Scrumming Towards Success:

Agile Principles for Project Teams

Jantzen Springer
CS-250: Software Development Lifecycle
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Agenda

- Agile methodology
- Advantages of Agile
- Agile vs. Waterfall
- Roles on a Scrum-agile Team



What is Agile Software Development Lifecycle (SLDC) ?

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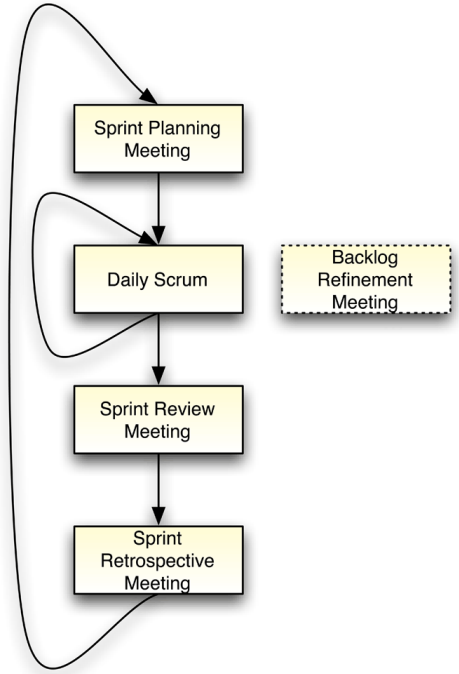
- The Agile SLDC is a process that promotes flexibility and change. The process can be considered an incremental process, though it promotes adaptability to unforeseen issues that arise throughout the development process. Frequent engagements with stakeholders allow the team to pivot regularly to meet customer satisfaction. These steps below can occur concurrently and movement between the steps is encourage to ensure requirements from the stakeholders and product owners are met.
- ***Analysis*** is utilized to determine the scope of the project and the overall objectives are identified. Gaps within the resources are identified and sourced for the team. Objectives are prioritized, which translates into sprint intervals under the Scrum-agile approach.
- ***Requirements*** are cataloged into user stories, which highlight specific details about functionalities with a project. These user stories and test cases are prioritized in a product backlog. Product backlogs support capacity-based planning, which act as guidance for the development team to develop the project off. Capacity-based planning allows the team to know enough information to make a functioning product, as well as quickly make changes as those previously mentioned uncertainties create conflict. With minimalistic planning, the team remains flexible to meet the customers needs, without missing timelines
- ***Construction*** of the product is done by the development team. This consists of completed items found within the product backlog being prioritized to meet customer needs. Once completed, the team moves onto other items until the sprint log is complete. Daily scrum meetings facilitate open communication throughout the team, which promotes collaboration amongst the team to keep the project movement fluid.
- ***Deployment*** is completion of a product that meets the standards discussed with the stakeholders and the rest of the team. These versions do not need to be customer complete, though they can be used for beta testing, UI experience, or logical design.
- ***Testing*** previously developed products ensures quality assurance of the product's performance and identifying any bugs within the project.
- ***Feedback*** is key for the success of a Scrum-agile team. Open-communication is essential throughout the process to remain compliant with the agile principles. Frequent feedback from customers enables a team to meet the customer's expectations and create products that are exactly how the customer envisioned

1. Requirements gathering and analysis
2. Design the requirements
3. Construction/ iteration
4. Deployment
5. Testing
6. Feedback

Advantages of Agile SDLC

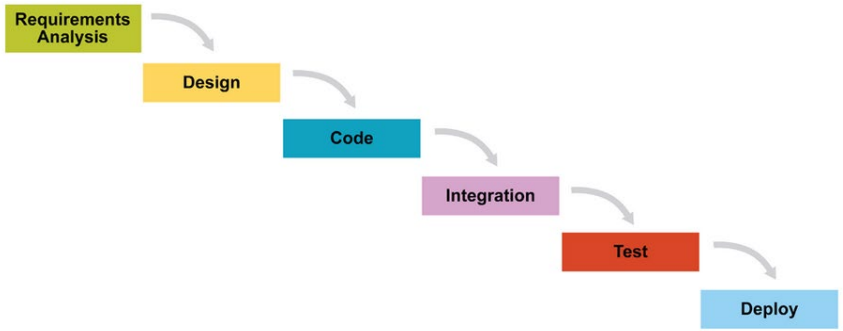
- Shorter iterations:
  - Iterations, also known as ***Sprints***, are 2-4 weeks long. Once an iteration is completed, new user stories are prioritized on a backlog, and the team repeats the cycle. The team can deliver small, functional increments regularly to the customer.
- Flexibility:
  - Not committing resources to detail planning and long-term agreements allows the team to quickly flex when uncertainties arise. Responsiveness to changes and the ability to accommodate evolving requirements throughout the development cycle allows the team to meet customers needs throughout the duration of the project.
- Quicker Release:
  - With shorter iterations, the team can release products much sooner than traditional methodologies. Continuous integration and testing, along with frequent feedback ensures the product can be released.
- Customer Collaboration:
  - Constant feedback from customers and stakeholders ensures that problems that arise can quickly be identified and addressed during sprint cycles. This reduces the chances of late-stage changes.



James, M. (2024). *About Scrum*. Scrum Reference Card. https://scrumreferencecard.com/scrum-reference-card/

Waterfall

- Plan driven (Sequential):
  - This consists of thorough planning on the frontend. This contributes to known cost estimates, schedules, and defined requirements.
- Management:
  - Like planning, management is very controlled throughout the duration of the project. Before changes are made, cost estimations, scheduling, and requirements are developed before progressing.
- Customer Relationship:
  - Waterfall approach is considered contractual. The plans are developed early in the project. Adherence to these requirements must be met to ensure quality meets customer satisfaction. Any deviance must be discussed by continuing with the project.
- Deliver/ Testing:
  - In a sequential approach, testing is typically undertaken once the entire project is fully completed. As testing constitutes the final step before delivery, the release of products may be prolonged, contributing to an extended overall project timeline.



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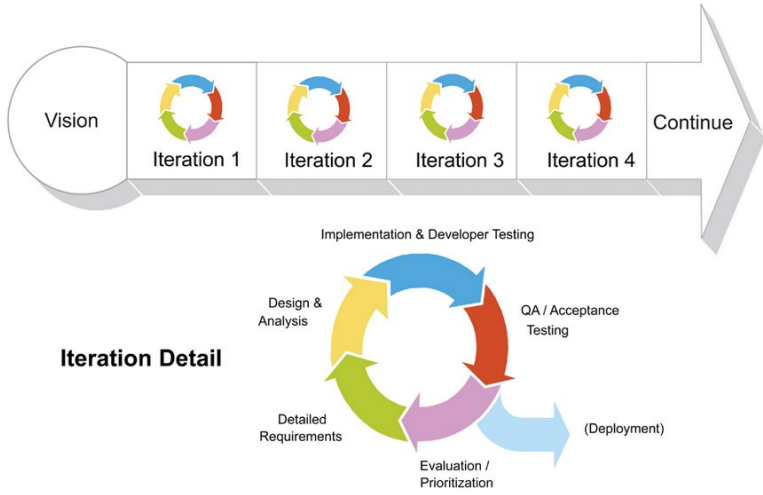
Agile

- Value-driven (Iterative):
  - Agile is characterized by its flexibility and iterative sprints. This is accomplished by identifying scope of project and identifying requirements throughout 2–4-week sprints.
- Management:
  - Within each sprint, requirements are defined in more detail to reach produce a releasable product at the end of the sprint. Agile methodology supports and encourages changes throughout product development.
- Customer Relationship:
  - Collaboration throughout the team and the clients are encouraged. Ongoing feedback ensures that development meets stakeholder's requirements. Face-to-face communication is a fundamental aspect of fostering a transparent project environment.
- Delivery/Testing:
  - Testing is iterative, based on the sprint. Product delivery can be released must earlier, after every sprint. This can drastically decrease the time it takes for a product to be on the market. As development continues, bugs, and conflicts can be addressed during the sprint.



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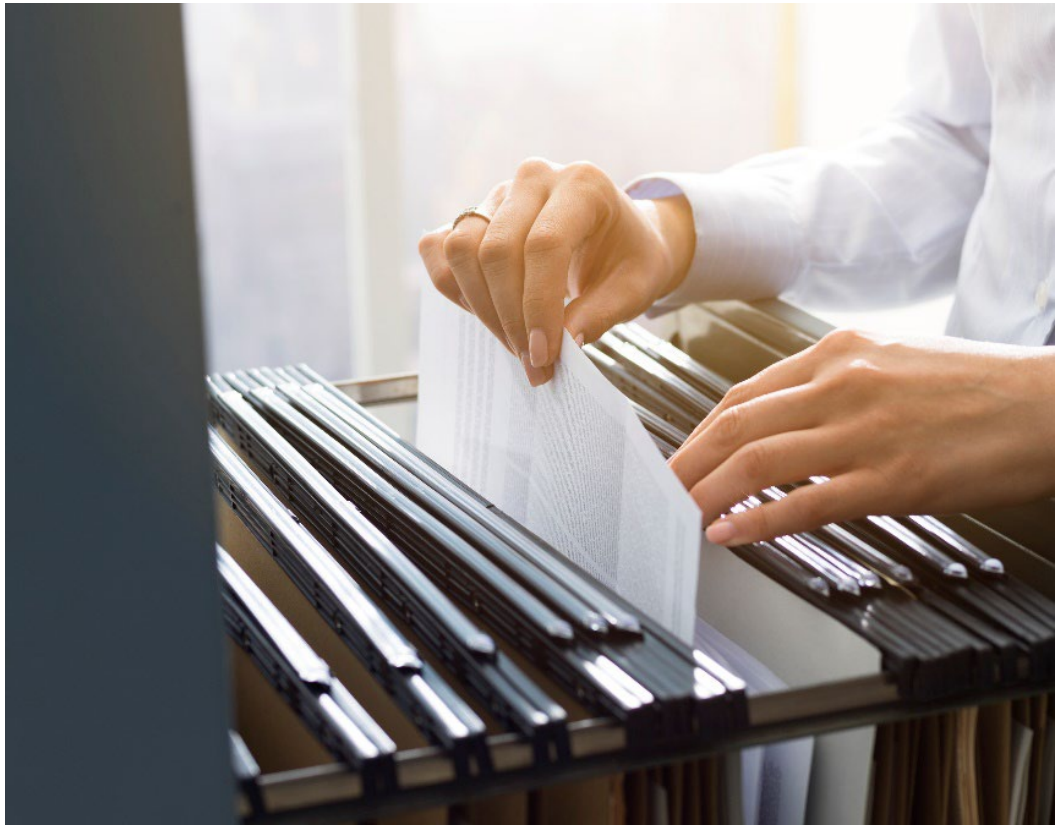
Factors

- What level of uncertainty are you willing to except? How complex is the project, cost estimations, and scheduling for the project?
- How flexible and adaptable are the requirements? Does the scope of the project have to be completely defined before project starts?
- Contractual vs. Collaborative? Is regular collaboration with the client realistic and expectable? Who has access to define requirements with the client?
- Does the project need to be fully completed to test for quality assurance? Is there another agency in place to conduct separate testing of product?

Roles on a Scrum-agile Team

Stakeholders



- While stakeholders may not be part of the Scrum-agile team, they are integral to the success of the project. Their involvement and engagement contribute significantly to the overall effectiveness of the Scrum cycle.
- Stakeholders include individuals invested in the project or customers, not necessarily end-users. This can encompass a broad range of individuals or groups, such as executives, regulatory bodies, or marketing teams. They play a crucial role in providing input, feedback, and support throughout the development process.
- Stakeholders play a crucial role in providing input, feedback, and support throughout the development process. Their involvement helps ensure that the project aligns with business goals and meets the expectations of various stakeholders.
- Stakeholders provide the Scrum team with essential information that aligns the project with the envisioned product. This information is vital for prioritizing work and making decisions that contribute to the overall success of the project.
- In a Scrum-agile team, it is emphasized that stakeholders remain available and make regular appearances. This ensures ongoing communication and collaboration between the Scrum team and stakeholders, allowing for quick adjustments and alignment with changing requirements.

Product Owner

- “The Product Owner is tasked with maximizing the value of the product and the work done by the development team” (p.50, 2023). This involves making decisions that prioritize features and improvements based on their impact on achieving business goals and satisfying stakeholders.
- Maintains the relationship with stakeholders and customers, while developing an understanding of how the product should function based on user stories. This entails continuous communication, gathering feedback, and understanding the needs and expectations of those who have an interest in the product.
- Develops an understanding of how the product should function, often based on user stories. This helps guide the development team in creating a product aligned with user needs.
- One of the key responsibilities is developing and managing the Product Backlog. The Product Backlog is a prioritized list items that need to be addressed in the product. The Product Owner ensures that the items in the backlog are clearly defined and contribute to achieving the goals of the stakeholder.
- The product owner is ultimately responsible for continuation of the project. This includes, but not limited to, the human resources and financial support, securing budgets, and cost estimation.

Scrum Master

- “Scrum Masters are true leaders who serve the Scrum Team and the larger organization” (2023). They wholeheartedly serve all parties of an organization, meticulously ensuring that every stakeholder feels empowered and comfortable to
- Implements critical events that drive the Scrum Cycle is paramount for the Scrum Master, as well as ensuring everyone understands the processes associated with Scrum.
- Intermediatory between the development team and the Product Owner. They not only ensure that the team is in compliant towards Scrum processes, but also communicate the projects current state to the Project Owner and client.
- Assists the development team in maintaining flexibility and agility aligns with their responsibility to foster an environment that supports the principles of the Scrum-agile framework.

Developer

- As a cross-functional team, complete product backlog items to produce a releasable, functional product at the end of each sprint cycle.
- Work closely with product owner, Scrum Master, testers, and analysts, but also collaborating with stakeholders. This guarantees that the quality of product is aligned to what the clients had envisioned
- Remain flexible and adhere to the agile principles. This includes a clear understanding of change and how the Scrum cycle promotes feedback from the client to ensure product functionality meets the overall end state.

Tester

- Working closely with the development team to ensure there is a mutual understanding of the content that is being developed so that proper testing can be completed on completed back log items.
- Ensure that the quality of the product meets the standards set by the Scrum team, as well as meets the expectations delivered by the client. These tests need to meet the sprint deadline so that there are releasable products for the client to utilize.
- Continuously provide feedback to all relevant parties, including the Development Team, Scrum Master, and stakeholders on defects, conflicts can be addressed, and that the product will support what was intending by the stakeholders.

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Thank you.

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