Introduction

Agile Project Management is one of the revolutionary methods introduced for the practice of project management. This is one of the latest project management strategies that is mainly applied to project management practice in software development. Therefore, it is best to relate agile project management to the software development process when understanding it.

From the inception of software development as a business, there have been a number of processes following, such as the waterfall model. With the advancement of software development, technologies and business requirements, the traditional models are not robust enough to cater the demands.

Therefore, more flexible software development models were required in order to address the agility of the requirements. As a result of this, the information technology community developed agile software development models.

'Agile' is an umbrella term used for identifying various models used for agile development, such as Scrum. Since agile development model is different from conventional models, agile project management is a specialized area in project management.

The Agile Process

It is required for one to have a good understanding of the agile development process in order to understand agile project management.

There are many differences in agile development model when compared to traditional models:

- The agile model emphasizes on the fact that entire team should be a tightly integrated unit. This includes the developers, quality assurance, project

management, and the customer.

- Frequent communication is one of the key factors that makes this integration possible. Therefore, daily meetings are held in order to determine the day's work and dependencies.

- Deliveries are short-term. Usually a delivery cycle ranges from one week to four weeks. These are commonly known as sprints.

- Agile project teams follow open communication techniques and tools which enable the team members (including the customer) to express their views and feedback openly and quickly. These comments are then taken into consideration when shaping the requirements and implementation of the software.

Scope of Agile Project Management

In an agile project, the entire team is responsible in managing the team and it is not just the project manager's responsibility. When it comes to processes and procedures, the common sense is used over the written policies.

This makes sure that there is no delay is management decision making and therefore things can progress faster.

In addition to being a manager, the agile project management function should also demonstrate the leadership and skills in motivating others. This helps retaining the spirit among the team members and gets the team to follow discipline.

Agile project manager is not the 'boss' of the software development team. Rather, this function facilitates and coordinates the activities and resources required for quality and speedy software development.

Responsibilities of an Agile Project Manager

The responsibilities of an agile project management function are given below. From one project to another, these responsibilities can slightly change and are interpreted differently.

- Responsible for maintaining the agile values and practices in the project team.

- The agile project manager removes impediments as the core function of the role.

- Helps the project team members to turn the requirements backlog into working software functionality.

- Facilitates and encourages effective and open communication within the team.

- Responsible for holding agile meetings that discusses the short-term plans and plans to overcome obstacles.

- Enhances the tool and practices used in the development process.

- Agile project manager is the chief motivator of the team and plays the mentor

role for the team members as well.

Agile Project Management does not

- manage the software development team.
- overrule the informed decisions taken by the team members.
- direct team members to perform tasks or routines.
- drive the team to achieve specific milestones or deliveries.
- assign task to the team members.
- make decisions on behalf of the team.
- involve in technical decision making or deriving the product strategy.

Conclusion

In agile projects, it is everyone's (developers, quality assurance engineers, designers, etc.) responsibility to manage the project to achieve the objectives of the project.

In addition to that, the agile project manager plays a key role in agile team in order to provide the resources, keep the team motivated, remove blocking issues, and resolve impediments as early as possible.

In this sense, an agile project manager is a mentor and a protector of an agile team, rather than a manager.

What is an Agile Environment?

As constant change and markets push companies to adapt and deliver at an ever-increasing pace, agile remains at the heart of strategic conversations. It's a testament to the customer-centric, engaging and ever-innovating agile environment so many companies have created in their tech areas.

What's changing (for the better!) is the need for agile environments throughout an entire company, not just in tech. As representatives from all parts of the organization join the agile strategy table, it's time to define what we mean by an "agile environment."
In simplest terms, an agile environment exists when the people and the

systems they are in are inclusively collaborative, customer centric, and continuously learning and improving. The resulting human system hums along with the noise of creative chaos while handling disruptions effectively and maintaining the highest regard for its most valuable asset – people.

Before you picture the unreachable – unicorns leaping in the halls and candy dishes everywhere – take a look at the five cornerstones of an agile environment. Note that the environment needing redefinition is as much the space we physically inhabit as the space created by our mindset, interactions, and behaviors. Together, through many iterations, leaders and teams practice and refine their skills across these five congruent and dynamic areas that together enable the emergence of an agile environment.

WHAT IS AN AGILE ENVIRONMENT?

3: CUSTOMER-CENTRICITY

Empathizing with our customers and stakeholders to solve their immediate problems by seeking to deliver quality and timely solutions.

1: FOCUSED ALIGNMENT

Aligning our vision, values, and strategy, while discovering better ways to organize ourselves to focus on executing against measurable and impactful outcomes.

4: GROWTH THROUGH LEARNING

Investing the time for personal and professional growth, experimentation towards innovative ideas, and solving our most significant challenges together with the help of teams and leaders.

2: INCLUSIVE COLLABORATION

Striving for an environment of high trust, transparency, and safety, while bringing the energy of our best selves towards collective success through fun, collaboration, and shared responsibility.

5: RESILIENT TO CHANGE

Changing and evolving who we are as an organization by quickly sensing, responding, and adapting to any threats, risks, opportunities, or needs that will benefit our customers, stakeholders, and business.

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Focused Alignment: What We Envision

Agile organizations understand the power of having everyone on the same page with sharing and living our company values, driving toward a common vision, and focusing on the same priorities toward our strategy. Leaders desire to explore what success looks like with business outcomes that are understood and can be measured, as the organization delivers incremental solutions driving towards those outcomes. Gone are the days of organizational silos and hierarchies, as there is a desire to bring the enterprise closer together using cross-departmental value streams that effectively deliver end-to-end solutions leveraging our collective capabilities.

Inclusive Collaboration: How We Interact

Agile organizations understand that we can't bring our best selves to work if we don't have a work environment that supports it. Leaders help serve the enterprise by enabling and supporting a strong sense of inclusiveness in the way we bring the best ideas and take chances together to be successful. Key to this is a high level of psychological safety through trust, mutual respect, and transparency. As a result, individuals and teams have the necessary autonomy to make decisions and the shared responsibility to meet commitments to customers.

Customer-Centricity: Who We Think About

Agile organizations understand that our customers – internal and external – are central to everything we do. Teams find ways to get early and frequent feedback to ensure that they are solving the right problems in the solutions they provide. Each employee starts to develop deep empathy toward customers to be able to anticipate what can be done to improve the world that the customer lives in. Leaders across the enterprise also strive to improve the overall system by removing non-valued activities and tasks to increase the time available to take ideas and turn them into quality and timely solutions. IT must do its part to invest time and money on automation through virtual development and test systems, continuous integration and delivery on demand to release value when it is needed by customers.

Growth through Learning: How We Develop Ourselves

Agile organizations understand the need to constantly be learning and investing the time and money toward their greatest asset – their people. No longer are these learning activities "on your own time"; they are built into everyday events. These organizations understand that learning comes in many forms – training, coaching, communities, pairing sessions, hackathons, and collaborative design workshops. Innovation isn't something we long for, but instead it's what we build into the solutions we provide by building our skills, trying new ideas through experimenting, and pushing the boundaries on what we can do if we make the necessary investment in personal and professional growth.

Resilient to Change: Our foundation for Agility

Agile organizations understand that they need to not just embrace change but also build the ability to respond and adapt quickly in a sustainable way. The enterprise has learned to have short cycles in how they discover, develop, and deliver valuable solutions. These companies are learning – iteratively and incrementally – how to build architectures, systems, solutions and people that are nimble to change while continually evolving to a better state through continuous improvement. These organizations know that, in order to survive in a world of disruption, they need to be able to anticipate change, pivot, and act faster than their competition.

It's a lot to take in and imagine as a new reality. And, it's difficult work. That's why we recommend you make time to reflect on your own environment, and then start an ongoing discussion with others. And be encouraged that now is a great time for change.

Agile Metrics:

Agile metrics help monitor productivity across the stages of the [software development life cycle](#) (SDLC). In this post, we're going to discuss agile metrics that matter for success. We'll take a look at why they're important for a firm.

But, agile alone doesn't always help a company succeed in delivering quality work in time. For reducing excessive expenses, activities, and labor, lean is there. Lean and agile together result in a fast nd bug-free application that ensures client satisfaction. Lean and agile also eliminate waste that causes a company to lose money. After discussing agile metrics, we'll move on to lean metrics and their importance. Apart from agile, we'll also take a look at a few lean metrics essential for a company's success.

What Are Agile Metrics?

Metrics are nothing but standards of measurement. Agile metrics are standards that help a software team in monitoring how productive a team is across the different phases of the SDLC.

Agile metrics are an essential component of the development process. For companies or teams that work on the agile framework, agile metrics help in assessing software quality.

By measuring how productive a team is, agile metrics help keep the team performance in check. If there are any loopholes, they expose them at the initial stages. Since the data and its usage are measurable, it's easier to work on the shortcomings with the help of these metrics. For example, velocity metrics can help you track your team's output.

Importance of Agile Metrics

Now that we know what agile metrics are, let's break down how they work. The entire concept of agile rests on [continuous improvement](#) (CI). But this isn't something that you can impose on teams. It has to come from within. In short, self-improvement (SI) is a must. So, it's safe to say that CI isn't possible without SI.

Immediate delivery is an important component of agile. But one shouldn't overlook SI in this case. Teams practicing SI give better results than those who don't. But having

a sustainable and effective SI is not child's play. It's a long-term process and needs a management framework. By tracking software quality and team performance, agile metrics support SI. In a way, these metrics directly impact CI.

Apart from improving continuity, delivering a high-quality product is also a vital part of agile. However, striking the balance between these two can be challenging. This gives rise to the need for metrics against which teams can measure progress. All in all, agile metrics help teams become self-managing. They also help firms in delivering value. At the same time, CI becomes a part of the workflow without much effort.

Agile Metrics Important for Your Project

Agile metrics measure different aspects of project development. Here are some agile metrics important for your project. They'll help you understand the development process better. Additionally, they'll ease the process of overall [software release](#).
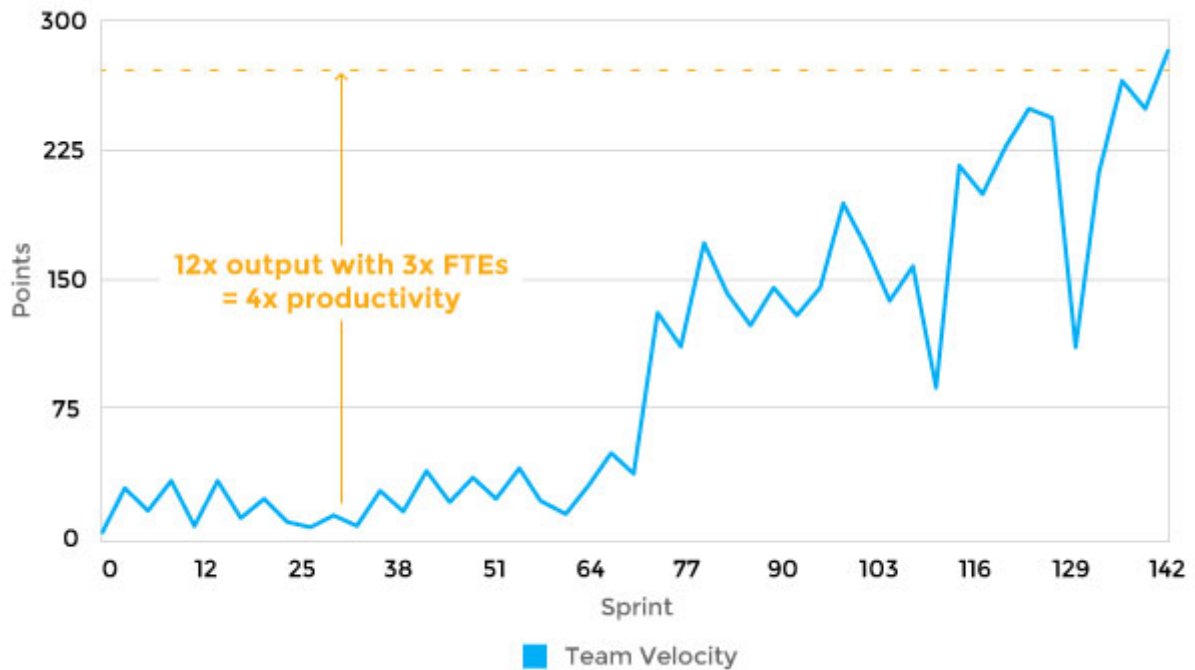
1. Sprint Burndown Report

An agile framework comprises [scrum](#) teams. They organize their processes into sprints. Since a sprint is time-bound, it's important to track task progress frequently. A sprint burndown report is for tracking the completion of different tasks during a sprint. Time and work left to complete are the two main parameters of measurement in this case. The X-axis refers to the time. The Y-axis represents the work left. The unit of measurement is hours or story points. The team forecasts the workload at the beginning of a sprint. The target is to complete the workload by the end of the sprint.
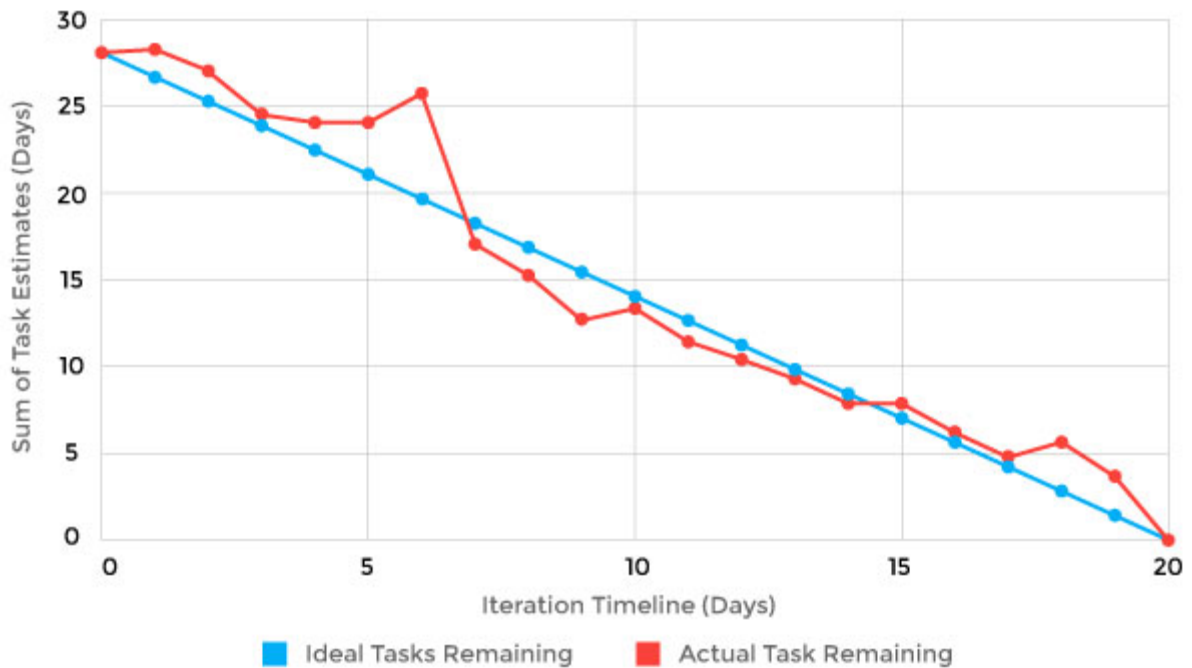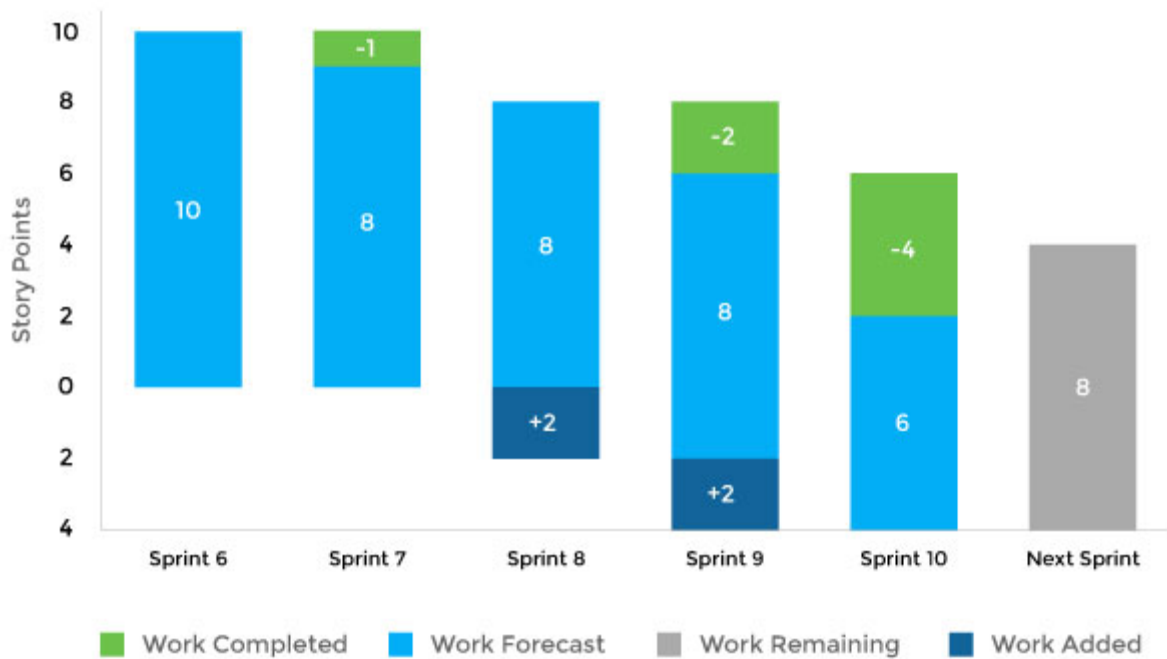
Sprint Burndown Chart

2. Velocity

Velocity measures the average work a team does during a sprint. The report, in this case, contains several iterations. The accuracy of the forecast depends on the number of iterations. The more iterations, the more precise the forecast. The unit of measurement is hours or story points. Velocity also determines the ability of a team to work through backlogs. As time passes, velocity tends to evolve. To ensure consistent performance, it's important to track velocity. If the velocity declines, it's a sign that the team needs to fix something.

12x output with 3x FTEs = 4x productivity

Team Velocity

Agile Velocity

# 3. Epic and Release Burndown

Unlike a sprint burndown, epic and release burndown focus on the bigger picture. They track progress over a large work body. There are many epics and versions of work in a sprint. So, it's important to track their progress as well as each sprint. The entire team has to be aware of workflow in the epic and version. Epic and release burndown charts make that possible.

Story Points

| Sprint 6 | Sprint 7 | Sprint 8 | Sprint 9 | Sprint 10 | Next Sprint |

Work Completed   Work Forecast   Work Remaining   Work Added

Epic and Release Burndown

4. Control Chart

In agile, control charts focus on the time duration from the "in progress" to "complete" status of tasks. Their purpose is to check the cycle time of a single issue. Teams with consistency in cycle times have predictable deliveries. Besides this, teams with short cycle times have a high throughput. When teams measure cycle times, they improve the flexibility of their processes. For instance, in the case of changes, you can discern the results instantly. As a result, team members can make the necessary adjustments. In general, a short and consistent cycle time is the target to achieve in every sprint.

Chart legend: Issue | Cluster of Issues | — Average | — Rolling Average | Standard deviation
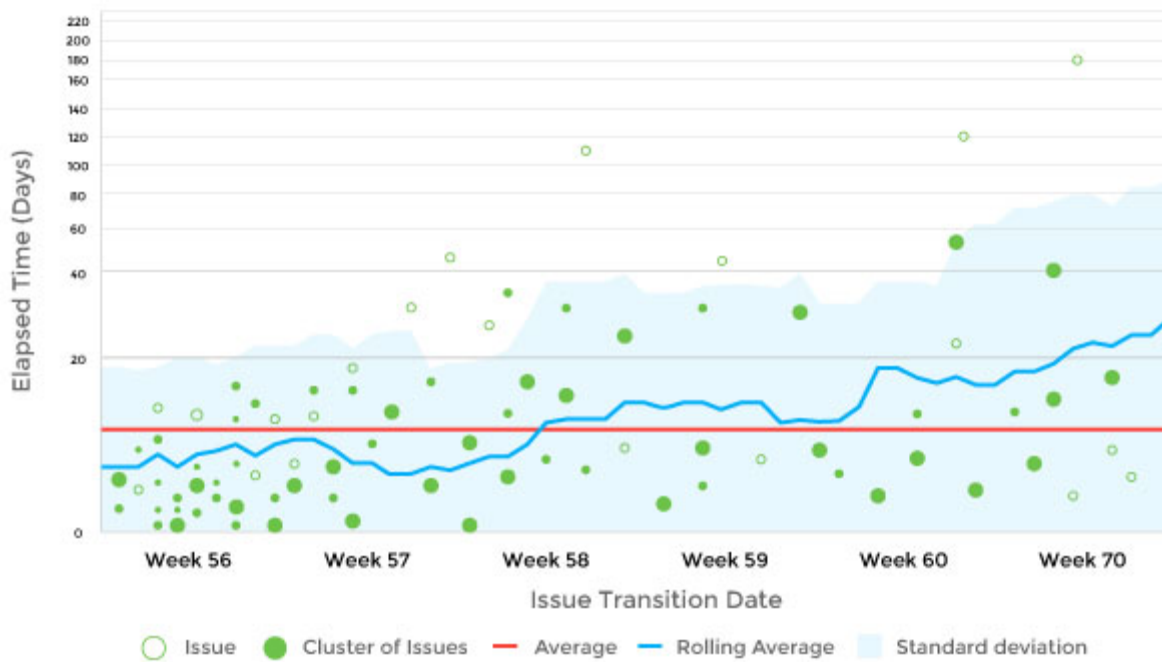
5. Cumulative Flow Diagram

The cumulative flow diagram (CFD) ensures consistency in workflow across the team. The X-axis represents time. The number of issues is on the Y-axis. Ideally, the diagram should be smooth from left to right. Smoothen out the color bands in case of uneven flow. The band narrowing means throughput is higher than the rate of entry. If the band widens, this means that your workflow capacity is greater than required, and it can be moved elsewhere to smoothen the flow.

The CFD measures the state of the work in progress. With that, you can take measures to speed up the workflow. The diagram provides a clear visual representation of bottlenecks. You can analyze how bottlenecks formed in the first place. After that, the team can take steps to eliminate them and make improvements.
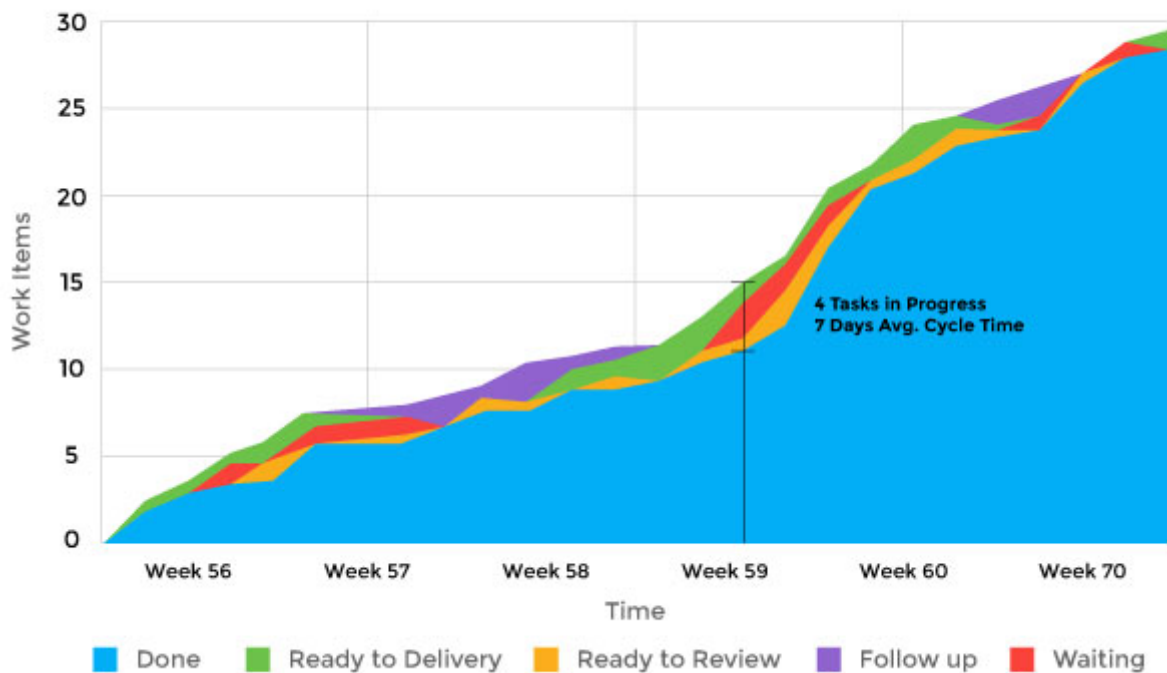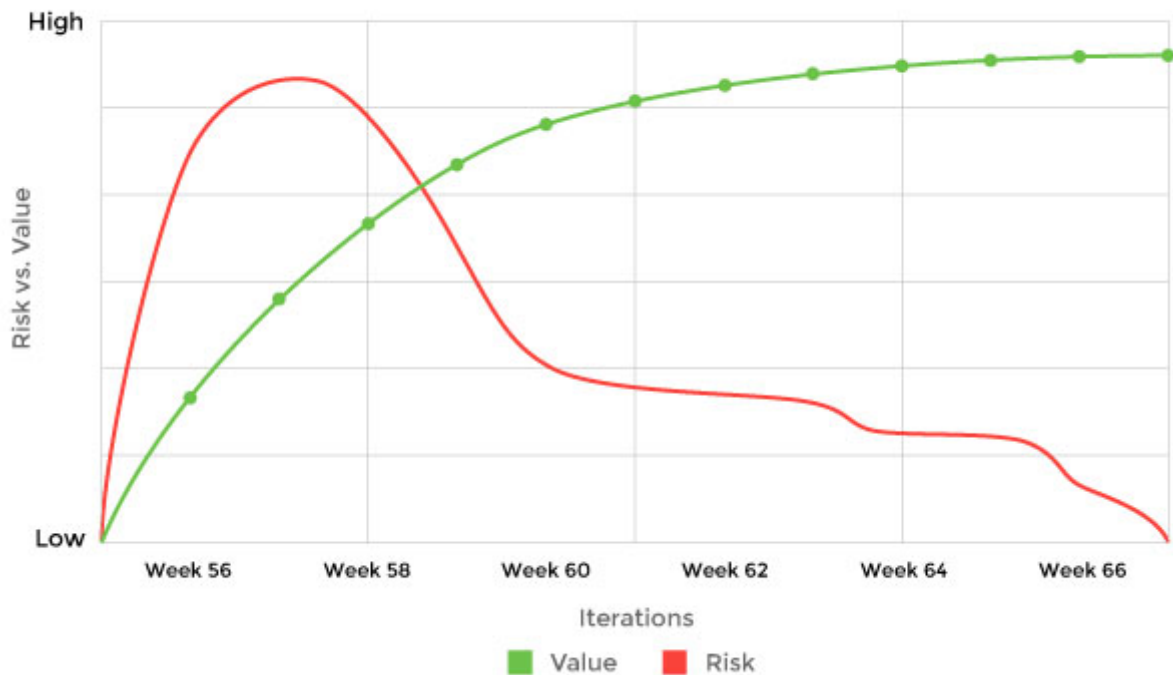
Cumulative Flow Diagram

6. Lead Time

Lead time is the period between the moment of making a request for delivering a product and the actual delivery. All the processes to bring a product to completion come under lead time. It also includes developing a business requirement and fixing bugs. Lead time is an important metric. The reason for this is it provides the exact time calculation for every process.

7. Value Delivered

Here, project managers assign value to every requirement. This metric uses either dollars or a points system. Implementing features with high value should be the top priority. An upward trend in this metric shows that things are on track. On the other hand, a downward trend isn't a good sign. It means the implementation of lower-value features is going on. If that's the case, the team should make amends. Sometimes, you might even have to stop product development.

The chart shows "Risk vs. Value" on the y-axis (ranging from Low to High) and "Iterations" on the x-axis (Week 56 through Week 66). Legend: green = Value, red = Risk.

Value Delivered

8. Net Promoter Score

Net Promoter Score measures how much the customers are willing to recommend the product or service to others. It's an index that ranges from -100 to 100. Customer loyalty is an important factor to determine the success of a firm. You can use the Net Promoter Score as a proxy for this purpose.

9. Work Item Age

Work item age is the aging work in progress. This metric indicates the time that passes between the start and completion of the current task. The use of work item age is to detect the timeline for unfinished tasks. By using this metric, you'll realize how your present tasks move forward. You can also compare your previous performance in the same context as the current scenario. The measurement tool, in this case, is the aging work in progress chart.
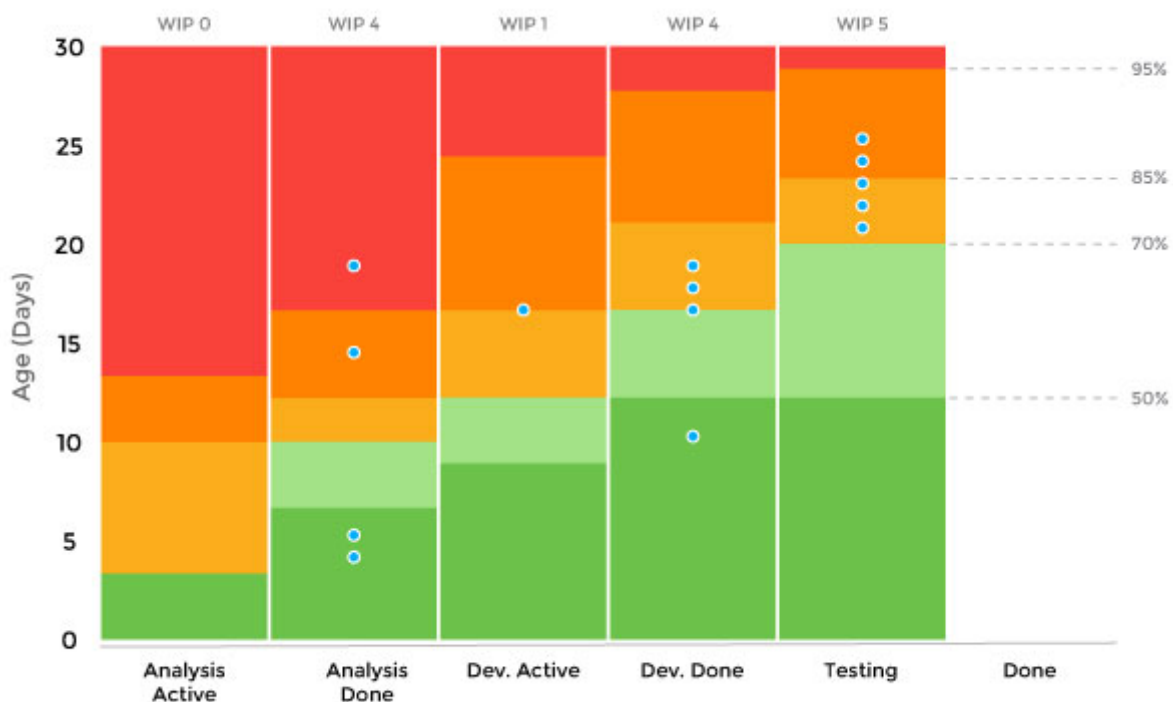
10. Throughput

Throughput measures average tasks processed in each time unit. You can also call it a measure for story points per iteration. It represents a team's productivity level. Throughput helps you understand the effect of workflow on business performance. You can get a better overview of the capacity of your team. However, it doesn't show the starting point of tasks.

11. Blocked Time

This metric assigns a blocker sticker to a task. It means that due to some reason, the assignee can't proceed with a particular task because of some dependency. As soon as the dependency is fulfilled, you should move the blocked card to the right on the task board. Count the number and duration of blocked cards for measuring the number of blockers. Resolving the blockers will allow you to finish your "in progress" task quickly.

12. Escaped Defects

When there are bugs in production, it causes a lot of unexpected damage. They pose

problems, and the team needs to address them. Escaped defects metrics help in bug identification when a release enters production. You can assess the quality of the software in a raw form. For more information on automated defect minimization, check out [Plutora's solution for test management.](#)

13. Failed Deployments

Failed deployments is a useful quality metric. It helps in assessing the number of overall deployments. Moreover, teams can determine the reliability of the testing and production environment. This metric also determines whether a sprint is ready to enter production.

14. Code Coverage

Code coverage measures the percentage of code unit tests cover. You can run this metric with every build. It represents the percentage of code coverage in raw form. This metric gives a decent perspective on progress. But it doesn't cover other kinds of testing. Thus, high code coverage numbers don't necessarily represent high quality.

15. Quality Intelligence

The quality intelligence metric is a must if you're looking for clarity on software quality. It helps in identifying recent code changes. Suppose there are new codes that the team has developed but testing is yet to be done. Maybe there are instances where the quality declines in those codes. Quality intelligence helps determine the same. It makes the team aware of when they should invest more time in testing.

Agile delivers value to both employees and customers. The metrics that we discussed help to optimize the development process in an agile framework. Agile metrics are development centric. But to optimize the production processes, lean is the way to go. Both agile and lean empower teams to deliver better value. They also focus on quick delivery of value to customers. Let's discuss lean metrics. We'll get to know what they are and discuss some lean metrics that are musts to include in your development cycle.

What Are Lean Metrics?

Now that we've learned agile metrics in detail, let us move on to lean metrics. The

best time for any company is when the sales see a boost. But with improved sales, the workload increases. At the same time, development operation grows. This makes it difficult to measure performance efficiency. Sometimes, measuring performance under a high workload compromises a product's quality. This process has to be efficient and profitable. So, companies often use lean metrics to evaluate and measure their performance.

Most companies focus on reducing waste to improve production efficiency. But before jumping on to lean management, it's important to know the measurement of various factors. Lean is all about removing something that doesn't add value. Lean metrics track and reflect improvements in development and operations. They also control and monitor development processes. This ensures continuous quality to customers. In a way, it identifies areas of improvement. This makes the implementation of changes simpler.

Importance of Lean Metrics

Efficiency is the core of every company's profits. Maximizing productivity and reducing waste are the top priorities. So, how does a firm achieve these? The answer is simple: by applying [lean principles](). Lean operations reduce labor and material wastage and boost productivity. At the same time, they also improve the level of production. Lean management includes keeping minimum inventories according to need. It also involves minimizing transportation losses and downtime.

Lean metrics are important for a successful lean operation. They help in making businesses sustainable. As lean improves efficiency, employees can focus on innovation. In the end, the product developed has a great quality and fewer bugs.

Lean Metrics Important for Your Project

Wasteful practices cause damage to a company by increasing costs. The only thing customers want to pay for is value. And that's exactly what lean metrics help in increasing. Do you know what professional runners do to increase their chances of victory? They time their sprints and strive to improve each time. Even if the improvement is in the form of a few seconds, it brings them closer to the finish line in less time. And that's what gives them the final win!

Similarly, lean metrics help in cutting down waste. Even if the quantity of waste

reduction is less, every step counts. Runners track metrics like time, distance, heart rate, pace, and elevation. In the same way, companies following lean management have to use lean metrics to ensure their success. So, let's take a look at some lean metrics important for your project.

Lean Metrics to Improve Flow

Speedy delivery and operational success are musts for successful lean management. But they're not possible without a smooth workflow. So, on that note, let's check out the lean metrics needed to improve flow.

1. Queues

There are waiting periods between different task stages. Instead of limiting the time during active work, reduce the waiting time in queues. Identify where the task is stuck using efficiency diagrams. After that, take measures to cut down the work in queues.

2. Throughput

It's important to calculate items processed under a specified time period. It helps in assessing the quantity of work across a time period. You can also keep track of how it impacts business decisions. For the best results, use throughput as a trend. Another effective way is to combine its use with other metrics.

3. Little's Law in Practice

Calculation of cycle time uses a variation of Little's Law. When we divide work in progress (WIP) with the average completion rate of a task, it gives the cycle time. The formula states how changes impact the final output. The law shows how increased WIP can result in more cycle time.

$$L = \lambda \times W$$

- **L** the average number of items in a queuing system
- **λ** the average number of items arriving at the system per unit of time
- **W** the average waiting time an item spends in a queuing system

Little's Law

Lean Metrics to Improve the Speed of Delivery

In the current Age of Agile, customers want companies to deliver their product quickly. Thus, every business needs speedy delivery to thrive. Here are some lean metrics that improve the speed of delivery.

1. Blockers

Blockers are visual icons that represent a task that's unable to move forward. This can be due to a failure condition or an external dependency. A blocked task needs immediate attention. Thus, this metric draws the attention of the team to something urgent. When a team member hovers over the icon, it reveals the reason behind the blockage.

2. WIP (Work in Process or Work in Progress)

When a task has crossed its starting point, it's important to measure the time it takes to reach the end. When you track tasks that are in progress, it helps improve delivery speed. This way, teams focus on existing tasks before starting new ones and can work efficiently and quickly.

3. Cycle Time and Lead Time

The time from when a company receives an order to when it delivers it is the lead time. Lead time also includes processing time. But since wait states and processing time are a part of lead time, it becomes difficult to gain the exact insights. This is where cycle time comes into the picture. It includes the time between when a task is first active to when it reaches the point of review. Cycle time helps grasp the impact of different changes in the overall process.

Lean Metrics for Operational Success

The seamless functioning of changes is an important part of lean management. Operational success in lean increases profitability and efficiency. On that note, let's take a look at the lean metrics for operational success.

1. Total Cost

This metric enables the team to compare costs between two manufacturing periods. Analyze how much you spent in the last manufacturing period. Then compare those metrics with the current manufacturing period. As time progresses, you should spend less and gain more. When you have a clear idea of where your company lies monetarily, it helps cut costs over time.

2. Delivery Performance

Delivery performance is the ability of your operations to meet customer requests. It's a KPI measurement that measures the fulfillment of the demands of customers in terms of delivery dates. The delivery performance is high if your deployment policies are in line with delivery promises.

3. Safety

This KPI uses conventional accident/incident frequency and severity metrics. Switching to lean operations reduces waste. Thus, it improves performance and saves time. By reducing floor incidents, it also saves money and resources.

Wrapping It Up

Implementing agile metrics brings more clarity to development. Agile is so hyped that companies make the switch without thinking twice. But the fact is that merely switching from traditional practices to agile is not enough. Bottom line—stop expecting miracles from agile if you haven't implemented it properly. Agile metrics are a must for the full implementation of agile. If you're really aiming for success, keep the above agile and lean metrics in mind. Make them a part of your workflow. In some time, it's highly likely that you'll see your company reach heights you never imagined!