Waterfall – used in system development life cycle to create a system with a linear and sequential approach. It is termed as waterfall because the model develops systematically from one phase to another in a downward fashion.

Pros – Before the next phase of development, each phase must be completed

* Suited for smaller projects where requirements are well defined
* Any changes in software is made during the process of the development

Cons – Error can be fixed only during the phase

* It is not desirable for complex project where requirement changes frequently
* Clients valuable feedback cannot be included with ongoing development phase

Spiral – a risk-driven software development process model. Based on the unique risk patterns of a given project, the spiral model guides a team to adopt elements of one or more process models, such as incremental, waterfall, or evolutionary prototyping.

Pros – Continuous or repeated development helps in risk management

* Development is fast and features are added in a systematic way
* Additional functionality or changes can be done at a later stage

Cons – Risk of not meeting the schedule or budget

* For its smooth operation spiral model protocol needs to be followed strictly
* Documentation is more as it has intermediate phases

Iterative – a mathematical procedure that uses an initial guess to generate a sequence of improving approximate solutions for a class of problems, in which the n’th approximation is derived from the previous ones.

Pros – Generates working software quickly and early during the software life cycle.

* More flexible – less costly to change scope and requirements.
* Easier to manage risk because risky pieces are identified and handled during its iteration.

Cons – Each phase of an iteration is rigid and do not overlap each other.

* More resources may be required.
* More management attention is required

Prototype – a systems development method in which a prototype is built, tested and then reworked as necessary until an acceptable outcome is achieved from which the complete system or product can be developed.

Pros – Reduced time

* Improved and increased user involvement
* Reduced costs

Cons – insufficient analysis

* Excessive development time
* Users can confuse it for the finished product

AGILE – a systems development method in which requirements change frequently.

Pros – Reduced time, it is very fast

* Improved user involvement, interactions
* Can adapt to changes

Cons – less predictability

* Greater demands on clients and workers (interactions)
* Can easily fall off track