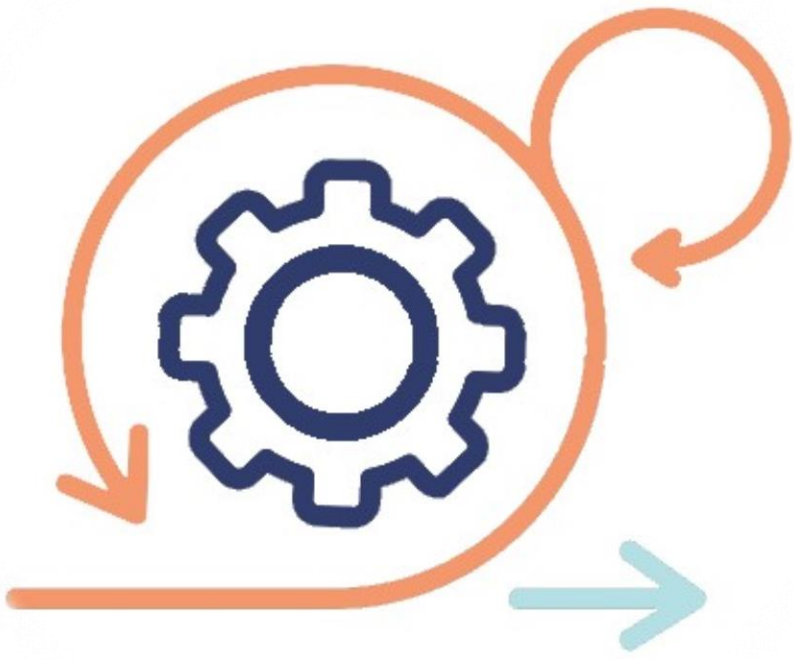
2019-2020

AGILE PROJECT MANAGEMENT



DOSCRUM TEAM

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I. Introduction

What is this thing everyone calls Agile? If you have been doing software development a different way your whole career you may be wondering why should I change, what's so different? In this tiny course we will define why Agile is more than a process or methodology; why is it really a different approach to doing software development.

II. Definition

The word "agile" means the ability to move swiftly and gracefully, to have an imaginative, quick, and adaptive nature.

Agile is the ability to create and respond to change. It is a way of dealing with, and ultimately succeeding in, an uncertain and turbulent environment.

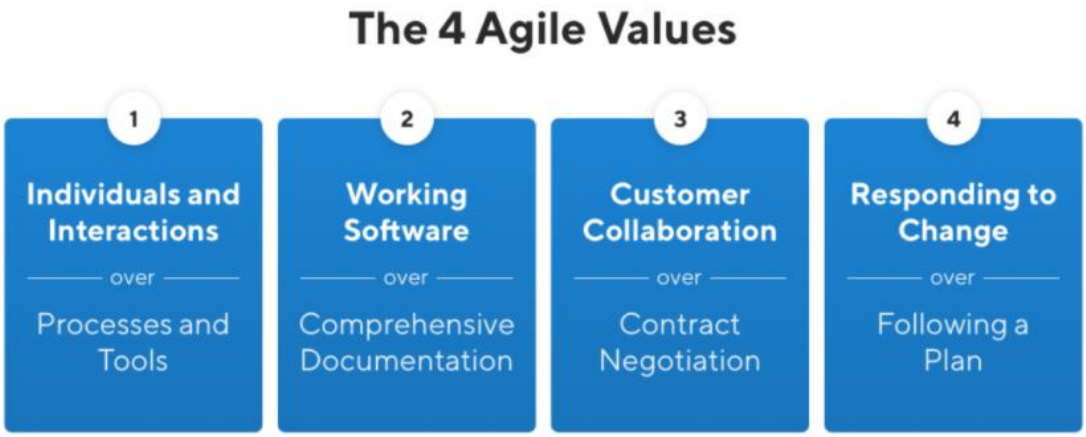
When we say "agile project management methodology", this means that the projects and processes are managed dynamically and flexibly. Lower planning and managed intensity enable fast implementation of a project, high adaptability, and considerable autonomy.

Agile software development is an umbrella term for a set of frameworks and practices based on the values and principles expressed in the Manifesto for Agile Software Development and the 12 Principles behind it.

III. Agile Manifesto

The Agile Manifesto is a brief document built on 4 values and 12 principles for agile software development. The Agile Manifesto was published in February 2001 and is the work of 17 software development practitioners who observed the increasing need for an alternative to documentation-driven and heavyweight software development processes.

III.1 Four Values of Agile Manifesto



Individuals and interactions:
In Agile development, self-organization and motivation are important, as are interactions like co-location and pair programming.

Working Solutions
Demo working software is considered the best means of communication with the customers to understand their requirements, instead of just depending on documentation.

Customer Collaboration
As the requirements cannot be gathered completely in the beginning of the project due to various factors, continuous customer interaction is very important to get proper product requirements.

Responding to change
Agile Development is focused on quick responses to change and continuous development.

III.2 Twelve Principles for Agile Software Development

1	Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.	7	Working software is the primary measure of progress.
2	Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.	8	Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
3	Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.	9	Continuous attention to technical excellence and good design enhances agility.
4	Business people and developers must work together daily throughout the project.	10	Simplicity–the art of maximizing the amount of work not done–is essential.
5	Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.	11	The best architectures, requirements, and designs emerge from self-organizing teams.
6	The most efficient and effective method of conveying information to and within a development team is face-to-face	12	At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

IV. Agile Characteristics

IV.1 Iterative/Incremental and Ready to Evolve

Most of the agile development methods break a problem into smaller tasks. There is no direct long-term planning for any requirement. Normally, iterations are planned which are of vary short period of time, for example, 1 to 4 weeks. A cross-functional team is created for each iteration that works in all functions of software development like planning, requirements analysis, design, coding, unit testing, and acceptance testing.

The result at the end of the iteration is a working product and it is demonstrated to the stakeholders at the end of an iteration.

IV.2 Face-to-face Communication

Each agile team should have a customer representative such as a product owner in scrum methodology. This representative is authorized to act on behalf of the stakeholders and he can answer the queries of the developers in between iterations.

IV.3 Feedback Loop

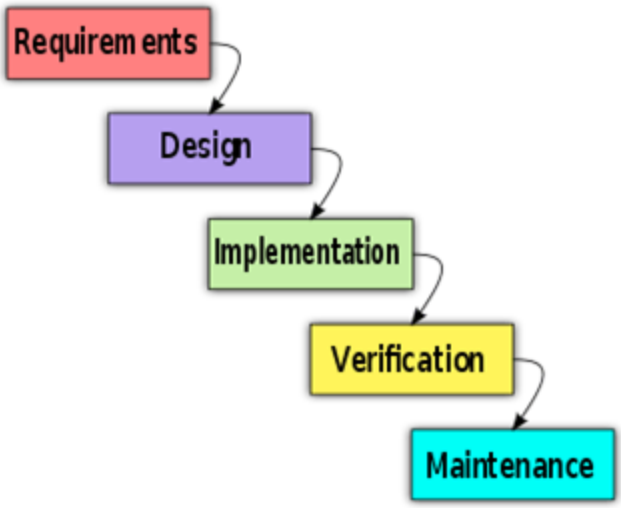
Feedback loops serve as opportunities to increase productivity, either in an individual's performance or in project teamwork or process. Identifying areas for improvement throughout each sprint and turning them into action items can help you track and address the key challenges related to technology or product improvement.

V. Waterfall Model, Iterative Development & Agile Methodology

V.1 Waterfall model

In the waterfall model, software development progress through various phases like Requirements Analysis, Design etc.- sequentially.

In this model, the next phase begins only when the earlier phase is completed.



Advantages

This software Engineering model is very simple to plan and manage. Hence, projects, where requirements are clearly defined and stated beforehand, can be easily tested using a waterfall model.

Disadvantages

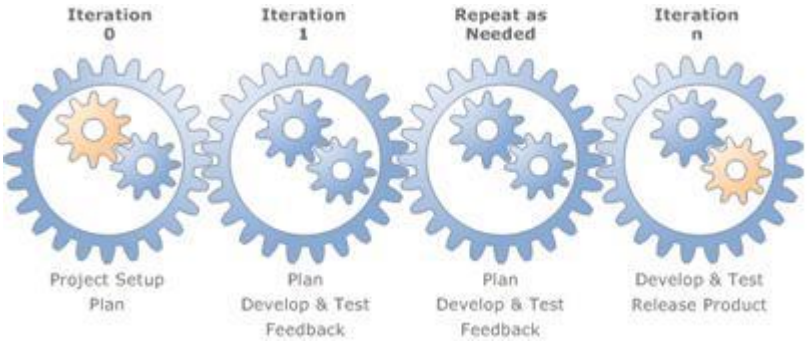
In the waterfall model, you can begin with the next phase only once the previous phase is completed. Hence, this model cannot accommodate unplanned events and uncertainty.

This methodology is not suitable for projects where the requirements change frequently.

V.2 Iterative model

In this model, a big project is divided into small parts, and each part is subjected to multiple iterations of the waterfall model. At the end of an iteration, a new module is developed or an existing module is enhanced.

This module is integrated into the software architecture and the entire system is tested all together.



Advantages

The main advantage of iterative development is the test feedback is immediately available at the end of each cycle.

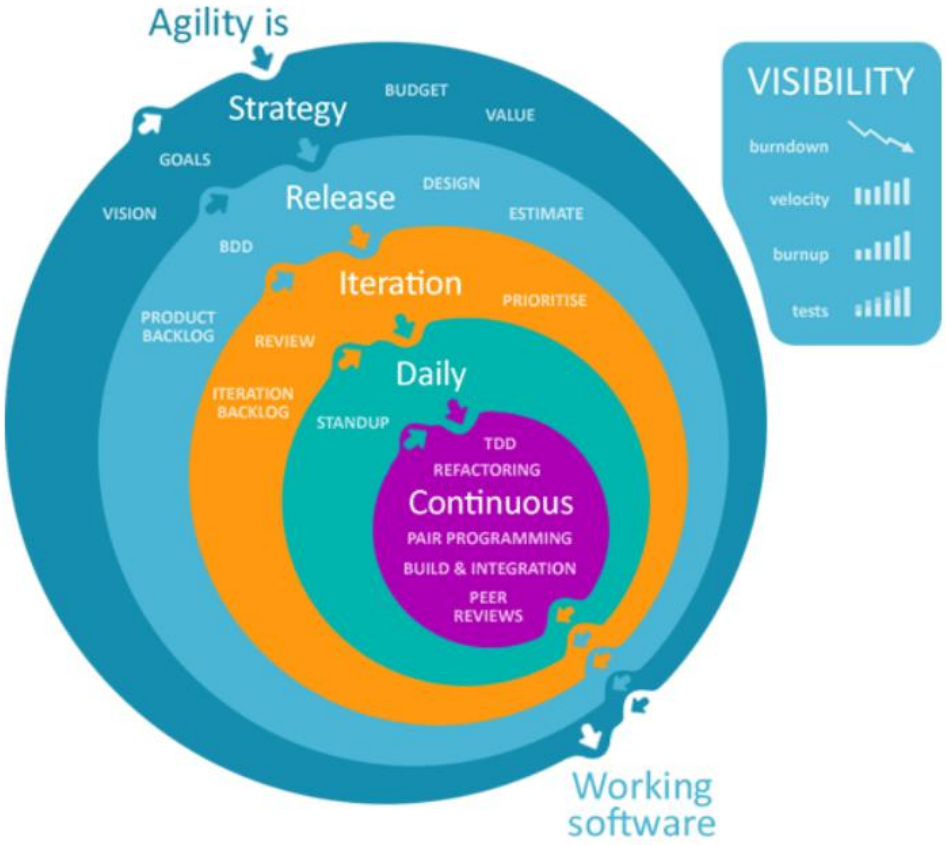
Disadvantages

This model increases communication overheads significantly since, at the end of each cycle, feedback about deliverables, effort etc. must be given.

V.3 Agile Methodology

In Agile methodology, software is developed in incremental, rapid cycles. Interactions amongst customers, developers and client are emphasized rather than processes and tools.

The agile methodology focuses on responding to change rather than extensive planning.



Advantages

It is possible to make changes in the project at any time to comply with the requirements.

This incremental testing minimizes risks.

Disadvantages

Constant client interaction means added time pressure on all stakeholders including the client themselves, software development and test teams.

VI. Three Amigos Development Strategy in Agile

Three amigos refers to the primary perspectives to examine an increment of work before (business), during (development), and after development (testing), where for example, a Business Analyst, developers, tester and go over each story in an informal kick-off session to give a common shared vision of what will be delivered and helps ensure that it is the voice of the team rather than just a single opinion. As well as helping to prevent domination by one area, the 3 Amigos helps communication between the disciplines and promotes understanding of:

- Collaborative Requirements – What problem are we trying to solve;
- Ready for Development Consensus – How might we build a solution to solve that problem;
- Acceptance for Definition of Done – What is needed to get the story into "Done".

VI.1 The Role of 3 Amigos

The objective of the three Amigo meeting is to bridge down the gaps in the understanding of the Business Specifications by three Amigos.

Business Analyst

The Business Analyst makes sure that everyone in the team has the same understanding and expectation from the User Stories.

Developers

The developers discuss their understanding of the requirements and what it takes to build the Increment.

Since the health of the software is always measured by its high-quality standards, the quality assurance team elaborates on the functional and non-functional aspects of the software increment and details out the test cases identified to test the Increment.

Tester

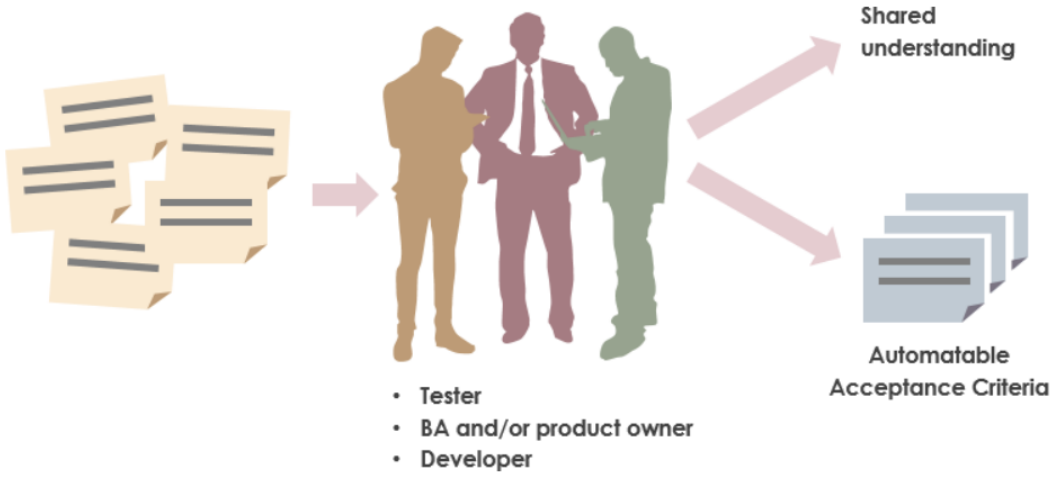
The Test and other team members help in enriching the test cases by finding edge cases and missing scenarios. They also make sure that all the Acceptance Criteria are met by the test cases.

By sharing the different perspectives on a project, the Three Amigos can raise their own concerns and discuss answers in real time.

VI.2 Benefits of 3 Amigos Approach

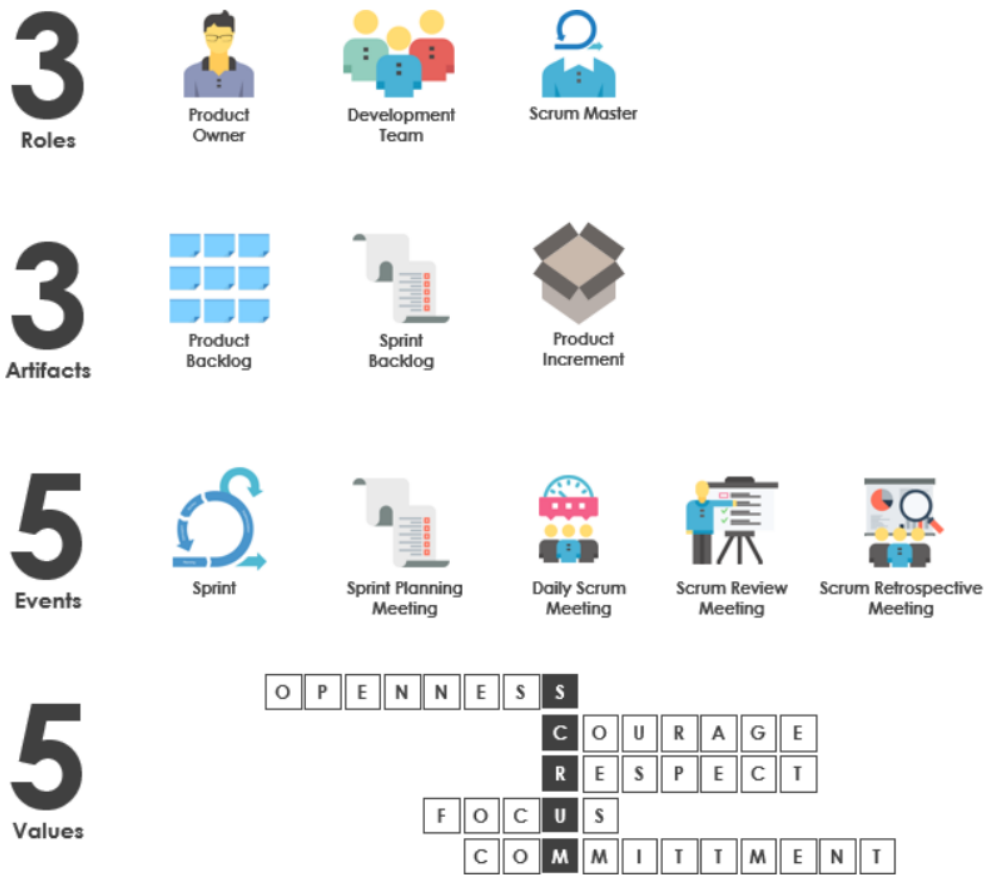
The 3 Amigos' Strategy can have a massive impact on the effectiveness both individually and as a team, and on the quality and maintainability of your Scrum projects, increasing your team's agility, adaptability and innovation. Embedding such strategy into your agile process leads to continuous improvement and embracing the most important values and principles of the Agile Manifesto and likely yields the following benefits:

- Sharing and building an understanding of the SDLC
- Collaboration in sprint meetings and sprint reviews
- Identifies confusion and misunderstandings early, allowing for faster delivery
- Ensures developers, as a team, discuss the increment of work needed
- Helps go over the acceptance criteria and other attributes.



VII. Scrum Framework

- Scrum is a framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value. It is used for managing software projects and product or application development. Its focus is on an adaptive product development strategy where a cross-functional team works as a unit to reach a common goal within 2-4 weeks (Sprint).
- Scrum is a framework for developing and maintaining complex products through “view-and-tune”.
  It is a genre that follows the agile declaration and principles, integrating three roles, three artifacts, five events, five values, referred to as “3355“.



VIII. Agile Principles for Product Managers

- Iterate, iterate and iterate! When developing a product 'the Agile way', the initial focus is typically on high-risk functionality or requirements, after which the Scrum team can start testing and refining, concentrating on the next product iteration or set of requirements.

- Emerging requirements – Rather than locking down all functional and non-functional product requirements upfront, items in the "product backlog" are emergent and flexible.

- Shippable product – The core focus of Agile Product Management is to regularly create and release working software which the stakeholders or customers can test or use.

- Self-organized teams – Each Scrum team is expected to be cross-discipline and self-organized. This approach makes the traditional Project Manager role redundant.

IX. Conclusion

Agile is a mindset and it's a set of values and principles. Agile is a way of thinking and acting. Agile is all about short cycles, iterative and incremental delivery, failing fast, getting feedback, delivering business value to customers early and about people, collaboration and interaction. Agile is a mindset that is all about transparency, inspection, and adaptation.

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