Estimation and Velocity(I)

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Introduction

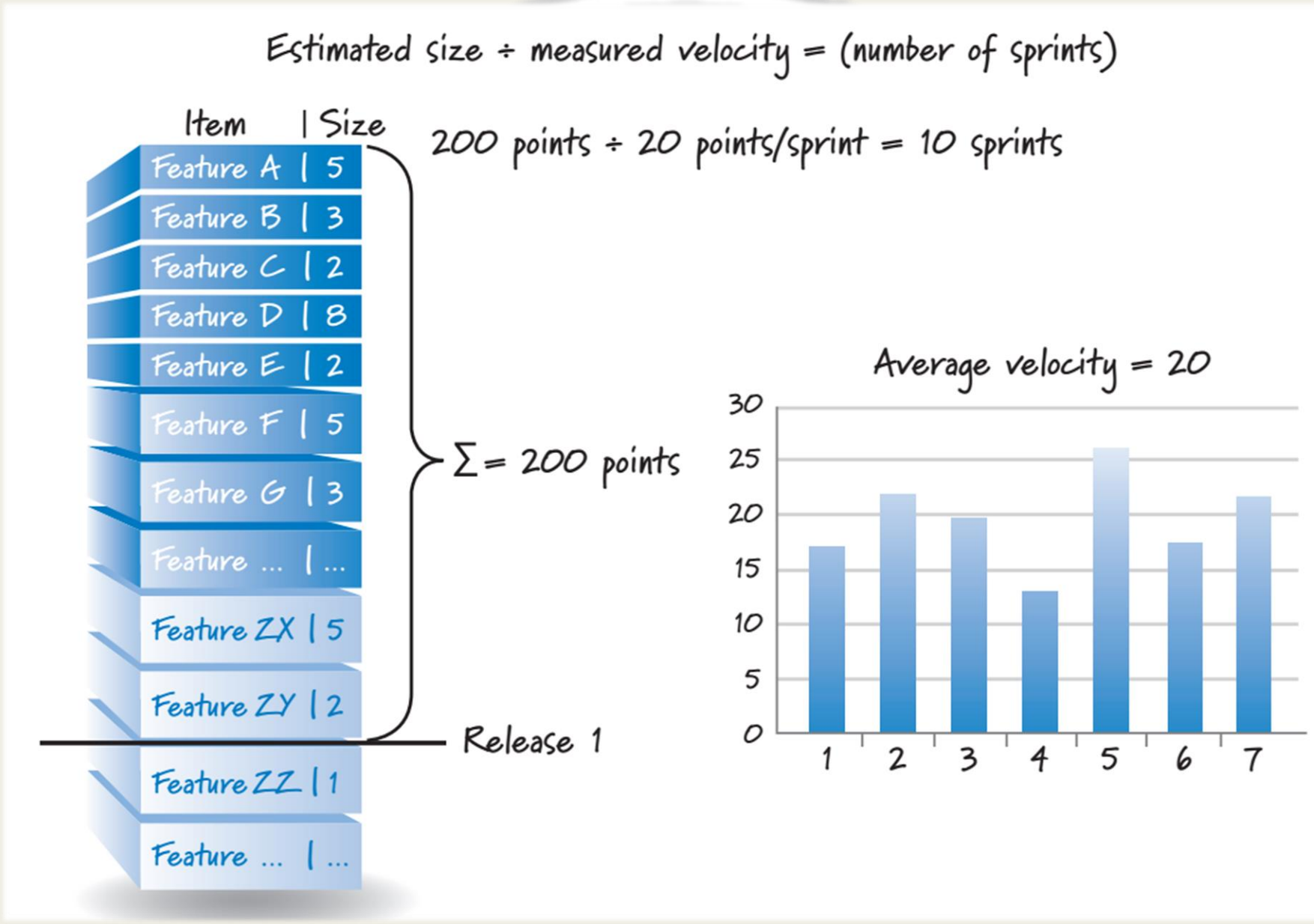
- When planning and managing the development of a product, we need to answer important questions.
  - *"How many features will be completed?"*
  - *"When will we be done?"*
  - *"How much will this cost?"*
- We need to estimate the size of what we are building and measure the velocity or rate at which we can get work done.
- With that information, we can derive the likely product development duration (and the corresponding cost).

Introduction(Cnt'd)

- Once we know the **approximate size of the release**, we turn our attention to the **team's velocity**, how much work the team typically gets done each sprint.
- Velocity is easy to measure. At the end of each sprint, we simply add the size estimates of every item that was completed during the sprint; if an item isn't done, it doesn't count toward velocity.
- The sum of the sizes of all the completed product backlog items in a sprint is the team's velocity for that sprint.

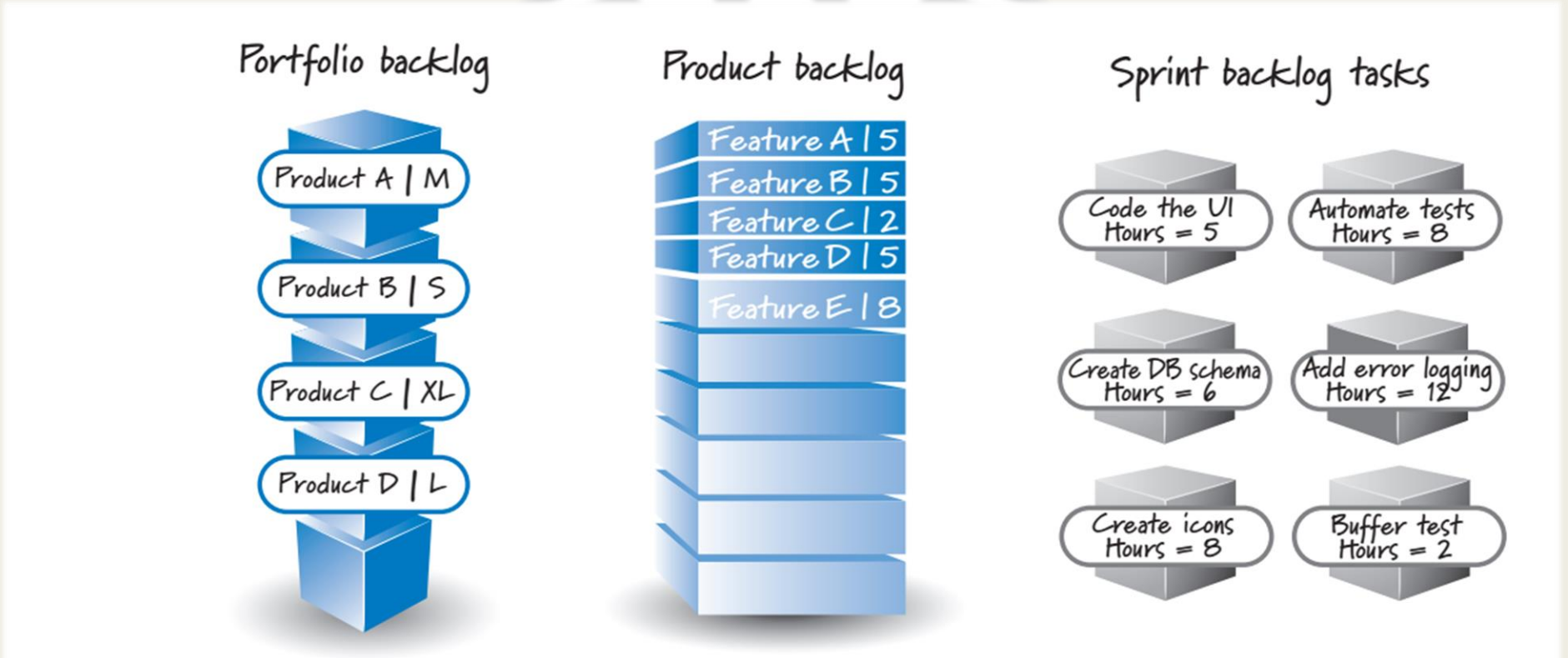
Introductio(Cnt'd)

- Now that we have estimated size and measured velocity, we are in a position to calculate (derive) the duration.
- To do this, we simply divide the size by the velocity.


Estimated size ÷ measured velocity = (number of sprints)
Item | Size
200 points ÷ 20 points/sprint = 10 sprints
Feature A | 5
Feature B | 3
Feature C | 2
Feature D | 8
Feature E | 2
Feature F | 5
Feature G | 3
Feature ... | ...
Feature ZX | 5
Feature ZY | 2
Feature ZZ | 1
Feature ... | ...
Σ = 200 points
Release 1
Average velocity = 20
30
25
20
15
10
5
0
1
2
3
4
5
6
7

What and When We Estimate

- Throughout the development life of a product, however, we need to estimate at varying levels of granularity and, thus, will use different units to do so.



Item	Portfolio backlog	Product backlog	Sprint backlog tasks
Unit	T-shirt sizes	Story points / ideal days	Ideal hours / effort-hours
When	Portfolio planning	Product backlog grooming	Sprint planning

Portfolio Backlog Item Estimates

- Many organizations maintain one that contains a prioritized list of all of the products (or projects) that need to be built.
- To properly prioritize a portfolio backlog item we need to know the approximate cost of each item.
- Typically won't have a complete, detailed set of requirements at the time when this cost number is initially requested, so we can't use the standard technique of estimating each individual, detailed requirement and then summing those estimates to get an aggregate estimate of the total cost.
- Instead, to estimate portfolio backlog items, many organizations choose to use rough, relative size estimates like T-shirt sizes (such as small, medium, large, extralarge, and so on).

Product Backlog Estimates

- Once a product or project is approved and we start adding more detail to its product backlog items, however, we need to estimate differently.
- When PBIs have risen in priority and been groomed to include more detail, most teams prefer to put numeric size estimates on them, using either story points or ideal days.

Product Backlog Estimates(Cnt'd)

- Estimating PBIs is part of the overall product backlog grooming activity.
- Typically, PBI estimation occurs in "estimation meetings,"
- The product owner might also call additional estimation meetings during a sprint if any new PBIs need to be estimated.

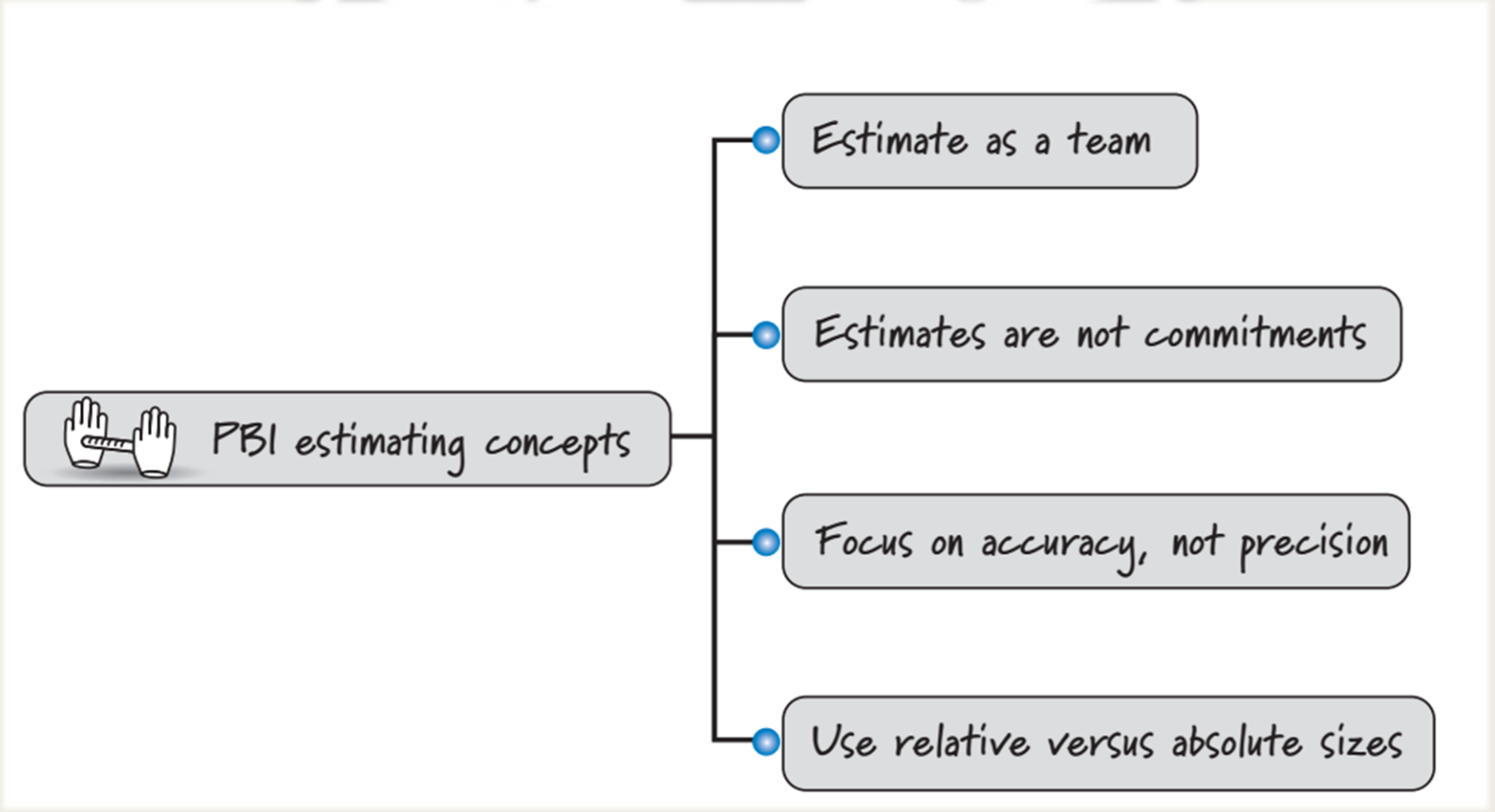
Reasons of PBI estimation

- Not all PBIs will be at the same size at the same time, so there will be some larger PBIs in the backlog even if we do have a collection of smaller, similarly sized items toward the top.
- Finally, and most importantly, one of the primary values of estimation is the learning that happens during the estimation conversations.

Task Estimates

- At the most detailed level we have the tasks that reside in the sprint backlog.
- Most teams choose to size their tasks during sprint planning so that they can acquire confidence that the commitments they are considering are reasonable.
- Tasks are sized in ideal hours.
- The estimate simply states how much of the team's effort is expected to complete the task.

PBI Estimation Concepts

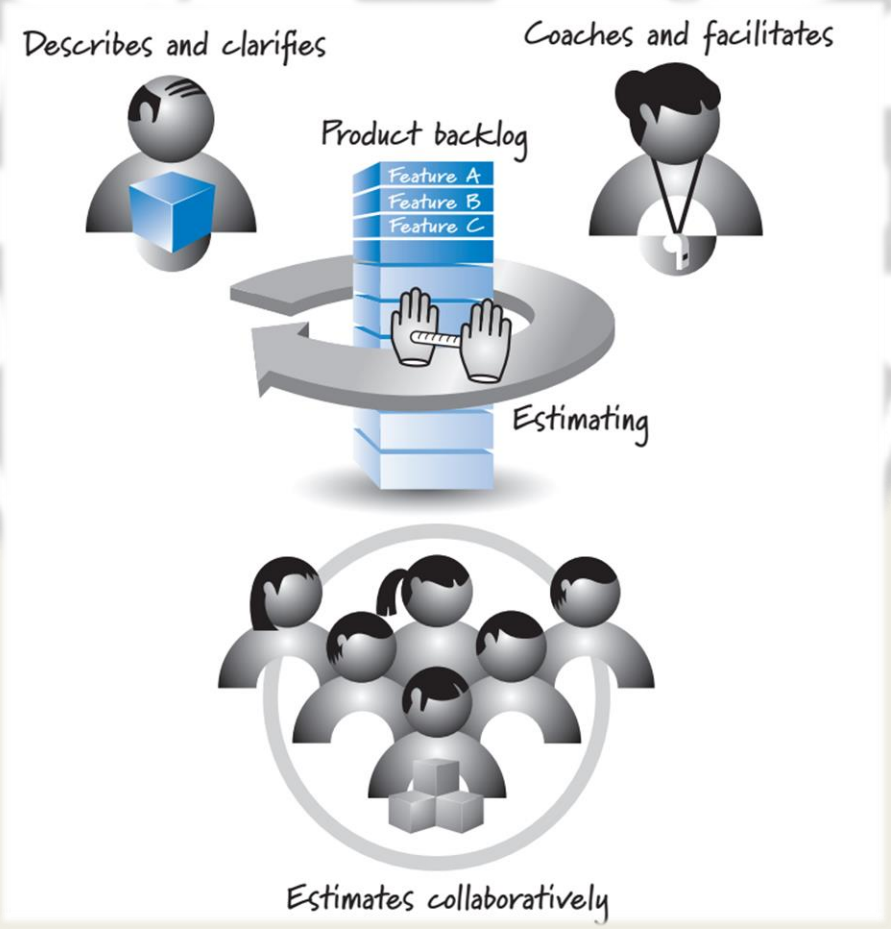


Estimate as a Team

- In many traditional organizations the project manager, product manager, architect, or lead developer might do the initial size estimation. Other team members might get a chance to review and comment on those estimates at a later time.
- In Scrum, we follow a simple rule: The people who will do the work collectively provide the estimates. To be clear, when I say people who will do the work, I mean the development team that will do the hands-on work to design, build, and test the PBIs. The product owner and ScrumMaster don't provide estimates. Both of these roles are present when the PBIs are being estimated, but they don't do any hands-on estimation.

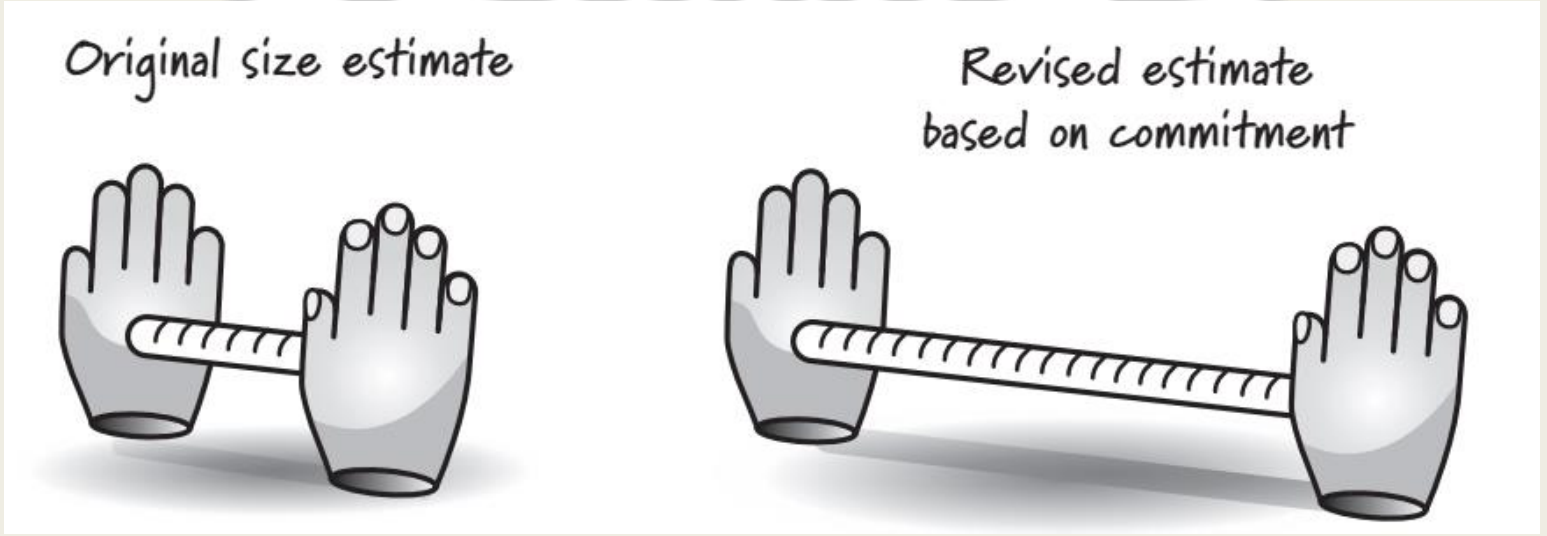
Estimate as a team(Cnt'd)

- The product owner's role is to describe the PBIs and to answer clarifying questions that the team might ask. The product owner should not guide or "anchor" the team toward a desired estimate.
- The ScrumMaster's role is to help coach and facilitate the estimation activity.
- The goal is for the development team to determine the size of each PBI from its collective perspective.
- Because everyone sees a story from a different point of view, depending on his area of expertise, it is important that all members of the development team participate during estimation.


Describes and clarifies
Coaches and facilitates
Product backlog
Feature A
Feature B
Feature C
Estimating
Estimates collaboratively

Estimates Are Not Commitments

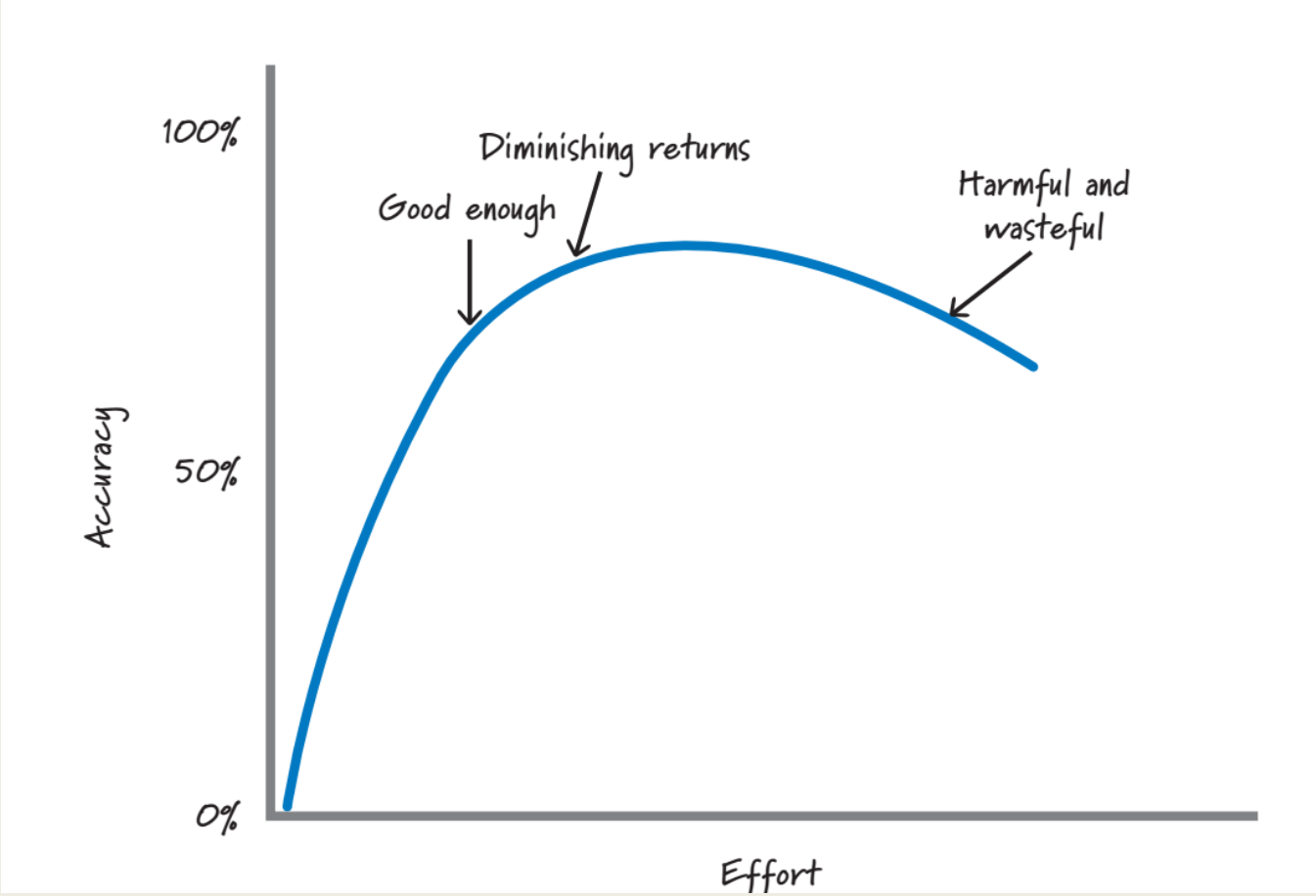
- Estimates are not commitments, and it is important that we not treat them as such.



Accuracy versus Precision

- Our estimates should be accurate without being overly precise.
- Generating overly precise estimates is wasteful.
  - *First, there is the wasted effort of coming up with the estimate, which can be considerable.*
  - *Second, there is the waste that occurs when we deceive ourselves by thinking we understand something that we don't, and then make important, wrong, and costly business decisions based on this deception. We should invest enough effort to get a good-enough, roughly right estimate.*

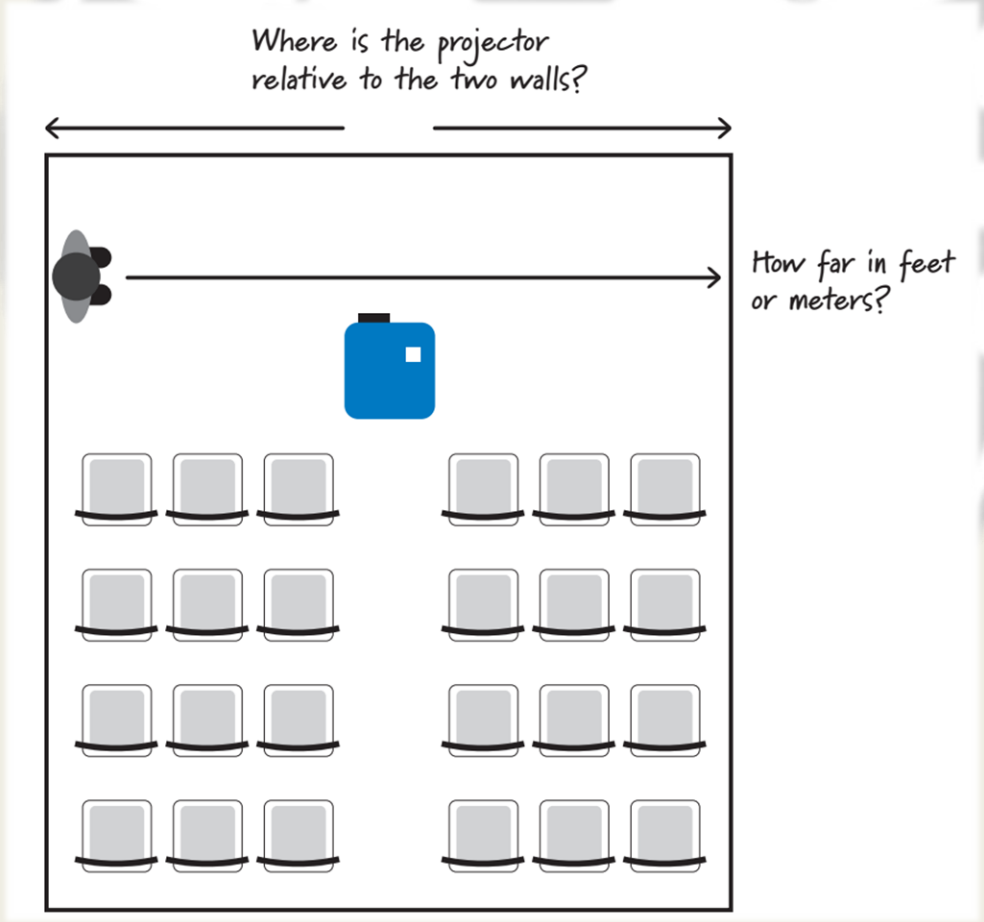
Effort versus accuracy when estimating



Relative Size Estimation

- We should estimate PBIs using relative sizes, not absolute sizes.
- We compare items to determine how large an item is relative to the others.
- people are much better at relative size estimation than absolute size estimation

Absolute versus relative size estimation: An example



PBI Estimation Units

- Although there is no standard unit for PBI size estimates, by far the two most common units are story points and ideal days.
- There isn’t a right or wrong choice when deciding between these two.

Story Points

- Measure the bigness or magnitude of a PBI.
- Be influenced by several factors, such as complexity and physical size.
  - *The story might represent the development of a complex business algorithm. The end result won't be very large, but the effort required to develop it might be.*
  - *On the other hand, a story might be physically quite big but not complex.*
- Story points combine factors like complexity and physical size into one relative size measure.
- The goal is to be able to compare stories.
- Must reflect the effort associated with the story from the development

Ideal Days

- An alternative approach for estimating PBIs is to use ideal days.
- Ideal days are a familiar unit—they represent the number of effort-days or person-days needed to complete a story.
- An important factor against ideal time is the risk of misinterpretation.

Comparison: An example

- For example, it's currently early afternoon on Tuesday and I show you a PBI and ask, "How big is this PBI?" You say, "Two days." I say, "OK, so you'll be done Thursday early in the afternoon." You say, "No, I'm finishing up a two-day activity this afternoon and tomorrow [Wednesday].
- I need the entire day just to get caught up, so I can probably start the PBI on Thursday. But since I don't have any full days to dedicate to the PBI, I'm thinking I should be done sometime next Monday." I then say, "I don't understand; you told me it was a two-day PBI, so you should be done on Thursday." You say, "I said two ideal days, not two calendar days.

Reference

1- K. S. Rubin, “Essential Scrum, A Practical guide to the most popular agile process,” 2013.