

Bridging the Gap: Traditional to Agile Project Management¹

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ABSTRACT

In today's world of fast-paced technology and continually changing requirements and project scope, the need for Agile Project Management has greatly increased. Responding to this demand, the PMI® (Project Management Institute) launched a new certification, the PMI Agile Certified Practitioner (PMI-ACP)SM. The result of this fast growing certification is the creation of a new space where Project Management and Agile Practices for Software Development meet. This calls us to ask how do we transition from traditional project management to agile project management? This paper translates traditional project management and its processes, as detailed in the PMBOK Guide, to agile practices. It discusses methodologies which can be used to assist in bridging the gap between traditional project management and agile project management.

What is Agile Project Management and when does it make sense to use agile practices? How do the PMBOK Guide knowledge areas we are familiar with relate to agile project management and how are they incorporated into agile practices will be evaluated. Recommendations for implementing agile practices will be provided.

When requirements and environmental conditions are in flux, our ability to respond to changing needs is critical to managing projects with agility. When should you implement agile practices and how do you implement agile project management in a traditional project management environment? This paper will respond to these questions based on research in this field.

OVERVIEW

The objectives of this paper on Bridging the Gap: Traditional to Agile Project Management are to assist traditional project managers with understanding what Agile project management is and what Agile practices are. Traditional project management will be compared to Agile project management. This paper will engage in the topic of when Agile practices are valuable to use and why they should be used. Finally, a number of agile methodologies will be reviewed and advantages and disadvantages of each will be detailed.

The goal of this paper is to provide readers with a path from tradition to Agile project management, along with a reason to choose that path.

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PURPOSE

What is Agile? Agile is not software or a software package. It is a set of principles that guide teams and that guide product development. Adoption of Agile necessitates a culture shift for organizations, since in many ways it is contrary to traditional organization and managerial structure and how traditional project management works. Agile requires open communication between teams, stakeholders and customers. This open communication can see to be a beneficial attribute, and it is; however it also comes with increase client engagement which might not work well in all project environments.

To begin this discussion of Agile project management, let's first define what Agile is and is not.

WHAT AGILE IS

Agile Manifesto. The following is the Agile Manifesto:

"We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

- *Individuals & interactions over processes and tools*
- *Working software over comprehensive documentation*
- *Customer collaboration over contract negotiation*
- *Responding to change over following a plan*

That is, while there is value in the items on the right, we value the items on the left more."(Beck, et. al., 2001)

Agile Project. What makes a project an Agile Project versus a traditional project? Many people think Agile means Agile SCRUM. SCRUM is one type of Agile methodology. There are others including: Extreme Programming (XP), Lean, Kanban, and Test-Driven Development (TDD). An Agile project is a project which has any iterative or incremental delivery. A project can use rolling wave planning or any method in which work is delivered to the customer in small and frequent releases or packages. To do this, open communication is needed, particularly with the customer who will benefit from the objectives of the project being met. Agile project management provides rapid and flexible response to change and actually welcomes change, as it will benefit the customer by providing them what they need and want.

Why use Agile Project Management? Agile Project Management is a great methodology when it is needed, but it isn't the most efficient or effective methodology for all projects. It is best to use Agile for project with a high degree of uncertainty or complexity. This includes project where the scope is likely to change throughout the project, due to new technologies, or outside influences, which are not controllable by the project. Agile Project Management is also valuable to use when there is an immediate need for results/ deliverables. In traditional project management, delivery of results usually occurs after all planning is complete and the work of the project begins. This means that results may occur much later in the project life cycle and might be later than desirable to meet business requirements or organization needs.

Agile Project Management. Agility is one's ability to respond to the changing environment. Agile Risk Management is not just a tool or technique it is a practice. It is not the same each time we do it, as projects are not the same. Agile Risk Management is situational, much like flying is. We don't have a steady head wind that we fly into. We have gusts and changes of direction, which we need to plan for, anticipate and account for in our flight (in our management of our project). Agile Project Management and Risk Management are a discipline and craft first and then they extend into an art form.

Busting Agile Myths. Here is a series of myths on Agile, followed by how they are debunked.

- Myth: Agile works for any project.

Reality: Agile could be used for any project; however that doesn't mean it is effective to use for all projects. When a project lacks complexity, has been done before, or is well known and understood Agile is not the best method. For example, the project of paving a driveway would be best to plan and execute using traditional project management. If Agile were used, it would likely take more time and cost most to complete.

- Myth: Agile is new and better!

Reality: Agile has been around for a significant amount of time, the Agile Manifesto was written in 2001, which is almost a decade and a half ago. The concepts behind Agile date back to the mid-1990s, so the concepts are about one quarter of a century old!

- Myth: Agile is faster!

Reality: Agile is not necessarily faster. In the example provided above of using Agile methodologies for a driveway paving project, the project would likely take more time, as there would be more meetings (referred to as ceremonies in some Agile methodologies) and more touch points with clients throughout the project.

- Myth: Agile is unstructured

Reality: Agile methods each have their own tools, techniques, structure and format and are quite regimented in their use. This is one of the reasons it can be difficult for an organization to adopt (implement) Agile, as there are processes and taxonomy to learn and understand.

- Myth: Agile doesn't have documentation

Reality: Agile methodologies certainly have documentation, although this documentation is different than what is used in traditional project management. Documentation for Agile methodologies includes artifacts such as: burn down charts, Kanban Boards, product backlog, sprint backlog, etc.

- Myth: Agile doesn't need requirements

Reality: How can anything be developed without requirements? How would you know what to develop and how would you know you have developed it? This is a very dangerous myth and one that the project team (who is doing the development) hopes is not believe by project stakeholders, as believing this will doom a project to failure. How can one succeed in a project when one does not know what is needed?

- Myth: Agile is cheaper

Reality: Agile is not necessarily cheaper, as is alluded to in the above example project of paving a driveway, using Agile methodologies for a project may make the project take longer and in doing so cost more to complete. That being said, if the project environment has changing requirements and the project is innovative or complex in nature, using Agile methodologies has shown to save money in the long run. Agile methodologies also focus on providing value to the customer early and frequently, so this might reduce project costs or perceived project costs.

- Myth: In Agile the teams gets to do what they want

Reality: This is certainly not true. Agile supports self-organized teams and supports the team in determining how to do what needs to be done; however the team doesn't get to choose what to develop. For example in SCRUM, the product backlog and sprint iteration backlog detail what is to be done. The team then determines who on the team will do what and how they will work together to complete what has been decided on.

- Myth: Agile is easy.

Reality: Agile methodologies are not necessarily complex; however they are significantly different from traditional project management and traditional management in general, which can make them quick difficult to adopt and implement for an organization or on a given project. However with proper instruction/ coaching Agile can successfully be implemented and tends to lack complexity. Generally, Agile is a lean development practice. What is needed, and only what is needed is done.

What is Not Agile. As part of better understanding what Agile is, it is important to understand what it is not. Here a number of misunderstands are addressed.

Agile is not the solution to all project management problems. It is a common occurrence in organizations to believe they have found the proverbial ‘easy button’ or quick fix for project management problems. As with any practice or method, Agile is not the solution to all problems. As with most changes, the implementation of Agile practices tends to expose more organizational and project problems than it resolves. However, if these problems are properly attended to, resulting in significant value added to the organization and project.

Agile is also not a toolbox of methodologies to be used as needed. Using Agile methodologies as a salad bar, taking what is most desirable or appears to be the most interesting, does not work. Each Agile methodology has tools, techniques and processes associated with it, include its own unique taxonomy. Taking only parts of each doesn’t work, as the parts of each methodology are designed to work cohesively within that methodology. There are a few exceptions to these; however they are by design. For example Kanban boards are frequently used with a number of Agile methodologies, beyond Kanban itself; however this is detailed in the methodologies as an option to use for certain project types that lend themselves to this tool/ technique of task management. Agile is not a way to complete project without following processes, as each Agile method has processes which must be followed to ensure project success.

Traditional project management processes are also not intended to be replaced by Agile project management, at least this should not be the intent. Traditional project management still has its place and still fills a very important need for managing project which are fairly common (repeatable), less innovative, lengthier, and larger scale (to name a few aspects).

Finally, Agile is certainly not a reason to avoid collecting requirements and understanding customer needs, as these directly related to the quality provided in a project. Without understanding customer needs and requirements, how can a project achieve quality performance and meet other project objectives?

Why Agile. Given all that has been stated, why use Agile principals and practices? Agile principles and practices are used to manage change, improve project communication, reduce cost, increase efficiency, provide value to customers and stakeholders and decrease project risk.

When Agile. One should consider using an Agile approach when one or more of the following conditions are present: uncertainty, complexity, innovation, or urgency. With project uncertainty, particularly uncertainty in requirements and changing conditions, an Agile approach is beneficial in supporting changing scope. Project complexity, in content, integration, stakeholder management, or solution is an indicator of using an Agile approach, as the frequent and transparent communication between team members and with project stakeholders alleviates many of the risks associated with highly complex projects. Another indicator of potential to use Agile practices is project innovation. If the way the project will be complete or the product, service, or result of the project is innovative, (for example: a new technology, content or system, which has not been developed before) Agile practices are a good match, as they will again assist in reducing risks for these innovative engagements. Lastly, if a project has a high level of urgency, meaning that it is a high priority, particularly over a short timeline, Agile practices are a good match and will assist in delivering a success project.

What Agile Entails. Agile projects have the characteristics of: iterative, incremental and time-boxed. These characteristics are common, regardless of the Agile methodology used. Agile also requires trust, commitment, and flexibility from all project stakeholders (not only the project team). It requires that those involved with the project understand the business priorities and that these stakeholders have a significant engagement in the project.

Agile projects are not necessary a particular type of Agile methodology. Often when people think of Agile they think of Agile SCRUM. Based on PMI's definition for Agile, by what they have detailed for their agile certified practitioner certification, is Agile projects are projects which are iterative or incremental in nature. For example projects which you rolling wave planning, have a rapid and flexible response to change, support open communication among team members and other project stakeholders, or provide work to customers small frequent releases. When transitioning from traditional project management to Agile project management, this definition may be more valuable to the organization and project team, as it doesn't limit the methodology used for Agile projects and supports a more general understanding of Agile.

Traditional versus Agile Project Management. Given what has been detailed about Agile project management, and what we know about traditional project management, what are the key differences? Traditional project management has a number of artifacts, included a key critical one called the Project Management Plan. It also entails regular project status reporting (which includes an issue log and risk register). Traditional project management also includes the facilitation of meetings. The project manager (PM) facilitates regular meetings with their team and with key project stakeholders. There is also a management hierarchy with traditional project management. This involves the PM reporting to the project sponsor and the project management team (if applicable) and project team reporting to the PM. Another key element of traditional

project management is the development of deliverables, followed by their review and approval. These deliverables include planning documents as well as the actual project work products.

On the contrary Agile project management has some different characteristics than traditional project management. Agile project management involved incremental planning rather than detailed development of the project management plan document. Reporting is done daily and it is transparent for the team and stakeholders. In Agile project management, teams management themselves, as opposed to the hierarchical management used for traditional project management. There are regularly meetings; however these are not facilitated by the PM. Meetings are of the following frequency: daily, planning for each iteration (which occurs at the start of each iteration), and retrospective (or iteration review, which occurs after each iteration). Deliverables for Agile projects are frequent and focus on providing value to the customer with each.

In order to further discuss the differences between traditional project management and Agile project management it is important to understand the project triple constraint.

The Triple Constraint. The project management triple constraint (iron triangle) consists of: scope, time and cost (denoting the management of these project aspects). Often quality is show in the middle of this triangle and Risk may be show as a cloud around the triangle, or in the background, as it is shown in figure 1 below.



Figure 1. The Triple Constraint.

Fundamentally, only 2 of the 3 aspects of the triad can be selected (or detailed). The third is then determined by the aspects which are selected. This is particular critical when changes occur to the project. The project performance baseline includes the baselines for these 3 project

objectives: the scope baseline, the schedule baseline and the cost baseline. If any aspect of the approved project performance baseline is modified (through a change request, or otherwise), then at least one of the other 2 baselines will be effected. For example, if the project schedule is reduced by a month, either the budget must be increased or the scope of work schedule must be adjusted or the scope of the work must be decreased to meet the project objectives.

The other project objective of quality (also known as customer satisfaction) must be met but as a best practice is never changed to accommodate a change to time, scope or cost. What a customer requires to be satisfied is what they require. A customer will not generally agree to less than their interpretation of good project quality, even if the budget or schedule is reduced, or the project scope is increased.

For Agile Projects, progress is measured by what is being delivered and what is working, so the desire is to focus on quality. This means testing first and testing frequently. This also means engaging with owners (Product Owner, Team, Customer, other key stakeholders).

The Triple Constraint in Traditional versus Agile Project Management. Traditional project management is plan driven. Cost and schedule (time) are estimated; while requirements (scope) are fixed. Agile project management is value driven. Features (scope) are estimated; while cost and schedule (time) are fixed. This provides a more adaptive situation when the project environment calls for changing requirements and responsiveness (agility) to this.

In traditional project management the process groups are: Initiating, Planning, Executing, Monitoring & Controlling, and Closing. Here is a perspective of this in Agile project management, in Agile all of these processes groups are also covered; however they are done incrementally. What is meant by this is that for each iteration, each of these process groups are covered, so they are done repeatedly, iteratively, throughout the project. Here is an analogy for process group to an Agile iteration.

Below are shown the traditional project management process group relationship to Agile for each process group. (This example relates traditional project management to Agile SCRUM.):

➤ Initiating Processes → *Iteration 0*

Iteration 0 is where the project starts and so this best relates to the initiating processes of traditional project management.

➤ Planning Processes → *Iteration Planning*

For each iteration, there is planning and it occurs during iteration planning. As discussed in the busting myths section above, Agile does have planning; however it is not all complete, in detail, at the beginning of the project. It is incremental throughout the project.

➤ Executing Processes → *Sprint Execution*

The sprint (used in SCRUM) or generally called an iteration is where the execution of the plan (detailed in the iteration plan) is done. This is where the work of the iteration is completed.

➤ Monitoring & Controlling Processes → *Daily Stand Up Meetings*

Monitoring and controlling of the project planned worked versus its execution occurs during daily stand up meetings where each member of the team detail what they have accomplished, what they plan to accomplish and what barriers are in their way. This daily monitoring and controlling is a key part to having agility to respond to potential issues (risks) and changing environment conditions for the project.

➤ Closing Processes → *Capture of Lessons Learn and Closing (retrospective)*

Finally, there is always a need to capture lessons learned. This is an essential part of traditional project management and it is also essential for Agile project management. Not only does this capturing of lessons learned occur in Agile project management, the regular occurrence of it may be more significantly supported in Agile projects than in traditional projects, as lessons learned are capture at the end of each iteration. For SCRUM this exercise is called the retrospective and it is a type of ceremony (aka meeting) which is essential to learning and adapting to increase productivity and support the project in become more lean (efficient).

Another key review is the completion of a team assessment of the team and by the team. This is a valuable part of project team learning and it is also empowering for teams to review their achievements, strengths, and weaknesses. Evaluation of the team's throughput is also important as it will lead to better estimates for future iterations. This is a key part of adaptation which is critical for Agile projects.

Agile Methodologies. There are a number of Agile methodologies. Some of these are: SCRUM, Kanban, Extreme Programming (XP), and Lean. One might ask which of these is the best tool to use for Agile projects? Here is another question, a knife or a fork, which is the best tool? What about chopsticks? The answer, as you can see depends on what you are trying to do. There is no “best” and based on experience in implementing Agile, the challenge is more often in the shift of the organization and project management culture than it is in selecting the “correct” tool (Agile Methodology) for Agile project management.

There is no one Agile method which is best for all projects. The method to choose depends on the culture, environment, and processes of the organization. The tradition from traditional project management to Agile project management requires a change to the organization's culture.

In the author's opinion, transitioning to Agile well is more about change management than it is about the selection of the 'correct' or 'best' Agile methodology.

Recommendations for Implementation of Agile Practices. The author's recommendation is to determine which projects would be more suited for Agile project management, based on the assessment provided earlier. Then go by the book. Select an Agile methodology and use all aspects of it. Agile methods work best when all processes, tools and techniques of the method are used, not when there is a selection of tools from different methods which are randomly placed together.

Another recommendation is to select only 1 method to use at first. It is confusing and less than supportive of making the shift from traditional to Agile project management, if more than one Agile methodology is used by an organization at the start of the organizational transition to Agile practices. It is also recommend to only this new Agile method on 1 or 2 projects to start.

After learning and implementing the selected Agile methodology, evaluate the results and adapt accordingly. If iterative and adaptive implementation is not supported in the organization, then Agile (regardless of the method selected) will not work. Agile support consistent and continuous learning and adaptation, so consistent and continuous learning and adaptation of the implementation of Agile practices is also essential to success Agile project management.

CONCLUSION

In conclusion, Agile Principles and Practices are used to: manage change, improve communication, reduce cost, increase efficiency, provide value to customers and stakeholders, and decrease project risk.

One should consider using an Agile approach when one or more of the following conditions are present: uncertainty, complexity, innovation, or urgency. With project uncertainty, particularly uncertainty in requirements and changing conditions, an Agile approach is beneficial in supporting changing scope.

In summary, traditional project management the process groups are: Initiating, Planning, Executing, Monitoring & Controlling, and Closing. Consider that in Agile all of these processes groups are also covered; however they are done incrementally. What is meant by this, is that for each iteration, each of these process groups are covered, so they are done repeatedly, iteratively, throughout the project.

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