



# Scrum: Sprint Planning

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# Sprint Planning

## ➤ When?

- ☐ At the beginning of each sprint.

## ➤ How long?

- ☐ Four to eight hours (for a two-week to month-long sprint).

## ➤ By whom?

- ☐ The full Scrum team:
- The product owner shares the initial sprint goal, presents the prioritized product backlog, and answers any questions the team might have on PBIs.
- The development team works diligently to determine what it can deliver and then makes a realistic commitment (forecast) at the end of sprint planning.
- The Scrum Master, acting as the coach, observes the planning activity, asks probing questions, and facilitates to help ensure a successful result.
  - ☐ Also, challenges the team's commitment to ensure that it is realistic.



# Sprint Planning: Process - Input

- **Inputs:** Product backlog, Team velocity, Constraints, Team capabilities, Initial sprint goal.
  - Initial sprint goal is presented by the product owner:
  - It might be a specific set of high-priority product backlog items: “I’d really like to get the top five product backlog items done this sprint,” or
  - It might be in the form of a more general notion: “At the end of this sprint I want a typical user to be able to submit a simple keyword query.”

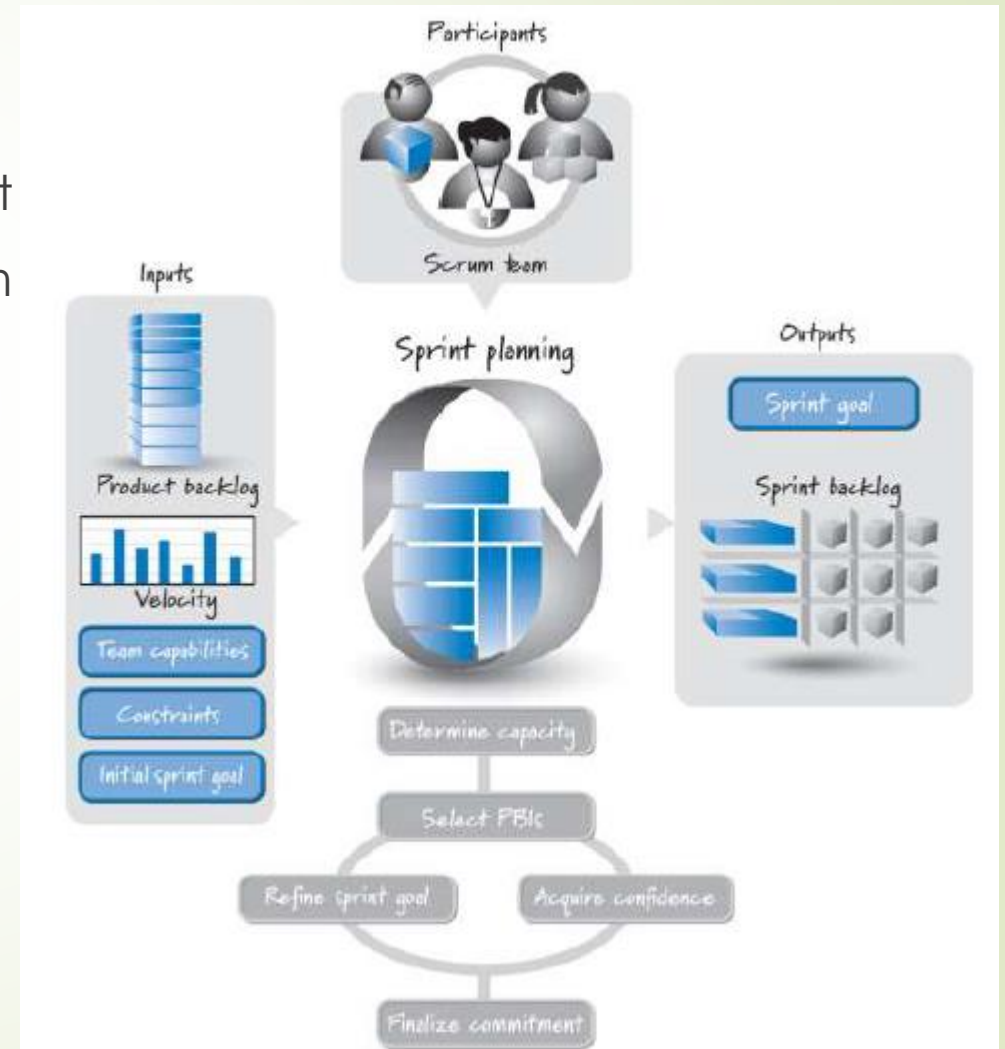


# Sprint Planning: Process - Activities

- **Activities:** Determine capacity, Select PBIs, Refine sprint goal, Acquire confidence, Finalize commitment.
  - A realistic commitment is achieved through collaboration (and negotiation) between the product owner and the development team.
  - To acquire confidence in what it can accomplish, the development team will create a plan by breaking down each targeted PBI into a set of estimated tasks.
  - Teams typically follow a helpful rule of breaking down tasks so that no one task is more than eight hours of effort, although some might be a bit larger.

# Sprint Planning: Process - Outputs

- **Outputs:** Sprint goal and Sprint backlog, which collectively form the commitment.





# Approaches: Two-Part Sprint Planning

- **Part 1 (the “what” part):** The team determines its capacity to complete work and then forecasts the PBIs that it believes it can deliver in the sprint.
- So if the team believes it can accomplish 40 story points, it will select about 40 story points' worth of work.





# Approaches: Two-Part Sprint Planning

- **2. Part 2 (the “how” part):** The team acquires confidence in its ability to complete the items that it forecast in part 1 by creating a plan.
- Teams create this plan by breaking the product backlog items into a set of tasks and then estimating (in hours) the effort required to complete each task.
- The team then compares the estimate of task hours against its capacity, in terms of hours, to see if its initial commitment was realistic.
- If the team finds it has selected too much or too little, or has selected items that cannot be developed in the same sprint given one or more constraints, then:
- The forecast is adjusted, and the sprint goal is refined (if necessary), to fit the available capacity and constraints.
- When the team's forecast is comfortably within its capacity range and constraints, it finalizes its commitment and sprint planning is over.



# Approaches: One-Part Sprint Planning

- The one-part approach interleaves selecting a PBI and acquiring confidence that it can be delivered.
  - 1. The development team begins by determining its capacity to complete work.
  - 2. Based on available capacity, the sprint goal is refined if necessary.
  - 3. The team selects a PBI and then acquires confidence that the selected item will reasonably fit within the sprint.
    - Consideration should be given to other items already included in the team's evolving commitment.
  - 4. Steps 2 and 3 are repeated until the team is out of capacity to do any more work.

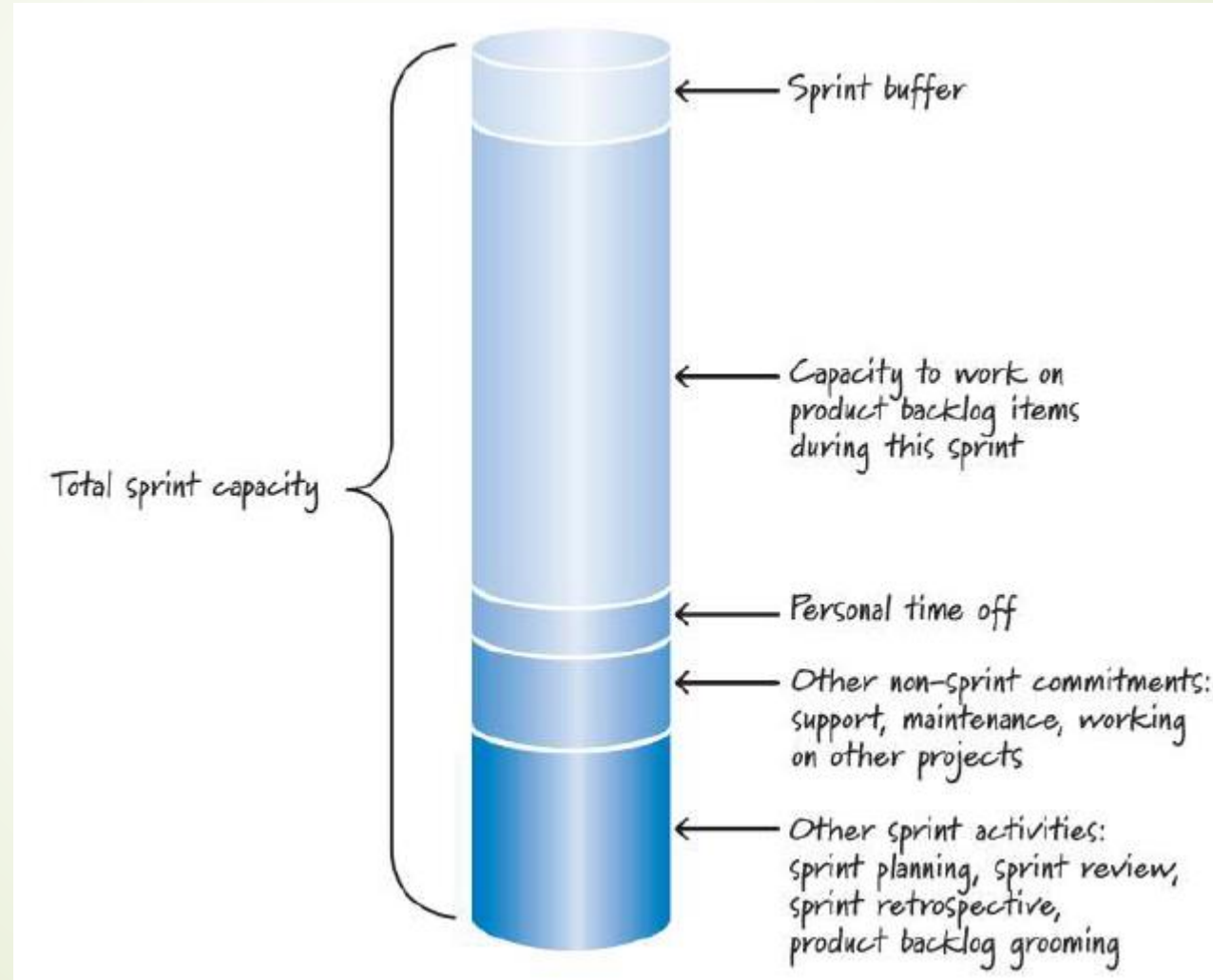




# Determining Capacity

- Several factors reduce a team's capacity to work on PBIs during a sprint.
- Important factors include: Other Scrum activities, non-sprint-related commitments, personal time off, and the need for a buffer.
- After considering these factors, what remains is the team's capacity.
- For instance, in a two-week (ten-day) sprint, we need to reserve:
  - One day collectively for sprint planning, sprint review, and sprint retrospective;
  - up to 10% of the time to assisting the product owner with PB grooming;
  - time for work outside the sprint, such as supporting the current product, maintaining another product, etc.;
  - time for the team members' organizational responsibilities, such as attending meetings, responding to emails, interruptions, etc.;
  - time off previously scheduled by team members;
  - some buffer (based on past experience) against things not going quite as planned.

# Determining Capacity





# Units of Measure for Capacity

- We can use either of the following as units of measure for capacity:
  - The same unit as the PBIs (typically story points or ideal days); or
  - the same unit as the sprint backlog tasks (effort-hours).



# Units of Measure for Capacity: Story Points

- We usually express capacity in story points:
- Determining capacity is the same as predicting our team's target velocity for the upcoming sprint:
  - Start with the team's long-term average velocity or the previous sprint's velocity as an initial estimate of its capacity/velocity for the upcoming sprint.
  - Consider whether the upcoming sprint might differ from typical or previous sprints, and adjust the predicted velocity/capacity accordingly.



# Units of Measure for Capacity: Effort Hours

- An alternative way to express capacity is in effort-hours.
- The calculation of a team's effort-hour capacity to perform task-level work for a sprint is typically carried out as follows:
  - 1. Team members express how many days they have available to work on the upcoming sprint (personal time off is deducted).
  - 2. Team members determine how much time (in days) to reserve for other Scrum activities.
  - 3. Team members determine how many hours per day they could dedicate to work in this sprint by deducting the overhead for their other non-sprint commitments.
  - 4. A capacity is calculated for each of the team members based on the above figures; the sum of all capacities yields the total team capacity in effort-hours.
  - 5. The team should deduct a reasonable buffer from the calculated capacity to obtain a more reasonable figure, thus preparing against mishaps.

# Determining Effort-Hour Capacity: Example


Person	Days Available (Less Personal Time)	Days for Other Scrum Activities	Hours per Day	Available Effort-Hours
Jorge	10	2	4–7	32–56
Betty	8	2	5–6	30–36
Rajesh	8	2	4–6	24–36
Simon	9	2	2–3	14–21
Heidi	10	2	5–6	40–48
Total				140–197





# Selection of PBIs

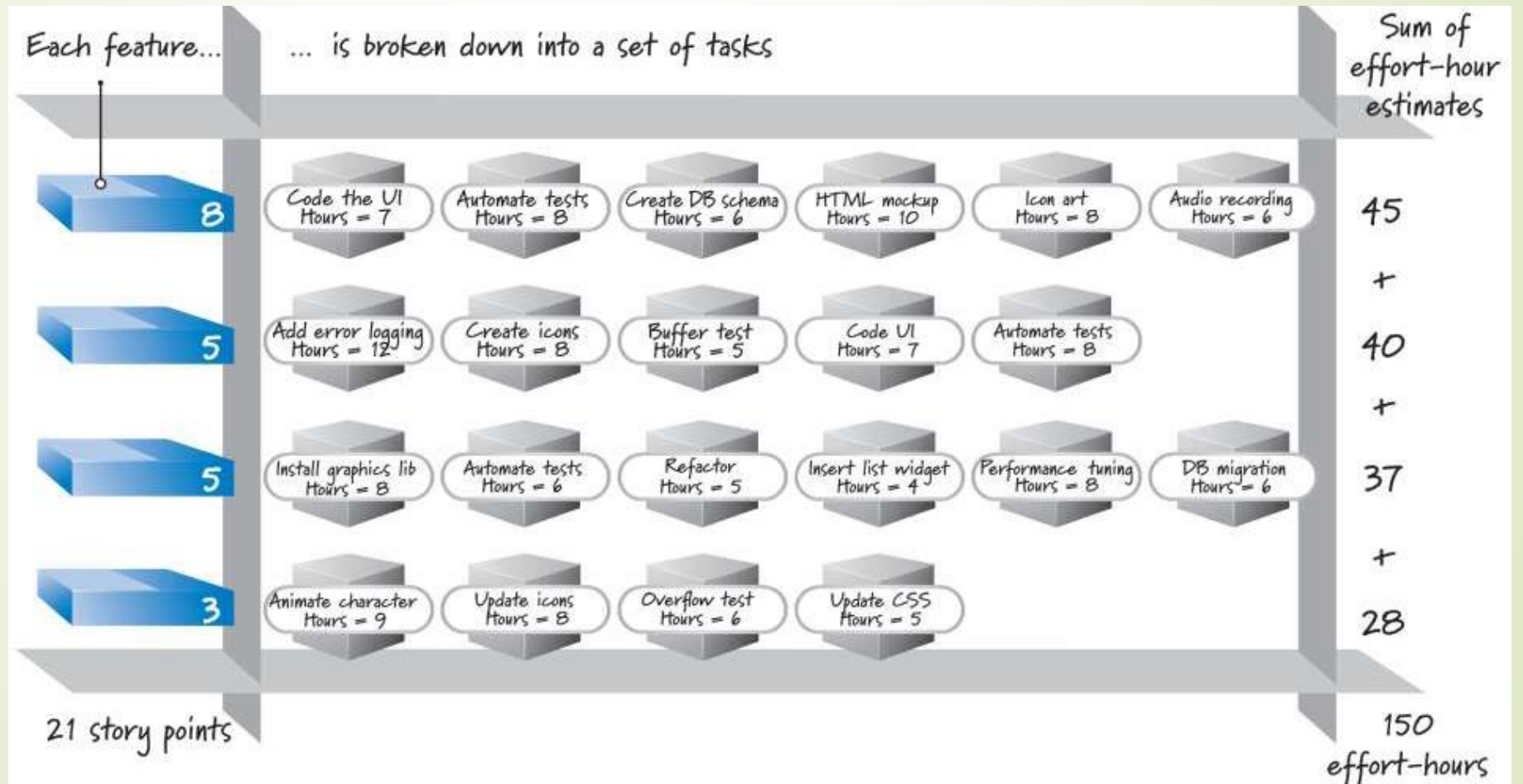
- Selection of PBIs can be done in several ways:
- If we have a sprint goal, we would select PBIs that align with that goal.
  - The goal, however, can be refined during sprint planning as the participants work together to determine what can realistically be delivered.
- If there is no formal sprint goal, our default is to select items from the top of the product backlog.
  - If the team were not able to commit to the next-highest-priority item (perhaps due to a skills capacity issue), it would select the next appropriate higher-priority PBI that looks as if it can be completed within the constraints.
  - Never start what you cannot finish; If the next PBI is too big to complete in the sprint (given the other PBIs that we have already agreed to complete):
  - Try to break down the next PBI into two or more smaller items, each of which would be valuable to our customers, or consider working on another item that can be completed.



# Acquiring Confidence: Sprint Backlog

- One way to acquire confidence is to use predicted velocity to see if the commitment is realistic; but this is usually not enough.
- The necessary level of confidence is usually obtained by breaking down the PBIs into the tasks that are required to complete them.
  - The result is the sprint backlog.
- In Scrum, team members are typically not assigned to tasks during sprint planning (this is decided during sprint execution).
  - However, we need to at least consider our skills capacity for completing tasks which require special skills, or we could make a bad commitment.
  - For this reason, you can note on each task who is the person most likely to work on that task.

# Sprint Backlog





# References



- Rubin, K.S., Essential Scrum: A Practical Guide to the Most Popular Agile Process, Addison-Wesley, 2012.
- Schwaber, K., Sutherland, J., The Scrum Guide, Published online at: <http://www.scrumguides.org/>, July 2013 (last visited on: 7 November 2014).
- Ramsin, Raman. "Home." Department of Computer Science and Engineering, Sharif University of Technology. Accessed February 15, 2025. <https://sharif.edu/~ramsin/index.htm>.