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Agile vs. Waterfall: Choosing the right project management methodology



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Understanding the differences between Agile and Waterfall will help you choose the best project management methodology. Depending on which study you read, you'll find **failure rates for large IT projects range anywhere from 30 to 90 percent** (<https://www.smartinsights.com/managing-digital-marketing/web-project-management/percentage-projects-fail-chartoftheday>). Whatever the number, it is an astonishing figure considering the strategic importance of many of today's IT initiatives.

Managing a project is difficult under the best conditions. But **software development** (<https://thinkbridge.com/software-services/>) projects can be especially challenging given constant technological innovation and ever-changing business needs.

The key is to not only create solutions quickly and efficiently but to get them right the first time. That's why it's vital for development teams to have a well-defined project methodology in place. By following a structured framework to drive the project and benchmark success, project managers can effectively manage the complexity and variability of IT and software systems and reduce the risk of costly rework.

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Two of the most popular project management methodologies are Agile and Waterfall. Both of these are solid, mature methodologies and are popular for diverse reasons. When it comes to choosing between the two, neither is inherently better than the other. Instead, each method is useful in certain situations.

To determine the right method, consider the amount of flexibility your project should have and which features and elements best fit your requirements. Assess your project scope and size, the composition of your team, its culture, and what you aim to achieve. Even if your organization supports a particular model, there are usually opportunities for you to enhance your chosen method and tweak it to your unique needs.

The Agile model

Agile practices are best suited to projects that require constant improvements and need the flexibility to adapt to varying requirements. As tasks are completed, they can be evaluated by the development team and customer and adapted to meet changing requirements. The multiple development phases can be completed in parallel, with deliverables prioritized by business value as determined by the customer.



AGILE

A methodology that uses an iterative, incremental approach to emphasize the rapid delivery of an application in complete functional components. If all planned work for the project phase is not completed, work is reprioritized and the information is used for future phase or “sprint” planning.

The objective of each project phase is to deliver a functioning product that can be evaluated for feedback and shown as evidence of progress. Any recommendations are directed to future phases. Agile offers the prospect for ongoing improvement and is highly flexible. In today’s fluid market, where software development needs to be fast and efficient, Agile offers an attractive option.

Advantages

Speed

Working software can be delivered quickly and at a consistent pace.

Flexibility

The process adapts to changes as they occur, which allows for immediate customer feedback that can be used in the next iteration.

Predictability

Since every phase is of a fixed-time period, project timelines are easier to predict.

Value focused

Development is often more value-focused, which helps fulfill specific end-user needs

needs.

Disadvantages

Continuous Testing

Testing is needed throughout the project, which can stretch resources and increase costs.

Collaboration

Frequent customer involvement can add to implementation time and expense.

Scope complexity

The iterative nature of Agile development can create complications in defining the project scope, making it challenging to estimate fixed-priced projects.

The Waterfall method

The Waterfall method's linear approach makes it simpler to manage and understand. Projects with straightforward objectives and established requirements are good candidates for the Waterfall method.



Known as the traditional method of software development, Waterfall is a fixed, linear methodology that comprises sequential phases. Since each phase is sequential, after a step is completed, there is typically no way for developers to revisit an earlier step to alter the project or its direction.

Project managers and project teams with less experience and teams whose members change frequently may gain the most from following the Waterfall method. However, because of its inflexible structure and strict controls, there is little room for modification or error. Therefore, a project outcome and a detailed plan must be established from the start and followed carefully.

Advantages

Well documented

Each phase calls for comprehensive documentation, which makes it easier to leverage code of previous projects and develop a solid base for upcoming projects.

Firm deadlines

A defined starting point and a fixed evaluation process for each phase make it easier to estimate costs and meet timelines.

Well organized

Clearly defined projects with sequential workflows help simplify status updates to all project stakeholders.

Disadvantages

Difficult to modify

Since testing and feedback don't occur until late in the project, modifications and improvements can be complex and costly to implement.

Lack of oversight

Since requirements are often unknown when a project is initiated, designers can't always foresee problems that may arise out of the implementation process.

Delivery Speed

Due to the sequential approach, when requirements do change, the project has to be started from the beginning with completely new code.

Evaluating best-fit project types

With its linear model and clear specifications, it might seem that Waterfall may require less time with better control compared to Agile, where you often have multiple iterations. This is accurate to some degree. However, because products are thoroughly tested with Agile, products can be launched early, helping to accelerate time-to-market and revenue generation.

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In terms of evaluating between Waterfall and Agile, neither is intrinsically superior. Depending on the scope and scale of your software project, you'll find one methodology more relevant and useful than the other in specific scenarios.

For example, projects with greater complexity typically require more detailed up-front analysis and carry a greater risk of gradual scope expansion. Agile can help reduce development time by minimizing extensive planning early on. By following an incremental approach and fine-tuning as you gain more knowledge, you reduce risk considerably. In instances where the project scope is clearly defined from the beginning and is not expected to be modified, Waterfall is a prudent choice.

The characteristics of a project help determine which methodology will work best.

When to choose agile method

- Fast production is more vital than product quality
- Customers have the opportunity to revise the project scope
- There is not a defined image of what the end product must look like

- You have flexible, expert developers who can think independently
- The product is planned for a market with rapidly evolving requirements or standards

When to choose waterfall method

- The end product design and features are clearly defined and determined
- Customers will not be able to modify the project scope once it has commenced
- Product definition, rather than speed to market, is vital to success

Optimizing your ROI

Once you've made the decision on which core methodology you are going to use, you can further **sharpen your methods** (<https://thinkbridge.com/software-services/>) and practices to meet your unique requirements. By understanding the differences between Agile and Waterfall and their pros and cons of the two methods, you will be better equipped to make an intelligent choice. While the manner in which a project is executed is critical, ultimately what really matters is winning business and consistently delivering high value software that meets end-user performance demands.

LETS CHAT!

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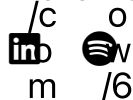
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