Project management plays a very vital role in the successful completion of the project. There are different ways to proceed with the execution of the project plan amongst which we are focusing on predictive and agile methodologies/ approaches.

To understand the differences between these models, we first need to understand their workflow. The predictive methodology, also known as the waterflow method, focuses on planning and analyzing the project's future in-depth for anticipated risks. It relies on an early phase analysis and a detailed breakup of features and tasks for the entire development process. In this traditional model, we determine the critical path and standard timelines to complete tasks, dependencies between tasks, and the projected completion date. It is a very rigid model since the tasks get activated only when the previous tasks are completed, and it is quite challenging to change the direction of the project if something goes wrong. The Agile methodology is an iterative model where the entire project is split into sprints (a sprint consists of a specified number of tasks), and the product is delivered after each sprint. The difference between these models are as follows:

- Agile is an iterative/ incremental approach whereas predictive method is a sequential design process
- Agile is a flexible method that allows changes in the project requirements even if the initial planning has been completed. In predictive methodology, there is no scope for changing the requirements once the project development starts.
- Agile is customer-centric which satisfies the needs of its end customers and changes itself as per the customer's demands whereas the primary focus of the predictive model is to accomplish the project
- Agile requires a high degree of coordination and synchronization for project execution whereas synchronization is very limited in the predictive approach.
- Budgeting in agile is not fixed as the cost might change as per the new demand, which might be stressful. The price almost remains fixed in the predictive model

Construction Management Plan

A construction plan typically has the following phases: planning, designing, construction, testing, delivery, and project closeout. Generally, the process is sequential and has multiple contractors working individually with negligible interaction amongst each other. For example, the designer only focuses on sketching the architecture/ layout of the building and has no contact with the construction team which manages the labor and materials. Additionally, cost plays a very important role in the construction project. It is estimated in the planning phase so that all the necessary funds are gathered to initiate the work. The cost of the project is supposed to remain fixed through the project and any changes in the plan are generally not welcomed. However, a significant number of projects might have delays, and its cost increases. This might be due to lack of material availability, increased labor wages, and many more. Thus, to complete the project, an efficient project management plan is required. The following are the advantages and disadvantages of using the above project management plan methodologies:

Agile Approach:

Since construction management is sequential, agile is a very poor approach. The following are its advantages and disadvantages:

Advantages:

- It has high customer satisfaction since the entire project is built based on customer's requirements.
- Different teams work in collaboration and share similar goals and objectives
- Since the team is comprised of skilled members, root causes of the issues, delays, or problems are identified and fixed easily.

Disadvantages:

- Implementation of agile methodology is difficult.
- The costs of the project might increase which is not acceptable in these types of projects.
- Collaboration of different professionals to work as a single team is difficult, and hiring these many would significantly increase the budget of the project

Predictive Approach:

The predictive methodology aligns with the nature of the construction management plan and has the following advantages and disadvantages:

Advantages:

- Implementation of predictive approach is easy when compared to agile
- The costs of the project are almost fixed
- Since there is the least interaction between the teams of different phases, the contractor-based approach is efficient in handling issues. For example, delays can result due to not having the right material, delayed transportation, etc. which impacts the project timeline. In these cases, the construction team completely takes care of these problems
- A smaller number of professionals are hired because of the contractor-based system which makes it less expensive than agile

Disadvantages:

- The project plan is fixed so no changes can be made in the future
- It might fail to provide customer satisfaction
- Since it is a sequential model, any error in the initial part of the process might lead to the failure of the entire project