

Deliver small chunks of business value in short release cycles. For each cycle, choose whatever will deliver the most value and get it done. Do away with complicated master plans and be evolutionary and adaptive.

OVERVIEW

What is Agile?

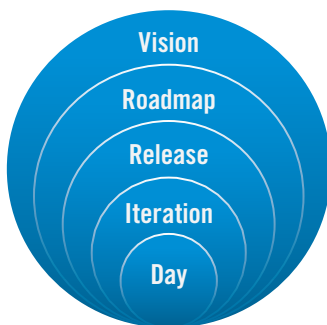
Agile is a project management methodology that breaks large projects into small increments, each of which adds value and is delivered in a short, focused cycle. Instead of working from complicated master plans, Agile projects are incremental, adaptive and evolutionary. Agile comes from the world of software development, where it has transformed the way many companies develop software.

For manufacturing, Agile provides a way of managing projects that works well in continuous improvement environments. It is a fun, engaging, and rewarding way to work; especially since it delivers meaningful business objectives consistently and quickly.

Why Use Agile?

Agile stands in stark contrast to the traditional “waterfall” method of managing projects. In the waterfall method, all tasks are identified and sequenced upfront (typically using a Gantt chart). The problem is that tasks are often underestimated, deadlines are often missed, and plans become less and less relevant over time. Enthusiasm fades, and in many cases projects are abandoned as interests turn elsewhere.

With Agile, the team collects together high-level objectives and breaks them into small pieces that can be delivered in a short time frame (called “stories”). Throughout the project, the team continually asks a simple question: What story can we deliver next that will add the most value to the business?



Agile includes five planning levels, which are coordinated to deliver maximum business value on an ongoing basis.

Agile Planning Levels

Vision

The Vision provides a top-level view of the ultimate objective for the business. It is strategic and transcends any one project. The Vision provides a way with which to judge related actions through a simple question. “How does this forward the Vision?” Visions are best when they are exciting, inspirational, attainable, and aggressive. The scope of a Vision is usually measured in years.

Roadmap

The Roadmap is a collection of key deliverables for achieving the Vision. Each deliverable is documented as an “epic” (a large, coarse-grained story), from the perspective of the “customer” (where customer is defined as whomever will use and benefit from the deliverable). The scope of a Roadmap is nominally 18 months.

Release

A Release is a collection of the most important (valuable) Roadmap stories that can be delivered in a reasonably short time – short enough that business focus is unlikely to change during the Release time frame (nominally three months). The collection of stories is prioritized so if the schedule slips, the most valuable stories are still completed and delivered.

Iteration

An Iteration is a short cycle of work (nominally two weeks), in which the team delivers a useful subset of the Release. Each story for an Iteration should be small enough to be completed within the Iteration. Each Iteration starts with planning and ends with a review of what has been delivered and a retrospective where improvements to the Agile process are discussed. The Iteration is the heart of Agile, as it fosters a strong sense of teamwork, focus, and progress.

Day

Each day, team members get together for a short, high-energy, stand-up meeting where each person answers three questions:

- What did I complete yesterday?
- What will I complete today?
- What potential impediments are there to my progress?

The purpose of the Daily meeting is to align and coordinate the work of the team, as well as encourage accountability for progress.

BENEFITS

In the **short term**, Agile enables teams to deliver value and demonstrate progress far faster than traditional project methodologies.

In the **long term**, Agile improves productivity and project success rates. There is a caveat though – Agile is relatively new to manufacturing.

ROLES

Agile involves the following roles:

Role	Description
Product Owner	Creates the Vision with stakeholders. Manages the Roadmap and Releases.
Iteration Master	Runs meetings. Removes impediments. Monitors process. Not a manager (more of a “servant-leader”).
Team Member	Implements stories. Takes part in various meetings (Daily, Planning, Review and Retrospective).

KEY INSIGHTS

Do the Right Work

It is incredibly easy to get lost in the noise and distraction of everyday work. A well-crafted Vision keeps the team on track by reminding everyone of the ultimate objective. The Vision also serves a very practical purpose; it acts as a standard against which actions and decisions can be evaluated. For example:

- Is this action consistent with the Vision?
- Which of the available options will best further the Vision?
- What is the best thing that can be done right now to further the Vision?

Regularly referencing the Vision and letting it guide actions and decisions will significantly accelerate progress. It keeps everyone pulling in the same direction and ensures everyone is doing the “right” work.

Loosen a Constraint

Three Constraints

There are three significant constraints on completing projects:

Constraint	Description
Scope	Outputs. The specific deliverables of the project. In other words: “What work do we want to get done?”
Resources	Inputs. Staff, materials, money or other assets that can be drawn upon to complete the project successfully. In other words: “What resources do we have to get the work done?”
Time	Schedule. The time frame for inputs (Resources) to generate outputs (Scope). In other words “How much time do we have to get the work done?”

In traditional project management, all three constraints are “locked” up front. Agile on the other hand, recognizes that one of the reasons projects fail is there is not enough flexibility in planning around constraints. So, Agile explicitly loosens a constraint through time-boxing or scope-boxing.

Time-Boxing

With time-boxing, time is treated as the primary constraint (fixed due date) and scope is allowed to vary. As much value as possible is delivered within the allotted time, by prioritizing and completing tasks that add the most value. This is the preferred and most natural approach for Agile projects.

Scope-Boxing

With scope-boxing, scope is treated as the primary constraint (fixed deliverables) and time is allowed to vary. This approach makes sense if every story is critical; however this is rarely the case. Usually some stories deliver far more value than others.

What About Resources?

It's best to be consistent with resources. For complex projects, adding resources can slow down progress (much to the consternation of management). It takes time for experienced team members to bring new team members up to speed, and the dynamic of the team can change in unpredictable ways. Take the time to assemble a strong team, select time-boxing or scope-boxing as your strategy, and minimize changes to resources once the project is underway.

Write Stories From the “Customer” Perspective

Write stories from the perspective of the “customer” (defined as the primary consumer of the deliverable). Here are some simple examples:

Level	Example
Vision	As an employee, I want our plant to be a world-class manufacturing facility.
Roadmap	As plant manager, I want all product changeovers to be 10 minutes or less. This will enable us to be far more responsive to customers and will significantly improve our OEE [†] score.
Release	As a supervisor, I want to apply SMED [†] to the filler operation, with a goal of cutting the changeover time in half (from 32 minutes to 16 minutes).
Iteration	As an operator, I want a document that identifies all change-over elements for the filler bottle-change process. Each element should include a description and associated work time.

Be Retrospective

Each iteration should end with a retrospective, which is a brief meeting (nominally one hour), where the team reflects on how the agile process is working and how it can be improved. A simple way to conduct the retrospective is to ask these three questions:

- What should we start doing?
- What should we stop doing?
- What should we continue doing?

LEVEL AND DIFFICULTY

The Level is Intermediate. Agile is a leading-edge practice for manufacturing.

The Difficulty is Moderate. The concepts are simple, but there are a lot of “moving parts”, and teams who are used to the waterfall method of managing projects may find the transition challenging.

RATE YOURSELF

How good are you at Agile? Answer ten simple questions to see how close you are to a model implementation.

Question	✓
1. Has an inspiring Vision of the ultimate objective been crafted?	
2. Is the Vision regularly referenced to guide actions and decisions?	
3. Is there a Roadmap of top-level stories aligned to the Vision?	
4. Is the Roadmap prioritized so high-value stories are delivered first?	
5. Are stories written from a “customer” perspective?	
6. Are there ongoing Releases of the most valuable Roadmap stories?	
7. Are Releases short enough to avoid changes in business priorities?	
8. Does every Iteration include a demonstration of completed stories?	
9. Does every Iteration include a retrospective to improve process?	
10. Is there a Daily stand-up meeting to help Iterations stay on track?	

[†]This topic is also available as part of the XL Improvement Framework.