Click to prove you're human

Editorial Note: We earn a commission from partner links on Forbes Advisor. Commissions do not affect our editors' opinions or evaluations. Agile and Waterfall are two well-known project management methodologies. Both of them are popular in software development but each is best suited for different types of projects. The main difference is that Waterfall is a linear system of working that requires the team to complete each project phase before moving on to the next one while Agile encourages the team to work simultaneously on different phases of the project.Agile vs. Waterfall: At a GlanceAgile MethodologyApproach: Frequent stakeholder interactionFlexibility: HighRequires: Team initiative and short-term deadlinesAgile methodology was developed as a response to Waterfalls more rigid structure. As a result, its a much more fluid form of project management. A software development project can take years to complete, and technology can change significantly during that time. Agile was developed as a flexible method that welcomes incorporating changes of direction even late in the process, as well as accounting for stakeholders feedback throughout the process.In Agile, the team will work on phases of the project concurrently, often with short-term deadlines. Additionally, the team, rather than a project manager, drives the projects direction. This can empower the team to be motivated and more productive, but also requires a more self-directed team. Waterfall MethodologyApproach: Hands-off; goals and outcome established from the beginningFlexibility: LowRequires: Completing deliverables to progress to the next phaseWaterfall methodology is a linear form of project management ideal for projects where the end result is clearly established from the beginning of the project. The expectations for the project and the deliverables of each stage are clear and are required in order to progress to the next phase. Agile and Waterfall Comparison Chart Waterfall is a linear project progression, so its best suited for projects with a defined end goal. If a project owner has a clear and specific vision of an app, for example, and is confident it will not change throughout the project development, Waterfall methodologies could be a good system to follow.Meanwhile, Agile leaves a lot of room to adapt and change course as the project develops. Its better suited for projects where the outcome may be dependent on more research or testing.The budget for projects using Waterfall methodologies tends to be less flexible because the project is mapped out from the beginning. With Agile, there is more room to change direction as the project develops, so the budget is also subject to change. Similarly, the timeline with Waterfall is set from the start, while its more flexible with Agile and dependent on how the project develops.Waterfall vs. Agile: How To Choose the Right Methodology for Your ProjectThere are several factors to consider when you are choosing between Waterfall and Agile. Here are a few questions to consider:Does your project require strict regulations or requirements? Waterfall is better suited for projects with regulations or requirements because each phases deliverables and strict procedures ensure that they are met. For instance, the Department of Defense and the aerospace industry are a couple of industries that would more likely use Waterfall over Agile, since the requirements are a safety factor. Dr. Chris Mattmann, Chief Technology and Innovation Officer (CTIO) at NASA Jet Propulsion Laboratory, told Forbes Advisor that agile methodology is used more for IT companies, [companies] that fail fast and move fast, types of places where you can proceed in parallel in different phases.When choosing between Agile and Waterfall, consider how involved the project owners or stakeholders will be in the project. Agile is better suited for projects where stakeholders are closely involved every step of the way. Waterfall is a more structured project management method and does not lend itself to the same type of flexibility.Bottom LineTo summarize, Agile and Waterfall are two different management methodologies best suited for different types of projects. If you clearly understand the project outcomes from the beginning, Waterfall may be the best fit. Waterfall is a better method when a project must meet strict regulations as it requires deliverables for each phase before proceeding to the next one.Alternatively, Agile is better suited for teams that plan on moving fast, experimenting with direction and dont know how the final project will look before they start. Agile is flexible and requires a collaborative and self-motivated team, plus frequent check-ins with business owners and stakeholders about the progress. KEY TAKEAWAYS The Agile methodology places emphasis on flexible, iterative progress by breaking down the project into smaller, more manageable units of work. The waterfall model is a rigid, highly structured approach that requires the execution of the project to be defined before any work can begin. Project managers use various methodologies to help plan, oversee, and manage projects. The oldest of these methodologies, known as waterfall, has been used successfully for decades but its not the only option. In many cases, the Agile methodology is a suitable, if not entirely better, alternative. To know which between Agile vs waterfall fits your project better, it pays to understand their differences. Recognized as the oldest project management methodology in existence, waterfall was introduced in 1970 by Winston W. Royce. Drawing inspiration from the rigid and highly repetitive working process in Henry Fords automobile assembly line, Royces methodology boomed in popularity throughout the 1970s and 1980s. By the late 1990s, however, many companies especially those in software development started to realize the shortcomings of the waterfall approach. This ultimately led to the development of the Agile project management methodology and the release of the Agile Manifesto in 2001, which centered on four major principles for project management: Valuing individuals and interactions instead of rigid processes and traditional tools Embracing functional software as opposed to documentation Focusing on customer collaboration instead of contract negotiations Responding to unexpected changes versus following a predetermined path Although the Agile Manifesto was created by a group of software developers and specifically meant for software development projects, its principles, methodologies, and frameworks have been successfully adopted by companies and virtually every industry. Given their similarities, its not always clear what to use between Agile and waterfall. But once you have a better idea of their similarities and differences, you should be able to decide which approach is right for you and your team. If you compare Agile development and waterfall, youll notice many similarities. Theyre both commonly used in project management as a means of ensuring quality and timely completion of deliverables, and they both require effective planning, prioritization, and deployment. Where they start to differ is in implementation. While the Agile methodology is more open to ongoing collaboration and unexpected changes, the waterfall model follows a highly structured path. Since waterfall requires the entire project structure to be detailed before any work can begin, there is very little room for revisions or changes along the way. In most cases, waterfall projects move slower than their Agile counterparts, especially during the initial project planning stages. Not only does the entire structure need to be planned in detail, but every step of the project lifecycle also needs to be documented. Projects that require ongoing input from external stakeholders, or those that call for the production of ongoing deliverables, benefit more from the Agile methodology than the waterfall. However, the latter is great for projects that dont require stakeholder involvement and those that only provide deliverables upon project completion. And while in waterfall, the project manager assigns each member to a specific role that is to be followed throughout the entire project lifecycle, roles within the Agile methodology are much more fluid. Agile projects are highly flexible, versatile, and adaptable. Because of their ability to incorporate revisions and changes quickly and efficiently, Agile is ideal for teams in software development, product design, marketing, and more. Since Agile projects generally produce consistent deliverables over time, its often easier to detect and address issues before arriving at the final product. Agile teams are often faster and more efficient than others. Not only are they encouraged to multitask and think creatively when solving problems, but they also deliver continuous feedback and communications throughout the project lifecycle. The Agile methodology is ideal for collaborative teams who often perform multiple tasks or roles during the project lifecycle. Agile provides clear visibility and transparency throughout the project lifecycle. This makes it easy to monitor and track progress over the course of time, which is especially useful for long-term projects.Due to the creative and sporadic nature of Agile, those who are used to following detailed instructions may need help transitioning to Agile from other methodologies. Because Agile doesnt put so much emphasis on project and process documentation, it can sometimes be difficult to track and extract information as needed. Unfortunately, Agile projects are extremely susceptible to scope creep especially if the project keeps changing and evolving. Agile lacks the predictability seen in other methodologies. This could make it difficult to gain the approval of stakeholders before beginning a new project. The Agile methodology works best when the key stakeholders take an active role in the project. If these stakeholders cant provide their input and collaboration as needed, the project might not be a success.Waterfall takes a highly structured and rigid approach to project management, helping eliminate uncertainty while providing specific roles for every team member. Teams working with the waterfall methodology have a clear path to project completion, making it easier to gauge success. The waterfall methodology requires comprehensive documentation for every project phase that teams can use to track progress in real time or archive for later review. Waterfall focuses on defining project budgets, timelines, requirements, and deliverables, making it a predictable methodology. Because of waterfalls detailed nature, its easier to identify and analyze potential project risks when compared to other methodologies.Since waterfall doesnt rely on the input of stakeholders during the project lifecycle, it isnt a great solution for those who want to have direct input. The waterfall methodology doesnt work well with changes or revisions. As such, they arent suited for projects that have the tendency to evolve over the course of time. Waterfall moves slower than other methodologies, especially in the initial project planning and initiation stages. This is primarily due to the need for such comprehensive documentation. The sequential nature of waterfall makes it difficult to collect feedback throughout the project lifecycle, either from team members or from stakeholders, which could result in a deliverable that doesnt meet expectations. Waterfall projects usually dont realize their full value until the end of the project, which could result in sunk costs if you need to make changes or switch to a new project altogether. Whether waterfall is better than Agile or vice versa has been the subject of debate for decades. Since these two top project management methodologies can be used to successfully manage projects across a variety of industries, there isnt always a clear winner. However, some industries stand to benefit more from waterfall than from Agile and some prefer the latter. Agile Industry Use CasesWaterfall Industry Use CasesSoftware development: Originally designed for use in software development projects that continuously change and evolve, Agile is perhaps most suited for modern software development and general IT.Construction: Waterfall works great in industries like construction, those with projects that typically cannot start the next phase until the current one is complete.Advertising and marketing: Given Agiles flexibility, its a great fit for advertisers and marketers who regularly update their projects according to recent trends.Healthcare: Industries that are strictly regulated, like healthcare and, specifically, pharmaceuticals benefit immensely from the structured and standardized approach of the waterfall methodology.Aerospace: Many aerospace companies have streamlined technical processes, reduced costs, and improved their overall time-to-market after implementing the Agile methodology.Manufacturing: Like in construction, manufacturers often use waterfall when planning production lines that rely on sequential project phases. When used correctly, both Agile and waterfall are great for risk management. However, the exact benefits differ. Agile: The continuous feedback, incremental design, and stakeholder involvement in Agile projects are all highly complementary to the practice of risk management. Waterfall: The comprehensive documentation, regular reviews at the end of each project phase, and the meticulous planning required make waterfall a great solution for identifying and managing risks. Although Agile is often regarded as the better choice for full-scale risk management, primarily due to the option for continuous and ongoing risk identification, waterfall is helpful when it comes to identifying initial project risks and maintaining appropriate documentation. While teams are equally important in both waterfall and Agile project management, theyre used in different ways. Agile is best for dynamic teams that frequently change members throughout the project life cycle, or for teams that assign specific team members to multiple roles. Waterfall, on the other hand, works best for established teams and where each member is given a specific role. Despite these differences, both can be used with modern project management software. Agile teams, for example, will benefit immensely from the flexibility, collaboration, and communication functionality offered through services like ClickUp. Teams that are currently using the waterfall methodology will likely prefer the project templates, automated workflow, and project monitoring capabilities of monday.com. In certain scenarios, two or more project management methodologies can actually be combined into a hybrid process. Some examples of hybrid project management include: Agile and waterfall: Despite their differences, Agile and waterfall can be used together. In cases like this, waterfall is usually used during the initial project planning phase and Agile is used for project execution. Agile and Scrum: Agile and Scrum are a natural fit. The principals, values, and strategies introduced through Scrum make it easier to implement the Agile methodology. Agile and Kanban: Much like Scrum, Kanban can typically be combined with any Agile methodology as a means of improving workflow visualization and optimizing key project management processes. Waterfall and Kanban: Kanban can be used to add some much-needed workflow visualization to waterfall, too, which can help identify bottlenecks and improve overall project transparency. Kanban and Scrum: Kanban boards are even used to create and track Scrum sprints and Scrum cycles, as they make it easier to visualize processes and track accomplishments. While many project management methodologies work well with each other, some do not. Moreover, introducing too many methodologies and frameworks to a novice team could result in more confusion and redundancy than anything else. Agile and waterfall are powerful toolswhen used correctly. In project management, there are common pitfalls that should be avoided at all costs. Ignoring these pitfalls could result in unnecessary confusion among team members, failure to meet project standards, and even a complete loss of confidence in the methodology as a whole. Agile PitfallsWaterfall PitfallsUtilizing Agile for a project that requires prior resource allocation. Given the nature of the Agile methodology, its difficult to predict the full scope of necessary resources ahead of time.Pairing the Scrum framework with waterfall. Because Scrum is part of the Agile methodology, its not really compatible with the waterfall methodology.Failing to understand the four principles of Agile. Team members who misinterpret or fail to understand the basic principles of Agile will likely have difficulty embracing the methodology to begin with.Implementing waterfall to improve the chance of project success. With no real provisions available for correcting mistakes, projects can easily go beyond their initial budgets or timelines.Becoming impatient with the initial implementation process. Transitioning to Agile takes time. As such, the process might seem overly complicated at first.Using waterfall for long-term or complicated projects. Since these projects are likely to change over time, theyre not well-suited for the waterfall methodology. In project management, waterfall and Agile software development methodologies each have their own uses. While the former has greater flexibility and adaptability, the latter works well for projects that require a more rigid approach. Both are suitable for teams of different sizes and projects of varying scope and scale, and they can even be used within a hybrid setting to give you the best of both worlds. Waterfall is a Linear Sequential Life Cycle Model, whereas Agile is a continuous iteration of development and testing in the software development process.In Agile vs Waterfall difference, the Agile methodology is known for its flexibility, whereas Waterfall is a structured software development methodology.Comparing the Waterfall methodology vs Agile, which follows an incremental approach, whereas the Waterfall is a sequential design process.Agile performs testing concurrently with software development, whereas in Waterfall methodology, testing comes after the Build phase.Agile allows changes in project development requirements, whereas Waterfall has no scope of changing the requirements once the project development starts. Waterfall Model methodology which is also known as Linear Sequential Life Cycle Model. Waterfall Model followed in the sequential order, and so project development team only moves to next phase of development or testing if the previous step completed successfully.What is the Agile methodology?Agile methodology is a practice that helps continuous iteration of development and testing in the software development process. In this model, development and testing activities are concurrent, unlike the Waterfall model. This process allows more communication between customers, developers, managers, and testers.Advantages of Waterfall ModelIt is one the easiest model to manage. Because of its nature, each phase has specific deliverables and a review process.It works well for smaller size projects where requirements are easily understandable.Faster delivery of the projectProcess and results are well documented.Easily adaptable method for shifting teamsThis project management methodology is beneficial to manage dependencies.Advantages of the Agile ModelIt is focused client process. So, it makes sure that the client is continuously involved during every stage.Agile teams are extremely motivated and self-organized so it likely to provide a better result from the development projects.Agile software development method assures that quality of the development is maintainedThe process is completely based on the incremental progress. Therefore, the client and team know exactly what is complete and what is not. This reduces risk in the development process. Limitations of Waterfall ModelIt is not an ideal model for a large size projectIf the requirement is not clear at the beginning, it is a less effective method.Very difficult to move back to makes changes in the previous phases.The testing process starts once development is over. Hence, it has high chances of bugs to be found later in development where they are expensive to fix.Limitations of Agile ModelIt is not useful method for small development projects.It requires an expert to take important decisions in the meeting.Cost of implementing an agile method is little more compared to other development methodologies.The project can easily go off track if the project manager is not clear what outcome he/she wants. Difference between Agile and Waterfall MethodologiesBelow is a difference between Agile and Waterfall methodologies:AgileWaterfallIt separates the project development lifecycle into sprints.Software development process is divided into distinct phases.It follows an incremental approachWaterfall methodology is a sequential design process.Agile methodology is known for its flexibility.Waterfall is a structured software development methodology so most times it can be quite rigid.Agile can be considered as a collection of many different projects.Software development will be completed as one single project.Agile is quite a flexible method which allows changes to be made in the project development requirements even if the initial planning has been completed.There is no scope of changing the requirements once the project development starts.Agile methodology, follow an iterative development approach because of this planning, development, prototyping and other software development phases may appear more than once.All the project development phases like designing, development, testing, etc. are completed once in the Waterfall model.Test plan is reviewed after each sprintThe test plan is rarely discussed during the test phase.Agile development is a process in which the requirements are expected to change and evolve.The method is ideal for projects which have definite requirements and changes not at all expected.In Agile methodology, testing is performed concurrently with software development.In this methodology, the Testing phase comes after the Build phaseAgile introduces a product mindset where the software product satisfies needs of its end customers and changes itself as per the customers demands.This model shows a project mindset and places its focus completely on accomplishing the project.Agile methdology works exceptionally well with Time & Materials or non-fixed funding. It may increase stress in fixed-price scenarios.Reduces risk in the firm fixed price contracts by getting risk agreement at the beginning of the process.Prefers small but dedicated teams with a high degree of coordination and synchronization.Team coordination/synchronization is very limited.Products owner with team prepares requirements just about every day during a project.Business analysis prepares requirements before the beginning of the project.Test team can take part in the requirements change without problems.It is difficult for the test to initiate any change in requirements.Description of project details can be altered anytime during the SDLC process.Detail description needs to implement waterfall software development approach.The Agile Team members are interchangeable, as a result, they work faster. There is also no need for project managers because the projects are managed by the entire teamIn the waterfall method, the process is always straightforward so, project manager plays an essential role during every stage of SDLC. In software development and project management, few decisions impact the outcome of a project more than choosing the right methodology. Whether youre launching a new EMR software, developing laboratory billing services, or building a highly specialized oncology EHR, the path you chooseAgile or Waterfallcan influence your timeline, budget, team dynamics, and overall success.Understanding the strengths and limitations of each approach is essential to determine which fits your projects needs best. Lets explore both methodologies, their pros and cons, and how they compare when applied to real-world healthcare technology projects.The Waterfall model is a linear and sequential approach to project management. Each phaserequirements gathering, design, development, testing, deploymentmust be completed before moving on to the next. Its easy to visualize and manage, making it appealing to industries where structure and predictability are critical.Predictability: Timelines and budgets are defined upfront. Documentation: Every phase requires thorough documentation, which can help in industries like healthcare where regulatory compliance is key. Clear Expectations: Because everything is defined early, stakeholders know exactly what to expect.Inflexibility: Once you move past a phase, revisiting it is costly. Delayed Testing: You dont test until after development, increasing the risk of late-stage failures. Poor Fit for Evolving Projects: If the scope or requirements shift mid-project, adapting is difficult.This method may suit healthcare projects with rigid regulatory requirements, such as the development of laboratory billing services, where testing and compliance protocols are non-negotiable. When accuracy and traceability matter more than speed, Waterfall can provide the structured oversight needed.Agile flips the Waterfall model on its head. Instead of following a strict sequence, Agile promotes flexibility, collaboration, and continuous improvement. Work is broken into smaller, manageable chunks called sprints. Teams iterate frequently, gathering feedback and making adjustments throughout the project lifecycle.Flexibility: Agile thrives in environments where requirements may evolve. Early and Continuous Feedback: Stakeholders are involved throughout the process, reducing the risk of misalignment. Faster Time to Market: Functional components are delivered early and often, which can be crucial in competitive markets.Requires Discipline: Teams must be well-coordinated and committed to frequent communication. Less Predictability: Timelines and budgets are more fluid. Not Ideal for All Teams: Agile can be overwhelming for organizations used to top-down planning.For modern healthtech projects like building customizable EMR software, Agile offers flexibility that Waterfall cannot. Development teams can roll out features incrementally, test them in real-world environments, and make updates based on provider feedback.FeatureWaterfallAgileApproachSequentialIterativeFlexibilityLowHighDocumentationHeavyMinimalTestingAfter developmentContinuousCustomer InvolvementAt the beginningOngoingBest ForStable, regulated environmentsDynamic, evolving projectsThese distinctions matter when selecting a framework for your healthcare IT projects. A traditional hospital upgrading their LIS system may lean toward Waterfall, while a startup developing a new mobile-first patient portal might find Agile more beneficial.Choosing between Agile and Waterfall isnt about which one is better. Its about alignment. Ask yourself:If you have a well-documented set of requirements with little room for change (e.g., updating legacy laboratory billing services to meet new regulations), Waterfall may be the smarter choice. But if youre building a new solution where user feedback could shape the final product, Agile provides the flexibility to adapt.Waterfall projects tend to stay closer to budgetbut only if the original plan was accurate. Agile, on the other hand, allows you to pivot, but those pivots can impact cost and time. If predictability is more important than adaptability, Waterfall has the edge.Agile encourages continuous stakeholder engagement. If your team can commit to frequent check-ins and iterative approvals, Agile shines. But if stakeholder availability is limited, Waterfalls upfront planning may work better.A mid-sized practice group needed to develop a specialty-specific EMR software for dermatologists. They wanted to incorporate features like visual charting, before/after photo tracking, and cosmetic service billing. Since they expected to make improvements based on provider feedback, the developers opted for Agile.Weekly sprints allowed them to prototype features, test them with real users, and improve usability continuously. This iterative process not only accelerated development but also ensured a user-friendly product aligned with clinical workflows.A diagnostic lab aimed to replace its outdated billing platform. Because the billing process had to comply with insurance regulations, CPT code rules, and HIPAA standards, requirements were tightly defined. The project team selected Waterfall to ensure every phaserequirements gathering, system architecture, compliance checks, and final testingwas documented and signed off.Despite the longer development cycle, the structured methodology ensured no compliance gaps, a crucial win for a system handling thousands of transactions daily.Some healthcare organizations blend Agile and Waterfall to create a hybrid methodology. For instance, initial planning and compliance validation may follow Waterfall, while feature development runs in Agile sprints. This approach is gaining traction, especially for solutions like oncology EHR platforms.Why? Because oncology involves complex workflows, like chemotherapy regimens, prior authorizations, and treatment cycles. An oncology EHR must be precise yet flexiblestructured enough for regulatory compliance, but agile enough to respond to evolving clinical needs. In these cases, hybrid models offer the right balance of stability and adaptability.Agile and Waterfall each have a place in healthcare technology. The right choice depends on your projects scope, flexibility, stakeholder involvement, and regulatory demands.If youre dealing with static requirements, strict compliance, and predictable workflowslike modernizing laboratory billing servicesWaterfall may be the right fit. If your goal is to innovate, iterate, and deliver user-driven featuresas is often the case with emerging EMR softwareAgile likely serves you better. And if youre working in a highly specialized, high-stakes field like oncology, where your oncology EHR needs both structure and adaptability, a hybrid model could be the best choice.The future of healthcare technology isnt about following one rigid path. Its about choosingor blendingthe methodologies that bring the most value to providers and, ultimately, patients.Suggested articles: Agile Project Management Guide (Skills & Methodologies) | 12 Agile Collaboration Games for Team BuildingDaniel Raymond, a project manager with over 20 years of experience, is the former CEO of a successful software company called Websystems. With a strong background in managing complex projects, he applied his expertise to develop AceProject.com and Bridge24.com, innovative project management tools designed to streamline processes and improve productivity. Throughout his career, Daniel has consistently demonstrated a commitment to excellence and a passion for empowering teams to achieve their goals.Effective project management is essential for meeting customer needs and delivering quality results in today's business world. Agile and waterfall are popular project management frameworks, each with risks and benefits. As a project manager, it is your responsibility to select the appropriate approach based on your team's needs and the project's characteristics. Regardless of your chosen methodology, flexibility is critical to adapting to changing work environments.In this post, we will explore the similarities and differences between agile and waterfall project management, as well as what they each bring to the table in terms of delivering successful outcomes.What is waterfall? The waterfall project management method is a linear, step-by-step approach that's ideal for projects with a clear scope and predictable timeline. It involves rigorous planning upfront to ensure that the project stays on track, with progress tracked closely and issues addressed promptly. The Waterfall model usually includes five project management stages (or phases): initiation, planning, execution, monitoring/control, and closing.While this approach is effective for straightforward projects that require minimal adaptation or creativity, it may not be suitable for more complex initiatives that demand a more flexible and dynamic approach.Pros of waterfall | Cons of waterfall~Supports all planning to be completed up front with a clear roadmap for every stage of the project | Changes require significant replanning and adjustment to long-term plans~Utilizes a clear, structured approach | Challenging to see the value of completed tasks throughout the project if only released at the end~Easy to track progress, identify risks, and manage project budgets | Long delivery timeline, slow time to market~Project manager holds significant authority over the project, plan, and value delivery | Value of projects is low until the very end, meaning any pivots cause high sunk costs vs. delivering valueWhat is agile? Agile project management is a flexible and iterative approach that enables teams to quickly adapt to changing project requirements and deliver high-quality results within shorter timeframes. Its very often used in software development.Agile methodologies are about teamwork, customer satisfaction, constant refinement, and breaking big projects into bite-sized pieces. By prioritizing collaboration and communication, agile processes enable teams to pivot and respond to evolving customer needs while maintaining a high level of flexibility. The focus on continuous improvement means that teams are always seeking ways to optimize their processes and deliver the best possible results. Ultimately, the agile methodology is about producing better outcomes through a more streamlined and adaptive approach.Pros of agile | Cons of agile~Can handle changes to requirements along the way, regardless of size | Requires customer involvement to allow teams to identify and analyze customer needs~Shorter feedback loops mean faster ability to pivot | Project management holds little authority; focus on facilitation and process instead~Clear visibility of current/active work items and ability to see progress on tasks over time | Iterative development may lead to engineering refactoring due to changes over time~Support for engineering discipline and upfront testing, improving quality | Allows for additional feature requests which may add cost or timeWhen implementing an agile methodology in your organization, it's essential to understand the different types of agile methods and workflows (such as scrum*, kanban, extreme programming, lean development, and crystal) and how they work together. The best agile practitioners understand the principles behind each methodology so they can make informed decisions on which agile method to try first.* Learn more about the differences between scrum and waterfall10 differences between waterfall and agileHere are 10 critical differences between the waterfall and agile project management methods:Roles: Waterfall strictly assigns roles to project team members, with specific duties and responsibilities defined for each team member. In contrast, the agile model empowers team members to collaborate on different aspects of the project over time, leading to a more self-organizing team structure.Planning: In waterfall, planning is a linear process done at the beginning of the project, with all requirements and objectives laid out in detail upfront. In contrast, agile planning is a continuous process throughout the project's life cycle, with adjustments made as new information or requirements emerge.Scope: The waterfall methodology generally discourages changes to the project's scope, even with change requests used correctly. This is because the methodology requires an extensive amount of time spent in the beginning trying to get the plan right, which can make changes more costly after the project has begun. On the other hand, agile is more adaptable to changes in scope, with the development team able to adjust quickly as requirements change.Time frames: The waterfall method is designed for long-term projects with predetermined timelines. The project is completed linearly, with each phase dependent on the previous one. Agile, however, uses short iterations to deliver value rapidly, allowing teams to adjust plans over time and achieve shorter time frames.Speed: Waterfall projects tend to take longer because all requirements must be agreed upon before development can begin. Agile projects, on the other hand, are usually delivered more rapidly than waterfall projects due to the iterative development cycles used in agile. Delivery: Agile allows for quick delivery of projects with shorter lifecycles, as each iteration delivers a workable product. Waterfall requires the completion of all tasks before any work can be released.Flexibility: Agile encourages teams to respond quickly and adaptively to changes during the development process. Waterfall is less flexible and resistant to change once the project's scope has been defined.Testing: Testing is essential to the agile and waterfall methodologies, but the approaches differ significantly. Agile emphasizes incremental testing to identify and resolve issues throughout the development process. In waterfall, testing is usually done at specific milestones, often towards the end of the project. Documentation: Agile relies on minimal documentation, focusing on self-organizing teams and collaboration. Waterfall, in contrast, relies heavily on documenting each step in detail to ensure that all team members are on the same page.Communication: Agile emphasizes informal communication, with frequent interactions between individuals or small groups of stakeholders. In waterfall, communication is more formal, with detailed communication plans and progress reports shared across multiple stakeholders.When to use agile vs. waterfallWaterfall project management best suits well-defined projects with clearly specified requirements, limited complexity, and a definitive timeline. Waterfall works well when the customer's demands are precise and when there are no significant changes in scope or technology during the project.The waterfall model fits projects with the following characteristics:Simple scope and requirement gatheringClear and linear sequence of tasksPredictable deliverables based on set deadlinesStructured processesRigid quality control measuresLong-term commitment from all parties involvedAgile project management is a good fit in cases where the end goal may be unclear or difficult to define, when complex systems require frequent feedback loops, or when timelines and budgets are tight. It is also particularly effective for developing software applications since it allows for quick iteration and testing along the way. Additionally, agile can be helpful when dealing with teams who need to collaborate intensively, such as those located in different locations.Agile project management can be an excellent fit for many teams and projects, especially those that meet the criteria below:Complex deliverablesFrequent iterations and refinementsRapid delivery timesEmergent requirementsCollaborative environmentsMultiple stakeholders5 example scenarios where you can benefit from AgileDiving further, here are some specific scenarios, types of projects, and environments that often benefit from an agile approach to project delivery: Technical projects: Agile provides teams with an organized approach to developing complex software or products. Multiple teams can collaborate orderly, without a 45-person planning or re-planning meeting. Creative projects: Projects that involve a lot of creative problem-solving benefit from an agile approach as it allows for more experimentation and innovative thinking.Product innovation and development: Organizations that need to stay ahead of their competition by developing new products or improving existing ones will benefit from an agile workflow, as it allows team members to have increased flexibility throughout the process.Startups: They often need to deliver products or services with limited resources quickly. Agile methods allow them to develop and implement ideas more rapidly, allowing for rapid prototyping and iteration on the fly.Rapid prototyping: Agile can be used to quickly prototype and deliver an end product with high quality without spending too much time on planning, sourcing, approvals, etc.Allocate work to your project team with FloatMake sure people are working on the right tasks and get a bird's eye view on what each team is focused on, whether on a sprint or a long-term projectTry for freeWhen deciding on a project management methodology, it's essential to consider all factors, including the nature of the project, stakeholder needs, timeline, and budget constraints. With its adaptive, flexible approach, agile is ideal for projects with unknowns, high risk, or frequently changing requirements. On the other hand, waterfall's structured, organized approach works best for projects with well-defined requirements and a clear end goal. By carefully considering the project's needs and choosing the methodology that best fits those needs, teams can optimize their chances of success and deliver high-quality results. Theres no shortage of processes, frameworks, and philosophies when it comes to project management, but they ultimately fall into one of two camps: Agile vs. waterfall. Understanding what these two approaches are and how they differ is important for anyone involved in product development, organizational change, program management, or almost any other kind of structured project.Agile and waterfall often represent an irreversible fork in the road for any initiative. Once you choose one path, its quite challenging to change course for that project, so its not a decision to take lightly. Thats not to say that Agile and waterfall cant coexist in the same organization, but for a particular project, its usually a one-or-the-other inflection point.Lets begin by covering the basics of each philosophy.What is Waterfall?Waterfall is the old school way of managing projects. Throughout the life of the project, there are well-defined stages with formalized hand-offs from one to the next. Moreover, all of the requirements for each step is completed before the next begins.Although there are dates and schedules in a waterfall environment, each stage and project lasts until completion unless the rolling out initiative was specifically designed to be in phases comprised of multiple projects that build on one another.A healthy waterfall environment doesnt employ a throw it over the wall mindset where stakeholders pass on responsibility to the owner of the next phase. It is, however, primarily a linear process beginning with requirements and terminating in a final release or completion of the project.What is Agile?Agile is the new kid on the block, relatively speaking, and prizes rapid iteration, autonomy, and flexibility. It was conceived specifically as a reaction to waterfalls perceived shortcomings.In an Agile environment, you are divvying up work into Sprints, which are time-based bursts of activity, typically one-to-four weeks in length. This cadence dictates how much work is completed during a given period.The goal is to deliver value to the customer or user as quickly and often as possible. Thus larger projects are broken down into smaller pieces so that progress can be made during each Sprint.Aside from receiving their priorities and use cases from the business, Agile product management teams are self-organizing. They figure out the best way to allocate their resources to meet the requirements of each initiative, consulting with the Product Owner or subject matter experts from lines of business when necessary.Comparing the Two methodologies Side by Side:Waterfall would look something like this:Agile would look something like thisWhen Should Agile vs. Waterfall Be Used?Strict adherents of Agile or waterfall might insist its appropriate for any situation, but in reality, different types of projects are better suited for one versus the other.Waterfall is particularly useful for large, complex projects with very specific and unchanging requirements. Development teams will be less resistant to detailed product requirements documents and design specifications since thats whats expected.It can also be easier to map out dependencies and structure the overall project plan in a waterfall setting. Individual teams dont have the option to go rogue on their particular piece of the puzzle. That independence and creativity is prized in Agile, but may not be a great fit for larger or more complex initiatives.Organizationally, stakeholders must be mentally and emotionally prepared for Agile, which is likely a relatively new concept in many industries. While they may prefer the sound of rapid iteration and constant activity, they may not be comfortable with the lack of visibility and oversight required for Agile to thrive truly.Agile works well for projects that prize learning and are seeking or refining their product-market fit. The speed and flexibility of Sprints dovetail nicely with a continuous feedback loop and ongoing experimentation and tweaking.Another environment where Agile can thrive is one with a clearly articulated and well-supported product strategy. When everyone is aligned around objectives, goals, and KPIs, theres more comfort in giving individual teams the freedom and independence to work toward achieving them rapidly.What are the Key Differences?Agile and waterfall differ in many ways, but the most significant deltas pertain to oversight, processes, documentation, and timing.Benefits for different teamsWhile neither approach is detrimental to any part of the organization, different groups and stakeholders may prefer Agile or waterfall.As software engineers developed it, Agile is usually favored by the technology organization. They get much more autonomy, have a greater say in what they build and build it, and are less beholden to outside parties.Other parts of the organization may also prefer Agile for a variety of reasons. Product management gets to see value delivered to users more frequently and faster. UX teams have far more learning cycles and opportunities to improve the customer experience. Customer support may see bugs and other issues resolved faster. Sales and marketing will always have something new to talk about.However, those same groups may also be fond of waterfalls benefits, such as seeing large, complete visions delivered all at once, less frequent need for training and education, carefully crafted user documentation, having major milestones to anchor sales and marketing activities, or seeing their meticulously specified mockups brought to life.At the executive level, it is again a matter of taste. Many may prefer the command-and-control gatekeeper role they can play in waterfall, while others may favor the rapid pace of updates and enhancements Agile facilitates.What are the Pros and Cons of Agile vs. Waterfall?Like anything else, waterfall and Agile have their plusses and minuses. Heres a quick breakdown of the good and the bad of each:AgileProsFlexibility to respond to the market and new intelligenceThe implementation team has room for creative problem solvingSelf-organizing teams and resource allocationFrequent updates and increased customer valueRigid cadence, deadline flexibilityConsLoose planning can lead to unpredictable finished product and date slippageSusceptible to a lack of focus and knee-jerk reactions from Sprint to SprintRelentless paceLoose testing requirements may let bugs throughNo opportunities to make changes during a SprintWaterfallProsMinimal scope creepA predictable and well-specified final productWell-defined roles and responsibilitiesInfrequent releases that can be carefully rolled out and messaged to users and the marketPrecise project plans and firm deadlinesConsLack of flexibility after a specificationFewer opportunities to course correctToo many gaps between innovations reaching the marketToo long until bugs are discovered since testing doesnt occur until the large project is completeBeaurocratic change management processWhat is the Difference in Cost for Agile vs. Waterfall?Neither Agile nor waterfall are particularly expensive to implement. They dont necessarily require specialized software packages or other capital investments and operating costs.However, staffing and training are directly impacted by which method is selected, and the transition from Agile to Waterfall can be bumpy. Agile requires small, self-organizing teams to function properly. Each team typically has its own Scrum Master and Product Owner, although these roles sometimes cover multiple teams.Many organizations may not have enough people to fill those roles, particularly if they create a number of Scrum teams. It will require hiring, paying, and possibly training that staff.Similarly, Agile doesnt work well unless everyone involved is well-versed in how it functions. This may require hiring trainers, sending out employees to be certified as Scrum Masters, Product Owners, etc., or hiring Agile Coaches on a permanent or consulting basis.Waterfall doesnt have many dedicated resources other than project management. The bigger concern is that some people may be idle or underutilized depending on which phase a project is in and whether their talents and skills are fully needed at that time.Where Agile is definitely cheaper than waterfall is when companies arent exactly sure what they want, be it entering a new market, launching a new product, or making a major extension into a new area. Because Agile allows and encourages rapid learning and course correction, it prevents companies from sinking as much money and resources into a multi-month project only to see it miss the mark. What About Product Roadmaps?Whether an organization uses waterfall or Agile, product roadmaps still have an important role to play. But how we build those roadmaps and what they look like might be a little bit different.Product roadmaps are a long-standing part of waterfall product development. Since the projects are large, well-defined, and scheduled far in advance, product roadmaps are reliable indicators of whats to come and can offer quite a bit of granularity.In Agile, theres not the same level of detail available during the product roadmapping process. That makes those settings excellent candidates for feature-based roadmapping. Although these can also work in a waterfall environment, Agile organizations benefit from the feature-less approach.These roadmaps capture the product vision and prioritized themes for the coming months and years, but dont get into the specifics of what particular features and enhancements are being developed. It shifts the focus from features to outcomes and goals, which the organization cares about anyway.Using a purpose-built product roadmapping tool like ProductPlan, feature-less product roadmaps can align the organization around the major initiatives being worked on, with additional detail and information added as development progresses. This looser, more fluid approach fits nicely with Agiles de-centralized model.Does an Organization Have to Choose One or the Other?Although Agile devotees may claim its all or nothing when it comes to Agile adoption, there are some organizations that borrow from both methodologies for a hybrid model. Typically, they take the more specific direction and pre-determined implementation aspects of Waterfall and marry them with the iterative, short bursts of productivity parts of Agile.In this world, there are still large projects with stage gates and overall project plans, but the work is chunked up into Sprints that have a specific scope and timeline. When possible, each Sprints output is released, but sometimes large initiatives may take multiple Sprints until theyre ready for prime time.This frees up the software development team to run as if they were essentially an Agile shop while still giving the business side of the house the structure and oversight that comes with waterfall.Another take on the hybrid model is basing the decision of which approach to adopt based on the riskiness of the project, as well-defined projects are a good fit for Waterfall, while those with unknowns are more suited for Agile. Most importantly, teams shouldnt marry themselves to any methodology. Instead, continually evaluate what the best fit is for any initiative at a given time.Looking to learn more about Agile? In Project management, two methodologies that stand out for their distinct approaches are Agile and Waterfall. These methods represent contrasting approach in how projects are planned, executed, and delivered. Waterfall is a traditional, linear approach, where each phase of the project is completed in a sequence before moving on to the next. In contrast, Agile is iterative and flexible, allowing for continuous improvement and adaptation throughout the project lifecycle. This article explores the differences between Agile and Waterfall project management methodologies, their advantages, disadvantages,What is Project Management?Project Management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project management is a crucial discipline that ensures projects are planned, executed, and completed effectively. It involves organizing resources, setting goals, and managing timelines to achieve specific objectives. Whether it's building a new product, launching a marketing campaign, or organizing an event, project management provides the framework to streamline processes, mitigate risks, and deliver successful outcomes. What is Agile Methodology Project Management?Agile Project Management is a repetitive project management approach for building software and applications. This method is quick and easy for both small and large projects and includes customer satisfaction in its priorities. This management approach is mostly used in cases when client requirements change frequently. The three main pillars of this approach are as follows:AdaptationCollaborationCustomer SatisfactionAgile method of Project Management can't proceed further without the trust among the team members. It needs a better understanding conversation environment with all the team members. Because the conversation is needed regularly for interchanging updates and ideas. That means that the team members need to be confident in their team member's ability to perform a particular task during those communications.What is Waterfall Methodology Project Management?Waterfall Methodology is a sequential project management approach that includes some phases each covering a separate part of product development. As it is a sequential approach, so a new phase cannot be started before completing the previous phase, and due to this it is really hard to implement any changes after the phase has been completed so it is not suitable for complex projects.Agile Methodology vs Waterfall MethodologyAgile Methodology vs Waterfall Methodology in Project Management:Agile Project ManagementWaterfall Project ManagementClient input is required throughout the product development.Client input is required only after completing each phase.Changes can be made at any stage.Changes cannot be made after the completion of a phase.Coordination among project teams is required to ensure correctness.Coordination is not needed as one team starts the work after the finish of another team.It is really useful in large and complex projects.It is mainly used for small project development.The testing part can be started before the development of the entire product.Testing can only be performed when the complete product is ready.A Small team is sufficient for Agile project management.It requires a large team.The cost of development is less.The cost of development is high.It completes the project in comparatively less time.It takes more time compared to Agile.The Agile Method is known for its flexibility.The waterfall Method is a structured software development methodology so it is quite rigid.After each sprint/cycle test plan is discussed.Hardly any test plan is discussed during a cycle.Agile Methodology principles: Agile methodology is a modern approach to project management that emphasizes flexibility, collaboration, and incremental delivery. It is designed to respond to unpredictability through iterative cycles of planning, executing, and evaluating. Below are Agile Methodology Principles.Iterative and Incremental: Agile projects are divided into small iterations or sprints, typically 1-4 weeks long. Each iteration results in a potentially usable product feature.Customer Collaboration: Agile teams prioritize customer collaboration and feedback. They work closely with stakeholders to understand and deliver what the customer truly needs.Adaptive to Change: Agile embraces changes in requirements throughout the project lifecycle. It encourages continuous adaptation and flexible responses to change.Empowered Teams: Agile teams are self-organizing and cross-functional, with members from different disciplines working together to achieve project goals.Frequent Delivery of Working Software: Agile projects prioritize delivering working software frequently, typically every few weeks, to maximize customer value.Continuous Improvement: Agile promotes continuous improvement and learning. Teams regularly reflect on their processes and adjust them to improve efficiency and effectiveness.Transparent and Open Communication: Agile fosters transparent communication within teams and with stakeholders. Information is shared openly to build trust and alignment.Focus on Quality: Agile teams emphasize sustainable development and strive to maintain a constant pace. They maintain high standards of work through continuous attention to technical excellence and good design.Early and Predictable Delivery: Agile provides early and predictable delivery of products, with incremental releases that allow for more realistic planning and improved stakeholder satisfaction.Close Collaboration Between Developers and Business Users: Agile methodologies emphasize close daily cooperation between developers and business people.Advantage of Agile Methodology Project Management:Flexibility: The Agile methodology is flexible, allowing the project team to make changes and adjustments to the project in the middle of the project.Efficiency: The Agile methodology is efficient, as it allows the project team to deliver working products in small, incremental stages.Client Involvement: The Agile methodology involves the client throughout the project, which can lead to better understanding and satisfaction.Agile has a faster feedback cycle.Agile will identify problems early.Agile has a higher potential for customer satisfaction.Agile has better visibility and accountability.Agile makes the dedicated teams to make productivity better time by time.Disadvantages of Agile Methodology Project Management:Complexity: The Agile methodology can be complex, requiring skilled and experienced project team members.Lack of Predictability: The Agile methodology lacks predictability, as the project's scope, timeline, and budget are not determined at the beginning of the project.Documentation: The Agile methodology requires less documentation, which can make future maintenance and updates challenging.Critical path and inter-project dependencies will not be mentioned in Agile which present in waterfallTrue agile execution has many more dependencies and engineering costs.Waterfall Methodology principlesThe Waterfall methodology is widely used in industries where requirements are static and changes are expensive or time-consuming to implement.Key principles of the Waterfall methodology include:Sequential Flow: The phases of the project are completed sequentially, and progress flows in one directionlike a waterfallfrom the top to the bottom.Document-Driven: There is a strong emphasis on documentation. Requirements, design, and other project aspects are documented extensively at the beginning of the project.Rigid Structure: The Waterfall methodology is highly structured and rigid. Each phase has specific deliverables and milestones that must be completed before the next phase can begin.Limited Flexibility:

Changes to requirements or design are difficult to accommodate once the project is underway, as the process assumes all requirements are known upfront.Risk Management: Risks are addressed during the early stages of the project, with preventive measures identified and planned.Well-Suited for Stable Requirements: It is best suited for projects where requirements are well understood and unlikely to change significantly.Advantage of Waterfall Methodology:Easy to Understand: The waterfall methodology is easy to understand as it follows a linear sequential process that makes it easy for the team to understand the project requirements.Predictability: The waterfall methodology provides predictability, as the project's scope, budget, and timeline are determined at the beginning of the project.Documentation: The waterfall methodology requires extensive documentation of the project's requirements, which can help in future maintenance and updates.The Design phase is more methodical and well-structured before any software works on the same.clear project phase helps to clearly define the dependency of the team's work.Disadvantage of Waterfall Methodology:Lack of Flexibility: The waterfall methodology is rigid and lacks flexibility, making it challenging to make changes in the middle of the project.Inefficient: The waterfall methodology is inefficient, as each phase must be completed before moving on to the next one, which can cause delays in the project's delivery.Client Involvement: The waterfall methodology does not involve the client until the end of the project, which can lead to misunderstandings and dissatisfaction.Risk of time waste due to transition.Extra communication meets overhead during the phase transition.as compared to agile product ownership and engagement may not be as strong.ConclusionChoosing between Agile and Waterfall project management depends on the project's needs. Waterfall is good for projects with clear and stable requirements, offering structured planning and clear milestones. Agile is flexible, suited for projects with evolving requirements, allowing for continuous improvement and faster delivery. Both have strengths and weaknesses, and the choice should consider project scope, timeline, team dynamics, and customer feedback, both methodologies have their strengths and weaknesses, and the decision should be based on factors such as project scope, timeline, team dynamics, and customer requirements.

Agile methodology vs waterfall vs scrum. Waterfall vs agile methodology images. Waterfall model vs agile software development methodology. Project management methodology agile vs waterfall. Waterfall methodology vs agile examples. Waterfall methodology vs agile pdf. Waterfall development methodology vs agile. Agile methodology vs waterfall difference. Waterfall vs agile methodology advantages disadvantages. Agile vs waterfall methodology ppt. Agile methodology vs waterfall vs devops. Agile methodology vs waterfall model. Agile methodology vs waterfall method. Waterfall model in software engineering vs agile methodology. Agile principles vs waterfall methodology.