Introduction to Agile Work

Agile is a way of working that answers the question: “how do we introduce strong effective discipline without burdensome bureaucracy?” Agile work is based on three fundamental principles, three opportunities and seven practices as follows:

Agile Principles:

1. Individuals and Interactions are preferred over Processes and Tools
2. Moving Towards a Valued Goal is preferred over Producing Ephemera
3. Responding to Change is preferred over Following a Plan

Agile Opportunities:

1. Empower the Team
2. Amplify Learning and Feedback
3. Eliminate Waste

Agile Practices:

1. Iterative and Incremental Delivery
2. Collocated Teams
3. Team Self-Steering Meeting
4. Adaptive Planning with a Backlog
5. Stakeholder Pull through Test-Driven Work
6. Information Radiators
7. Appropriate Metrics

This article will introduce each of these items in order to provide understanding and the foundation for practice. A short bibliography will provide resources for further expanding one's understanding as well as details for implementing agile work.

Agile work has its basis in team building, personal development, lean manufacturing and agile software development. The name “agile” is adopted from the software world where agile software development is a very close relation to agile work in general. Agile work best applies to group creative endeavors but it has very broad application beyond that from individual efforts to vast organizational efforts, from rote work to purely exploratory work.

It should be noted that every endeavor has stakeholders – people who have some interest in the endeavor or are affected by it in some way. These stakeholders vary in their level of engagement with the work. The range of stakeholders includes the people performing the work, customers, users, recipients, requesters, concerned citizens, etc. Each of these stakeholders will have a level of engagement that depends on their own environment, and their interest in the work. Those people who constitute “the team” are those stakeholders who will actually be performing work to reach all the stakeholders' goals. The focus of agile work principles, opportunities and practices is on this team and its relationship to the remaining stakeholders.

Agile Principles

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Agile Principles: Individuals and Interactions are preferred over Processes and Tools

Experienced, smart individuals who work together effectively will always perform better than junior untalented people thrown together at random. The experienced effective group will build its own tools and create its own processes. The random junior group will be unable to effectively utilize tools given to them, nor will they be able to effectively follow a process.

When a team needs improvement, don't impose a process or throw tools at them. Instead, concentrate on improving the team and the individuals within it. Technical, personal and team training and coaching will always be time and money well-spent. Spending money on processes and tools before an excellent team is in place can be very risky and wasteful.

Individualism and competition have no place in an agile work environment. Instead, the agile environment supports and fosters teamwork, collaboration and consultation. In turn, teamwork, collaboration and consultation depend on trust and truthfulness. "Truthfulness is the foundation of all human virtues."

Nevertheless, processes and tools still have some importance. Great people with a great flexible process and great flexible tools will be hyper-productive. A junior group may need training on tools that will help them be more productive. Just be sure to never let processes and tools get in the way of the team.

This principle is the fundamental agile principle. All the other principles, opportunities and practices would eventually arise out of this one principle. However, the depth of individual and group improvement needed for this principle to stand on its own is very great. Therefore we make the other principles, opportunities and practices explicit.

Agile Principles: Moving Towards a Valued Goal is preferred over Producing Ephemera

Results are necessary to reach a goal. Work is done to produce results and reach a goal. Therefore, any work done that does not produce results that contribute to the goal is wasteful. The degree to which a result of work contributes to the goal is the degree to which that work is valuable. Documentation or paperwork is an effective example.

Documentation is often used for either planning or record-keeping. This is done in the hopes that risks will be reduced or avoided. However, most documentation does not directly contribute to the end results. Nor does it reduce risk in proportion to the cost of producing the documentation in the first place. Finally, documentation can produce a false sense of security by implying completeness, authority, stability, mindfulness, or rationality where these qualities do not actually exist.

Documentation used for communication is often thought to be higher-quality than other methods of communication. There are problems with this approach as well. It can create

a false sense of precision or agreement. The skills and talent to write well are rare, and similarly, the skills and talent to read well are also rare. Other types of communication are much more effective.

Some of the most effective communication is in-person verbal communication with media aids such as paper-and-pencil or whiteboard-and-markers. This type of communication is usually sufficient and appropriate to focus on getting results.

There are many other types of distractions or ephemera that can cause a team to waste effort as it reaches its goal. Waste is discussed in more detail later on in this article.

Agile Principles: Responding to Change is preferred over Following a Plan

For many teams, the environment in which they work is constantly changing. This change can be caused by competition between organizations, scientific or technological advances, fads and cultural shifts, major events in people's personal lives or even just a change of opinion with a stakeholder. Any change, even small change, can invalidate a planned course of action. However, goals (as distinct from plans) are more stable and often survive even major environmental changes. Therefore, rather than trying to plan the future, an agile team can focus on being able to respond to change while still reaching a goal.

Nevertheless, a team needs some sense of what it will do in the near future. A team can work with a "horizon of predictability". This is the distance into the future which a team can be reasonably certain that plans will be stable. Depending on the environment, this may be as little as a few hours, or as long as a month. It is rarely longer. The horizon of predictability is not a precise demarcation, rather, expect change with a probability based on the horizon of predictability. Then, plan to respond to change. Be detached from the concrete details of a plan, particularly if they occur outside the horizon of predictability.

Responding to change requires a major mental shift for many people that is difficult and takes time and environmental support. People are often penalized socially or formally for being flexible or adaptable. This quality can appear to be "wishy-washy", uncertain, indecisive, uncommitted or even rebellious.

The terms "agility" or "agile work" refer to this principle of responding to change since it is the most visible of the principles. However, the ability to respond to change relies on the establishment of the principle of preferring individuals and interactions over process and tools.

Agile Opportunities

1. Empower the Team
2. Amplify Learning
3. Eliminate Waste

Opportunities are broad activities that allow for the manifestation of the agile principles in real-life circumstances. These opportunities represent goals that can be adopted organizationally, by teams and by individuals.

Agile Opportunities: Empower the Team

Empowerment is the ability of a team to make decisions about how to do their work and execute on those decisions without outside interference. If a team is empowered, then it will be more capable of responding to change, will be able to focus on delivering valuable results, and will be able to self-organize to best effect. Empowerment comes from a combination of several factors:

- a deep sense of self-worth for individuals that includes nobility, and contribution to the progress of humanity
- tacit or explicit authority and responsibility for results as a team and as individuals
- a team environment which is honest, trusting and allows for mistakes
- the absence of personal attacks against individuals on the team and in particular a total lack of gossip and backbiting

A team will demonstrate empowerment by the people's joy and dedication to the work and the team, by frequent taking of individual initiative to accomplish tasks, share insights, and develop improvements, by spontaneous leadership, and by individuals stepping out of comfort zones or areas of specialization in order to assist the team.

Empowering a team is a process that can sometimes take a great deal of time and effort. In order to start on this process, the team members should carefully listen to each other and ask many questions. More mature individuals should lead and teach by example. And all the team members can start to question and challenge the rules and procedures of an environment that are preventing effective work. If the team is in an organizational environment where team members have management to report to, then management must be aware of this opportunity for empowerment and support it.

Agile Opportunities: Amplify Learning

Learning is the result of both encountering new experiences and deliberate experimentation. Learning creates new knowledge, increased volition and improved action. Some of people's best learning comes from “failure”. An essential component of learning is feedback.

Learning and feedback can be amplified in several ways. Provide opportunities for learning through books, training courses, coaching, deliberate exposure to diverse work, and deliberate experimentation. Frequently ask the questions “why?” and “how?” and answer the honestly and deeply. Increase the level and quality of communication among the stakeholders and team members. Inspect work in progress frequently or even continuously. Learning accelerates greatly if a culture of learning is created where individuals feel free to experiment and take initiative even on critical aspects of the work.

Learning and feedback support all three agile principles. Any increase in learning or feedback leads to an increase in the manifestation of the principles. Learning and feedback can be amplified rapidly, but an empowered team is necessary to effectively take advantage of this amplification. If a team is not empowered, then rapid learning can lead to frustration. Amplified learning and feedback result in excitement, enthusiasm and playfulness, rapid problem solving, high quality work results and satisfied stakeholders.

Agile Opportunities: Eliminate Waste

Waste is anything that does not directly contribute or actively prevents the timely creation of the desired results with high quality. The opposite of waste is something that adds value to the desired result. There are several types of waste:

- waiting caused by delays, unreadiness, or simple procrastination
- partially done work or inventory caused by sub-optimal workflow
- extra processing or processes caused by poor organization
- defects and rework caused by insufficient skill, tools, inspection or filtering
- movement of people or work caused by physical separation
- overproduction or extra features caused by working towards speculative goals
- task switching caused by multiple commitments

As wastes are eliminated or reduced, a team will function faster and with higher quality. However, not all waste can be eliminated. Sometimes waste is legislated, sometimes waste is an unavoidable byproduct, sometimes mistakes are made, and sometimes it takes a great deal of effort to eliminate a waste.

In order to eliminate waste, first waste has to be identified, then the underlying causes of the waste have to be identified, and finally changes to the work environment need to be made to both eliminate the cause of the waste and the waste itself. Many of the agile work practices listed in this article help with this process.

Value stream mapping is a tool that identifies wasteful activities. The team describes the amount of time that work takes to go through each activity in an overall process. Next, the team determines if each activity adds value or does not add value to the end goal. All activities are subject to speed improvements, and activities that do not add value are subject to elimination.

In order to determine the causes of waste, special attention should be paid to incentives and motivations. Wasteful behavior is often done because there is some incentive to do it. Sometimes these incentives are explicit, but sometimes they are the side-effects of other things going on in the team's environment. Changing the incentives can be an effective way of reducing waste. The section on “Appropriate Metrics” later in this article provides more detail about this.

By eliminating waste, the team will find it has reduced frustrations, and enabled greater productivity and creativity. The team will also increase its speed and delivery of value, and at the same time reduce defects.

Agile Practices

1. Iterative and Incremental Delivery
2. Collocated Teams
3. Team Self-Steering Meeting
4. Adaptive Planning with a Backlog
5. Stakeholder Pull through Test-Driven Work

6. Information Radiators
7. Appropriate Metrics

These practices are specific mechanisms that can be used to kick-start the improvements in the opportunities for agility and the manifestation of the agile principles. These are very practical and specific but they should not be viewed as a perfect or complete prescription. Rather these practices are starting points and should be adapted through experience to specific circumstances; not all practices will apply in all situations.

Agile Practices: Iterative and Incremental Delivery

Work can often be divided up so that the smaller pieces are valuable on their own. By dividing work this way, a team can deliver value incrementally. Even if the work cannot actually be delivered incrementally, it almost always can be divided in a way so that it can be inspected in stages. Either method of dividing work allows us to do the work in iterations.

Iterations are fixed and consistent units of time during which work is performed and between which planning, inspection and adjustment is done. The empowered team will decide on the length of iterations for their work. As a rule of thumb, there are three to five iterations between releases of work and iterations should be shorter than the horizon of predictability. Generally, iterations should never be longer than one month, no matter what the endeavor.

At the end of each iteration, a demonstration of the work completed is given to the stakeholders in order to increase learning and feedback. Between iterations, the stakeholders collaborate with the team to prioritize the remaining work and choose what will be worked on during the next iteration. During the iteration, the stakeholders need to be accessible for questions and clarifications.

Iterative and incremental delivery is used to allow for the correction of mistakes and the incorporation of learning and feedback while at the same time delivering value early.

Agile Practices: Collocate the Team

Collocation of the team is used to improve communication efficiency and to allow the team to learn to be more collaborative. Perfect collocation would have all stakeholders and work performers in the same work space (e.g. a large room) during all working hours. This level of collocation is not usually possible, so adjustments are made.

Collocation reduces wastes associated with waiting, movement, and inefficient communication. Collocation increases learning and feedback and assists with team empowerment.

Collocation can present challenges to people used to working on their own. For these people, a careful consideration of how to accommodate their working style is important, but more important is helping them to understand the need for and benefits from collocation. As this understanding grows and as the team starts to produce noticeable results, most people start to enjoy the close working environment.

When perfect collocation is not possible, consider part-time collocation, video conferencing, having a decision-making proxy represent the stakeholders, getting rid of

closed offices, moving into open or shared work spaces or collocating part of the team.

Agile Practices: Team Self-Steering Meeting

Team self-steering is accomplished through a structured meeting that is used with regularity and several times or many times during an iteration. This type of meeting is used in order for the team to have a structured method of sharing critical information. Team self-steering is often done with a meeting called the "daily scrum".

The team self-steering meeting involves each team member answering the following questions:

1. What work have you completed since the last meeting?
2. What work do you commit to complete before the next meeting?
3. What barriers are you encountering that are hindering your work or the team?

One member of the team is empowered to track and eliminate the barriers. This person must have a pro-active and independent personality and have access to the rest of the stakeholders. The person eliminating barriers should remain the same over the course of an endeavor if possible. Every barrier mentioned in a team self-steering meeting should be resolved before the next one. If that is impossible, the unresolved barriers are reported to the team and the team decides for itself how to work around the barrier.

Team members must avoid getting into details during this meeting. It is not a working meeting where any decisions are made or work performed. Even discussion among team members should be deferred to after the team self-steering meeting is complete.

As a rule of thumb, this communication occurs every day at the same time of day. With a team of about eight people, the meeting should take less than fifteen minutes. Stakeholders who are not committing to perform work may observe the team self-steering meeting, but may not otherwise participate.

The team self-steering meeting amplifies learning and feedback, enables responding to change, helps empower the team, emphasizes individuals and interactions as well as valuable results. This practice is critical to agile work.

Agile Practices: Adaptive Planning with a Backlog

In order to respond to change, plans must be made so that they can be adjusted... and then they must be changed! The agile approach to this is to use adaptive planning with a backlog of work packages or tasks.

In order to create this backlog, an overall result or goal is divided up into work packages. For example, a large company may divide its work into projects where each project becomes a work package. On a smaller level, each project may be divided into work packages, each of which represents some value to the overall project goal (note, this is different from a traditional project work breakdown structure). A third example is in the creation of a book, each chapter may be a separate work package. This backlog can contain anything that stakeholders consider even remotely relevant to their goals for this endeavor.

Next, work packages are prioritized and listed in decreasing priority in a backlog. In this backlog, no two packages have the same priority. Ideally, a single person is responsible

for maintaining this backlog and determining the priority of work packages. Collective maintenance of this backlog can be a source of much extra work and even conflict. The person responsible for maintaining the backlog must be trusted to take all the stakeholders interests and produce a reasonable priority list.

Each iteration, the team collaborates with the stakeholders to choose some number of work packages to work on and complete. If the team does not think it can complete a work package in a single iteration, it should be broken into smaller packages. The team is responsible for committing to the work so they have the final say on how much work they can accomplish during an iteration. No other stakeholders should pressure the team to commit to more.

Inside each iteration, the team breaks the work packages into tasks and prioritizes them. Based somewhat on task priority, individuals in the team choose tasks to accomplish and work on them. It is very important for team empowerment that tasks are neither defined nor assigned by people outside the team.

At the end of each iteration, the work accomplished is demonstrated to the stakeholders. Based on these demonstrations and the lessons learned by the team, the remaining work packages are re-prioritized. Packages in the backlog can be added, removed or changed at any time, but the team's work can only be adjusted between iterations.

Using adaptive planning with a backlog in combination with iterative and incremental delivery enables the principle of responding to change. It is also a method to improve team empowerment.

Agile Practices: Stakeholder Pull through Test-Driven Work

In an agile environment, all work done needs to be directly related to the needs of stakeholders. Stakeholders request or "pull" work from the team, and they do this by defining prioritized work packages. The team needs some way to know when they have completed a work package, so both work packages and iteration tasks need to have testable acceptance or success criteria. The team collaborates with the stakeholders to determine what needs to be done to successfully complete a work package.

Based on the acceptance criteria, tests are described or created. Ideally, these tests are created before or simultaneously to any work that is done on the work package or task. Any work done is done only to make the tests succeed – no speculative (wasteful) work should be done. The team members should carefully avoid the belief that they can predict work that needs to be done if there is no test for that work.

Tests can be informal, formal or even automated depending on the environment and the type of work being done. Tests can be questions or measurements and their expected results. A test can also be a procedure to follow and the results of that procedure. If the environment supports it, automating tests can be an excellent investment for reducing waste.

Test driven work has two solid benefits: it helps ensure close collaboration between the team and the stakeholders, and it helps eliminate the waste of unnecessary work.

Agile Practices: Information Radiators

An information radiator is a large display of critical team information that is manually

and continuously updated and located in a spot where the team can see it constantly.

Information radiators are typically used to display the state of work packages, the condition of tests or the progress of the team. Team members are usually free to update the information radiator. Some information radiators may have rules about how they are updated.

Whiteboards, flip charts and poster boards can all be used as the base media for an information radiator. Large computer monitors are not ideal since the information displayed on them cannot be directly manipulated. The best medium is usually a poster board on the wall with index cards and push pins. The index cards have a small amount of information on each of them and the push pins allow them to be moved around.

Information radiators help amplify feedback, empower teams and focus a team on work results. Too many information radiators become confusing to understand and cumbersome to maintain. If an information radiator is not being updated it should be reconsidered and either changed or discarded.

Agile Practices: Appropriate Metrics for Agile Team Success

A team's behavior can be strongly influenced by how they are measured for success and performance. Many metrics currently used in corporate environments are sub-optimal; these measurements actually encourage wasteful or detrimental behavior. Agile teams work best with a very specific set of measurements and metrics.

There are four basic metrics that support agile teams to reach their optimal work. Process cycle time is a measure of how long it takes for a team to reach a goal, from the time the goal is identified, to the time it is actually reached. Process cycle efficiency is the proportion of time spent by the team in value-added activities vs. overall process cycle time. This efficiency measurement is a diagnostic that allows the team to identify and reduce waste. The value delivered measurement is a quantitative measure of results. This value could be measured in any units that are appropriate, but in a corporate environment is usually monetary. Perhaps the most important metric is stakeholder satisfaction, both in terms of results delivered and the means or process by which they were delivered.

Sub-optimal metrics can have disastrous consequences. The following metrics should be avoided by agile teams and stakeholders: utilization of resources, cost of work, process compliance and plan compliance.

The principle of agile metrics is to avoid measuring individuals but rather attribute to them the team's measurement in order to foster collaboration and discourage individual heroics and competition.

Conclusion

How does one decide if agile work is appropriate for an endeavor? Any endeavor where the end result cannot be easily defined is a good candidate. Any endeavor where there is constant environmental change or substantial risk is also a good candidate. Some examples where agile work has been applied include volunteer work, software development, new product development, organizational change, family management, writing, documentary video production, and home renovation. New applications of agile

work are being experimented with constantly.

If you try agile work, please let me know how it goes! We can all learn from each other and if you are willing, I will put your story on my website.

Further Reading

The Goal by Eli Goldratt – an engaging fictional introduction to the Theory of Constraints. An extended parable of applying agile work techniques to manufacturing.

Agile Software Development with Scrum by Ken Schwaber and Mike Beedle – a good introduction to applying agile work techniques to software development. Recommended even for those who are not in the software field.

How to Win Friends and Influence People by Dale Carnegie – basic principles and practices that an individual can use to assist with team building.

Progress and Its Problems by Larry Laudan – the history of science shows us that progress is in response to problems. A more theoretical example of how even a vast endeavor such as scientific progress is essentially about responding to change.

The Systems Bible by John Gall – this is a humorous approach to systems theory that provides many insights applicable to agile work.

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