



PPM and Agile: Realizing the Best of Both Worlds

This white paper discusses the challenges of integrating agile methods into a PPM framework and how to deliver executive visibility into agile projects without disrupting the culture and work practices of an agile team.



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1. The Business Drivers for Agile Development

“ *Waterfall and iterative approaches are giving ground to much lighter, delivery-focused methods based on the principles of the Agile Manifesto.* ”

Forrester Research, 2010¹



THE RISE OF AGILE DEVELOPMENT

Agile development practices were introduced in the mid-1990s and have grown steadily in popularity since the Agile Manifesto¹ was published in 2001. Agile methods are designed to adapt quickly to changing realities, whereas more traditional methods focus on planning the future in detail. The introduction to the agile manifesto reads as follows:

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 and 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.

The agile manifesto continues to outline twelve principles, including a focus on customer satisfaction, frequent software delivery, close cooperation between business people and developers, and creating an empowered culture with motivated individuals.

In a recent survey completed by Forrester Research and Dr. Dobbs², 35% of respondents stated that Agile most closely reflects their development process, a number that increases to 45% if you include other iterative approaches. Scrum is the most popular agile methodology, however it's common to find software development teams mixing and matching specific agile practices to find a process that works for them. Whether it's introducing a daily stand-up meeting, writing story-based requirements, targeting shorter iterations or assigning a product owner, the goal of agile techniques is to create a culture of continuous feedback and a focus on delivering high quality software that meets customer needs.

¹ Visit agilemanifesto.org to read the original Agile Manifesto.

² Forrester/Dr. Dobbs Global Developer Technographics Survey, 2010.

Organizations that have successfully adopted agile practices typically subscribe to the following principles of agile development:

- **Empowered, self-organizing and self-motivated teams.** Agile methods encourage a more collaborative environment that is transparent and accountable. Teams often develop a strong culture where individual contributors become true team players. Roles are more fluid and there is a strong emphasis on self-organization and managing responsibilities as a team. In addition, a bottom-up decision-making process is favored where the team is empowered to make decisions.
- **Active user collaboration to guide requirements.** Business users are expected to work on a daily basis as part of the agile team. This ensures continuous feedback and avoids the pitfall of a “requirements vacuum” where the development team delivers functionality that does not meet business requirements.
- **A responsive, efficient development process (with less risk).** Agile teams embrace change and respond to new information, which is counter to traditional project management goals of controlling change and keeping to a plan. The use of a product backlog to prioritize work and delivering software iteratively helps avoid unnecessary work and identify risks of project failure early in the process.
- **A focus on high quality, working software.** Software is built and tested continuously, often with automated processes, to catch defects early in the development life cycle. Agile teams favor delivering software “early and often” to ensure requirements can be validated. Working software is valued over comprehensive documentation, which keeps the team focused on the end deliverable rather than work products that are a “means to an end” in the development process.

THE CHALLENGE: INTEGRATING PPM AND AGILE PROCESSES

Many project portfolios now includes a mix of project types and methodologies, such as traditional waterfall projects, agile-based projects, six-sigma projects and “stage-gate” projects for new product development. Project management leaders have, for the most part, embraced agile practices and have attempted to redefine their roles to focus less on planning and controlling agile projects, and more on providing an environment to allow agile projects to succeed.

However, even with this willingness to adopt agile, integrating agile projects into a PPM framework has proved challenging for many organizations. Project managers are being faced with different (and often conflicting) methodologies, metrics, and controls. In addition, some teams are adopting “hybrid” processes that include elements of waterfall and agile methodologies and are confused about how to rationalize seemingly incompatible methods. To solve these challenges, PMOs require an updated framework that incorporates agile practices, provides clarity to project teams on how to communicate project health, and provides predictability and accountability to executive stakeholders.

2. Three Common Fallacies About Agile and PPM

The agile movement has had a significant influence on best practices for project management. However, some agile ideas about embracing change, “just-in-time” planning, and eliminating hierarchical decision making have led to some misconceptions about the compatibility of agile projects with PPM processes. Below are three common agile fallacies (and why they are untrue) that have led to concerns over how to monitor and control an agile project as part of a project portfolio.

FALLACY #1: AGILE PROJECTS DON'T PROVIDE ENOUGH EXECUTIVE VISIBILITY

A large part of the popularity of agile is the belief that teams should be empowered to make business decisions rather than relying on executive stakeholders for approval. Empowering a team, however, does not mean they shouldn't provide timely executive status reporting. The struggle many agile teams face is the requirement to provide status reporting in a format that executives are comfortable with, but is inconsistent with agile practices. For example, a requirement that an agile team maintains a separate task plan to enable reporting on metrics such as “percentage complete” can negatively impact the benefits of an agile approach. Instead, executives need to learn how to interpret project status from an agile team rather than impose reporting requirements that are not consistent with agile.

FALLACY #2: AGILE PROJECTS DON'T HAVE RELIABLE “SCHEDULED FINISH DATES”

Although agile teams shy away from providing guaranteed delivery dates (given the cone of uncertainty around a project), it's a fallacy that an agile project can't provide a scheduled finish date. If an executive hears that an agile team is only prepared to give estimated delivery dates for the next couple of iterations, it should raise a warning flag about the team's capability to build a credible release plan.

It's true that agile teams use “just-in-time” estimation for iterations and focus on delivering business value incrementally, however release and roadmap planning is used for longer range estimates. The use of “epics” (large stories) and “themes” (groups of stories) can be used to estimate work that still requires detailed scoping. To be able to estimate with some degree of reliability, an agile team will need to have some degree of normalization around the size of stories and understand their velocity (story points delivered in an iteration).

FALLACY #3: AGILE AND TRADITIONAL PRACTICES AREN'T COMPATIBLE

It's true that some agile practices have fundamental differences with some traditional project management practices, for example the planning and executing process groups in the Project Management Institute's (PMI) Project Management Book of Knowledge (PMBOK). However, it's untrue the two types of practices can't be combined to create a powerful project management framework. For instance, agile practices are usually silent on project intake or project initiation processes, and traditional practices for project cost, communications and risk management are often more mature than the corresponding

practices in agile. An experienced project manager can add practices from the PMBOK or similar methodologies to support agile projects without disrupting the culture and work practices of an agile team.

In the next section will discuss how to build a common PPM framework that provides common metrics across both agile and traditional projects and enables agile projects to be first class citizens of a project portfolio.

3. A PPM Framework that Integrates Agile Methods

A PPM framework typically includes processes for project intake and selection, project approval and initiation, and project and portfolio monitoring, along with templates, artifacts and metrics for the different methodologies used within an organization. An example PPM framework is shown in Figure 1.

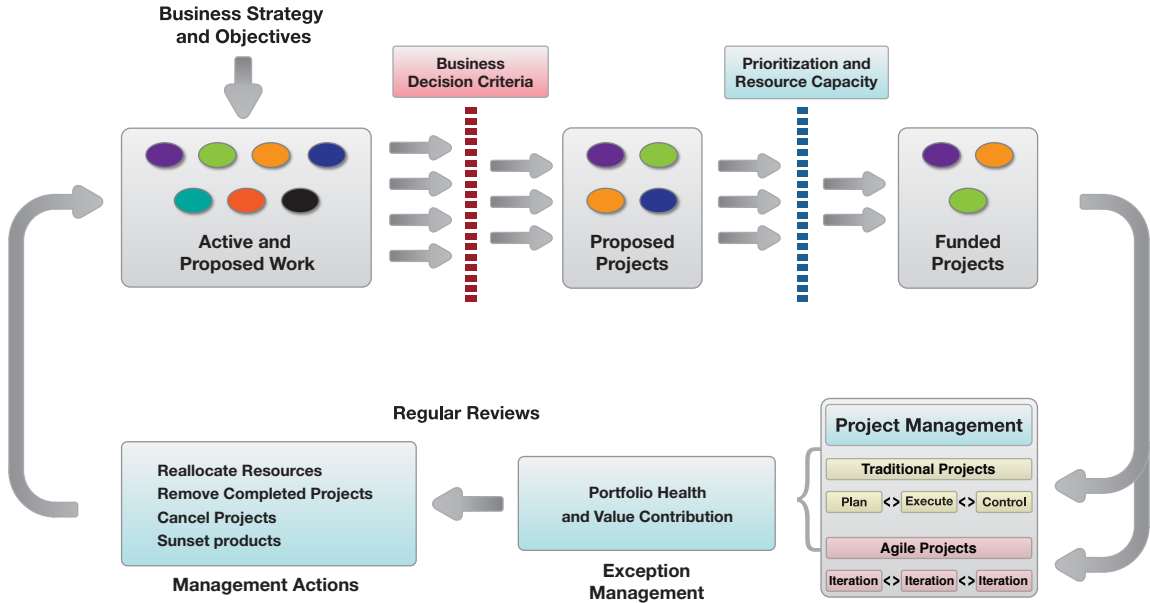


Figure 1, A Typical PPM Framework

Integrating an agile project methodology into a PPM framework is no different than integrating a more traditional project methodology, with four exceptions:

1. Agile teams work best when executives and project managers don't stifle the agile process. Imposing unnecessary stakeholder reviews, checkpoints and data capture requirements on an agile project will reduce the effectiveness of the team. Of course, if major decisions need to be made with executive input or the agile project has dependencies on other projects, stakeholder meetings will be necessary, but these should be the exception, not the rule.
2. Agile projects measure progressing "story points" complete or business value delivered. This is a fundamentally different way of tracking progress than using a task plan and measuring task hour completion. In addition, a project manager assigns

tasks to owners in a traditional project, whereas agile teams are often self-organizing, so tasks may be reassigned at any time by the team to ensure project delivery is on track. This difference requires that metrics for “project health” and “percentage complete” are tracked differently from projects based on task hours.

3. Given the task assignments within an agile team are dynamic, it’s unwise to assign a resource part-time to an agile team as this breaks the self-organizing model. Instead it’s better to treat agile teams as a unit and assign resources to them full-time (with the exception of resources such as technical architects and DBAs, which are typically spread over multiple projects).
4. Finally, regular reviews of agile projects are more focused on “working software” than reaching pre-determined milestones or delivering project documentation. Reviews should be tailored to the type of project to ensure they are valuable to the team.

DEVELOPING STANDARD CROSS-PROJECT METRICS

Once the differences with agile projects are understood, developing a PPM framework with standard metrics that apply to both agile and traditional projects is important. The five common metrics that enable executives to get visibility into project status, regardless of the delivery method, are outlined below:

- **Scheduled Finish Date.** “Planned finish date” is the estimate made at the inception of a project for the planned delivery date, whereas “scheduled finish date” is the estimate of a project finish date at any given point in time based on current data. For a traditional project, this is based on the task plan and critical path for the project. For an agile project, it is based on the release plan. Given a “cone of uncertainty” exists regardless of project methodology, the accuracy of scheduled finish dates should be comparable for both traditional and agile projects. Comparing scheduled finish date to planned finish date will give an indication of the team’s ability to estimate delivery dates accurately.
- **Percentage Complete.** Percentage complete provides an indication of project progress. Percentage complete for a traditional project is calculated by summing the hours for completed tasks and dividing by the total task hours for a project. In contrast, an agile project progress is measured by story points delivered. Percentage complete is calculated by story points accepted divided by total story points for a project.
- **Scope Changes.** Percentage complete gives an indication of progress, but does not show if the scope is changing on a project. For traditional projects this is typically represented by the number of change requests. For an agile project, it is typically measured by the change in total story points over time.
- **Actual Cost vs. Budget.** Both traditional and agile projects have capital and operational expenses that are tracked. Actual cost vs. budgeted cost should be reported, regardless of the project methodology. However, it’s not appropriate to ask an agile team to track time at a task level to calculate resource costs. Instead, resources should be dedicated to an agile team and costs calculated accordingly.
- **Project Health.** Project health is a summary metric that indicates if a project is “on track”, “needs attention” or is “in trouble”. This metric varies by organization and is calculated using conditional logic based on the four metrics above, as well as other

data such as outstanding issues. One of the simplest ways to calculate project health is to compare actual percentage complete with the expected percentage complete based on the start date and scheduled finish date (assuming the velocity of work delivery across the project timeframe is uniform). A project health status of “needs attention” or “in trouble” is often triggered when projects are not delivering business value, there are significant scope changes, costs exceed budget or there are major unresolved issues on the project.

Providing these metrics in a dashboard format using a PPM system enables executives to quickly identify projects that require focus or intervention, regardless of the project management methodology employed for its execution.

CALIBRATING METRICS ACROSS PROGRAMS AND PORTFOLIOS

These metrics provide a good way to provide a common scorecard for project execution. One challenge to consider, however, is calibration across projects, programs and portfolios. For projects based on task hours, calibration is not an issue because the unit of progress is the same (hours). However, for agile projects, the unit of progress is typically story points, and the definition of a story point may vary from project to project based on how an agile team estimates work.

A common calibration technique is to bring agile teams together on a quarterly basis and normalize story point size by picking sample stories of different sizes and comparing effort. This can be done by comparing “ideal days” for a given story and calibrating across different teams to provide guidance on story point size. If a “scrum of scrums” exists, this technique will mostly resolve calibration issues at a program level.

A more challenging problem is when agile projects and traditional projects are combined into a single program. Reporting on “percentage complete” on a program when the underlying projects are using different units, such as task hours and story points, can lead to inconsistent results. In this case, finding a common metric across projects is advisable, such as “function points” or “business value points”. This requires an organization with a high degree of PPM maturity, a well-defined methodology and strong training programs to educate program and project managers.

CREATING A “SINGLE SOURCE OF TRUTH” FOR EXECUTIVE REPORTING

A Project Portfolio Management system is the best way to provide a “single source of truth” for executive reporting and decision-making on a project portfolio. Integrating agile projects provides three major benefits:

- 1.** It provides complete transparency into agile project execution and avoids the issue of a team “sugar-coating” project status if things are not going well.
- 2.** It enables a common reporting framework to be “enacted” in the tools to ensure consistency in project reporting.
- 3.** It avoid manual data entry into the PPM system.

For mature agile teams, agile tool integration provides a way to use specialized agile project management tools, while still enabling a single source of truth for project portfolio reporting.

4. Conclusion

The rise of agile development practices is driving many benefits to organizations by creating a culture of continuous feedback and a focus on delivering high quality software that meets customer needs. Although some fallacies around agile development exist, it should not deter PMOs and executives from encouraging agile adoption in their organizations where appropriate. Project managers and PMOs should carefully consider which projects are suitable for agile methodologies. They should also develop a PPM framework that applies to both agile and traditional projects to enable executives to get visibility into project status, regardless of the delivery method.

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