)Not suitable for the projects where requirements are at a moderate to high risk of changing.

Incremental Model

Advantages of Incremental Model

1)Generates working software quickly and early during the software life cycle.

2)More flexible – less costly to change scope and requirements.
3)Easier to test and debug during a smaller iteration.
4)Easier to manage risk because risky pieces are identified and handled during its iteration.
5)Each iteration is an easily managed milestone.

Disadvantages of Incremental Model

1)Each phase of an iteration is rigid and do not overlap each other.

2)Problems may arise pertaining to system architecture because no a

requirements are gathered up front for the entire software life cycle.

Spiral model:

Advantages of Spiral model:

1)High amount of risk analysis hence, avoidance of Risk is enhanced.
2)Good for large and mission-critical projects.
3)Strong approval and documentation control.
4)Additional Functionality can be added at a later date.
5)Software is produced early in the software life cycle.
6)Project estimates in terms of schedule, cost etc become more and more realistic as the project moves forward and loops in spiral get completed.
7)It is suitable for high risk projects, where business needs may be unstable.

Disadvantages of Spiral model:

1)Can be a costly model to use.
2)Risk analysis requires highly specific expertise.
3)Project’s success is highly dependent on the risk analysis phase.
4)Doesn’t work well for smaller projects.
5)It is not suitable for low risk projects.
6)May be hard to define objective, verifiable milestones.
7)Spiral may continue indefinitely.

Iterative Model:

Advantages of Iterative Model:

1)Some working functionality can be developed and early in the software development life cycle (SDLC).
2)It is easily adaptable to the ever changing needs of the project as well as the client.
3)It is best suited for agile organisations.
4)It is more cost effective to change the scope or requirements in Iterative model.

5)Parallel development can be planned.

6)Testing and debugging during smaller iteration is easy.

7)Risks are identified and resolved during iteration; and each iteration is an easily managed.

8) iterative model less time is spent on documenting and more time is given for designing.

9)One can get reliable user feedback, when presenting sketches and blueprints of the product to users for their feedback.

Disadvantages of Iterative Model:

1)More resources may be required.

2)Although cost of change is lesser, but it is not very suitable for changing requirements.

3)More management attention is required.

4)It is not suitable for smaller projects.

5)Highly skilled resources are required for skill analysis.

6)Project progress is highly dependent upon the risk analysis phase.

7)Defining increments may require definition of the complete system.

V-model:

Advantages of V-model:

1)Simple and easy to use.
2)Testing activities like planning, test desingning happens well before coding. This saves a lot of time. Hence higher chance of success over the waterfall model.
3)Proactive defect tracking – that is defects are found at early stage.
4)Avoids the downward flow of the defects.
5)Works well for small projects where requirements are easily understood.

Disadvantages of V-model:

1)Very rigid and least flexible.
2)Software is developed during the implementation phase, so no early prototypes of the software are produced.
3)f any changes happen in midway, then the test documents along with requirement documents has to be updated.

RAD model

Advantages of the RAD model:

1)Reduced development time.
2)Increases reusability of components
3)Quick initial reviews occur
4)Encourages customer feedback

Disadvantages of RAD model:

1)Depends on strong team and individual performances for identifying business requirements.
2)Only system that can be modularized can be built using RAD
3)Requires highly skilled developers/designers.
4)High dependency on modeling skills
5)napplicable to cheaper projects as cost of modeling and automated code generation is very high.

Agile model

Advantages of Agile model:

1)Customer satisfaction by rapid, continuous delivery of useful software.
2)People and interactions are emphasized rather than process and tools. Customers, developers and testers constantly interact with each other.
3)Working software is delivered frequently (weeks rather than months).
4)Face-to-face conversation is the best form of communication.
5)Close, daily cooperation between business people and developers.
6)Continuous attention to technical excellence and good design.
7)Regular adaptation to changing circumstances.

Disadvantages of Agile model:

1)In case of some software deliverables, especially the large ones, it is difficult to assess the effort required at the beginning of the software development life cycle.
2)There is lack of emphasis on necessary designing and documentation.
3)The project can easily get taken off track if the customer representative is not clear what final outcome that they want.
4)Only senior programmers are capable of taking the kind of decisions required during the development process. Hence it has no place for newbie programmers, unless combined with experienced resources.

Prototype model:

Advantages of Prototype model:

1)Users are actively involved in the development
2)Since in this methodology a working model of the system is provided, the users get a better understanding of the system being developed.
3)Errors can be detected much earlier.
4)Quicker user feedback is available leading to better solutions.
5)Missing functionality can be identified easily
6)Confusing or difficult functions can be identified
Requirements validation, Quick implementation of, incomplete, but functional, application.

Disadvantages of Prototype model:

1)ads to implementing and then repairing way of building systems.
2)actically, this methodology may increase the complexity of the system as scope of the system may expand beyond original plans.
3)cmplete application may cause application not to be used as the full system was designed incomplete or inadequate problem analysis.

Big Bang Model

Advantages of Big Bang Model:

The advantage of Big Bang is that it’s very simple and easy to implement. This model requires very little or no planning. There is no formal procedure are required before starting of any project so this model is easy to manage. It is ideal for repetitive or small projects with minimum risks.

Disadvantages of Big Bang Model:

Due to there is no pre planning required before starting the project hence the Big Bang model is a very high risky model. In addition if changes in the requirements or misunderstood requirements may even lead to complete reversal or scraping of the project.