Agile Software Development (TCS 855)

Unit-II Agile Project Management

Agile Project Velocity

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Velocity in Agile

- Velocity is connected to the principle of iterative development.
- Velocity in Agile is used to measure how much work can be completed in each iteration.
- It is widely used as a calibration tool to help development teams create accurate and efficient timelines.
- Velocity in Agile is not meant to be used as a goal or benchmark to strive for because it is measured relatively depending on what makes the most sense for the team measuring it.
- While maintaining consistency is ideal, Agile velocity is meant to be used mainly as a planning tool.

- Velocity in Agile is a simple calculation measuring units of work completed in a given timeframe.
- Units of work can be measured in several ways, including engineer hours, user stories, or story points.
- The same applies to timeframe; it’s typically measured in iterations, sprints, or weeks.
- However, you decide to measure velocity should be how you continue to measure it going forward.
- For example, to track Agile velocity, most Scrum teams measure the number of user points in a given sprint.
- Once this is measured based on a few sprints, the team can then predict how many user points they should plan to complete per sprint.
- This ultimately reveals how many sprints it will take to complete a project, and helps the team to measure efficiency along the way.

Agile Velocity Help Measure Efficiency

- The raw numbers of Agile velocity will not reveal much; it is the trends that will help you measure and improve efficiency.
- A misconception about velocity in Agile is that it should be used as an efficiency goal, which is not the intended use case.
- Here is a common mistake that gets made because of this misconception: When a team sees velocity numbers decreasing, they ask “how can we get the number back up to where it was?
- This runs the risk of pressuring developers to cut corners in order to achieve a particular velocity goal.
- Instead, when your Agile velocity numbers are trending down, it should signal you to dig deeper into possible inefficiencies that may be causing the downward trend. If you are confident that there aren’t any, then you may want to plan for a lower velocity number going forward. This would yield a more accurate budget and timeline.
- Likewise, an increase in Agile velocity numbers should be looked into as well. It could be a sign that the team is moving too fast and quality has declined.
- If that’s not the case, and you find you can accomplish higher velocity numbers than planned for – without risking quality – you can shave a few iterations off of the overall timeline.

Burndown chart

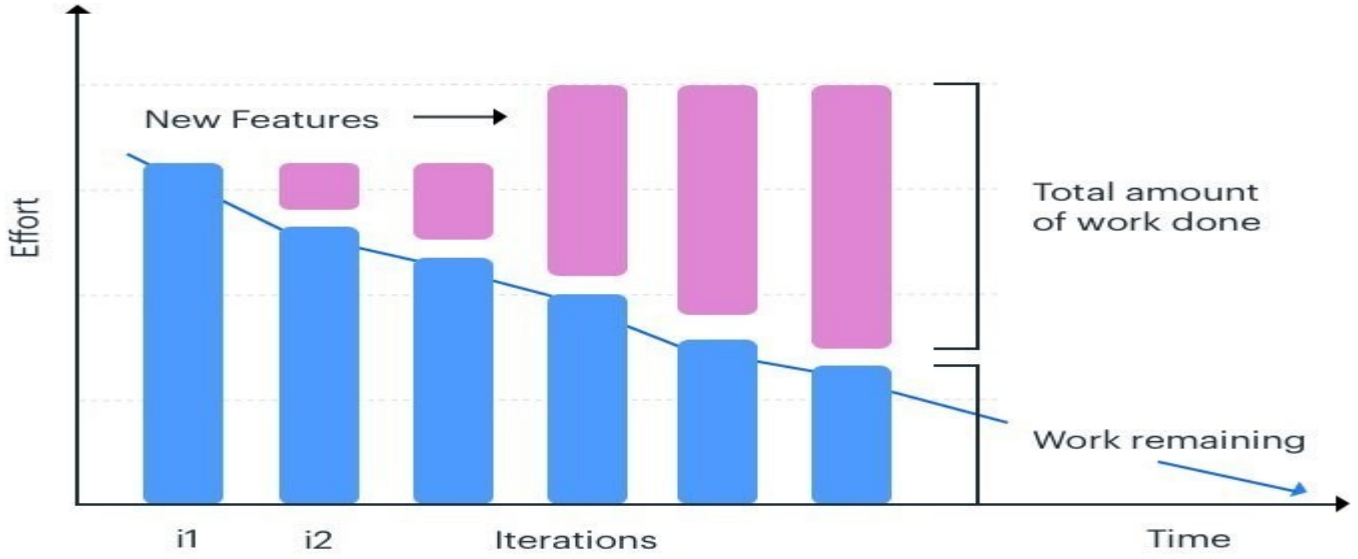
- Data visualization is essential for you if you want to be an effective project manager.
- Using statistics, graphical illustrations and other visualization tools make communication and collaboration easier for everyone involved in the project.
- Among such tools is a burndown chart, which is quite popular due to its simplicity and effectiveness.
- Burndown charts graphically illustrate how fast your team is working by plotting user stories against time.
- It works from the end user's perspective, so the chart is only updated after the successful completion of a user story.
- The burndown chart is also used to record a team's pace, called velocity, and predict their performance.
- In agile projects, burndown charts are generally of two types – product burndown charts and sprint burndown charts.

- Product burndown charts focus on the big picture and visualize the entire project.
- The chart tells you how many of the product goals your team has achieved so far and how much work is left.
- Rather than dates, the horizontal axis shows you the sprint number while the vertical axis shows the story points.
- The sprint burndown chart only focuses on the ongoing sprints. The user stories it displays are based on the ones selected by the team in the sprint planning session.
- Unlike the product chart, this burndown chart uses days on the horizontal axis to judge the performance.
- Most product teams use a combination of product and sprint burndown charts to gauge their performance.
- It’s displayed in a central location in the office or digitally shared with everyone to keep the operations transparent and let everyone know the current standings of the team.

Using burndown charts in an agile project

Before knowing how to read a burndown chart, you'll need to know the information it gives you. A simple burndown chart gives you the following data:

- Total work at each point in time/ iteration
- Remaining tasks
- The actual speed of the team
- Estimated speed of the team
- In some cases, managers can even use the burndown chart to keep an eye on scope creep and prevent their project from getting off track.



Components of a burndown chart

- The burndown chart has many components. Its axes are used to display time/iteration (horizontal) and the user story points (vertical).
- The starting point of a project is on the leftmost point, which is also the highest part of an ideal burndown chart. The rightmost point of your graph illustrates the end of your project or sprint.
- On many burndown charts, you'll see an ideal work remaining line which is either dotted or uses a different color.
- This line uses the past performance of the team to estimate their performance and gives you a measuring stick to judge your performance.
- One distinguishing feature of the ideal work line is its constant slope. In reality, teams work with different velocities throughout theThe actual work line on a burndown chart shows the real progress of the project.

The benefits of burndown charts

- The most important characteristic of the burndown chart is its simplicity and adaptability.
- With this chart, you can get a lot of information even when things are not ideal in your project.
- The chart also gives a direct comparison between the planned and actual progress, so you can immediately tell if things are not going according to your plan.
- The visual representation burndown charts offer is a huge help to maintain effective collaboration.
- A burndown chart provides status reports and does not take too much time to make and read, so everyone can keep track easily.

Burn up vs. burn down charts

- Burnup charts are another popular choice to visualize the project.
- Burnup charts are similar to burndown charts as they share the same coordinate system.
- However, a burndown chart shows all the remaining work and burnup charts tell you how much you've achieved yet.
- Unlike burndown charts that proceed in the downward direction, burnups charts start from the bottom and climb up.
- Burnup charts also have a separate scope line that indicates how far your product is from the requirement.
- For a successful project, the progress line of the burnup chart meets the scope line in the end.
- When it comes to simplicity, burndown charts win because of their approach.
- Burnup charts, however, show more details and can tell you about the changes in scope beforehand.
- **Burndown** charts will only register changes in features and scope after the iteration is completed. With burnup charts, you can plan for changes in scope and increase your efforts to meet the deadline.