

The Agile Project Manager

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Executive Summary

Staying competitive in today's economy means companies must deliver the right products to market faster than ever before. Agile methodologies are leading the way by helping software teams deliver products more frequently and with significantly higher quality. Making the switch to Agile practices challenges our traditional notions of software engineering best practices, project management methodologies, and team leadership styles. The Agile approach impacts every role on a project team differently and creates opportunities to learn new skills and new ways of working together.

Shifting toward Agile methodologies has a particularly significant impact on the Project Management community. Agile introduces an entirely new framework for planning projects and introduces new ways of managing time, cost, and scope. Agile challenges the Project Manager's assumptions about certainty and encourages them to embrace change and manage risk through the delivery of working software. Collaboration, facilitation, servant-style leadership, coaching, and team building become significant new skills that will help the Project Manager effectively lead Agile teams.

With these additional skills at their disposal, Agile Project Managers learn to deliver greater value to the business in the face of uncertainty and change.

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Introduction

Moving from traditional project work to agile project work will impact each functional role on a project team differently:

- For Business Analysts (BA), successfully managing an agile project depends on defining requirements in smaller increments and working more collaboratively with the team throughout the life of the project.
- For Project Managers, success moving to agile development methodologies depends on acquiring the skills necessary to progressively plan a project throughout its lifecycle rather than just at the onset. Project managers will need to consider new ways of understanding project control and risk.

- For Testers, evolving to an agile framework will mean developing the skills necessary to write tests, collaborate on design, and validate and verify software in parallel with coding.
- For Product Managers, successfully transitioning to agile methods depends on closer collaboration and communication with the team, owning the product vision, and continuously guiding the team to build the best product possible given the rapidly changing objectives of the business.

This paper will explore the impact agile development methodologies are having on the Project Management community, what new skills are required, and what the Project Manager can do to ease the transition.

Traditional Project Management

Most traditional projects begin with scope as the primary constraint. Scope often comes in the form of a long list of product requirements. The Project Manager is responsible for working with resource managers to gather estimates from each of the functional areas impacted by the requirements. These estimates are done in real hours and based on little information about how the requirements will actually be implemented in working software. The estimates are used to calculate the number of people needed for the project, and by extension, how much the project will cost.

Early in the project, the team has very little real data to estimate the size of the work. Similarly, the Project Manager does not know specifically which team members will be assigned to complete the work or how to allocate them to the project. With little information about the actual solution, or who will be building it, determining a reliable end date is nearly impossible. Project Managers create a project schedule with the limited information available and do their best to make the project conform to their approved project plan.

This approach has not proven a reliable indicator of project size, duration, or success and makes the goal of predictable project planning nearly impossible. To further complicate the problem, this approach assumes perfect knowledge of the requirements and does not easily accommodate change due to the sunk costs incurred in upfront planning.

Agile Project Management Explained

Agile Project Management begins with the premise that software projects are unpredictable and that market uncertainty is going to drive change. Market uncertainty implies that requirements will need to change over the life of the project, and the more uncertain the project is, the more the organization should plan to adapt. For these reasons, uncertainty makes scope an inadequate starting point to begin assessing project performance characteristics.

Instead, agile projects elevate time and cost as the primary constraints, which are often established before the scope is defined. Rather than beginning to schedule development with an assessment of project scope, the project stakeholders assess the time and money

they are willing to invest to bring a product to market. Agile project requirements are written as thin vertical slices of the overall system and constructed in such a way that they are mostly independent, which allows them to be prioritized and implemented in any order. Writing requirements in smaller, stand-alone increments is critical to varying scope with minimal impact to the project team. Agile teams begin to measure how fast they are able to complete thin vertical slices of functionality and therefore understand how much of the requirements can be delivered within the project time and cost constraints.

Agile Project Scheduling

Agile Project Managers are concerned with two primary performance indicators on an agile project: backlog size and velocity.

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- Product Backlog: The list of project requirements

- Velocity: How much of the backlog the team can deliver in a sprint/iteration

Size of Backlog ÷ Velocity per Sprint/Iteration = Number of Sprints/Iterations to Project Delivery

The Product Backlog is the list of requirements for an agile project. It represents a prioritized collection of features ready to be built by the project team. Backlog items are estimated in ideal hours, ideal days, or more abstract units such as story points. The sum total of these estimates, regardless of unit, is the total size of the backlog. Project Velocity measures how much

backlog the team was able to deliver in a given iteration. Velocity can be measured on any consistent time interval and represents the throughput of the team or the rate at which the backlog can be completed. Time to completion is calculated by this simple formula:

Intervals to Complete Project = Backlog Size/Estimate per Interval

Ideal velocity describes the rate at which the team must complete features to deliver the project within the time and cost constraints determined by the project stakeholders. Actual velocity is determined by measuring the true throughput of the team during each time interval. The difference between the ideal velocity and the measured velocity is a primary indicator of how well the project is progressing relative to the expectations of the business. The closer the measured velocity is to the ideal velocity, the more likely the project will deliver the entire backlog within the time allowed.

Teams with predictable velocity can reasonably calculate when they will fully deliver the project backlog. If time and cost are fixed constraints, they can determine what features can be delivered within those constraints. Teams with unstable velocities are not predictable

and typically result in varying project outcomes. Measuring team velocity over time allows the Project Manager to understand how likely various project outcomes might be to occur.

Managing the Agile Project Team

In Agile, the team takes responsibility for delivery and should be allowed to organize in a way that maximizes their success. The team has a tremendous amount of autonomy to decide how work will get done. Agile Project Managers can help the team by recognizing that decisions made by the team can lead to either project success or project failure.

To help assure success, Agile Project Managers can establish the project's context. They can manage the team's environment, encourage team decision making, and promote autonomy whenever possible. An Agile Project Manager expects the best out of people, elevates the individual, and gives them respect. They help foster a team culture that values people and encourages healthy relationships.

The tradeoff for this autonomy is frequent delivery. The team makes a commitment to the business at the beginning of the iteration and is accountable for delivering on that commitment. It is important for the Agile Project Manager to help establish a culture of delivery and work with the team to get better at delivering working software. To this end, the Project Manager helps establish the policies, procedures, and metrics that drive overall project performance.

Working with the Agile Team

Not every team will require a dedicated Project Manager. Many Agile projects rely on team members that can perform more than one role. A member of the development staff or a Product Owner may serve as the Project Manager for a small agile team. A Project Manager might be asked to fill a role on the team to help bridge a gap between the team and the business or to manage activities that happen outside the team itself. The Project Manager may be asked to work on an agile project because there is need to define a communications plan, a risk management approach, or to coordinate the activities of several teams working together to deliver a large project or portfolio of projects.

The Project Manager should become part of the team and involve other members in creating plans and other project artifacts. This helps maintain a high trust environment and ensure team member buy-in. The Agile iteration begins with an intense period of collaboration followed by more ad-hoc interactions between team members. The Project Manager can help the team coalesce around iteration objectives, making sure that commitments are reasonable and based on a sustainable pace, and tracking metrics within the iteration and overall across iterations.

Most agile methodologies do not explicitly define the role of a Project Manager. In Scrum, many of the responsibilities of the Project Manager have been distributed between the role of the Product Owner and the role of the ScrumMaster. Understanding project roles and helping define responsibilities will be important for the Project Manager when integrating with an established agile project team.

New Skills for the Agile Project Manager

The Agile Project Manager relies much more on people facilitation skills that they may have on traditional projects. The Project Manager's role is to facilitate discussion between team members and help remove organizational impediments that stand in their way. In addition to facilitation, coaching, and team building, the Agile Project Manager should think about software development processes in new ways.

Agile encourages the Project Manager to decouple the breadth and depth of the solution and use techniques such as rolling-wave planning and progressive elaboration to define project schedules. This may present challenges for the business who is accustomed to completely defining time, cost, and scope constraints at the onset of the project. The Project Manager will learn to communicate how progressive elaboration reduces risk and ensures better project outcomes. Developing a solid understanding of agile software processes will help the Project Manager understand how to organize agile teams and better determine what skills are needed to deliver the overall project.

Understanding Agile team dynamics and collaborative decision-making techniques is important because Agile Project Management involves leading teams that are self-organizing. The Project Manager acts as servant leader and facilitator first and behaves in ways that empower teams to reach their own conclusions. These skills enable the Project Manager to accept input from all the team members and project stakeholders while gaining their commitment to project outcomes.

Agile on a Traditional Project

Moving to agile is often not the decision of the Project Manager but there is much a Project Manager can do to demonstrate the value of agile planning to the organization.

Project Managers often create a document called a Project Management Plan. This document describes how the project will be managed within the nine knowledge areas defined in the PMI Project Management Body of Knowledge. Much of Agile Project Management can be described within the framework of the traditional project management knowledge areas. These approaches can be included within the context of a traditional Project Management Planning Document.

Project Managers are sometimes asked to track specific activities in the project schedule. Work Breakdown Structures are intended to be based on deliverables rather than activities. Project Managers can begin building project plans with feature-based deliverables. They can define what features need to be in the system by what time, even if they are using traditional predictive methods.

Gantt charts are the primary scheduling tool on traditionally managed software projects. An organization may require the Project Manager to deliver a fully planned Gantt chart prior to the project start date. Project Managers can introduce iterative, detailed planning to their teams to synchronize the team with the published schedule. Data gathered during the iterative planning meeting can be used to update and control the traditional plan.

Daily meetings are frequently used by both traditional project teams and agile project teams when managing high risk projects. These daily checkpoints increase visibility between team members and give the Project Manager real time information on the progress of project deliverables. These meetings can help foster a sense of team work and collaboration and drive shared accountability for project outcomes.

Conclusion

Getting the right products to market faster than your competition is more critical than ever before. Traditional project delivery frameworks cannot deliver fast enough in fast changing, highly uncertain environments. Agile project management allows teams to deliver on time and on budget with the product features most important to the business.

The Project Manager can play a key role on an agile project. To be successful, the Project Manager needs to shift their thinking about managing time, cost, and scope constraints and take a new approach to managing uncertainty, risk, and change. Project Managers will learn new skills for developing project schedules, tracking progress, and controlling project schedules. They will learn the importance of collaborating with project stakeholders and the team. Success will depend largely on the Project Manager learning these new approaches to managing projects and the teams that deliver them.

Authors' Bio

Mike Cottmeyer is a product consultant and agile evangelist for VersionOne. Prior to joining VersionOne, Mike was a senior project manager for CheckFree Corporation where he led a portfolio of projects for their online banking and bill payment business unit. Mike has 20 years of experience leading IT initiatives using a combination of traditional, agile, and lean project management best practices. Mike is a certified PMP Project Manager and a certified ScrumMaster.

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VersionOne is recognized by Agile practitioners as the leader in Agile project management tools. Since 2002, we have helped more than 10,000 teams and 70,000 users in 50 countries from companies such as Sabre-Holdings, Yahoo!, Adobe, Siemens, Dow Chemical, IBM, Lockheed Martin, Sony and Business Objects provide greater value to their customers by simplifying the process of planning and tracking Agile software projects.

To learn more about how VersionOne can help simplify and streamline your Agile software projects, visit www.versionone.com.