



Tribhuvan University

~: Faculty of Humanities And Social Sciences :~

***Bachelor In Computer Application
(BCA)***

**Project: Research and presentation on
Agile software development
methodology**

Submitted to:

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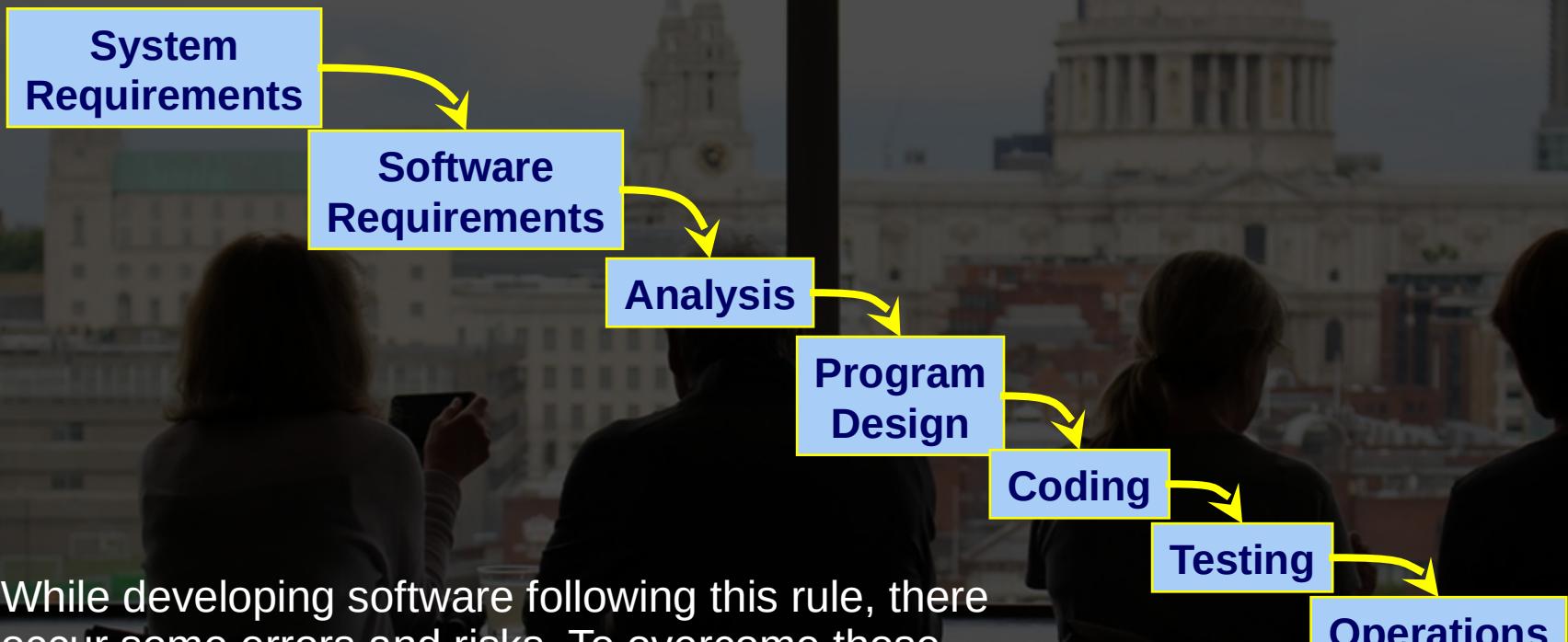
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Software development methodology.

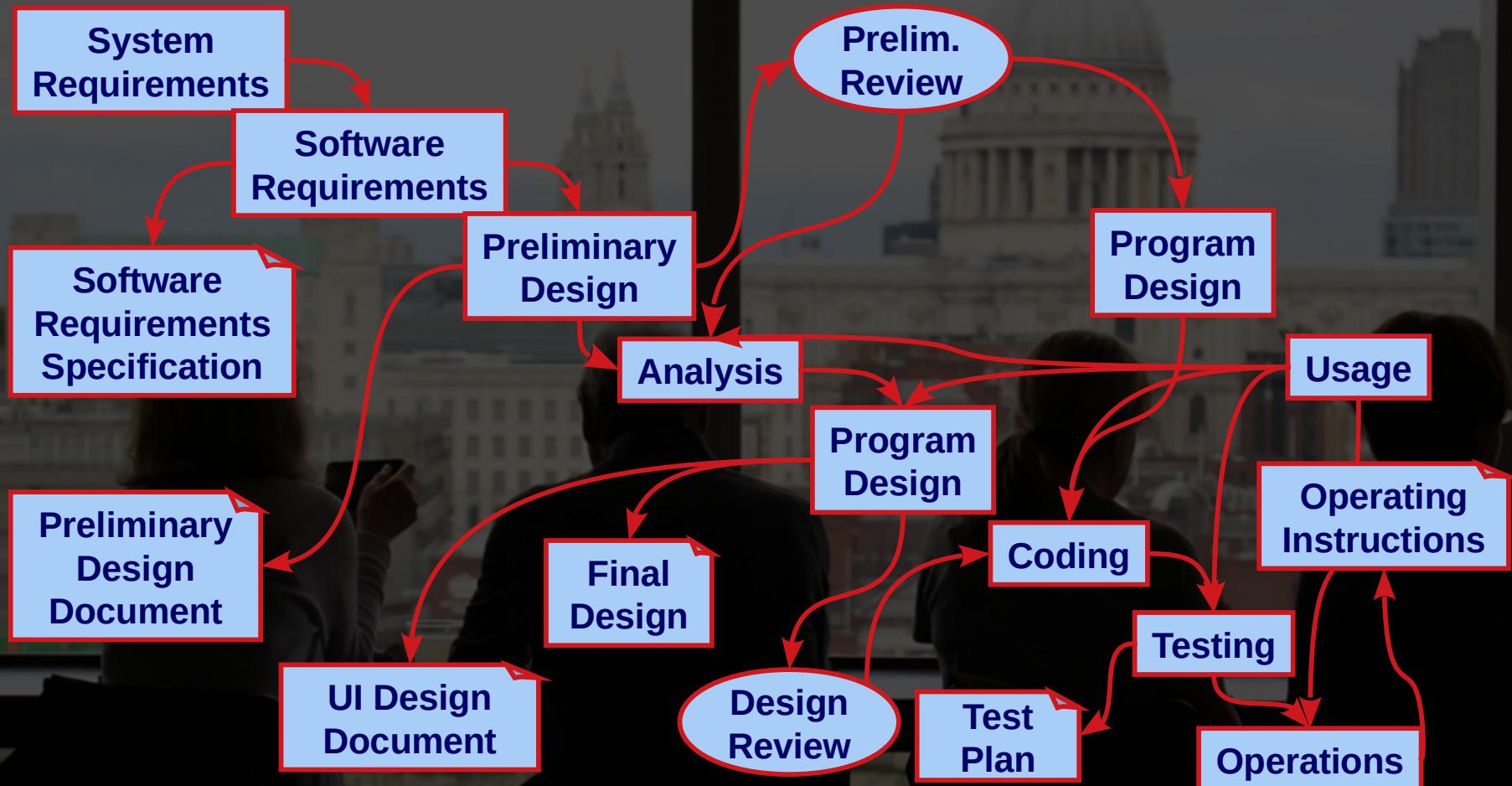
Software development *methodology* is:

- *A formalized process or set of practices for creating software.*
- *A set of rules developer have to follow in order to create quality software.*
- *A set of conventions the organization decides to follow.*
- *A systematical, engineering approach for organizing software projects.*

The traditional Waterfall Model:



While developing software following this rule, there occur some errors and risks. To overcome those problems, it always end up like:



What is “Agile Method”?

Agile method was meant to streamline the software development process by de-emphasizing inefficient practices such as heavy documentation, excessive meetings, and rigid adherence to process.

According to Agile Manifesto:

- > Agile project management is an iterative development methodology that values human communication and feedback, adapting to changes, and producing working results.
- > Agile is a software development methodology to build a software incrementally using short iterations of 1 to 4 weeks so that the development is aligned with the changing business needs.
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What is Manifesto for agile ?

The document, formally called the "**Manifesto for Agile Software Development**" was produced by 17 developers during an outing on Feb. 11-13, 2001.

Developers: Kent Beck, Mike Beedle, Arie van Bennekum, Alistair Cockburn, Ward Cunningham, Martin Fowler, James Grenning, Jim Highsmith, Andrew Hunt, Ron Jeffries, Jon Kern, Brian Marick, Robert C. Martin, Steve Mellor, Ken Schwaber, Jeff Sutherland, Dave Thomas.

The developers, who called themselves the **Agile Alliance**, were seeking an alternative to traditional waterfall model which was strict to it's rule and was driven by a unchangeable plan made at very beginning of the project.

The Agile approach to software development is defined by its commitment to **creating software incrementally**. The approach offers users new versions, or releases, of software following brief periods of work. Those brief periods of work are often called **sprints**.

In the traditional approach to software development, developers typically compile the needs and requirements of the users and then build the software all at once. which is documentation driven, heavyweight software development processes.

Proponents of Agile methodologies say the four values outlined in the Agile Manifesto promote a software development process that focuses on quality by creating products that meet consumer's needs and expectations.

Four values of Agile

The four core values of Agile software development as stated by the Agile Manifesto are:

- 1) individuals and interactions** over processes and tools.
- 2) working software** over comprehensive documentation.
- 3) customer collaboration** over contract negotiation.
- 4) responding to change** over following a plan.

* Bold are given more importance than the next one.

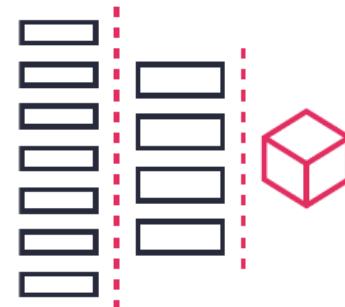
Principles behind the Agile Manifesto

Agile alliance promise to follow these principles:

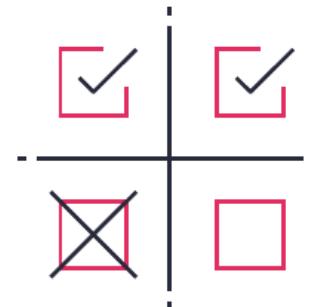
- 1) Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
- 2) Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
- 3) Deliver working software frequently, from a couple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

THE SCRUM LIFE-CYCLE AS AGILE PROJECT:

Scrum projects are broken down into short iterations (generally 1 – 3 weeks) called sprints. The life-cycle of each sprint includes:



1. PLANNING



2. EXECUTION



3. REVIEW

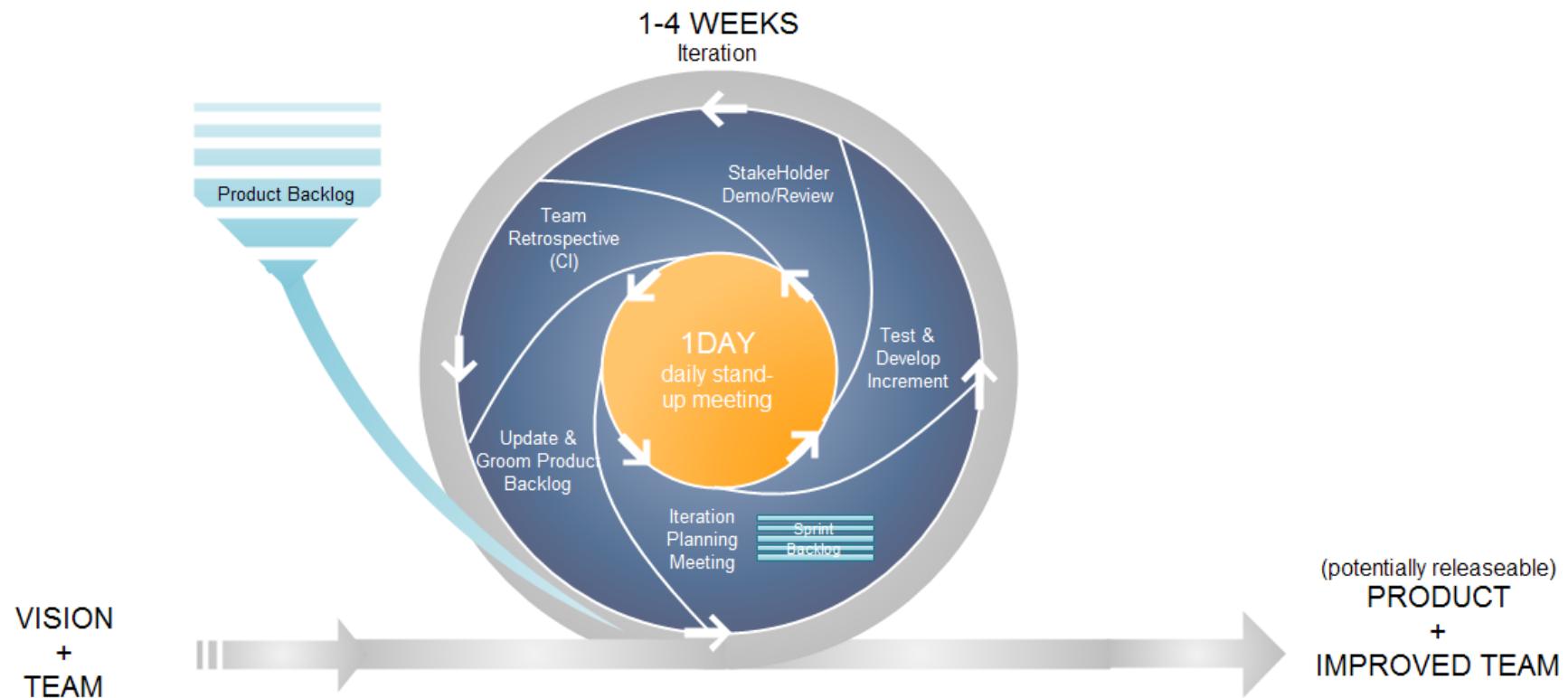


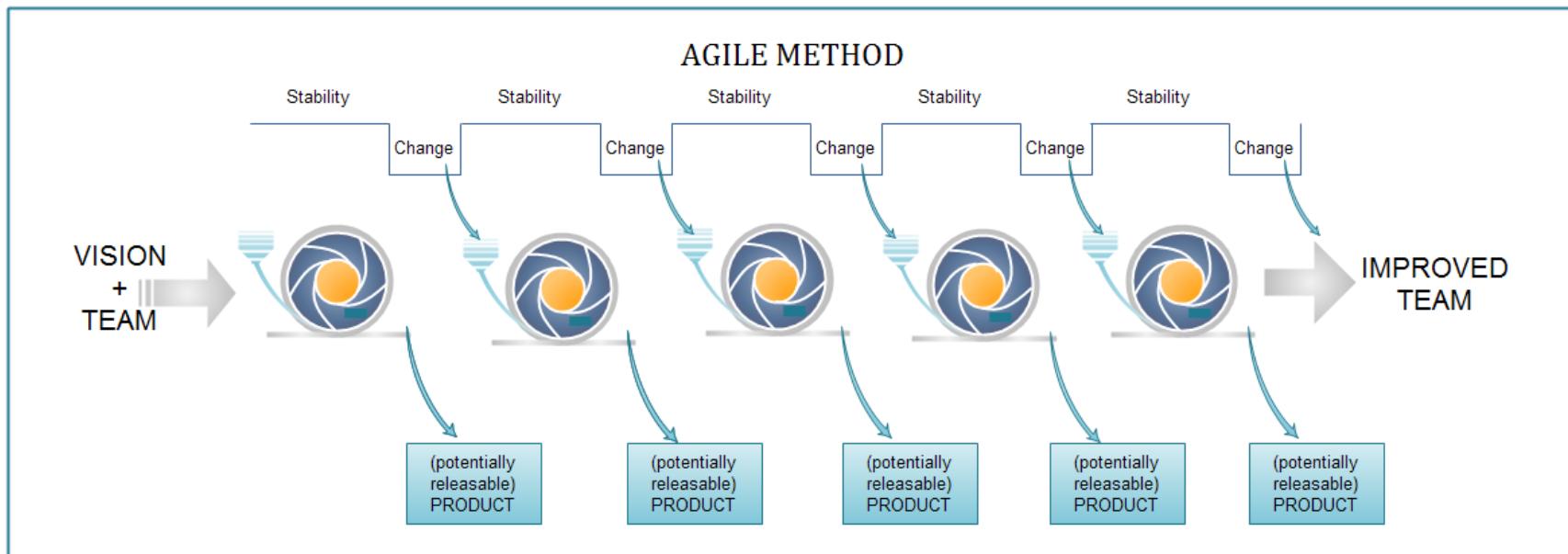
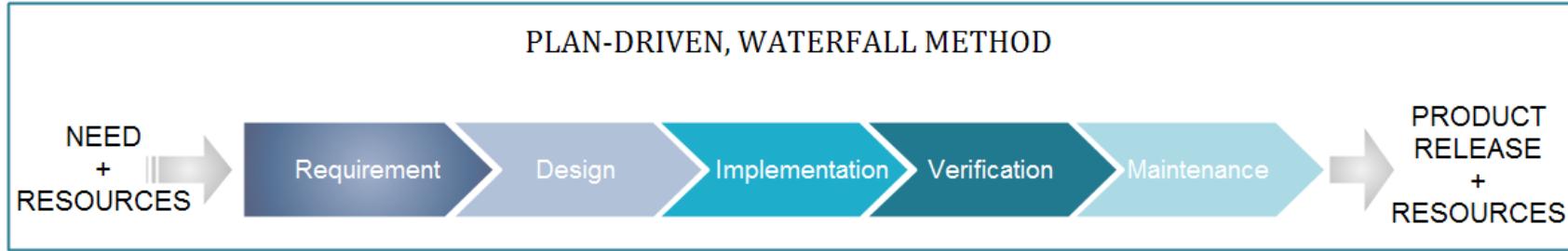
4. RINSE & REPEAT

How it actually happen ?

1. Getting an overview of the project and the goals.
2. Determining who will be working on the project.
3. Determining the point person for client sign-off.
4. Creating the project backlog.
5. Determining which features to work on.
6. Executing the task.
7. Getting on the same page's top again.

Alternatively, Agile life cycle can be described as:





Benefits of Using the Agile Method

- 1) This method offers a light framework for assisting teams.
- 2) It helps Developer team function and maintain focus on rapid delivery. This focus assists capable organizations in reducing the overall risks associated with software development.
- 3) The Agile Method ensures that value is optimized throughout the development process.
- 4) The use of iterative planning and feedback results in teams that can continuously align a delivered product that reflects the desired needs of a client.
- 5) It easily adapts to changing requirements throughout the process by measuring and evaluating the status of a project.

Difference between traditional and agile method:

S.N	Context	Agile	Traditional
1	Control	People centric.	Process centric.
2	Management Style	Leadership and collaboration.	Command and control.
3	Communication	Informal.	Formal.
4	Customer's Role	Critical.	Important.
5	Technology	Favors OOP.	No restriction.

Why Agile method ?

There are two major reason that Agile method was started over the traditional approach.

- * To overcome problems cause by following traditional approach.
- * To reduce risk in “Success” of Developed System.



In detail, we can have much more benefits like:

- **SPEED TO MARKET**
 - Agile lets you get your concept to your users as quickly as possible.
- **FLEXIBILITY**
 - Agile also realizes that great ideas are bound to come mid-project and being locked into a scope doesn't let you take advantage of these realizations.
- **RISK MANAGEMENT**
 - Incremental releases means that the product can be used early in the process by stakeholders and users.
- **TRANSPARENCY**
 - Agile lets you see, feel and use a project consistently throughout the project.
- **RIGHT PRODUCT**
 - Incremental releases let you test your product early and often.

Additionally:

Agile, as outlined in the Agile Manifesto, is considered a philosophy, but there are other specific methodologies and frameworks that formalize many or all the ideas presented in the Agile Manifesto.

For example, Scrum is a framework for managing and controlling iterative projects where the product owner works with cross-functional teams to create a list of tasks to be done. This list is known as the product backlog.

Other frameworks and methodologies include Crystal, Kanban, Lean and Extreme Programming (XP), Pair/Parallel programming, all of which have elements that draw from Agile philosophies.

– Moreover:

If your system is obvious, in your culture and environment it is clear how to do things and requirements are constant you don't need Agile.

Agile method of software development is less suited for projects that have low level of uncertainty where predictability, planning, and control are more important than creativity and innovation.

If the cost and timeline to implement the plan are clearly known and predictable or are constant, it is not suitable to use agile method in such project.

The End

