

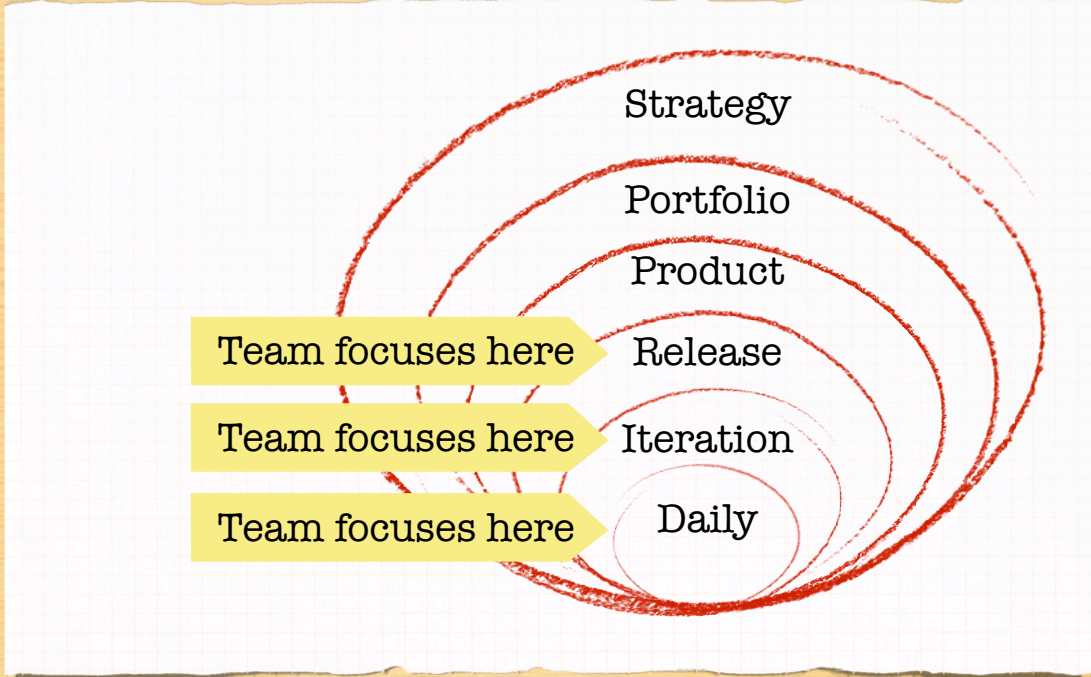


Advanced Agile Planning

Mike Cohn
Norwegian Developer's Conference
6 June 2012

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The planning onion



Strategy

Portfolio

Product

Release


Iteration

Daily

Team focuses here

Team focuses here

Team focuses here



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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



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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

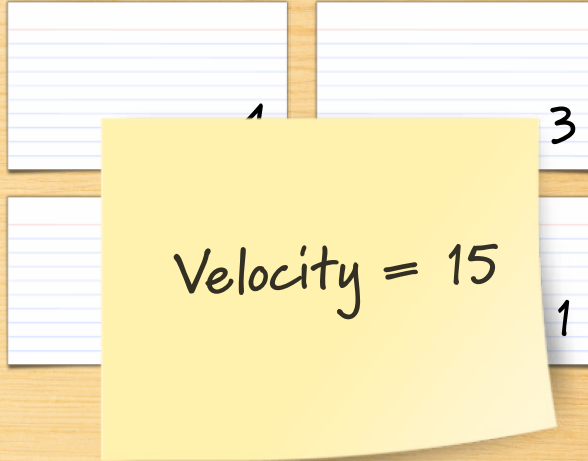


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Velocity

An iteration

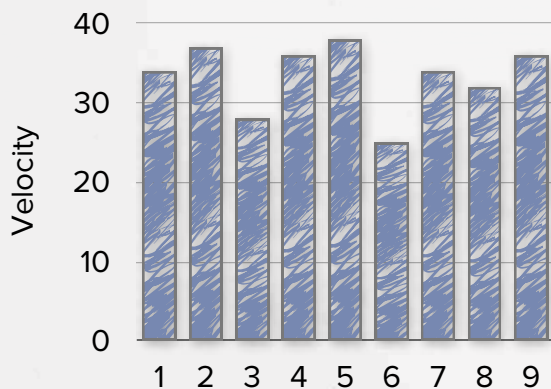


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Velocity

- 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

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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

27
34
35
38
39
40
40
41
45

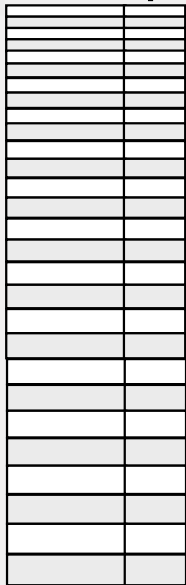
90% confidence interval

Sorted Velocities

# of historical iterations	Iterations to throw out from 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



Extrapolate from the velocity range



Product Backlog

← We'll almost certainly get here ($5 \times 34 = 170$)

← The most we can realistically expect ($5 \times 41 = 205$)

Assume there
are five
iterations left



Velocity Range Calculator

VELOCITY RANGE CALCULATOR

To predict how much work a team will complete during a planned number of upcoming iterations, we are better off considering velocity as a range rather than a specific value. That is, rather than saying "our average historical velocity is 17," it is better to say something like, "Based on historical data, we are 90% confident that velocity for the remaining iterations on this project will be somewhere between 13 and 19."

To calculate a range around your velocity, you need data for at least five iterations. Enter them in the field at right in any order (lowest to highest, random, most recent first, etc.). You can optionally indicate how many iterations you have left.

Use the online velocity
range calculator at
mountaingoatsoftware.com/tools

← Return to Tools List

VELOCITY CONFIDENCE CALCULATOR

Velocities From Completed Iterations

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

velocity numbers, comma-separated

Planned Iterations (optional)

5

Calculate

For velocity values of 27,34,35,38,39,40,40,41,45

You have a median velocity of **39** and there is a 90% likelihood that your actual velocity will fall between **34** and **41**

With 90% confidence you can expect to complete between **170** and **205** more units of work with a median value of **195**.



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Fixed-date planning

Three steps

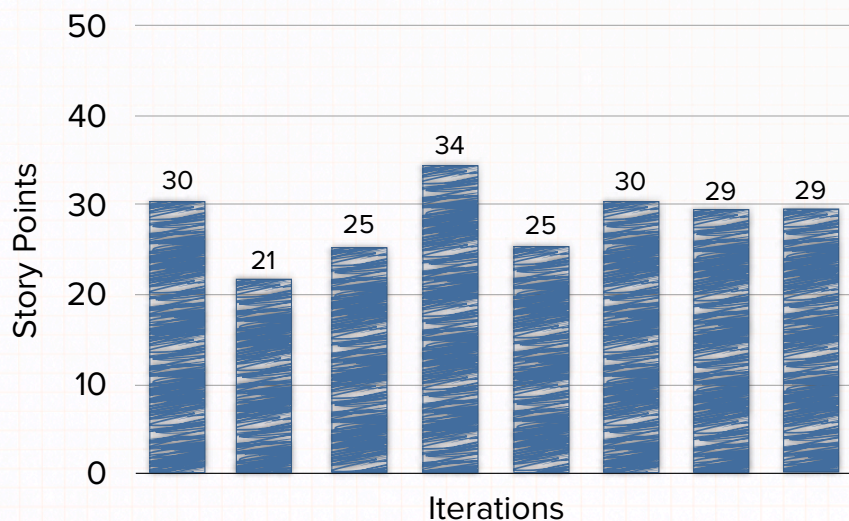
1. Determine how many iterations you have.
2. Estimate velocity as a range.
3. Use that range \times the number of iterations to partition the backlog into Will Have, Might Have, and Won't Have.



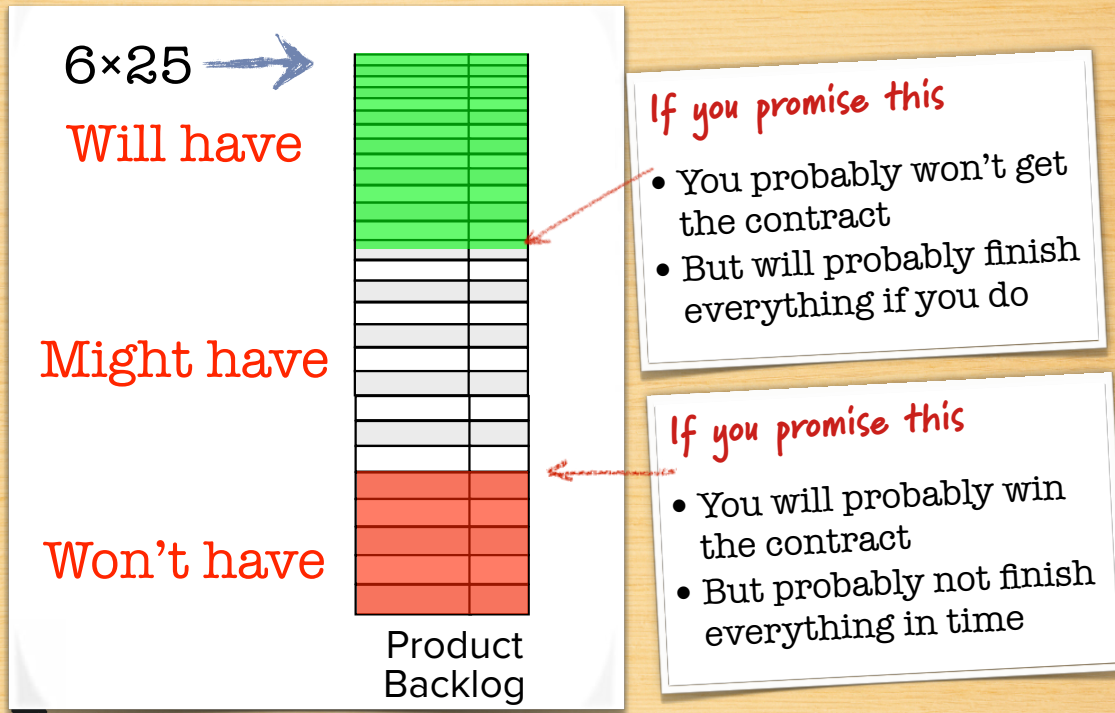
Count the iterations



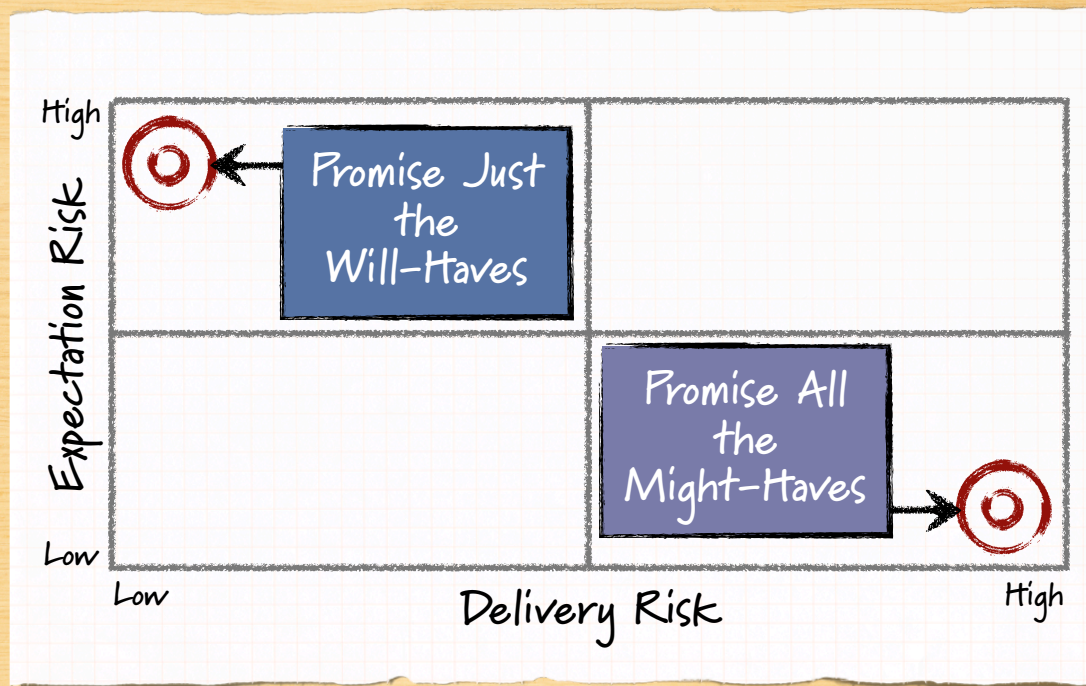
Determine a velocity range



Determine what to commit to



Balancing risk



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Fixed scope planning

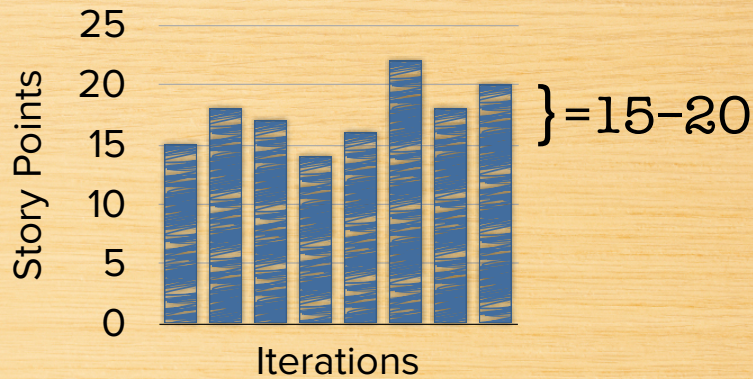
Three steps

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.





= 120 story points



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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



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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.

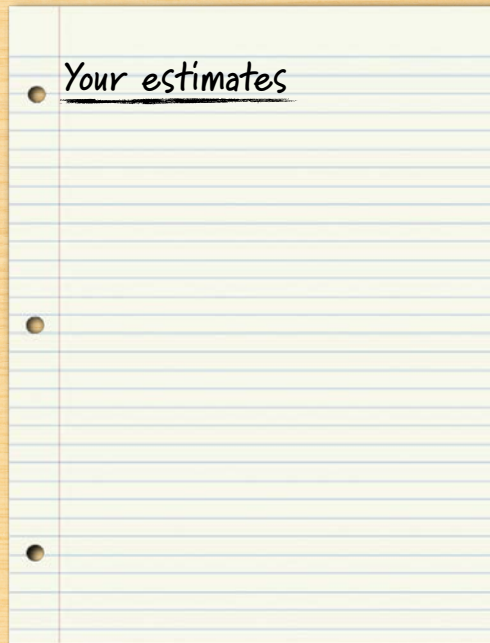
- Which features can you “guarantee” will be in for the trade show?
- Which features are likely to be in?

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



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



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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	8
Decide...	8
Automate ...	12

46

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

Code...	8
Test	6
Desi...	12
Test ...	5

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22	22
----	----

22

48	48
----	----

48



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



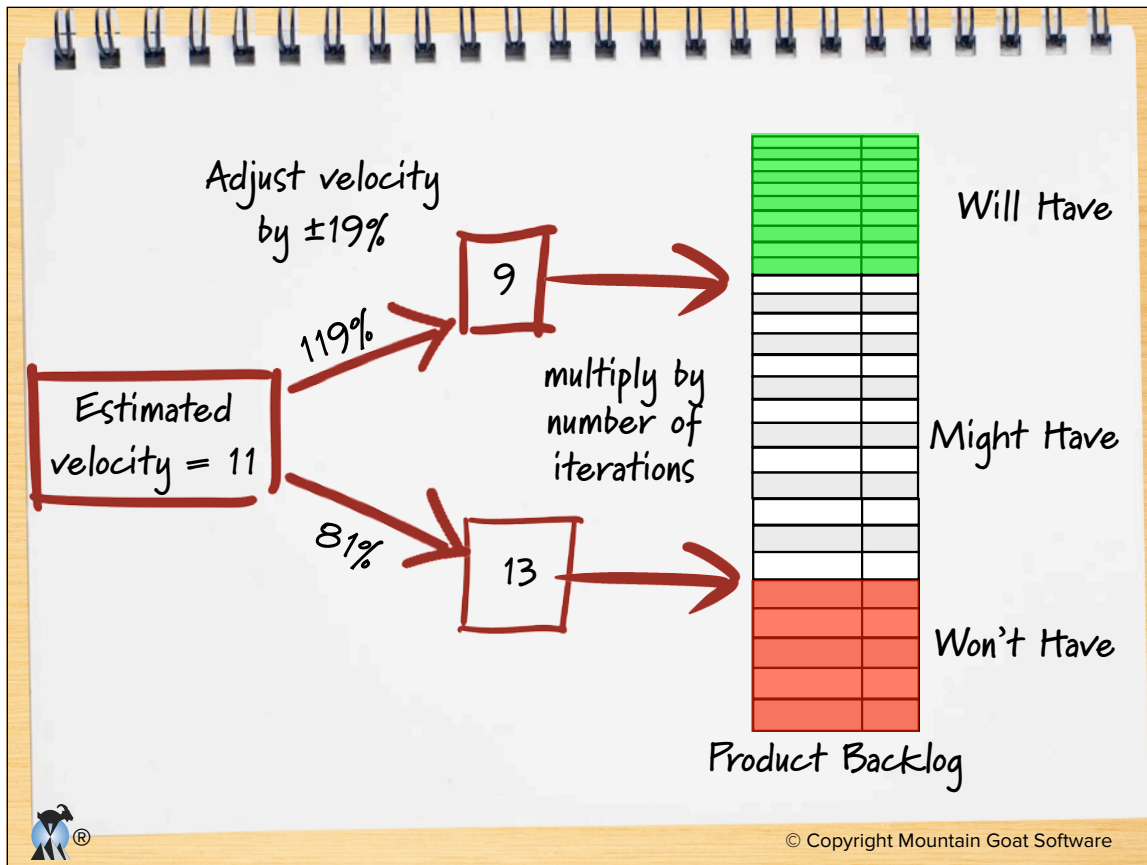
Using data from other teams

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
 $3.8 / 22 = 17\%$





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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%



Upcoming courses in Oslo

Date	Course
3–4 September	Certified ScrumMaster
5–6 September	Certified Scrum Product Owner
3–4 December	Certified ScrumMaster
5–6 December	Certified Scrum Product Owner

Information and registration at www.programutvikling.no



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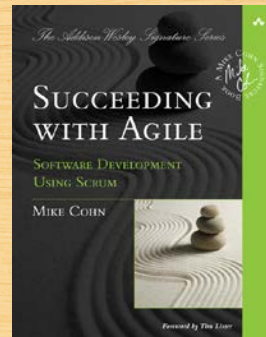
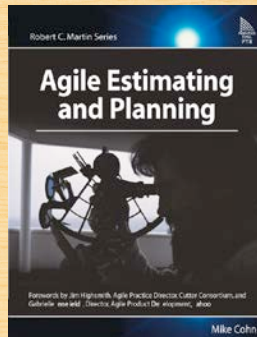
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