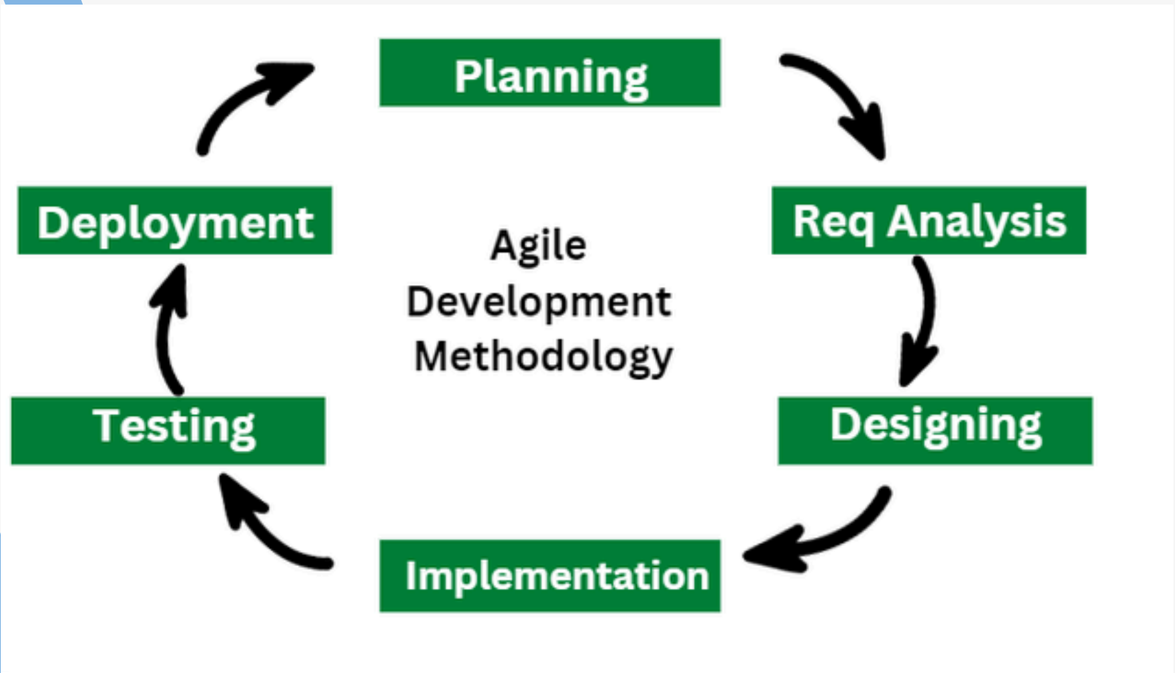
WHAT IS THE AGILE METHODOLOGY?

Agile methodologies are iterative and incremental, which means it's known for breaking a project into smaller parts and adjusting to changing requirements. It involves breaking the project into phases and emphasizes continuous collaboration and improvement.

1. They prioritize flexibility, collaboration, and customer satisfaction.
2. Major companies like Facebook, Google, and Amazon use Agile because of its adaptability and customer-focused approach.

LIFE CYCLE OF AGILE METHODOLOGY



The Agile software development life cycle helps you break down each project you take on into six simple stages:

1. Requirement Gathering: In requirement Gathering collaboration takes place with stakeholders to understand and prioritize needs for the project, that focus on delivering value.

2. Design the Requirements: In design the requirement step that gathered requirements is translated into actionable tasks, breaking them down into smaller, manageable chunks.

LIFE CYCLE OF AGILE METHODOLOGY

3. **Development (Coding):**During the coding step, the development team implements the software in short, iterative sprint cycles. Each sprint focuses on delivering small, functional increments of the product.

4. **Testing / Quality Assurance:** Testing is an integral part of each iteration, ensuring the quality and functionality of the software.
This phase involves several types of testing:

- Integration Testing: Ensuring that different components work together.
- System Testing: Testing the entire system as a whole.
- User Acceptance Testing: Confirming that the software meets user requirements.
- Performance Testing: Assessing the system's speed, scalability, and stability.

LIFE CYCLE OF AGILE METHODOLOGY

5. **Deployment:** Deployment involves releasing the software increments to production frequently and reliably. Automated deployment tools makes the process, allowing for quick and consistent releases. Monitoring the deployment process and system performance helps identify and resolve any issues promptly.

6. **Feedback:** Feedback is crucial for continuous improvement in Agile. Stakeholders and end-users provide feedback through surveys, direct communication, and usage analytics. This feedback is used to refine requirements, prioritize changes, and identify areas for improvement.

WHAT ARE AGILE FRAMEWORKS?

Agile frameworks are methods of organizing and dealing with software program development initiatives that follow the principles and values of the Agile Manifesto. Agile frameworks intend to supply value to clients faster and extra often, even also allowing groups to conform to converting requirements and remarks.

Types of Agile Frameworks

1. **Kanban** – A visual workflow management system that helps teams track work in progress, optimize flow, and minimize bottlenecks using a Kanban board.
2. **Scrum** – A structured Agile framework that organizes work into time-boxed sprints with defined roles (Scrum Master, Product Owner, and Development Team) and iterative planning.
3. **Lean** – A methodology derived from manufacturing that focuses on eliminating waste, improving efficiency, and delivering value quickly with minimal delays.

TYPES OF AGILE FRAMEWORKS

4. **DSDM (Dynamic Systems Development Method)** – A comprehensive Agile framework that emphasizes active user involvement, iterative development, and strict project governance.
5. **XP (Extreme Programming)** – A software development methodology that promotes technical excellence through test-driven development, pair programming, and continuous integration.
6. **FDD (Feature-Driven Development)** – A model-driven Agile approach that structures development around building and delivering features in short, iterative cycles.
7. **Crystal** – A family of Agile methodologies prioritising team communication, adaptability, and efficiency based on project size and complexity.
8. **SAFe (Scaled Agile Framework)** – A structured framework designed for scaling Agile principles across large organizations by integrating multiple teams, aligning strategy, and promoting collaboration.

ADVANTAGES OF AGILE METHODOLOGIES

- **Focus on Customer Value:** Agile places a high priority on providing customers with value by attending to their requirements and preferences. Agile guarantees that the most important features are produced first and that iterative changes are driven by customer feedback by dividing work down into small, manageable tasks.
- **Enhanced Team Morale and Motivation:** Agile gives teams the freedom to own their work and decide together. Team members feel motivated, proud, and owned when they have this autonomy together with a focus on providing value and ongoing growth.
- **Stakeholder Collaboration:** Throughout the development process, agile promotes strong coordination between product owners, developers, and other stakeholders. Better communication, a common understanding of the objectives, and ongoing feedback are all fostered by this partnership, which produces results that are higher quality and boost stakeholder satisfaction.
- **Early and Continuous Delivery:** Agile encourages the tiny, incremental releases of functional software. This gives early access to observable progress and facilitates early input and validation for stakeholders.
- **Delivering high-quality software:** It is a key component of agile development, and this is emphasized by techniques like continuous integration, automated testing, and frequent inspection and modification. Agile guarantees that the software satisfies the required standards and lowers the likelihood of faults by integrating quality assurance throughout the development process.

DISADVANTAGES OF AGILE METHODOLOGIES

- **Lack of Predictability:** Project time frames and outcomes might be difficult to predict with accuracy due to Agile iterative and incremental methodology. Stakeholders who need set budgets or time frames may find this unpredictability troublesome.
- **Dependency on Customer Availability:** Agile highly depends on ongoing customer and stakeholder feedback and participation. Customers who are unavailable or who don’t know enough about the domain can impede development and slow it down.
- **Scaling issues:** While Agile works effectively for small to medium-sized teams working on relatively basic projects, scaling Agile methods to bigger teams or more complicated projects can be more difficult. As the project grows, it gets harder to maintain coordination, alignment, and communication.

DISADVANTAGES OF AGILE METHODOLOGIES

- **Dependency on Team Dynamics:** Agile's focus on self-organizing, cross-functional teams with the authority to reach decisions together is paramount. Inadequate communication within the team or a lack of experience or expertise among team members can negatively affect output quality and productivity.
- **Increased Overhead:** Planning, coordinating, and communicating take more time and effort when using agile frameworks like Scrum. This overhead can take a lot of time, especially for projects with short deadlines or small teams.

APPLICATION AREAS

Agile methodology is most appropriate for environments where **rapid change** is expected, **customer collaboration** is prioritized, **small teams** are preferred, and **flexibility** is key.

Situations where frequent iterations and quick feedback loops are crucial to deliver value efficiently, making it **ideal for startups**, **innovative projects**, and **dynamic market conditions** where needs can shift rapidly.

ENVIRONMENT EXAMPLE

Spotify refined the agile methodology to create its own “Spotify Engineering Culture”, emphasizing self-organization, autonomy, and continuous learning which sustained innovation.

Results: incredible software updates rate - 1,000 deployments per week.

ENVIRONMENT EXAMPLE

Adopted Agile methodology in 2014 to improve the company's ability to respond to changing market conditions and customer needs, especially in Azure cloud business development teams

Results: 50% increase in productivity and 75% reduction in defects, *Forbes*

THANK YOU