Transcript

Tracking Sprint Progress

Learning Objectives

After completing this topic, you should be able to

- *identify the characteristics of the charts used in Scrum to track progress*
- *match Scrum tracking metrics with corresponding descriptions*

1. Burndown charts

At any point in a project, it's important to know how the project is progressing. That way, team members can make necessary adjustments – and other stakeholders can verify that everything is on track. Scrum teams use various highly visual tools to track their progress during each sprint. These include burndown charts and various progress charts.

A sprint burndown chart tracks the cumulative number of hours of work remaining in a sprint against the number of days left in the sprint. It typically includes a line indicating an ideal progression – which involves steadily decreasing the amount of remaining work over time – and another line indicating the team's actual progress.

Graphic

An example burndown chart includes development hours, from zero to 400, on its y-axis and the number of days in a sprint on its x-axis.

A burndown chart makes it possible to check a team's progress at a glance. It's also a good visual indicator of the team's velocity - the rate at which work is being completed - compared to the estimated velocity.

A team can use burndown charts to track progress at both the project and sprint levels. When this type of chart is used to track progress toward a final product release, it's known as a release, or project, burndown chart.

Graphic

The labels of the graph change from a Sprint burndown chart to a Release burndown chart. In the Release burndown chart, the values on the y-axis plot story points instead of hours, and the values on the x-axis plot the number of iterations instead of the number of days.

Ideally, the actual and planned lines in a burndown chart should roughly converge, and end at the same point. However, Scrum teams often under- or overestimate the work required in a sprint, especially for early sprints – when the least is known about requirements and about the team's capacity.

Over time, trends in sprint burndown charts help teams make more accurate estimates of the work they can complete per sprint.

You can create a burndown chart using pen and paper, a whiteboard, or a computer.

A burndown chart should be placed where it's easily accessible for all team members. As the members progress through a sprint, they can plot their data and use the slope of the resulting line in the chart to forecast a completion date.

If the tasks included in the sprint backlog aren't completed by the end of a sprint, the team may move the incomplete tasks back into the product backlog or add them to the next iteration. This decision is made by the product owner based on the most recent customer priorities and the value of the unfinished work.

It's not appropriate in Scrum to track progress in terms of the percentage of work that has been completed compared to all project requirements. This is because items may be added or removed from the product backlog, or even sprint backlog, at any point.

As a result, percentage values may be misleading. If a product owner has added several new items to the sprint backlog, for example, you may end up with a very low percentage value – because more work has been added than the team has managed to complete at a particular point in time.

Similarly, sudden up and down spikes at various points in a burndown chart are normal.

For example, you might use a burndown chart to plot the work remaining for a deliverable like creating the user interface for a new web site. Initially you estimated that the work effort would take approximately 96 hours, or 12 working days, to complete. However, the team has since lost a day's work due to an unexpected power outage.

Graphic

A burndown chart lists hours of work remaining on its y-axis, and time, listed as days, on its x-axis. A jagged line represents the team's progress to date.

Because the team's actual progress now differs by one day from the ideal, you adjust the graph to show that you need to complete roughly 8 more hours of work by day 12 than you estimated initially.

Question

You're using a burndown chart to plot the cumulative amount of work that's left in a sprint against the number of sprint days available for completing the work.

At which point during the sprint did the team make the least progress compared to the ideal rate of progress?

The burndown chart's x-axis lists numbers of days in five-day intervals, from 0 to 20. The y-axis lists effort still remaining measured in story points, in intervals of 7, from 0 to 28.

The line representing actual work completed starts at 28 story points and slopes downward. On day 5, it includes a slight spike upward, above the ideal trajectory. Between days 5 and 10, the line moves slightly below the ideal trajectory. The sprint hasn't yet progressed beyond day 7.

Options:

1. Day 5
2. Day 1
3. Day 10
4. Day 8

Answer

Option 1: *On day 5, the team should ideally have had about 21 story points of work left to complete. However, the upward trajectory of the line representing actual story points remaining shows that the team had approximately 25 hours of work remaining on day 5.*

Option 2: *On day 1, the line representing the number of story points the team has left to complete is below the line representing the ideal estimation. So on this day, the team completed its work faster than anticipated.*

Option 3: *The sprint hasn't yet progressed beyond day 7.*

Option 4: *On day 8, the line representing the number of story points the team has left to complete is below the line representing the ideal estimation. So by day 8, the team has completed more work than originally anticipated.*

Correct answer(s):

1. Day 5

A Scrum team commonly uses a project burndown chart to track progress across iterations, as well as sprint burndown charts. A sprint burndown chart can be updated daily at the daily standup meeting, or Scrum.

Question

On the fourth day of a sprint, the customer asks that two new features be added to the product as a matter of urgency. So developing these features is added to the backlog for the current sprint. No new members are added to the development team.

Access the learning aid, Sample Burndown Charts, to view three examples of burndown charts, and then answer the question.

Which burndown chart reflects the impact of adding the new features on the team's progress?

Options:

1. Chart A
2. Chart B
3. Chart C

Answer

Option 1: *Incorrect. The burndown depicted in chart A has a few fluctuations, but on day four when the workload is supposed to increase, the chart shows a significant decrease in the amount of work remaining.*

Option 2: *Incorrect. The burndown depicted in chart B shows an above-average rate of progress with no increase in the amount of work remaining. But in this example, work was added to the sprint backlog at day 4.*

Option 3: *Correct. The line in Chart C shows a sharp deviation from the ideal trajectory at around day four, with a spike in the amount of remaining work. This is in keeping with the addition of new work to the sprint.*

Correct answer(s):

3. Chart C

2. Progress charts

As well as burndown charts, a Scrum team may use various progress charts - to track its progress in completing the tasks in each sprint.

Both burndown charts and progress charts let you compare actual and estimated values, and both provide a quick, highly visual way to track progress.

However, whereas burndown charts are designed to monitor work effort that's remaining, progress charts are intended to track the status of individual tasks – work that hasn't been started, that's still in progress, or already complete.

An example of a commonly used progress chart is a Scrum task board. In its simplest form, a task board makes it possible to see at a glance which tasks still have to be started, which are in progress, and which have been completed. Task boards like this are also referred to as "information radiators." In agile projects, information radiators are publicly displayed and used to convey status information to a team.

Often a Scrum task board lists the user stories for development during a sprint, and tracks the status of the tasks associated with each of them in a separate row. It may also track tasks according to which team members are assigned to complete them, and include columns for steps like verifying the results of completed tasks before marking their status as "Done."

When creating a Scrum board, you need to prepare the board, update the board to reflect changes to your project's progress, and move tasks that haven't been done yet to the next sprint.

Select each step for more information about it.

1. Create the board

The first step is to mark columns on a whiteboard. For example, you might include "Not Started," "In-Progress," and "Done" columns. You can also choose to include a "User story" column – if you want to track tasks according to user stories – or a "Team member" column, for tracking tasks based on who's assigned to complete them. You can then add rows for each user story or team member.

On the Scrum task board, you represent each task using a self-stick note. The notes may be color-coded to identify particular team members or task priority levels. If new tasks are added part-way through a sprint, you can simply add notes to represent them at that point.

2. Update the board daily

As the status of a task changes, the relevant team member moves the note for that task into the appropriate column. When starting a task, for example, a team member moves the task's note from a "To do" or "Not yet started" column into a column titled "In progress."

Optionally, team members may add estimated completion times to the notes for their tasks. Once the tasks are completed, they can add the actual number of hours the tasks took to complete.

It's important to ensure that all team members have the same understanding of when a task can be marked as "Done." For example, there may be an agreed step for verifying that a task has been fully completed and that its result is satisfactory.

3. Move incomplete tasks to the next sprint

If a task isn't completed during a sprint, the note for that task can be moved to the "To do" or "Not yet started" column for the next sprint.

The note may record hours already spent on the task. This is useful information at the outset of the next sprint.

Supplement

Selecting the link title opens the resource in a new browser window.

Job Aid

Access the job aid Scrum Task Board Template for a template you can use to create Scrum task boards.

Question Set

You can use various types of charts to monitor the progress of a Scrum project.

Question 1 of 2

Question

Match charts with their characteristics. Some characteristics can be used more than once.

Options:

A. Progress chart
B. Burndown chart

Targets:

1. Comparing actual values versus estimated values
2. Visually representing a sprint's progress
3. Tracking tasks according to which team members are assigned to complete them
4. Estimating a sprint's completion date based on the amount of work effort remaining

Answer

A progress chart and a burndown chart both let you compare actual development effort to estimated values.

Progress charts and burndown charts both represent a sprint's progress visually – the burndown chart in the form of a graph, and the progress chart in table format.

You use a progress chart to monitor which team members are responsible for which tasks, and how far along they are in terms of completing them.

You use burndown charts to track the amount of work effort remaining for a sprint. This also helps plan for the sprint's completion.

Correct answer(s):

Target 1 = Option B, Option A

Target 2 = Option B, Option A

Target 3 = Option A

Target 4 = Option B

Question 2 of 2

Question

Which of these statements accurately describe a progress chart?

Options:

1. It restricts the duration of a discussion to a maximum of 15 minutes
2. It's used to track a project by plotting the number of sprint days against the number of hours of work remaining
3. It checks if the workload of team members is balanced in terms of the number of hours and tasks
4. It enables you to perform a quick visual check on the progress of a project's tasks on a daily basis
5. In an ideal situation, its trajectory represents a downward sloping graph that hits zero on the last day

Answer

Option 1: *Incorrect. A progress chart is a visual representation of a sprint's progress. It's not used to time box meetings.*

Option 2: *Incorrect. A progress chart represents tasks that still need to be started, tasks that are in progress, and tasks that have been completed. If you want to plot days against hours of work remaining, you should use a burndown chart instead.*

Option 3: *Correct. You can use a progress chart to monitor how many hours a particular team member spends on the tasks which they've been assigned.*

Option 4: *Correct. Because a progress chart represents a sprint's progress visually as a series of tasks that still need to be started, tasks that are in progress, and tasks that are done, you can use it to quickly check a project's progress.*

Option 5: *Incorrect. A progress chart is not a graph – it doesn't have a trajectory the way that a burndown chart does. Instead, a progress chart monitors tasks in terms of those that are due, those in progress, and those that are done.*

Correct answer(s):

3. It checks if the workload of team members is balanced in terms of the number of hours and tasks
4. It enables you to perform a quick visual check on the progress of a project's tasks on a daily basis

3. Using tracking metrics

As well as charts, you can use various metrics to track and report on the progress of a Scrum project. All visual ways to track progress, within the sprint or on project level, are called progress monitors.

Metrics that you can use to track the progress of a project include velocity, standards violation, business value delivered, number of defects per iteration, number of stories, level of automation, and number of tests.

Select each metric for more information about it.

Velocity

Velocity is a Scrum project metric that measures the rate at which a team completes the work in a sprint. For example, you can measure velocity in terms of stories or story points delivered per sprint. User stories may be assigned different numbers of story points to indicate the relative amounts of work they involve.

You can use measures of a team's velocity to compare the team's performance against a benchmark or against its past performance. You can also use a team's average velocity to aid in sprint planning. For example, the team's velocity may indicate it can complete 100 story points per sprint. During planning, you'll then know to assign roughly this number of stories to each sprint.

Standards violation

The standards violation metric is used to track the number of standards violated per sprint. This is helpful if you want to enforce specific coding or design standards.

For example, if a team is expected to refactor code after specific changes or events, you can use this metric to measure the number of times per sprint that the team failed to do so.

Business value delivered

Business value delivered measures business value in terms of story points, number of stories, or another value that's agreed on beforehand. The definition of business value will differ from project to project, depending on the needs of the customer, strategic objectives, and project risks.

Measuring business value is helpful in determining the time needed to finalize a

release. For example, once 80% of the desired business value has been realized, the customer may decide that the product is ready for release.

Defects per iteration

In Scrum, a defect can be defined as any problem that prevents a product from satisfying the needs of the customer. Examples are an erroneous line of code in software or a malfunctioning button on a web site. You can track the number of defects per sprint as a measure of the quality of the development process. When doing this, you can also choose to weigh counts based on the severity levels of different types of defects.

Because the Scrum development process is incremental, defects shouldn't be allowed to pile up.

You can also choose to track the number of defects your team discovers and fixes, to reassure stakeholders.

Number of stories

You can choose to count the number of stories that have been developed and accepted as a measure of progress. You can also weigh counts based on the relative complexity of stories – for instance, assigning different numbers of points based on whether stories are simple, medium, or complex.

For example, in a project with 120 stories, progress might be summarized as 80 stories completed and accepted, 20 stories completed in development but not accepted, and 20 stories yet to be developed.

Level of automation

The level of automation in a Scrum project is a measure of how many of the regression tests used by a team are automated. This is usually expressed as a percentage.

In Scrum, it's ideal to achieve a high level of automation. However, automating the wrong tests – or tests that are irrelevant – will waste resources and may give both team members and customers a false sense of security.

Number of tests

It can be useful to measure the number of tests that have been developed, executed, and passed to validate user stories during a sprint.

Because there are costs involved with running tests, having a large number of tests for each sprint doesn't necessarily guarantee a better product. So the team should find a suitable balance between spending time and effort developing tests and the value such tests will add to a product.

Question

Match each tracking metric to its description.

Options:

A. Velocity
B. Defects per iteration
C. Number of tests
D. Standard violation

Targets:

1. How many story points a team completes per sprint
2. Ways in which the product deviated from the customer's requirements
3. The number of times a product is validated in a sprint
4. The number of guidelines a team failed to comply with during a sprint

Answer

Velocity measures the amount of work – often expressed as the number of story points – that a Scrum team completes per sprint.

The defects per iteration metric monitors how many times in a sprint the product's quality didn't comply with that of the customer's expectation for the product. Such deviations from the standard are known as defects.

The number of tests metric refers to the number of regression tests that a team applies during a sprint to check the quality of a product.

The standards violation metric tracks the number of standards, such as coding rules or design guidelines, that the team violated per sprint.

Correct answer(s):

Target 1 = Option A

Target 2 = Option B

Target 3 = Option C

Target 4 = Option D

Summary

Scrum teams use burndown charts to track the cumulative number of hours of work remaining in a sprint or project against the number of days remaining until the end of the sprint or the planned project deadline.

Scrum teams may also use various progress charts. For example, they use Scrum task boards to track the status of tasks during a sprint.

Metrics that are useful for tracking the progress of a Scrum project and the performance of a Scrum team include velocity, standard violations, business value delivered, defects per iteration, number of stories, level of automation, and number of tests.