Why is AGILE Product development process so popular?

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INTRODUCTION

Product development typically refers to all the stages involved in bringing a product from concept or idea, through market release and beyond. In other words, product development incorporates a product's entire journey, including:

- Identifying a market need

- Conceptualizing and designing the product

- Building the product roadmap

- Developing a minimum viable product (MVP)

- Releasing the MVP to users

- Iterating based on user feedback

Product development may involve modification of an existing product or its presentation, or formulation of an entirely new product that satisfies a newly defined customer want or market niche.

Innovative new products are the fuel for the most powerful growth engine you can connect to. You can grow without new products--AT&T sold essentially the same telephones for decades while becoming the world's largest telecommunications concern--but most small companies will find it difficult to grow at all, much less rapidly, without a constant stream of new products that meet customer needs.

Cost, **time**, and **quality** are the main variables that drive customer needs. Aiming at these three variables, innovative companies develop continuous practices and strategies to better satisfy customer requirements and to increase their own market share by a regular development of new products. There are many uncertainties and challenges which companies must face throughout the process. The use of best practices and the elimination of barriers to communication are the main concerns for the management of the NPD .

This article will help us with all required information on how **AGILE methodology** has become a successful strategy in Product Development

1. EXECUTIVE SUMMARY

It all started in the spring of 2000, when a group of 17 software developers, including Martin Fowler, Jim Highsmith, Jon Kern, Jeff Sutherland, Ken Schwaber, and Bob Martin met in Oregon to discuss how they could speed up development times in order bring new software to market faster. They recognized two key opportunities that achieving this goal would make possible:

1. Shortening the delay of benefits to users in order to resolve the product-market fit and development graveyard problems

2. Getting feedback from users quickly to confirm the usefulness of new software and continue to improve on it accordingly.

While this meeting did not result in the Agile methodology we know today, it was a critical milestone in the history of Agile, as speed to market, rapid feedback and continuous improvement are hallmarks of the Agile methodology.

Though initially AGILE was meant to be common framework used in software and hardware product development organizations, these days not just IT sectors follows it but also several other sectors like Healthcare, Banks, Aerospace, Defense and several diversified areas are moving into this framework.

In this article, we will see what is AGILE and how for an organization it increases opportunities, provides solutions, creates ownership quality across Cross Functional Teams, and several other customer-focused (i.e.,) market-focused competitive advantages to itself.

Also, it walks through both positive & negative of this framework.

And, concludes with why AGILE is still emerging as a winner compared to traditional development model like, Waterfall method.

2. PRODUCT DEVELOPMENT OVERVIEW

Product development is the complete process of delivering a new product or improving an existing one for customers. The customers can be external or internal within a company. And it can support many different types of products from software to hardware, to consumer goods and services. Product development methodologies are used to build many new offerings. A clear product development process gives companies a way to explore new product ideas and learn what customers want in the early stages of conceptualization. **The objective is to ensure that the new or enhanced product satisfies a real customer need and helps the company reach business goals.**

There are several frameworks that product teams follow to start the product development process. Most approaches advocate understanding customer needs, market research, prototyping, and testing ideas before fully investing in product development. Determining the best approach for an organization largely depends on its product. For example, hardware products might follow steps differently in the product development process than software solutions. Medical and financial products may require more legal and compliance activities and therefore lengthen the product development process.

The specifics will vary based on what we are building, but below are some common early stage product development frameworks.

- **Design Thinking:** Design thinking is a framework for design and innovation. It includes cognitive, strategic, and functional processes for developing new concepts. It is central to user and human-centered design. The table below shows the fundamental steps behind design thinking.

- **Front end Innovation:** Front end innovation represents the beginning stages of the product development process. It should not be confused with the user interface, which is often referred to as the "front end" as well. Front end innovation is used for scoping out the concept of a product and determining whether to invest further time and resources. There is not a universally accepted definition or dominant framework, but you can see common components below.

- **New Product Development:** NPD is the process of taking a product from concept to market availability. It can apply to developing a new product as well as improving an established product.

1. Idea Generation
2. Idea Screening
3. Concept Development and Testing
4. Marketing Strategy Development
5. Business Analysis
6. Product Development
7. Market Testing
8. Commercialization

Methodology matters

Building products is a collaborative process involving many functional groups. *Cross-functional teams* need to work together systematically to deliver value efficiently and effectively. Using a common methodology helps drive success by providing a clear set of guidelines for how work will get done.

Common product development methodologies

- **AGILE :** Agile enables organizations to master continuous change. It permits firms to flourish in a world that is increasingly volatile, uncertain, complex, and ambiguous.

- **KANBAN :** Kanban is a lean method to manage and improve work across human systems. This approach aims to manage work by balancing demands with available capacity, and by improving the handling of system-level bottlenecks.

- **SCALED AGILE FRAMEWORK :** The Scaled Agile Framework is a set of organization and workflow patterns intended to guide enterprises in scaling lean and agile practices

- **SCRUM :** Scrum is empirical in that it provides a means for teams to establish a hypothesis of how they think something works, try it out, reflect on the experience, and make the appropriate adjustments.

- **WATERFALL :** The waterfall model is a breakdown of project activities into linear sequential phases, where each phase depends on the deliverables of the previous one and corresponds to a specialization of tasks.

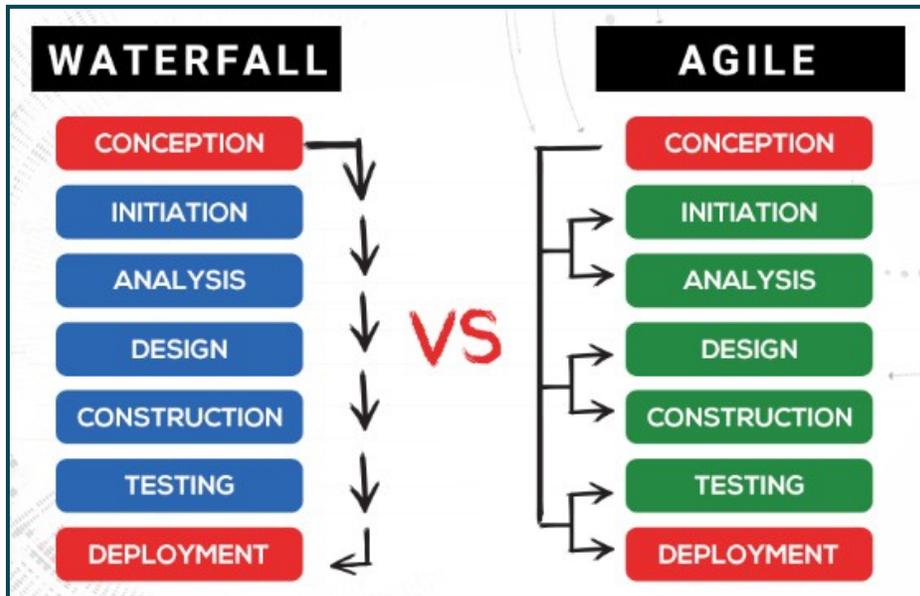# 3. WATERFALL VS AGILE PROUCT DEVELOPMENT

What is Waterfall methodology?

Waterfall Model methodology which is also known as Liner Sequential Life Cycle Model. Waterfall Model followed in the sequential order, and so project development team only moves to next phase of development or testing if the previous step completed successfully.

What is the Agile methodology?

Agile methodology is a practice that helps continuous iteration of development and testing in the product development process. In this model, development and testing activities are concurrent, unlike the Waterfall model. This process allows more communication between customers, developers, managers, and other CFTs.

KEY DIFFERENCE

- Waterfall is a Liner Sequential Life Cycle Model whereas Agile is a continuous iteration of development and testing in the software development process.
- Agile methodology is known for its flexibility whereas Waterfall is a structured software development methodology.
- Agile follows an incremental approach whereas the Waterfall methodology is a sequential design process.
- Agile performs testing concurrently with software development whereas in Waterfall methodology testing comes after the "Build" phase.
- Agile allows changes in project development requirement whereas Waterfall has no scope of changing the requirements once the project development starts.

4. WHY AGILE?

Perhaps the most glaring difference between Agile and Waterfall methodology is the fact that Agile entails assessment of the project all throughout the product development lifecycle, while the latter has a more limited scope, broken down into phases. To better understand Agile, let us investigate its key features.

There is this perception that Agile applies only in software development. However, times are changing, and we are seeing more and more applications of Agile in broader product development and even in sales and marketing departments. The core principles of Agile that we see in software development now translate very well to product development.

- **Agile is "iterative" or involves regular rhythms of work**: Means work is conducted by the members of the product development team on a regular basis. These are called "sprints", or by its other more popular terms, "iterations". Every aspect or phase of the development process is continuously revisited and reassessed throughout the development life cycle. Iterations are scheduled.

- **Agile is "incremental":** At the end of each iteration, the teams or groups within the product development team are required to present a product increment. This could be a potential feature that they think would add value to the product they are building, or it could be a minor change that they think will improve the final product.

- **Agile is designed to reduce costs of development and the time to market:** Agile is ideal for companies that want to develop products in a short time, since it allows development of the product at the very same time that they are gathering the requirements and information. The shortened development time also allows the product to be more attuned to the current time and state of the market, thus ensuring that the product is relevant and will be released.

- **Agile is identified with product development teams' responsiveness:** Product development teams are almost always faced with unpredictable scenarios, and it does not bode well if one or two of these scenarios hit them when they are already halfway through a sequential product development process. In Agile, the teams can respond immediately once these unpredictable scenarios come up, and they can adapt accordingly.

APPLICATION OF AGILE PRODUCT DEVELOPMENT

Organize teams: It is possible to organize cross-functional teams, instead of sticking to a line of authority, as is often seen in the traditional waterfall methodology. The advantage of having a cross-functional Agile team is that one can gather the skills and specializations that you need for the projects.

Create the "backlog": The "backlog" refers to the list of work that must be done, in order of priority. These are essentially the requirements that must be fulfilled or met. Prioritization is important in order for the team to be able to adjust the scope of work, the schedule of the members of the team, and the costs that will be incurred, so that the most important tasks are accomplished before the others.

Establish "iterations": You will have to basically divide the work into iterations or sprints. Using the requirements listed in the backlog, the team must break them down into smaller amounts which are expected to be delivered at the end of every sprint.

Conduct risk mitigation: Agile methodology is fully accepting of the existence of the unexpected and the unpredictable. In fact, it can be said that Agile expects the unexpected to happen. Therefore, it places great importance on risk management. This is partly the reason why short-term iterations are highly encouraged because changes are easier to deal with when taken in short periods.
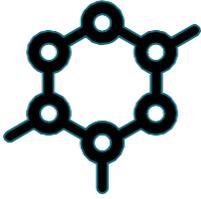
Conduct "scrums": A "scrum" is a daily stand-up meeting where the members of the team will present an outline of their daily progress. They will basically talk about what they have accomplished since the report they made the day before. The scrums are to be conducted every day during an iteration.

Conduct trial run/testing: In Agile, testing is conducted during product development. Several members of the team are tasked with the function of testing the product increments as they are delivered at the end of every iteration. This way, they can identify problems early on, so they can be refined and undergo another iteration before the final product is released.

Secure customer input and feedback: In Agile product development, the customers are engaged to check out the features of the product while it is being developed, so that they can provide input and feedback. Their input will then be considered by the product development team as they work on it during an iteration.

If we are to attach several keywords to Agile product development, they would include "collaborative environment", "self-organizing product development teams", and "responsive teams". It has been proven to be advantageous when it comes to product development, resulting in high quality outcome produced in a cost-effective manner.

5. PROS AND CONS OF AGILE

Advantages of the Agile Model:

- It is focused client process. So, it makes sure that the client is continuously involved during every stage.

- Agile teams are extremely motivated and self-organized so it likely to provide a better result from the development projects.

- Agile software development method assures that quality of the development is maintained

- The process is completely based on the incremental progress. Therefore, client & team know exactly what is complete & what is not, reducing risk in development process.

Limitations of Agile Model:

- It is not useful method for very small development projects.

- It requires an expert to take important decisions in the meeting.

- Cost of implementing an agile method is little more compared to other development methodologies.

- The product can easily go off track if the product manager is not clear what outcome he/she wants.

However, these limitations can be overcome by avoiding the following steps, if one had been implementing:

- Misstep 1: Not having alignment on the aspiration and value of an agile transformation

- Misstep 2: Not treating agile as a strategic priority that goes beyond pilots

- Misstep 3: Not putting organization culture first over everything else

- Misstep 4: Not investing in the talents of your people

- Misstep 5: Not thinking through the pace and strategy for scaling up beyond pilots

- Misstep 6: Not having a stable backbone to support agile

- Misstep 7: Not infusing experimentation and iteration into the DNA of the organization

6. AGILE TOOLS AND METRICS

The most popular and common examples are Scrum, eXtreme Programming (XP), Feature Driven Development (FDD), Dynamic Systems Development Method (DSDM), Adaptive Software Development (ASD), Crystal, and Lean Software Development (LSD). Teams generally pick one or two methods. The most widely used methodologies are Scrum and XP, which dovetail nicely.

Scrum is a hands-on system consisting of simple interlocking steps and components:

- A product owner makes a prioritized wish list known as a product backlog.
- The *scrum team* takes one small piece of the top of the wish list called a *sprint backlog* and plans to implement it.
- The team completes their sprint backlog task in a *sprint* (a 2-4-week period). They assess progress in a meeting called a *daily scrum.*
- The *ScrumMaster* keeps the team focused on the goal.
- At the sprint's end, the work is ready to ship or show. The team closes the sprint with a review, then starts a new sprint.

eXtreme Programming. Often used with scrum, XP is an example of how Agile can heighten customer satisfaction. Rather than deliver everything the customer could ever want far in the future, it gives them what they need now, fast. XP is centered on frequent releases and short development cycles. It uses code review, pair programming, unit testing, and frequent communication with the customer.

Here's an example of how XP works: Bill builds a list of customer requirements by having the customer tell "user stories" that outline the features. From these, he builds a software release plan. The software will be delivered in iterations, with one delivered every couple week. The team works in programmer pairs, using daily meetings to smooth roadblocks. The customer delivers feedback in the form of more user stories. The cycle repeats until the software is delivered.

Metrics that can be collected for effective usage of Agile is:

- Drag Factor

- Effort in hours which do not contribute to sprint goal

- Drag factor can be improved by reducing number of shared resources, reducing the amount of non-contributing work

- New estimates can be increased by percentage of drag factor - New estimate = (Old estimate + drag factor)

- Velocity

- Amount of backlog(user stories) converted to shippable functionality of sprint

- No of Unit Tests added

- Time interval taken to complete daily build

- Bugs detected in an iteration or in previous iterations

- Production defect leakage

7.   REAL TIME EXAMPLES

Agile is being used by a growing number of companies, large and small, across all industries. While technology is still the most common industry for Agile to be used, companies in finance, professional services, insurance, government, and many other sectors are also embracing it.

Some of the most well-known companies that use Agile methodology are:

- **Amazon** – Some form of Agile was present at Amazon as early as 1999, but it was during the period of 2004-2009 that the organization achieved the widespread adoption of Scrum. It's now one of the most common and well-known examples of Agile project management.

- **Cisco** – Cisco adopted Agile in 2015 to reduce defects, reduce employee overtime, and improve product delivery times.

- **Google** – Google is one of the leading companies that use Scrum. The company has many applications such as Gmail, Google Maps, Google Calendar, etc. that all need regular updates. In order to handle the updating, testing, and release of so many products quickly and consistently, Google embraced the Scrum framework.

- **Lego** – Lego adopted agile back in 2015 to improve communication, focus, and productivity. It helped them achieve more accurate estimates, reduce paperwork, and become more efficient. (Check out the video below for more on the Agile framework that Lego used and how they implemented it.)

- **Netflix** – Netflix is a great example of one of the companies that use Agile project management to remain innovative and stay ahead of the competition. Netflix uses Agile to help it specialize in niche television shows and movies so that it can quickly and consistently provide content for all demographics.

- **Microsoft** – Microsoft uses Agile for both small and enterprise-sized projects. The company first implemented a small-scale Agile model and then learned how to scale and modify it for larger projects and solutions.

- **Spotify** – Spotify embraced Agile software development practices in order to compete with huge, well-established companies such as Apple, Google, and Amazon.

CONCLUSION

AGILE : THE WINNER

The Agile Manifesto was announced 18 years ago. Since then, Agile rules have gained countless more supporters. As a short introduction, will remind us the most important assumptions found in the Agile Manifesto:

– individuals and interactions over processes and tools,

– working software over comprehensive documentation,

– customer collaboration over contract negotiation,

– responding to change over following a plan.

These four points best show the Agile values. The most important reasons that companies have for the implementation of Agile are affected by the following parameters:

– cooperation with the team – 54%,

– increased quality of work – 52%,

– increased customer satisfaction – 49%,

– acceleration of work and launch of the product on the market – 43%,

– reduction of development costs – 42%.

Impressive, right? It is natural that every company and project team is looking for areas to improve and increase efficiency. Agile not only increases productivity, but also facilitates product development, project management, improves the quality of work, and makes flexible change possible. Thereby product delivered to customer is top notch 100%, the best possible outcome.

No wonder we see many successful companies are either already switched or are switching right now to AGILE METHODOLOGY !!!