Advanced Agile Planning
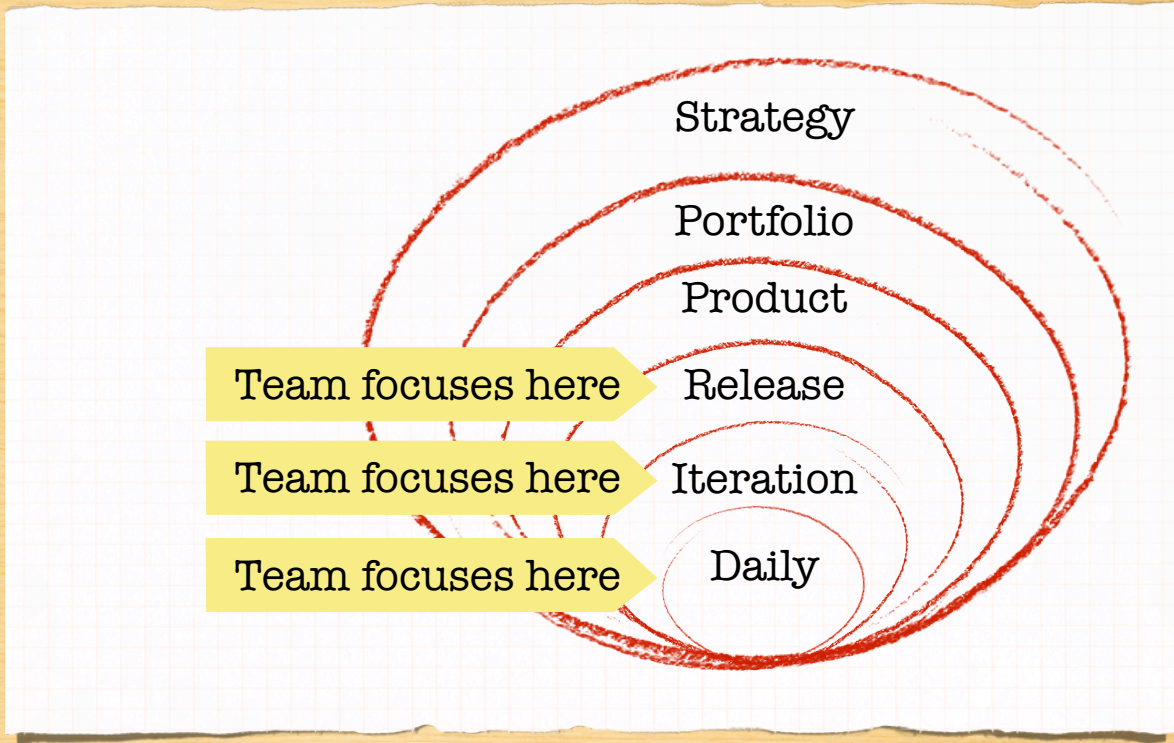
Mike Cohn
NDC London
6 December 2013

1

The planning onion

Strategy

Portfolio

Product

Team focuses here — Release

Team focuses here — Iteration

Team focuses here — Daily

2

Release and iteration planning

Release Plan

| Iteration 1 | Iteration 2 | Iteration 3 | Iterations 4–7 |

Iteration Plan

Code the ...	6	8
Decide ...	4	12
Test the ...	6	8
Automate ...	8	6
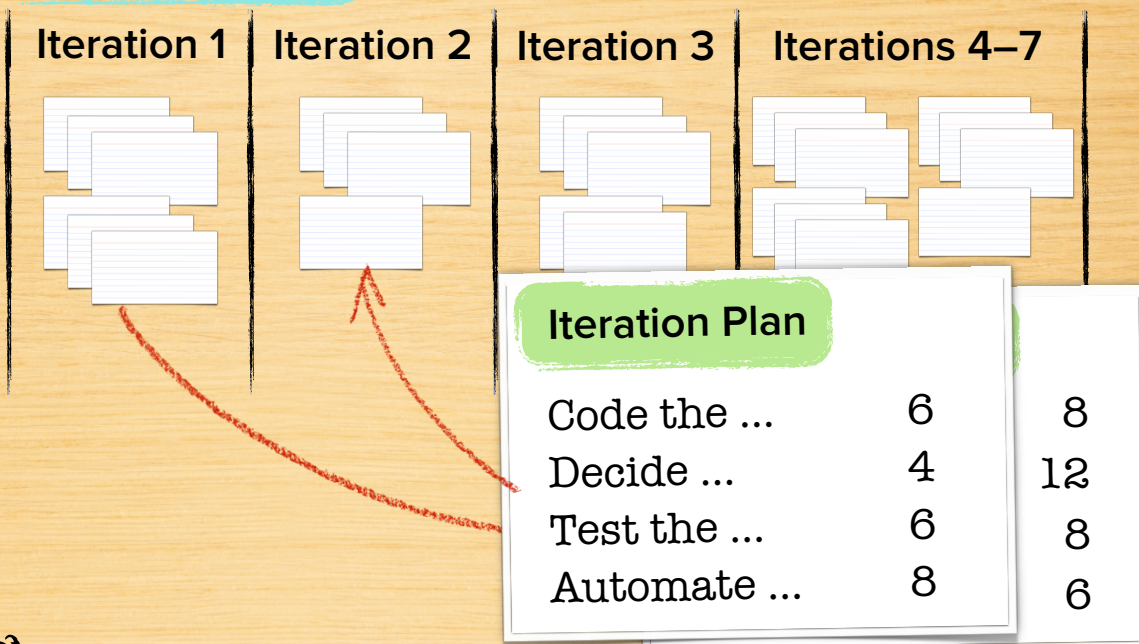
What's a good plan?

- A good plan is one that supports reliable decision-making
- Will go from
  - We'll be done in the third quarter
  - We'll be done in Decemb
  - We'll be done 18 Decemb

"It's better to be roughly right than precisely wrong."
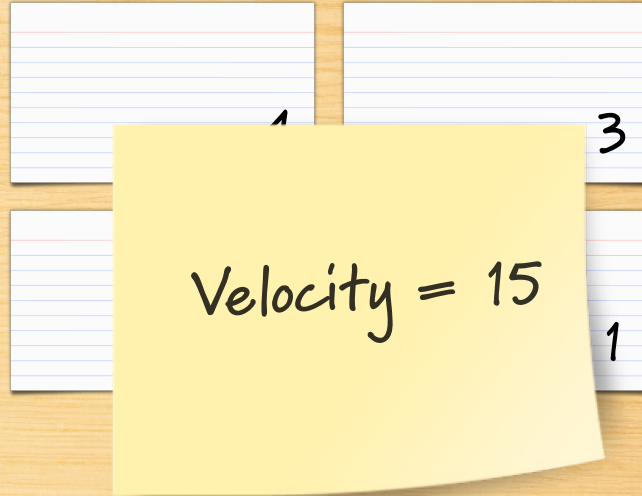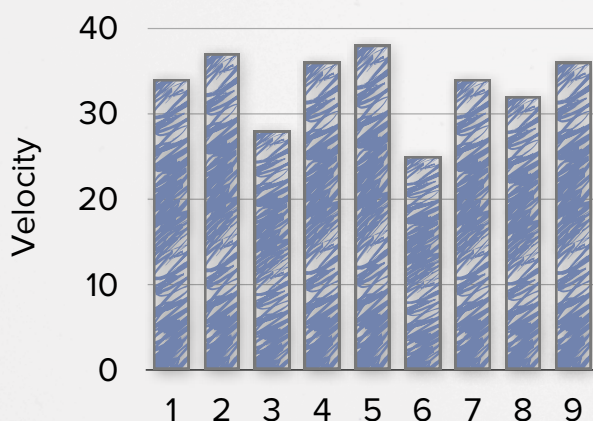
—J.M. Keynes

Velocity

An iteration

Velocity = 15

3

1

Velocity

- A useful long-term measure of the amount of work completed per iteration
- Most useful over at least a handful of iterations

Velocity is measured in the units you use to estimate product backlog items

Five Planning Scenarios

- [ ] A team with historical data
- [ ] Fixed-date plans
- [ ] Fixed-scope plans
- [ ] A team with no velocity data
- [ ] A team changing size

Calculate a confidence interval from historical data

Sorted Velocities

| 27 |
| 34 |
| 35 |
| 38 |
| 39 |
| 40 |
| 40 |
| 41 |
| 45 |

90% confidence interval

# of historical iterations	Iterations to throw out from each each end
0–7	0
8–10	1
11–12	2
13–15	3
16–17	4
18–20	5
21–22	6
23–25	7
26+	8

Five Planning Scenarios

- ☑ A team with historical data
- ☐ (Fixed-date plans)
- ☐ Fixed-scope plans
- ☐ A team with no velocity data
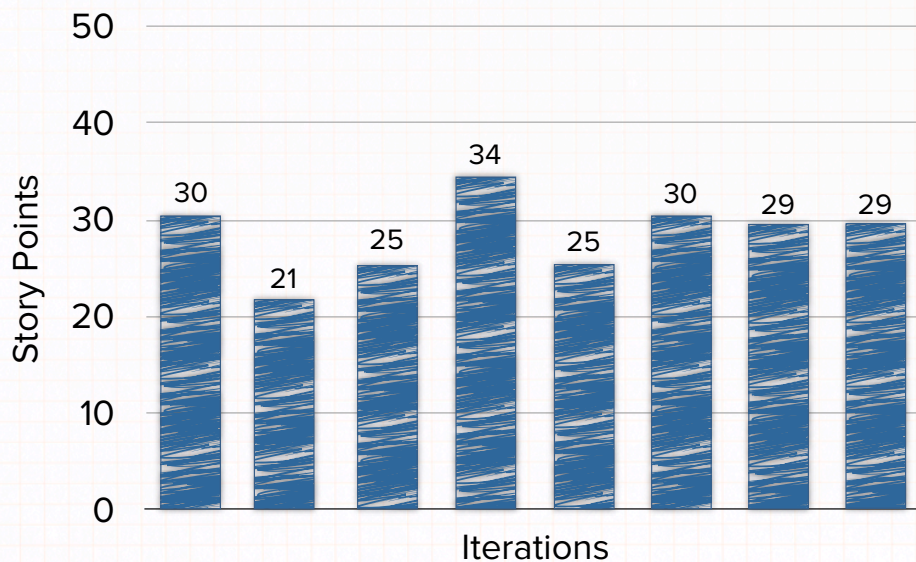- ☐ A team changing size

Fixed-date planning

Three steps

1. Determine how many iterations you have.

2. Estimate velocity as a range.

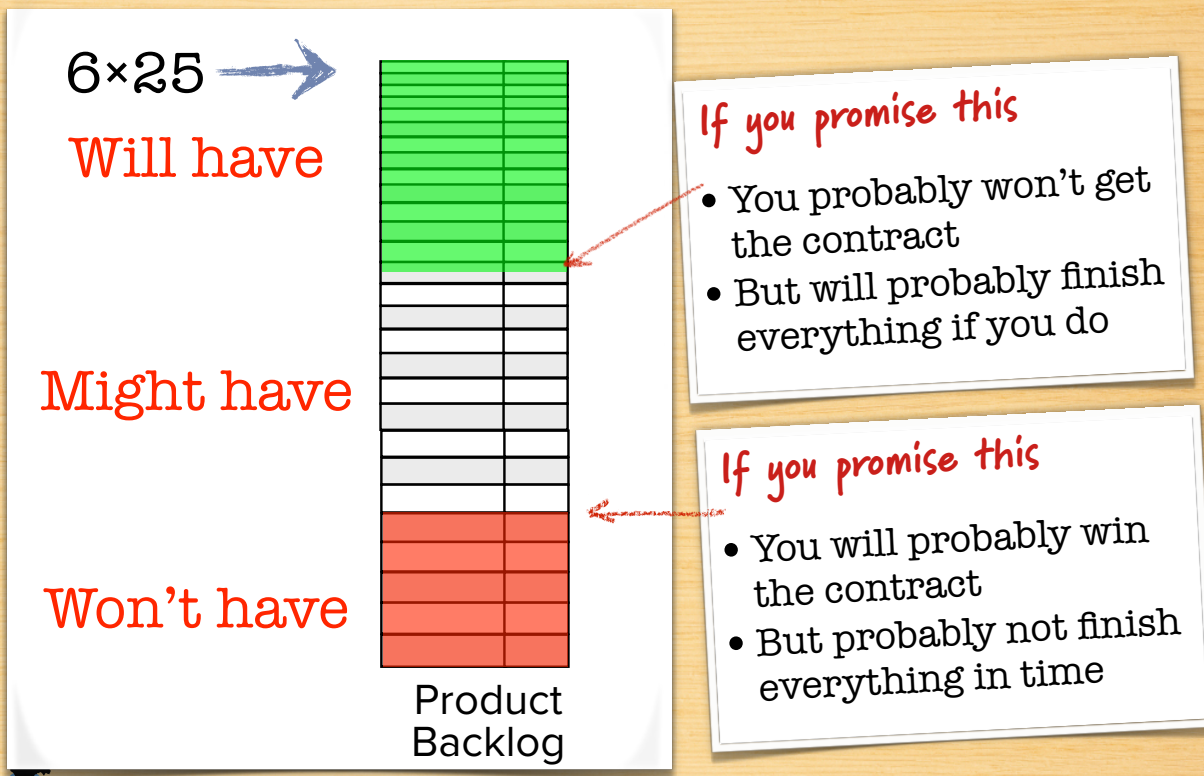3. Use that range × the number of iterations to partition the backlog into Will Have, Might Have, and Won't Have.

Count the iterations

13

Determine a velocity range

14

Determine what to commit to
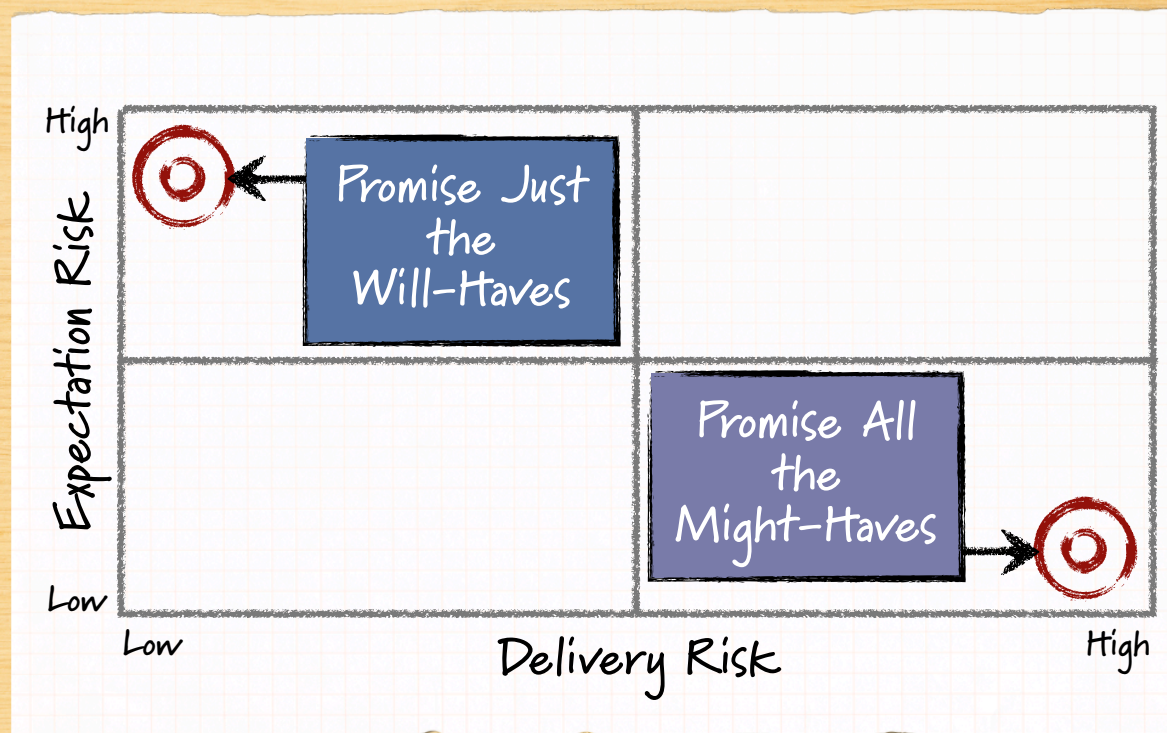
6×25 →

Will have

Might have

Won't have

Product Backlog

If you promise this
- You probably won't get the contract
- But will probably finish everything if you do

If you promise this
- You will probably win the contract
- But probably not finish everything in time

Balancing risk

High

Expectation Risk

Promise Just the Will-Haves

Promise All the Might-Haves

Low

Low   **Delivery Risk**   High

Five Planning Scenarios

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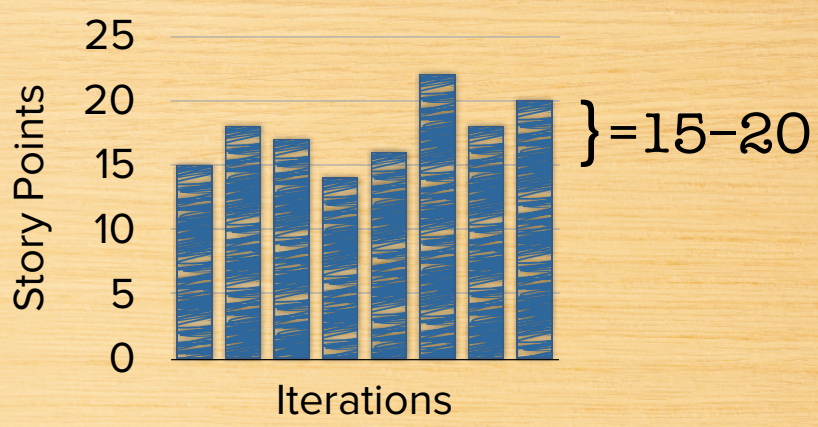- ☐ A team changing size

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Fixed scope planning

Three steps

1. Sum the product backlog items.

2. Estimate velocity as a range.

3. Use the sum of the backlog divided by the velocity range to determine a date range.

Slide 19

Product Backlog

= 120 story points

Story Points (y-axis): 0, 5, 10, 15, 20, 25

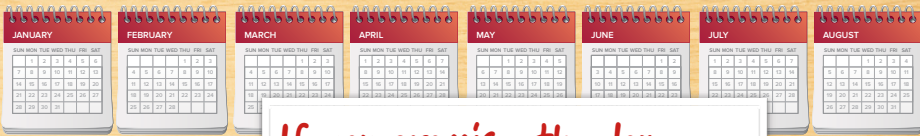Iterations (x-axis)

}=15-20

Slide 20

If you promise the short duration
- You probably get the contract
- But may not finish everything in time

$120 \div 20 =$

$120 \div 15 =$

If you promise the long duration
- You probably will not get the contract
- But it should be easy to finish everything

Ranges

- Notice in both cases we had a range
- For a fixed date project, use a scope range:
  - "By that date you'll have all of these features and some of these."
- For a fixed-scope project, use a date range:
  - "It will take us between 6 and 8 iterations to deliver all of those features."

The impending tradeshow

Your company develops tools for managing agile projects.

You've finished version 1.0 (on time, of course). Now the boss needs a new version for the big trade show that is 4 iterations away.

- Which features can you "guarantee" will be in for the trade show?
- Which features are likely to be in?

Use the following user stories, estimates and velocities.

Past velocities

Historical Data	
Iteration	**Velocity**
1	20
2	14
3	23
4	18
5	25
6	30
7	12
8	22
9	15
10	23

Your estimates

Product backlog item	Estimate
1. As the product owner I want to drag items onto a release burndown chart and see the impact to the release date.	20
2. As a user at a company with lots of cash, I want your product to support touch screens so I can put a large one in our team room.	13
3. As a user I would like performance to be about twice as fast as now during peak use periods.	20
4. As a team member, I'd like to be able to do online planning poker estimating right inside the tool.	13
5. As a third party, I would like an SOA interface so that I can integrate my product with yours.	8
6. As a team member I want RSS support for all changes to tasks or user stories so that I'm notified.	8
7. As the product owner, I want a new report that shows differences in the product backlog between different time periods.	3
8. As a team member I'd like to define templates of tasks that recur for lots of different stories so that I can reuse them	13

Five Planning Scenarios

☑ A team with historical data

☑ Fixed-date plans

☑ Fixed-scope plans

☐ A team with no velocity data

☐ A team changing size

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Forecast an initial velocity

- Get the team together as though there were going to plan a real iteration (2–4 weeks)
- Iteration planning involves
  - Breaking product backlog items (features) into tasks
  - Estimating the hours for each task
  - Repeating until the iteration feels full
- See how many points are represented by the work they select
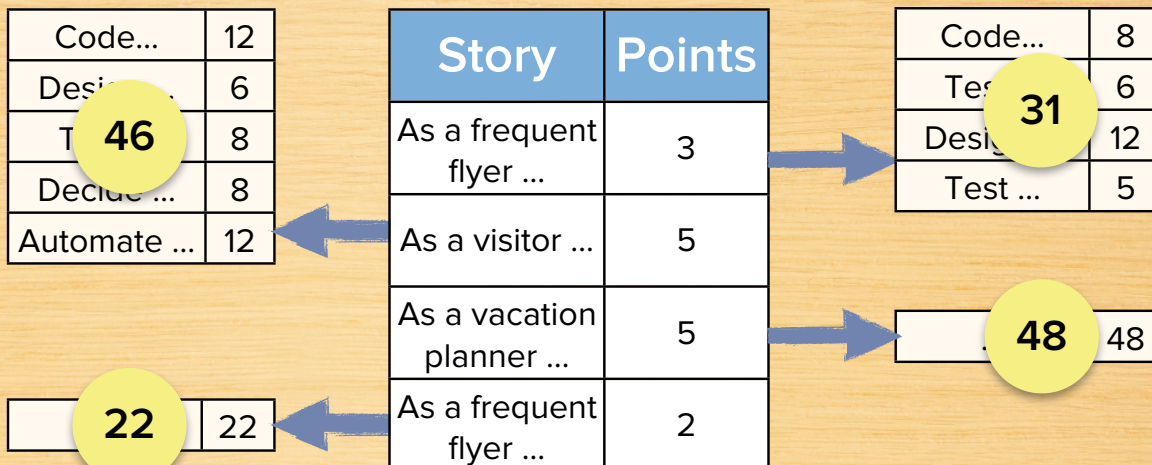- Consider planning a second iteration this way

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Consider this team

Person	Hours/Day	Hours / Iteration
Sergey	4–6	40–60
Yuri	4–6	40–60
Carina	2–3	20–30
Total		100–150

Establishing their velocity

Capacity

100–150 hours per iteration

Code...	12
Desi...	6
T... **46**	8
Decide ...	8
Automate ...	12

Story	Points
As a frequent flyer ...	3
As a visitor ...	5
As a vacation planner ...	5
As a frequent flyer ...	2

Code...	8
Tes... **31**	6
Desi...	12
Test ...	5

48 | 48

22 | 22

Turn the point estimate into a range

- If you don't have historical data
  - Take a wild guess, perhaps:
    - +/– 10% for a known team working in a known domain with known technologies
    - +/– 50% if all that is unknown
- If you have historical data from other teams
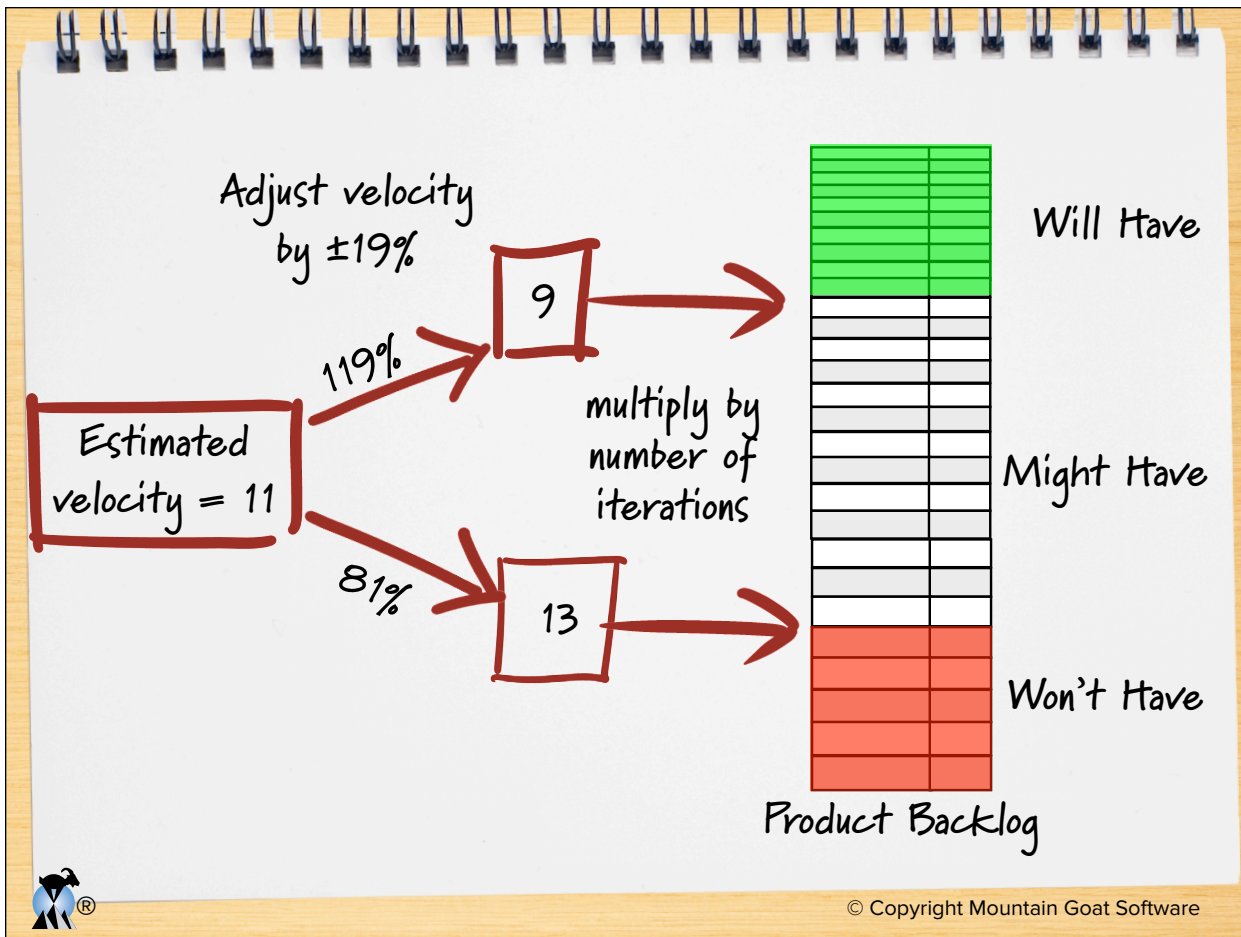 - Calculate the relative standard deviation of those teams

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Using data from other teams

Team A	
Iteration	Velocity
1	20
2	28
3	24
4	16
5	18
6	23
7	26
8	21

Team A	
Mean	Standard Deviation
22	3.8

Relative standard deviation
3.8 / 22 = 17%

Adjust velocity by ±19%

Estimated velocity = 11

119% → 9 → multiply by number of iterations → Will Have

81% → 13 → Won't Have

Might Have

Product Backlog

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Track velocity when size changes

Initial Team Size	New Team Size	Iteration +1	Iteration +2	Iteration +3
6	7	−20%	−4%	+12%
6	7	0%	−6%	+15%
7	5	−12%	−8%	−8%
8	6	−20%	−20%	−16%
7	8	−15%		

Track across the entire organization.

Impact of going from 6–7 people

Initial Team Size	New Team Size	Iteration +1	Iteration +2	Iteration +3
6	7	−20%	−4%	+12%
6	7	0%	−6%	+15%
7	5	−12%	−8%	−8%
...	...	...		

Iteration	Average Velocity Change
1	−10%
2	−5%
3+	+13%

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