



Cawangan Negeri Sembilan

What's *what* FSKM

eISSN: 2756-7729

VOLUME 1/2022

EDITORIAL BOARD

PATRON

Prof. Dr. Yamin Yasin

HEAD

Siti Noor Dina Ahmad

CHIEF EDITOR

Dr. Farizuwana Akma Zulkifle

EDITORIAL COMMITTEE

Dr. Farizuwana Akma Zulkifle

Ts. Dr. Ratna Zuarni Ramli

Intan Syaherra Ramli

Mahfuzah Mahayadin

Jamaliah Mohd Taib

GRAPHIC AND LAYOUT

Siti Zaharah Mohd Ruslan

Nor Ashikin Sahrom

Dr. Nur Ida Aniza Rusli

Siti Noor Dina Ahmad

 fskm_kp@uitm.edu.my

 FSKM UITM Kuala Pilah

 FSKM UITM Kuala Pilah

IS THE WATERFALL MODEL STILL RELEVANT TODAY?

Dr. Nur Ida Aniza Rusli
Fakulti Sains Komputer & Matematik
Universiti Teknologi MARA, Cawangan Negeri Sembilan, Kampus Kuala Pilah
idaaniza@uitm.edu.my

Introduction

Our daily lives have become more dependent on software applications. The use of software applications allows us to automate a variety of processes at home, educational institutions, medical fields and many more. However, if you explore more on software technology, you will find that developing a robust software application involves a lot more than just technical expertise.

A software process model can be helpful in this situation. A software process model is an abstract representation of the development process [1]. It helps software development teams outline critical aspects such as the software functionalities, systems flows and the roles of people involved in the software.

Many different process models, such as the Waterfall model, the Agile model, and the Spiral model, have been proposed over the years to enhance the quality of software development projects.

However, there is no suitable software model that applies to all types of software projects.

Therefore, choosing the right software process model is crucial since it may have a significant impact on the quality, usefulness, and development costs of the software project.

What is Waterfall Model?

Waterfall model is one of the software development methodologies that was introduced by Dr. Winston W. Royce in 1970 [2]. The Waterfall model, also known as an example of sequential methodology, was the first model that was widely used in the software industry.

It consists of five phases:

- Requirement analysis
- System and software design
- Implementation and unit testing
- Integration and system testing
- Operation and maintenance

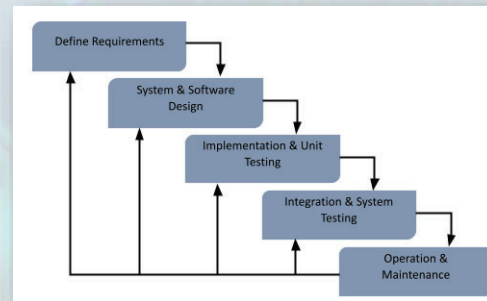


Figure 1: Waterfall Model

Waterfall Model Dwindling in Popularity

Despite the Waterfall model's being highly structured, this model is viewed as quite a rigid design, due to its linear principle, where it advances to the next phase only when everything in the previous phase has been completed. The following are the reasons why many software development teams avoid employing this model.

- Leading to longer delivery times. A software project may take a longer time to complete compared to the estimated delivery time since each phase requires the completion of all tasks prior to proceeding to the next phase. This can be harmful to the project's success.
- It limits overall creativity and flexibility. Project team members are unable to utilize any significant input or meaningful suggestions that may arise during the development process.
- It can be more costly. The Waterfall model demands their practices to define project requirements, at an early phase. So, it is difficult for the team members to make adjustments for the new requirements especially if the projects have finished at a certain phase. As a result, it will entail costly reworks to accommodate the new requirements.
- Not suitable for complex and large-scale projects. The waterfall model is not recommended for those who are planning to develop complex and large-scale projects since they will frequently change their plans.

Advantages of Waterfall Model

Even though many software development industries regard the Waterfall model as a rather obsolete methodology, this model, however, is not completely abandoned by the industry. Statistics show that 44% of software projects still adapt this model to their projects due to its benefits, such as:

- It is straightforward and easy to implement. Some software process models need specialized training before they can be applied. As the Waterfall model is straightforward to understand, team members don't have to invest their time learning about the model. This is very beneficial to the teams, especially for the newcomers.
- Milestones and deadlines are well-defined. Because of the linear progression framework, the organization and the teams can track their progress and ensure they are adequately equipped before entering the next phase. The Waterfall model will be favorable to the clients too, as they will know when they can expect to get their product.
- It is well-suited for small projects.

Conclusion

- Nowadays, most businesses are shifting to the Agile methodology since it allows them to provide feedback to customers and adapt more rapidly to market developments. However, the Waterfall model is not expected to disappear anytime soon and remains relevant to the projects that are a good fit for it. The Waterfall is still useful for certain projects with consistent requirements and with a fixed timeline and budget.

References:

- [1] Sulemi M. (2021). Retrieved from <https://www.educative.io/blog/software-process-model-types>
- [2] Gaille L. (2020). Retrieved from <https://vittana.org/15-advantages-and-disadvantages-of-a-waterfall-model>
- [3] Singh A.(2019). Retrieved from <https://www.getapp.com/resources/waterfall-versus-agile-project-management/>