Project Management in Agile Development

Project Management in Agile Development Environments

The fundamentals of good project management remain the same whatever methodology and approach is being used to develop a software product: communicating, building effective teams, planning and monitoring progress.

There are however some aspects of the "agile mindset" which are important when using agile methods to deliver the product.

Agile methods all have a strong emphasis on communication and collaboration rather than documentation and process, and the agile project manager must be able to effectively lead the project team in this environment. The project management role is far more that of a leader and motivator than a command and control manager. Getting the right people together and guiding them to reach their full potential as a cohesive, self-organising, self-disciplined team is the most important responsibility of the agile project manager.

This is no easy task, and one that traditional project management training does not often address. A number of the gurus of the agile movement have written and spoken on techniques and approaches that the project manager can apply to achieve the goal of effective teamwork and product delivery.

This paper is a brief overview of some of the key points made by various experts, including Alistair Cockburn, Jim Highsmith, Sanjiv Augustine, Jeff de Luca, Ken Schwaber and Scott Ambler.

Agile Project Management applies the principles and values expressed in the Agile Manifesto (www.agilealiance.org) to lead and guide the team to successful delivery of software development projects. Agile project managers are leaders more than taskmasters, focused on delivering business value by guiding and supporting effective teamwork.

Jim Highsmith presents this as six principles, under two categories:

Deliver Value Through Innovative Products

- Deliver Customer Value
- Employ Iterative, Feature-based Delivery
- Champion Technical Excellence

Leadership-Collaboration Management Style

- Inspire Exploration
- Build Adaptive (Self-organising, self-disciplined) teams
- Simplify

The key tenants of all agile methods

One of the key tenants of all agile methods is the knowledge that software development is not a repetitious mechanistic process that can be productionised like automotive assembly. Every software development project is unique – this particular combination of needs, constraints, people and resources has never been combined in just this way before. All software development is invention to a greater or lesser extent. This uniqueness is one of the reasons traditional productisation approaches to software development have so often failed in the past.

Rather than trying to build an assembly line process for software development, agile approaches seek to create a process framework that consistently delivers quality products. The agile project manager is responsible for building the framework and team environment that is appropriate for the project at hand. Alistair Cockburn talks about a "methodology per project" and one of the most important start-up activities in any project is defining the structure and framework within which the team will work to achieve these goals.

Sanjiv Augustine proposes the agile project manager as a visionary leader, combining business vision, communication skills, soft management skills and technical savvy with the ability to plan, coordinate and execute.

He provides a framework of six practices that the agile project manager needs to follow to ensure the success of the project:

- Guiding Vision: Establish a guiding vision for the project and continuously reinforce it through words and actions
- Teamwork & Collaboration: Facilitate collaboration and teamwork through relationships and community
- Simple Rules: Establish and support the team's set of guiding practices
- Open Information: Provide open access to information
- Light Touch: Apply just enough control to foster emergent order
- Agile Vigilance: Constantly monitor and adjust.

Jeff de Luca pioneered the agile project management focus on providing business value through the frequent delivery of features. A feature is a component of software that has recognised value and benefit to the business. All agile methods take an iterative, incremental approach to delivery of the product, delivering features rather than tracking tasks.

Features are defined in conjunction with the business customers who make priority and schedule trade-off decisions. The business gets to make business decisions and the technologists make technology decisions.

Agile methods are to a large extent based on acceptance of the fact that in exploratory projects (which all software development is) the exact details of the requirements will not be totally clear at the beginning of the project. Every project will have a guiding vision of what constitutes success, but the detailed requirements will often only become clear as the project progresses. Agile projects expect and embrace change, turning the traditional approach to the cost-of-change-curve on its head.

Emergent requirements that become clear as the business sees what has been built and uses that knowledge to shape the evolving structure of the product. This is not to say that the agile project manager allows unconditional thrashing in the product, all changes must be in accordance with the project vision and where significant change will impact the schedule the business must make some hard decisions regarding tradeoffs with features not yet started and the changes that are needed.

A common tool for defining the work to be done, and for monitoring progress is the Feature List or Backlog.

Every feature (typically defined at a level that is 1-5 days development effort to build) is listed on a feature card, which includes:

- description
- estimated effort
- priority
- business value
- likelihood of churn
- technical risk
- business risk
- with the ability to plan, coordinate and execute.

These features are then grouped into iterations of between two and six weeks, with the highest value and highest risk features addressed first. The development is then undertaken in iterations – the goal of each iteration is to deliver the features that the team has signed-up to, fully tested and working. At the end of the iteration that part of the system could be deployed should the business so choose. There may be logistical or other reasons why the business would chose not to deploy the product, but it will be in a state that it could be deployed.

Agile Project Managers

The agile project manager guides and leads the work in the iteration, with a strong focus on open, honest communication.

Ken Schwaber gives us one of the techniques that the agile project manager uses to keep a finger on the pulse of the project: the daily standup meeting. This is a maximum 15 minute meeting held in the same place, at the same time, every working day and, as the name implies, it is held standing up.

Each participant answers three questions:

- What have you done since the last meeting?
- What will you do before the next one?
- What is in your way?

One of the important roles of the agile project manager is to remove things that are in the team members way. These could be simple administrative/logistical issues (my xxx broke and I need another one) or more complex needs (I need an answer from yyy about zzz and am still waiting).

The agile project manager still produces plans, budgets and milestones. Just because a project is agile doesn't mean the fundamentals of project management go out the window. However, we plan based around functions and delivery rather than trying to guess the sequence of tasks that might be needed to produce the product. The plan is based around the features and business value to be delivered, with a constant focus on the vision for success.

Team members are expected to be responsible for managing their own tasks and activities to deliver their pieces of work when they promise. One of the keys to agile project management is being able to trust the team to deliver what they sign-up to. Treat people as professionals and in the vast majority of cases they will act in a professional manner.

The agile project manager understands that inch-pebble task monitoring imposes a burden of compliance activities on the project team and the manager that simply gets in the way of delivering the goods.

Another key characteristic of the agile project manager is technical competence – the project manager must know enough about both the business domain and the technology being used to at the very least recognise when mistruths are being espoused. The Agile Project Manager will work closely with both business and technical members of the team to lead and guide them to deliver on the product vision.

Jim Highsmith makes the distinction between the project manager and the product manager

- the project manager manages and controls the overall project with a focus on the technical team, and the product manager takes responsibility for coordination of the business contribution
- making sure the right representative users are available to work on the project team when they are needed, resolving conflicting requirements, ensuring that change requests are realistic and negotiating cost/schedule/functionality tradeoffs.

Overall, the principles of agile project management are what successful project managers have been doing all along, communicating, building effective teams, planning and monitoring progress. The emphasis on the so-called soft skills is a significant aspect of the agile project management role but one that effective project managers are already doing.

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