

# Waterfall vs. Incremental vs. Spiral vs. Rad Model: Key Difference

Details

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To manage the level of complexity during the software development cycle, various SDLC model is implemented by the software companies. Their aim is to deliver a quality software product, however each model is unique in terms of their software development approach. To effectively learn the SDLC models we will compare the various models of Software Engineering. Here we will see how each model differs from other in terms of cost, time duration, requirements, maintenance etc.

## Comparison of Various SDLC Models

| Properties of Model           | Water-Fall Model                 | Incremental Model                      | Spiral Model                        | Rad Model                  |
|-------------------------------|----------------------------------|--|-------------------------------------|----------------------------|
| Planning in early stage       | Yes                              | Yes                                    | Yes                                 | No                         |
| Returning to an earlier phase | No                               | Yes                                    | Yes                                 | Yes                        |
| Handle Large-Project          | Not Appropriate                  | Not Appropriate                        | Appropriate                         | Not Appropriate            |
| Detailed Documentation        | Necessary                        | Yes but not much                       | Yes                                 | Limited                    |
| Cost                          | Low                              | Low                                    | Expensive                           | Low                        |
| Requirement Specifications    | Beginning                        | Beginning                              | Beginning                           | Time boxed release         |
| Flexibility to change         | Difficult                        | Easy                                   | Easy                                | Easy                       |
| User Involvement              | Only at beginning                | Intermediate                           | High                                | Only at the beginning      |
| Maintenance                   | Least                            | Promotes Maintainability               | Typical                             | Easily Maintained          |
| Duration                      | Long                             | Very long                              | Long                                | Short                      |
| Risk Involvement              | High                             | Low                                    | Medium to high risk                 | Low                        |
| Framework Type                | Linear                           | Linear + Iterative                     | Linear + Iterative                  | Linear                     |
| Testing                       | After completion of coding phase | After every iteration                  | At the end of the engineering phase | After completion of coding |
| Overlapping Phases            | No                               | Yes (As parallel development is there) | No                                  | Yes                        |
| Maintenance                   | Least Maintainable               | Maintainable                           | Yes                                 | Easily Maintainable        |
| Re-usability                  | Least possible                   | To some extent                         | To some extent                      | Yes                        |
| Time-Frame                    | Very Long                        | Long                                   | Long                                | Short                      |

| <b>Properties of Model</b>          | <b>Water-Fall Model</b>      | <b>Incremental Model</b>      | <b>Spiral Model</b>           | <b>Rad Model</b>             |
|-------------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------|
| Working software availability       | At the end of the life-cycle | At the end of every iteration | At the end of every iteration | At the end of the life cycle |
| Objective                           | High Assurance               | Rapid Development             | High Assurance                | Rapid development            |
| Team size                           | Large Team                   | Not Large Team                | Large Team                    | Small Team                   |
| Customer control over administrator | Very Low                     | Yes                           | Yes                           | Yes                          |