1. **Agile Methodology**
   1. Agile is a project management approach developed as a more flexible and efficient way to get products to market. The word ‘agile’ refers to the ability to move quickly and easily. Therefore, an Agile approach enables project teams to adapt faster and easier compared to other project methodologies.
   2. Many of today’s projects have more unknowns than a traditional project management methodology can adequately handle. This uncertainty makes it challenging to document requirements and adapt to changes successfully.
   3. This guide will explain the Agile methodology, which projects will benefit from an Agile approach, and how to implement one effectively.
   4. The four values of the Agile Manifesto are:

Agile projects require an iterative approach, which supports incremental, frequent, and consistent delivery of workable products to your customer or client. This innovative approach ensures your project team can consistently deliver concrete products without being delayed by changes and evolving requirements.

Agile has a high level of customer involvement and includes frequent reviews of progress with both the project team and the customer.

You can run an Agile project using several different frameworks. Some of the more popular ones include:

1. Scrum
2. Kanban
3. Extreme Programming
4. DSDM
5. **12 Agile Principles**
   1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.  
      The first principle of Agile methodology states that customers should receive project deliverables or iterations across regular intervals throughout the project’s life cycle, rather than just one product delivery at the end.
   2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.   
      The Manifesto’s authors found that, with traditional project management, it was difficult to accommodate last-minute change requests. This principle ensures that Agile projects can adapt to any changes, no matter how late in the game, with minimal delay.
   3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference for shorter timescales.  
      Agile projects plan for frequent, short project timelines that allow for a fast turnaround of workable products. Teams will often break Agile projects into one to four week-long sprints or project intervals, each one ending in the delivery of a product.
   4. Business people and developers must work together daily throughout the project.   
      This Agile principle states that regular communication with all stakeholders is critical to the project’s success. Commonly, this involves a short daily meeting with both the project team and any other key stakeholders.
   5. Build projects around motivated individuals. Give them the environment and support they need and trust them to get the job done.  
      A central concept of the Agile project management methodology is that the right people need to be placed in the right positions and given the autonomy required to do their jobs well. It’s essential to design a project team based on capabilities rather than job positions or titles. The project manager’s focus should be on motivating the project team and supporting them, rather than micromanaging them.
   6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.   
      The Agile Manifesto emphasizes the importance of co-locating teams and stakeholders whenever possible, as [face-to-face communication is more effective](https://hbr.org/2017/04/a-face-to-face-request-is-34-times-more-successful-than-an-email) than email or phone. If your team cannot be co-located, video conferencing is an option that can still capture the value of non-verbal cues.
   7. Working software is the primary measure of progress.  
      The Agile methodology aims to provide complete, working deliverables. This goal should always take priority over any additional requirements, such as project documentation. Other metrics, such as hours spent or time elapsed, are not considered as important as delivering working products.
   8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.   
      According to this principle, Agile projects should have a consistent pace for each iterative cycle or sprint within the project. This breakdown should eliminate the need for overtime or [crashing schedules](https://www.wrike.com/project-management-guide/faq/what-is-project-crashing-in-project-management/) while promoting frequent output of workable products. It should also create a repeatable cycle that the team can continuously follow for as long as necessary.
   9. Continuous attention to technical excellence and good design enhances agility.  
      An Agile project’s primary focus should be on improving the end product and achieving advancements consistently over time. Each iteration should always improve on the previous one, and the team should always be looking to innovate.
   10. Simplicity – the art of maximizing the amount of work not done – is essential.  
       An Agile project aims to get just enough done to complete the project and meet the requested specifications. Any additional documentation, steps, processes, or work that does not add value to the customer or enhance the project outputs should be avoided or eliminated.
   11. The best architectures, requirements, and designs emerge from self-organizing teams.  
       Agile is based on the belief that you need motivated, autonomous, and skilled teams to deliver the best results and products. Teams should be empowered to organize and structure themselves as required. They should have the freedom to collaborate and innovate as they see fit, without being hampered by too much oversight.
   12. The team discusses how to become more effective at regular intervals, then tunes and adjusts its behaviour accordingly.   
       A successful, self-motivated team requires a strong focus on advancing their skills and processes to grow and improve. The team should have regular reviews on their performance and outcomes, including discussions on improving as they move forward.
6. **Advantages of Agile Project management**
   1. Any project that evolves or does not have clear scope and requirements at the start
   2. Organizations that work in a fast-changing environment, such as technology
   3. Organizations that need to work closely with their customers and other external parties throughout the life of the project
   4. Companies that emphasize process and product improvement and are constantly looking to innovate
   5. Projects with many interdependent tasks, where the team needs to work closely and frequently communicate to ensure success
   6. Companies that need to create a prototype before building the final project outcome
   7. Projects that require rapid feedback from stakeholders about each product iteration before moving on to the next version or draft
7. **Benefits of Adopting Agile Methodology**
   1. Continuous Customer Contact
   2. Ability to adapt
   3. Faster Delivery
   4. Lower project risk
   5. Ongoing innovation
8. **History of Agile**
   1. Depending on the source, the origins of Agile methodology can be [traced back to the 1990s](https://techbeacon.com/app-dev-testing/agility-beyond-history-legacy-agile-development), [1975](https://pdfs.semanticscholar.org/e491/4bf06b5f79db44437bf7c20ea73077f18781.pdf), or even [as early as the 1960s](https://www.umsl.edu/~sauterv/analysis/AgileOldSchool.pdf). However, everyone agrees that Agile took root with the creation of the [Manifesto for Agile Software Development](https://agilemanifesto.org/), also known as The Agile Manifesto.
   2. [The Agile Manifesto](https://agilemanifesto.org/history.html) was originally released in February 2001 to create a new way of managing software development. A group of leading software developers wrote the manifesto on a retreat in Utah, where they had met to discuss industry problems and potential solutions.
   3. This group understood that the software industry needed a better, quicker way to get products to market. Their goal was to develop new methods for changing a product and project that would not impact the cost or delay the production schedule.
   4. They determined that dividing a project into shorter iterations would allow for faster development and testing. Reviews (called sprint retrospectives) would take place at the end of every iteration, and changes could then be made without having to wait for the end product.
   5. The Agile Manifesto was initially drafted as a solution for software development management, but the Agile methodology has since grown to encompass projects across various industries and businesses.
9. **When not to use Agile methodology**
   1. The outcome of your project is stable and well understood
   2. Stakeholders don’t want Agile
   3. Company cant support Agile
10. **Agile v/s Scrum(not required)**
    1. To better understand Agile vs. Scrum, you can think of Scrum as a guideline for adopting the Agile approach to project management. Scrum provides the rules, roles, events, tools, and artifacts necessary for successfully adopting an Agile mindset.
    2. The main difference between Agile and Scrum is that Agile is the process you want to achieve, and Scrum is a tool for its success. You will often hear Scrum and Agile used interchangeably, as Scrum is the most popular framework for Agile. However, it’s not the only framework you can implement to plan and run an Agile project.
11. Agile v/s Waterfall model
    1. Agile methodology project management and Waterfall project management are two of the more popular methods for organizing projects. When determining how to plan and run your next project, you’ll likely start by comparing Agile and Waterfall project management to determine which is more suitable.
    2. Waterfall is a more traditional approach to project management, involving a linear project flow. It’s best for clearly defined projects with definitive timelines and well-defined deliverables from the outset. In other words, if your [major project constraints](https://www.pmi.org/learning/library/six-constraints-enhanced-model-project-control-7294) are well understood and documented, Waterfall is likely your best option.
    3. Core principles of Waterfall:
       1. Gathering all requirements upfront
       2. Completing all work in structured, sequential, pre-defined phases
          1. Conducting testing only after product development or construction is completed
    4. Conversely, Agile was created to handle projects where the primary constraints are not well understood.
    5. As discussed earlier, Agile is an iterative, flexible approach to projects. This method splits a project into stages or “sprints,” allowing it to mature and evolve as you gain more information.
    6. When deciding between Waterfall project management and Agile, it should ultimately come down to your end product’s maturity and how well you understand the project’s outcomes and requirements in the initiation phase.