# Software Development Processes (Methods)

Wang Bohua (student No.13211228)
Zhejiang Normal University

**Abstract**

This short report gives a brief and concise explanation to how to develop a software and what method it has. The report has been formatted, so whether or not you want to doing some works about software development, this report maybe can help you. Software development is a very complex process, and there are so many methods in development. In this article, I will introduce some of these methods, and I will also introduce the history of the methods. I hope it can help you to understand the software management process.

keywords: software development, methods, history of the methods.

## 1 Introduction

In software engineering, a software development methodology is a splitting of software development work into distinct phases containing activities with the intent of better planning and management. It is often considered a subset of the systems development life cycle. The methodology may include the pre-definition of specific deliverables and artifacts that are created and completed by a project team to develop team to develop or maintain an application.

Common methodologies include waterfall, V model, spiral, prototyping, incremental, iterative, transformational and various types of agile methodology. Some people consider a lift-cycle "model" a more general term for a category of methodologies and a software development "process" a more specific term to refer to a specific process chosen by a specific organization. For example, there are many specific software development processes that fit the spiral life-cycle model.

## 2 Introduce various of methods

### Waterfall model

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.

The waterfall development model originates in the manufacturing and construction industries: highly structured physical environments in which after-the-fact changes are prohibitively costly, if not impossible. Because no formal software development methodologies existed at the time, this hardware-oriented model was simply adapted for software development.

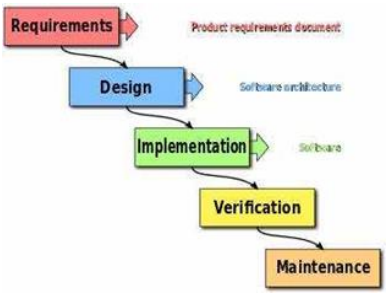


**figure 1:** The unmodified "waterfall model"

### V model

In software development, the V-model represents a development process that may be considered an extension of the waterfall model, and is an example of the more general V-model. Instead of moving down in a linear way, the process steps are bent upwards after the coding phase, to form the typical V shape. The V-Model demonstrates the relationships between each phase of the development life cycle and its associated phase of testing. The horizontal and vertical axes represents time or project completeness (left-to-right) and level of abstraction (coarsest-grain abstraction uppermost), respectively.

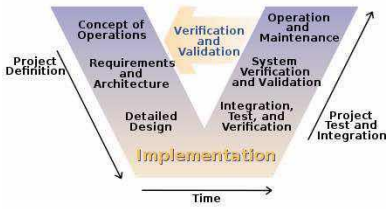


**figure 2:** The V-model of the Systems Engineering Process.

### Spiral model

The spiral model is a risk-driven process model generator for software projects. 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.

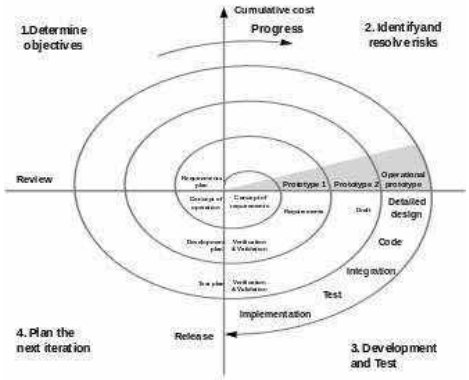


**figure 3:** Spiral model (Boehm, 2000)

### Other models

There also have other models in software development, we can learn them in the internet and books.

## History

The software development methodology (also known as SDM) framework didn't emerge until the 1960s. According to Elliott (2004) the systems development life cycle (SDLC) can be considered to be the oldest formalized methodology framework for building information systems. The main idea of the SDLC has been "to pursue the development of information systems in a very deliberate, structured and methodical way, requiring each stage of the life cycle—from inception of the idea to delivery of the final system—to be carried out rigidly and sequentially" within the context of the framework being applied. The main target of this methodology framework in the 1960s was "to develop large scale functional business systems in an age of large scale business conglomerates. Information systems activities revolved around heavy data processing and number crunching routines"

## Overview

There are so many software management process methods, each method has its special and its good and bad, we should choose their in a right way.

## References

Wikipedia