What is Agile?

August 20, 2013

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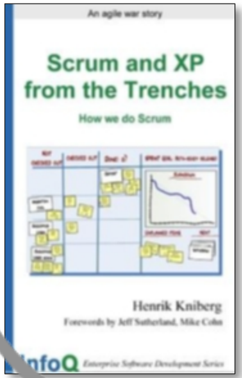
Rikspolisstyrelsen

(& more...)

Author



An agile war story

Scrum and XP from the Trenches

How we do Scrum

Henrik Kniberg

Forewords by Jeff Sutherland, Mike Cohn

InfoQ Enterprise Software Development Series

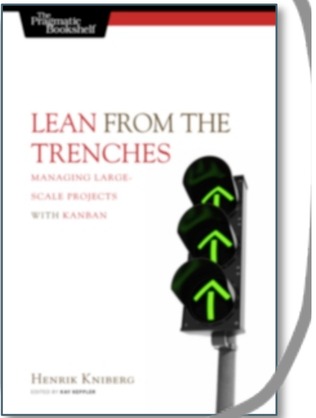
Kanban and Scrum making the most of both

Henrik Kniberg & Mattias Skarin

Forewords by Mary Poppendieck and David Anderson

Enterprise Software Development Series

InfoQ



The Pragmatic Bookshelf

LEAN FROM THE TRENCHES

MANAGING LARGE-SCALE PROJECTS WITH KANBAN

HENRIK KNIBERG

EDITED BY KAY KEPPLER

Boring but important practical info about these slides

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Downloading the right font
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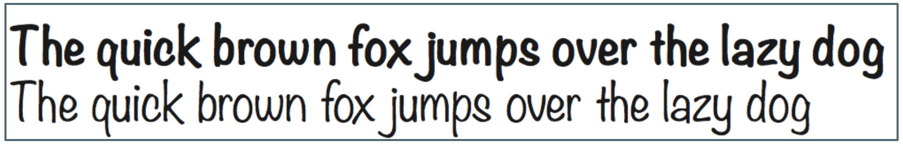
http://tinyurl.com/noteworthy-ttc

- On Windows right-click the font file and select ”install”. Then restart Powerpoint.
- On Mac, double-click the font file and press ”install font”. Then restart Powerpoint.

The PDF version of these slides has the font embedded, so you don’t need to do anything. On the other hand you don’t get the fancy animations.

Font test

How the font is supposed to look:
(screenshot from my computer)



The quick brown fox jumps over the lazy dog
The quick brown fox jumps over the lazy dog

How the font shows up on your computer:

The quick brown fox jumps over the lazy dog
The quick brown fox jumps over the lazy dog

Regardless of font appearance, if that text doesn’t fit nicely into the box then you’re going to need to download the right font, or switch to a new font and fiddle with the slides to make sure things fit.

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Why?

How?

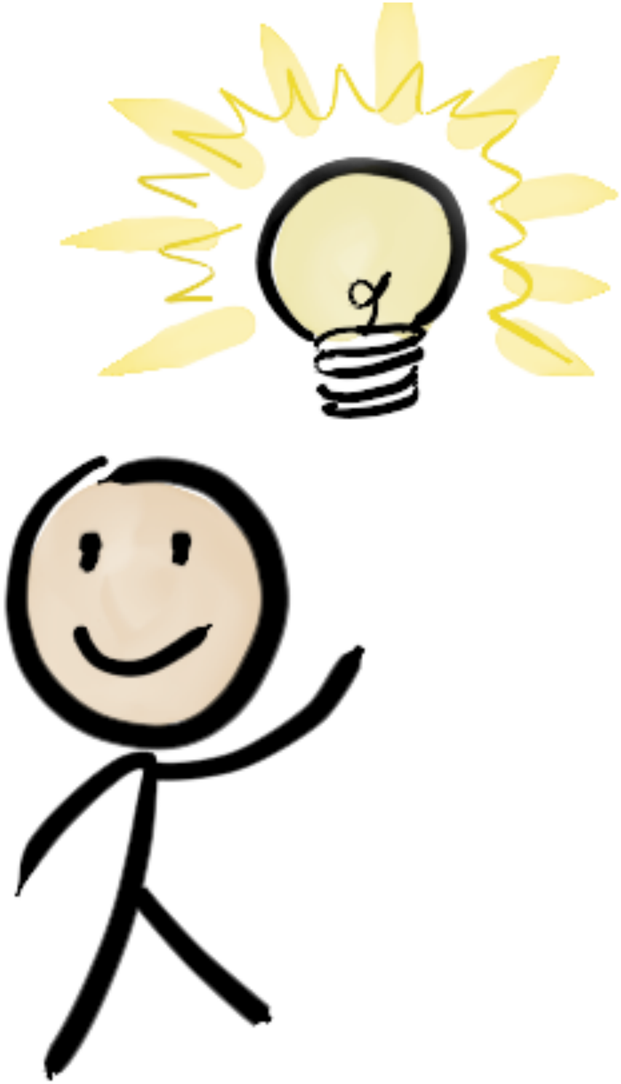
Agile is...

Early delivery of business value

Less bureaucracy

(Thanks Alistair Cockburn for this simplified definition of Agile)

All products / features start with a Great Idea!



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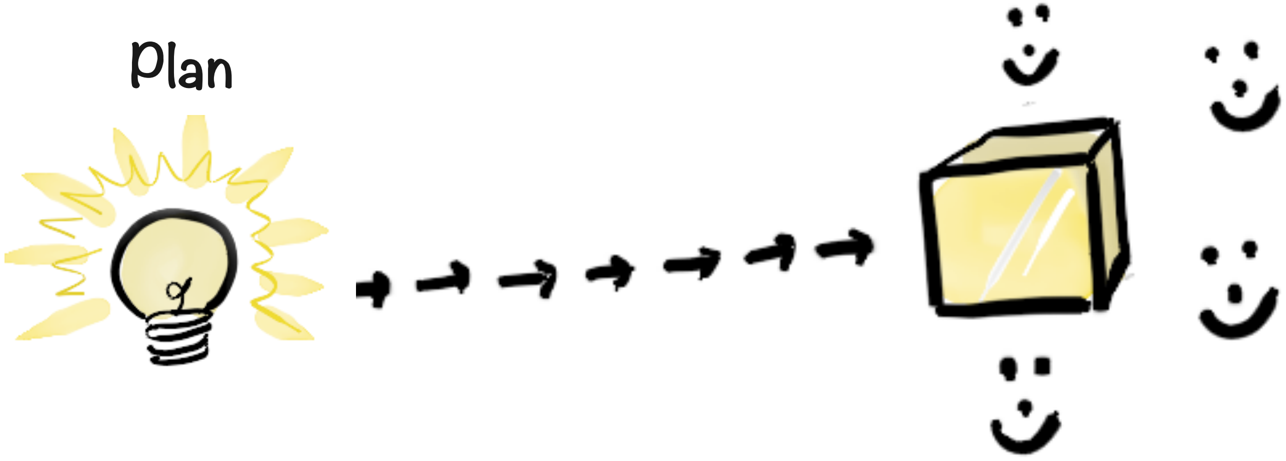
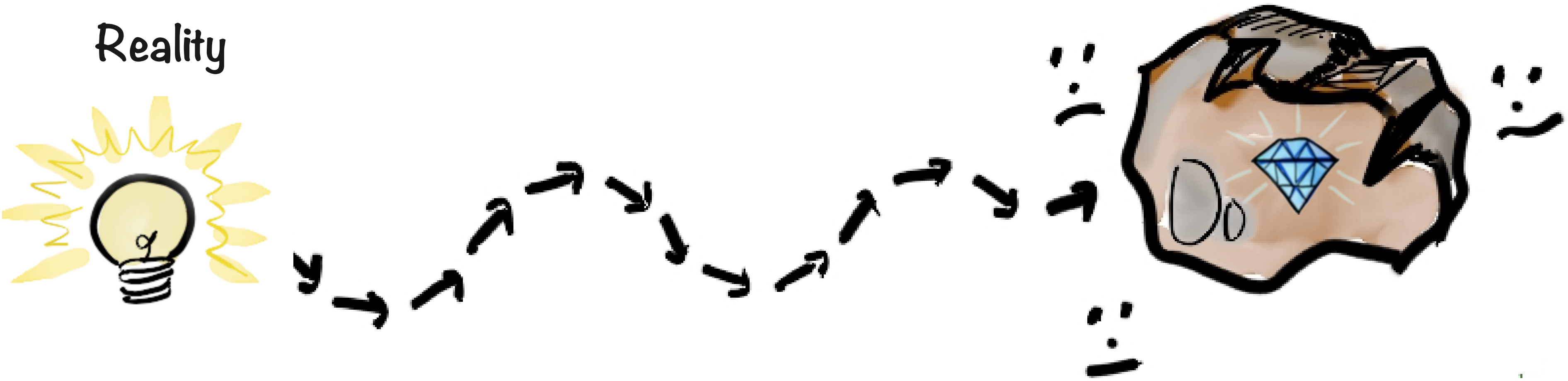
Unfortunately..... it is likely to fail

Plan



Reality



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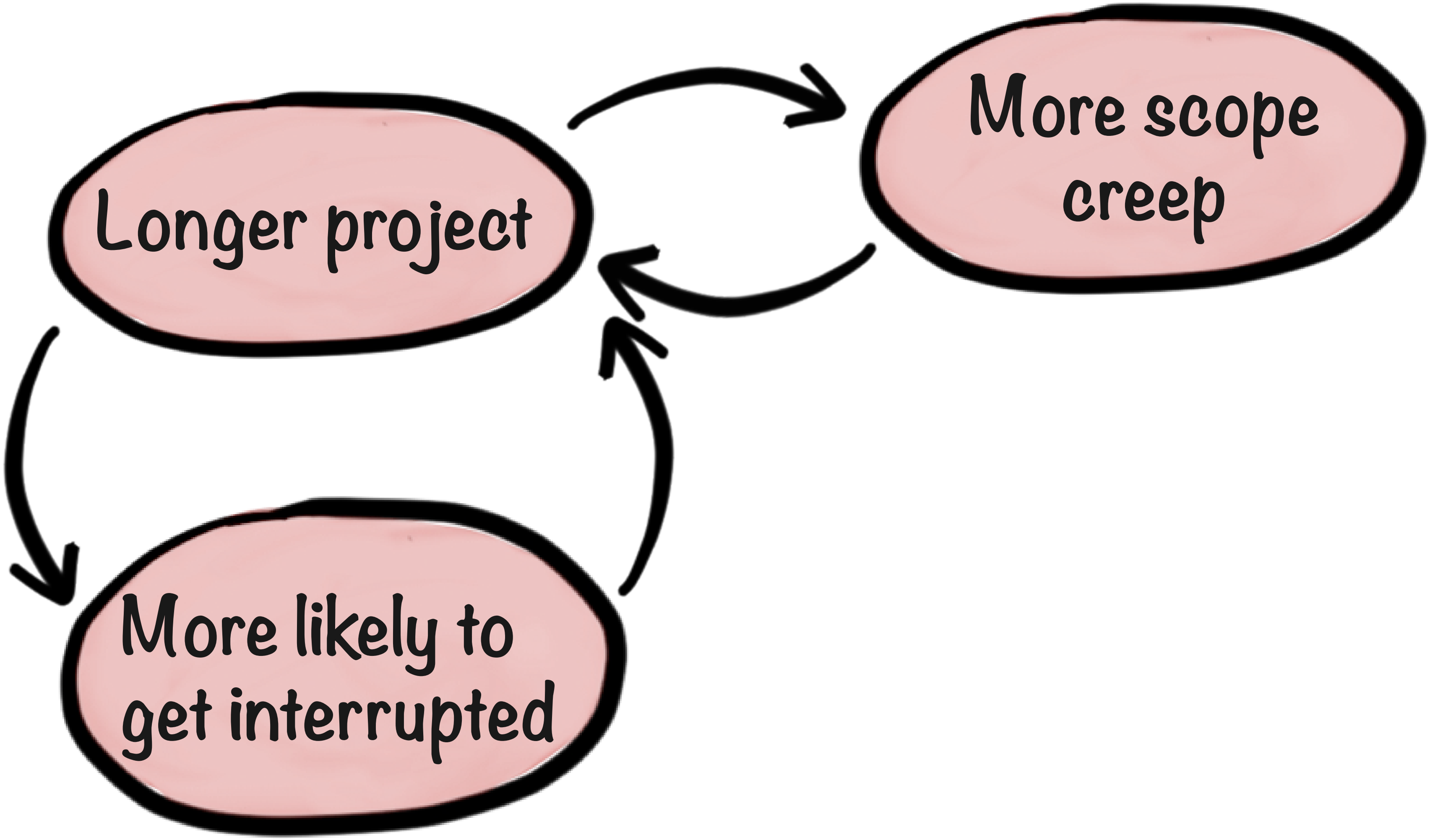
Long projects get Longer



Longer project

More scope creep

More likely to get interrupted

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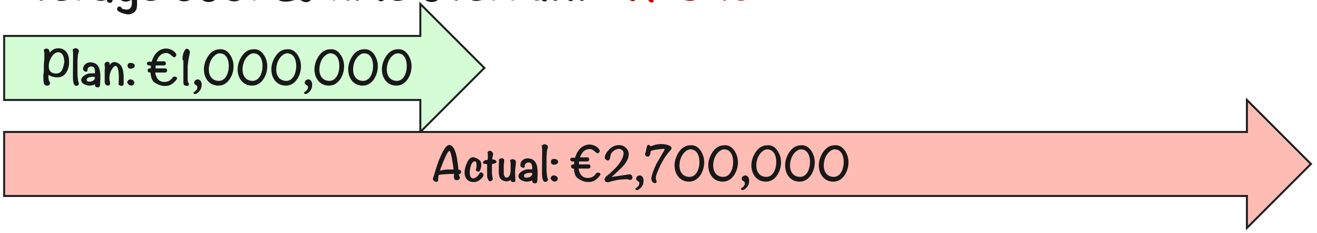
Most IT projects fail. And are late.

The Standish Group has studied over 40,000 projects in 10 years.

IT project success rate 1994: 15%

Average cost & time overrun: ≈170%

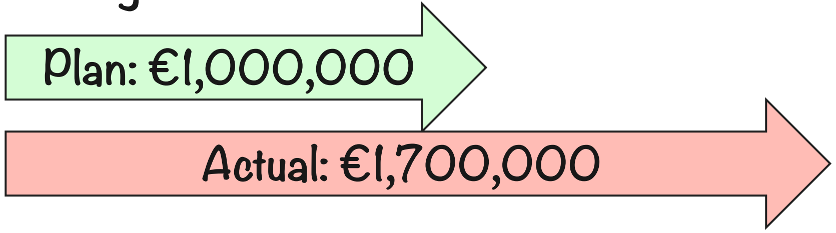


Plan: €1,000,000

Actual: €2,700,000

IT project success rate 2004: 34%

Average cost & time overrun: ≈70%



Plan: €1,000,000

Actual: €1,700,000

Sources:
http://www.softwaremag.com/L.cfm?Doc=newsletter/2004-01-15/Standish
http://www.infoq.com/articles/Interview-Johnson-Standish-CHAOS

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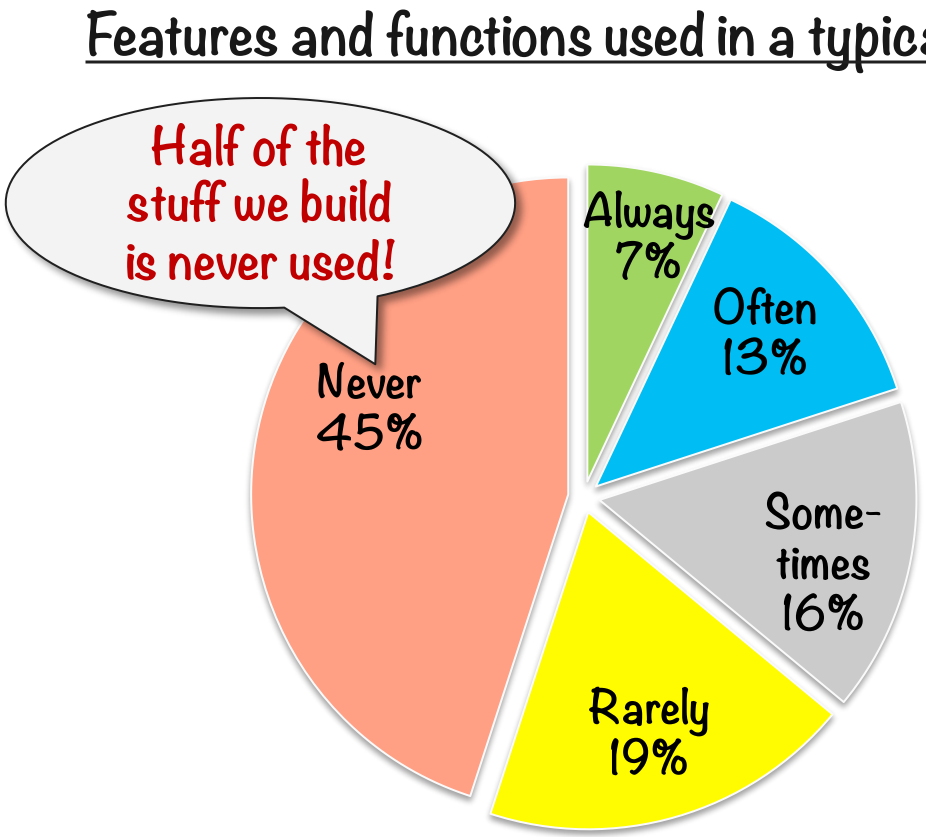
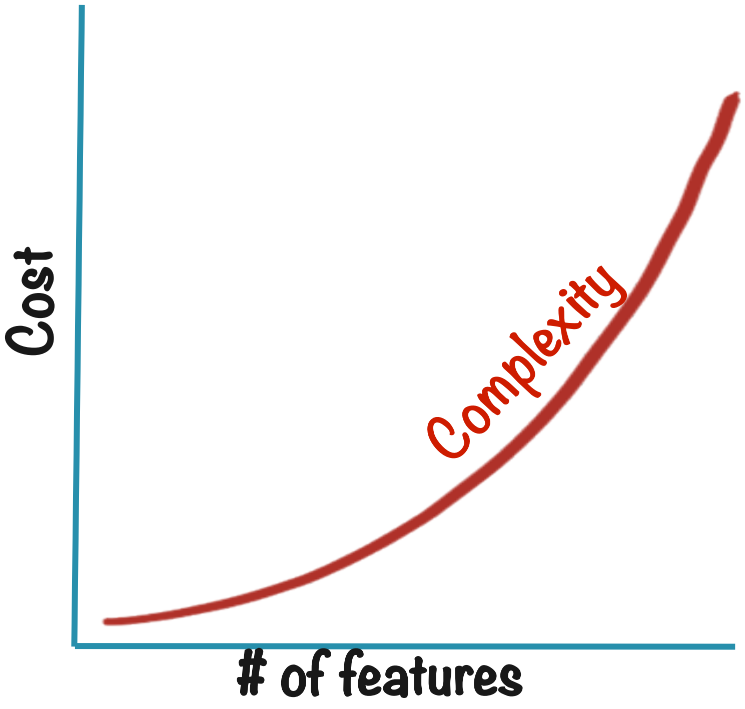
We tend to build the wrong thing





Sources:
Standish group study reported at XP2002 by Jim Johnson, Chairman

The right-hand graph is courtesy of Mary Poppendieck

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Big Bang

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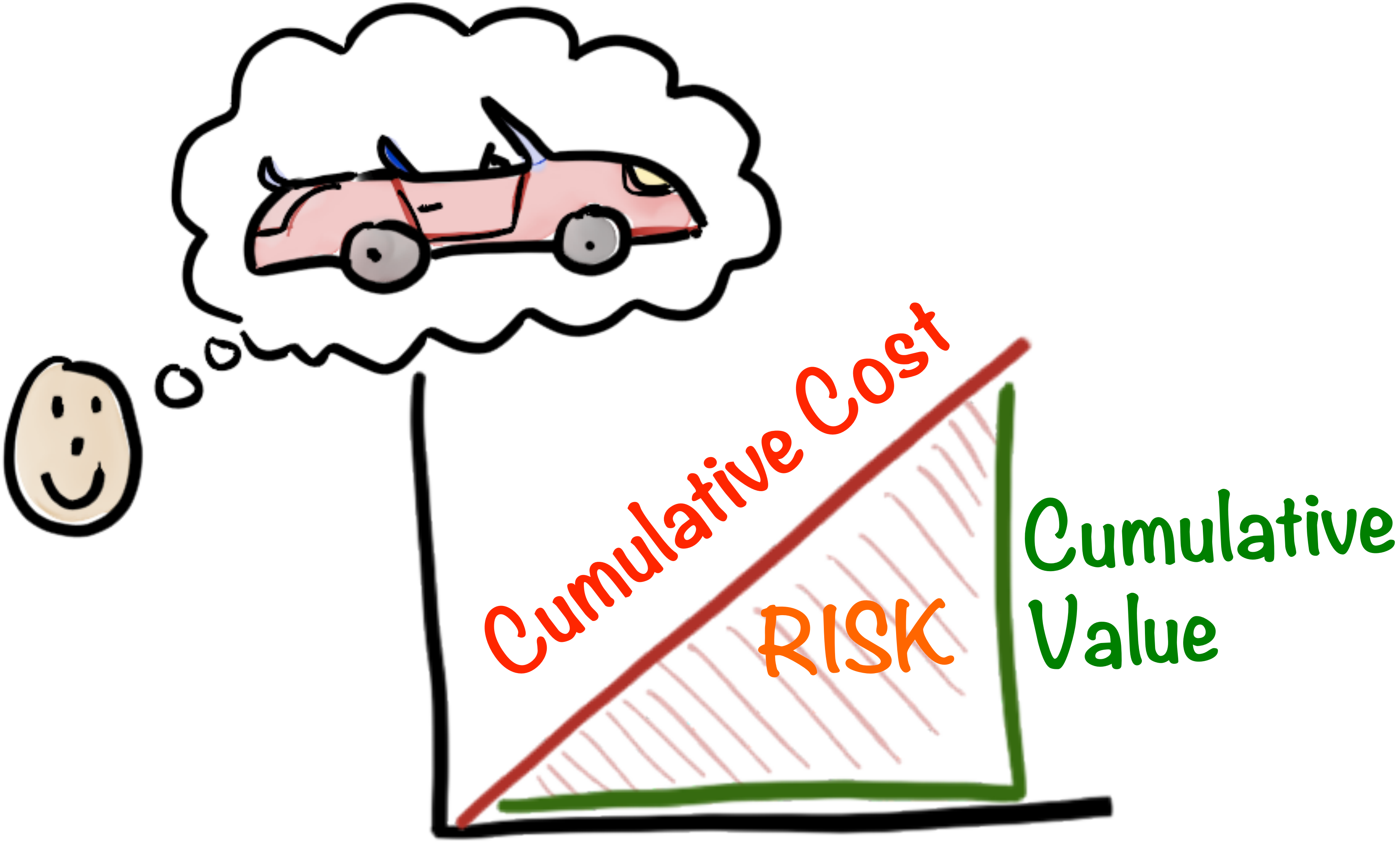
Big Bang = Big Risk



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Big Bang = cannon ball

Assumptions:

- The customer knows what he wants
- The developers know how to build it
- Nothing will change along the way

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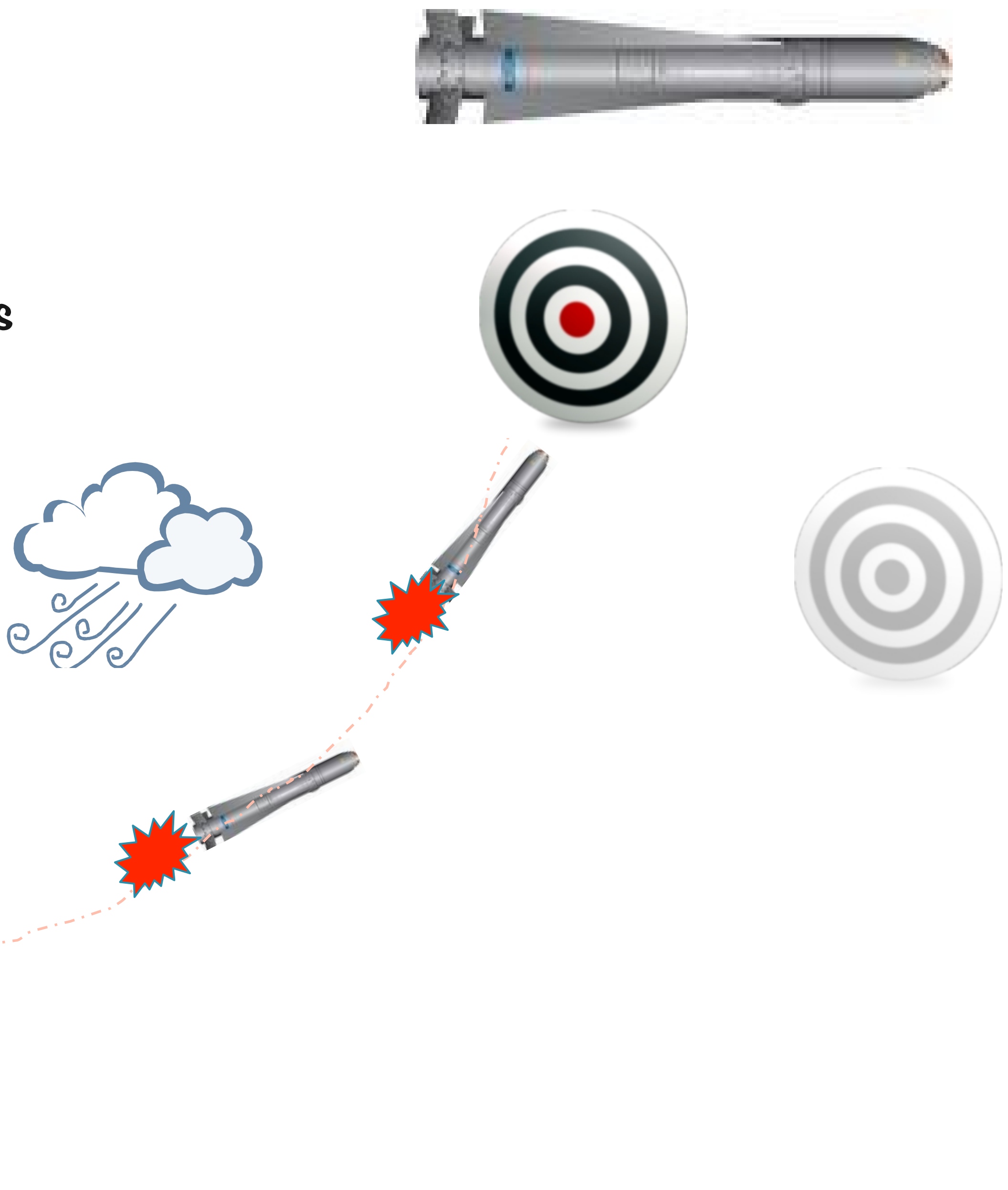
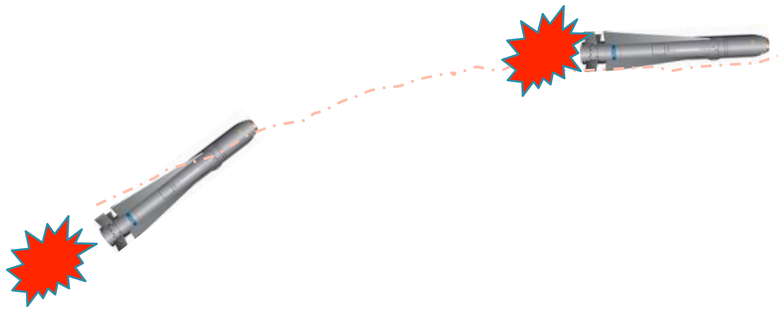
Agile

Agile = homing missile

Assumptions:

- The customer discovers what he wants
- The developers discover how to build it
- Things change along the way





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Agile Manifesto

Surviving Object-Oriented Projects
Agile Software Development
Principles, Patterns, and Practices
Robert C. Martin
Extreme Programming Adventures in C#
Crystal Clear
A Human-Powered Methodology for Small Teams
Pragmatic Unit Testing
Everyday Scripting with Ruby
Brian Marick
Refactoring Databases
Extreme Programming Explained
Embrace Change
JUnit
Pocket Guide
Test-Driven Development
By Example
Kent Beck
The Wiki Way
Quick Collaboration on the Web
Bo Leuf
Ward Cunningham
UML Distilled
Third Edition
Martin Fowler
Refactoring
Improving the Design of Existing Code
Martin Fowler

www.agilemanifesto.org

We are uncovering better ways of developing software by doing it and helping others do it.

Feb 11-13, 2001

Snowbird ski resort, Utah

Kent Beck
Mike Beedle
Arie van Bennekum
Alistair Cockburn
Ward Cunningham
Martin Fowler
James Grenning
Jim Highsmith
Andrew Hunt

Ron Jeffries
Jon Kern
Brian Marick
Robert C. Martin
Steve Mellor
Ken Schwaber
Jeff Sutherland
Dave Thomas

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Agile Manifesto

www.agilemanifesto.org

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools

Individer och interaktioner framför processer och verktyg

Working software over comprehensive documentation

Fungerande programvara framför omfattande dokumentation

Customer collaboration over contract negotiation

Kundsamarbete framför kontraktsförhandling

Responding to change over following a plan

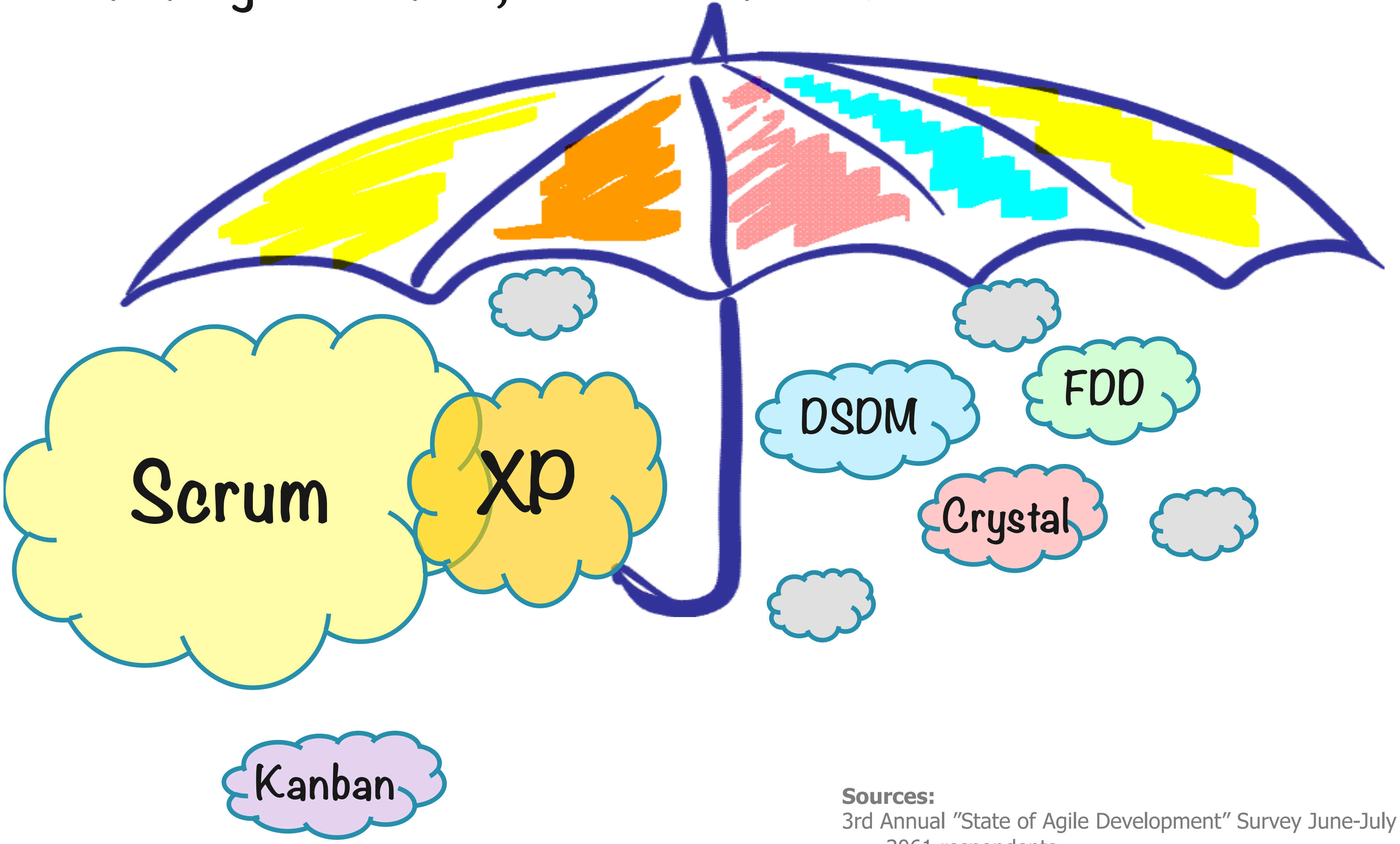
Anpassning till förändring framför att följa en plan

That is, while there is value in the items on the right, we value the items on the left more.

Principles behind the Agile Manifesto

- Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
- Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
- Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
- Business people and developers must work together daily throughout the project.
- Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
- The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
- Working software is the primary measure of progress.
- Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
- Continuous attention to technical excellence and good design enhances agility.
- Simplicity--the art of maximizing the amount of work not done--is essential.
- The best architectures, requirements, and designs emerge from self-organizing teams.
- At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

Agile "umbrella" –
a family of iterative, incremental methods



Sources:
3rd Annual "State of Agile Development" Survey June-July 2008

- 3061 respondents
- 80 countries

Iterative & Incremental

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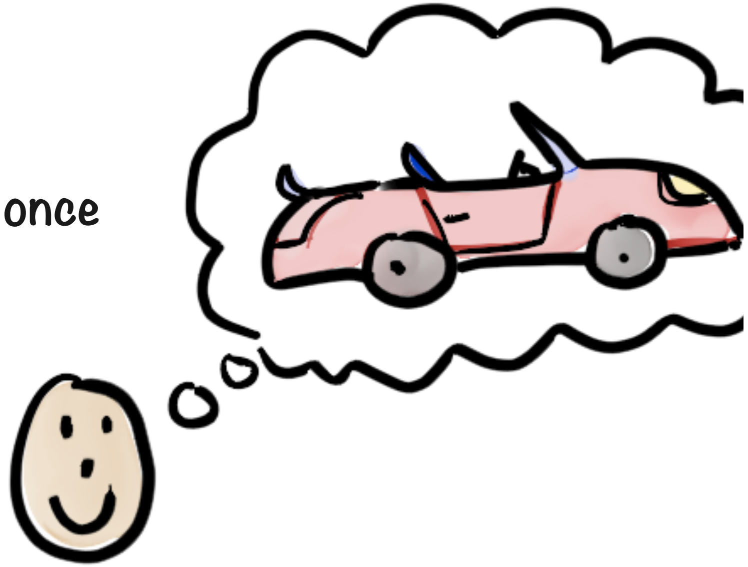
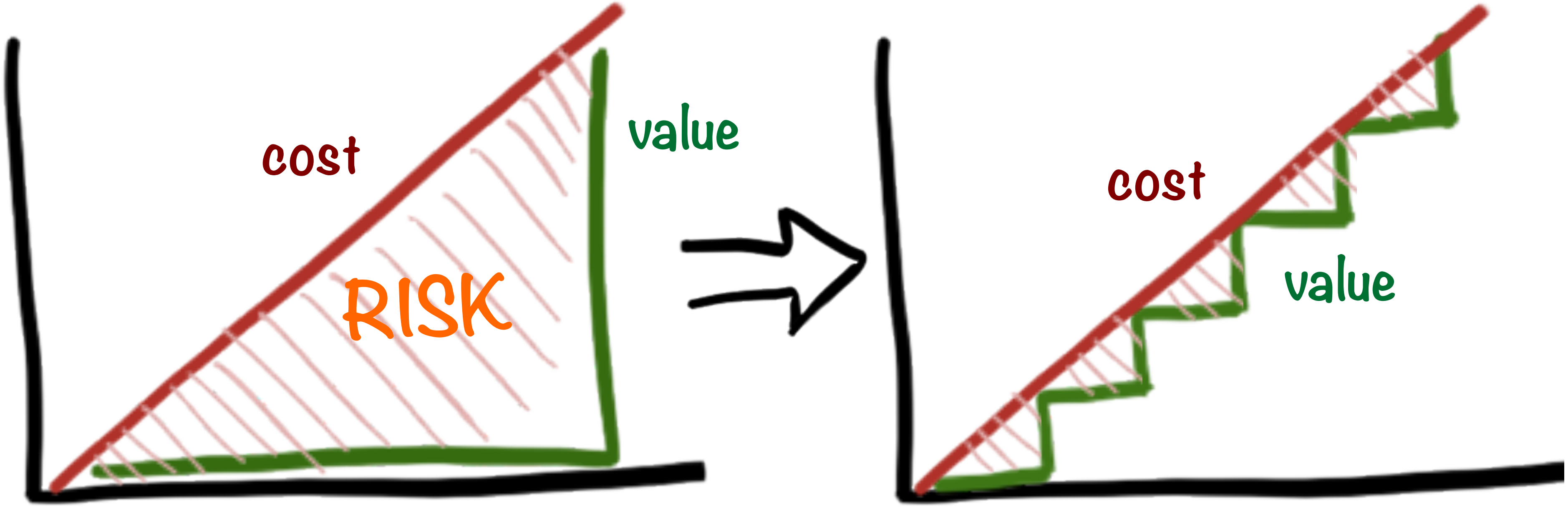
Agile = Iterative + Incremental

Don't try to get it all right from the beginning

Don't build it all at once





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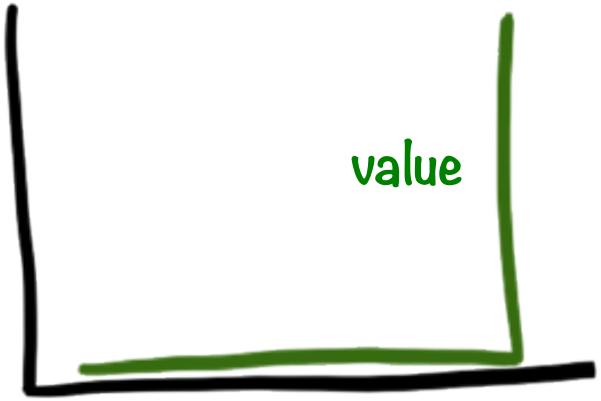
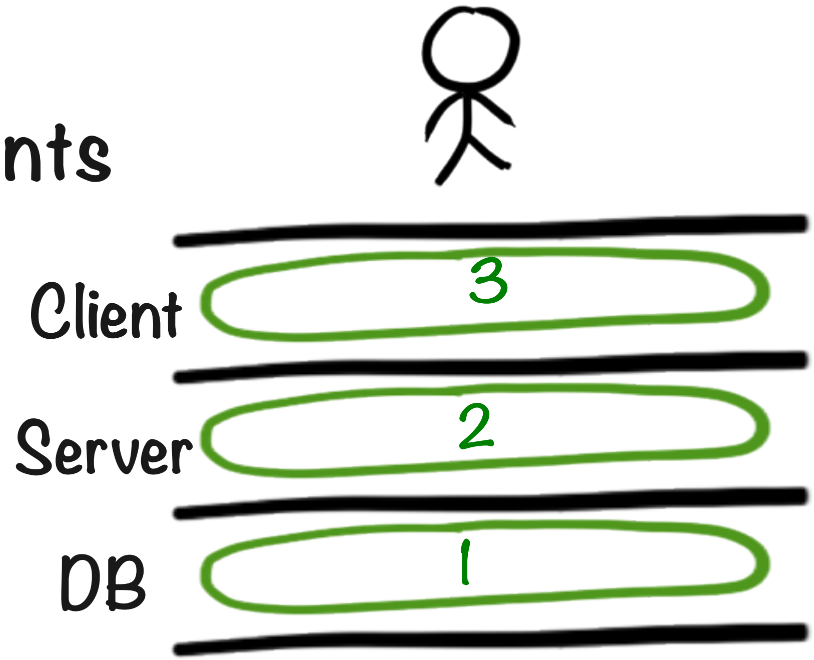
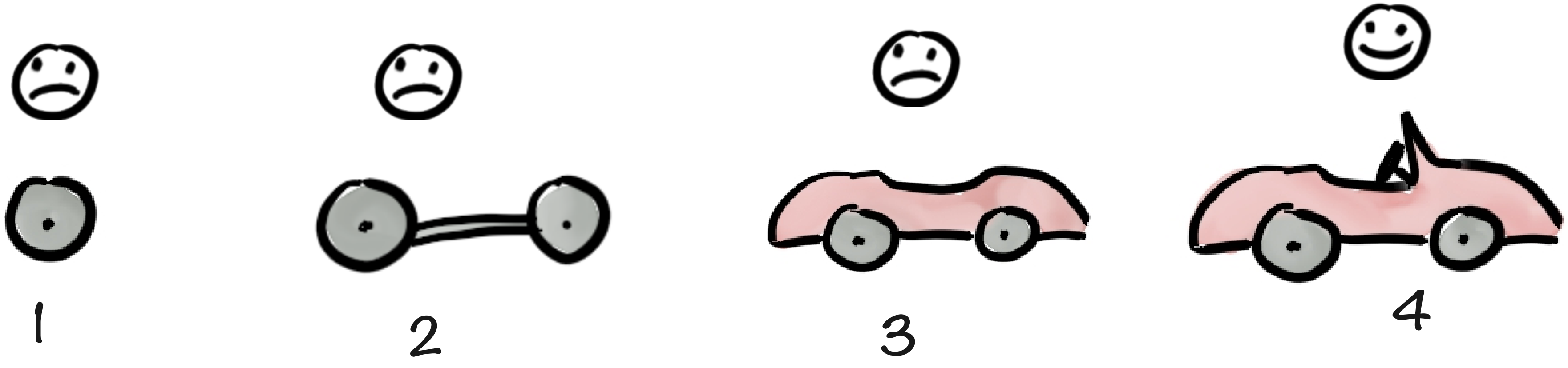
Not "horizontal" increments







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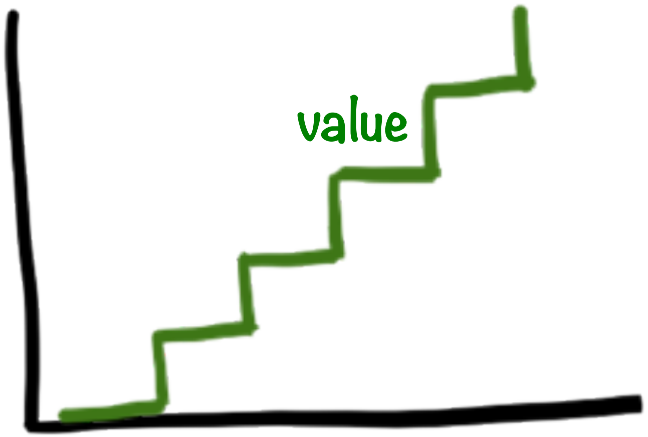
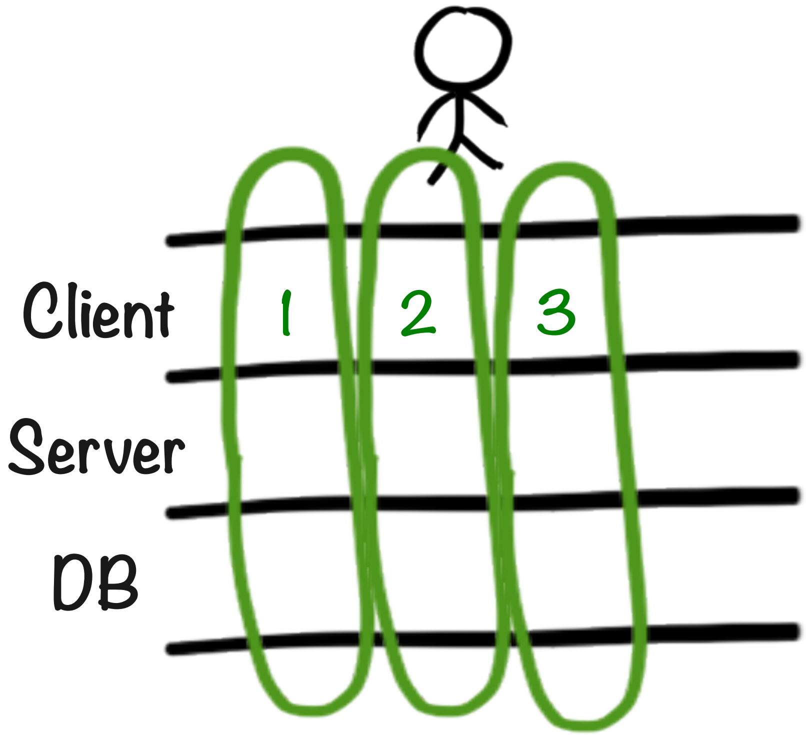
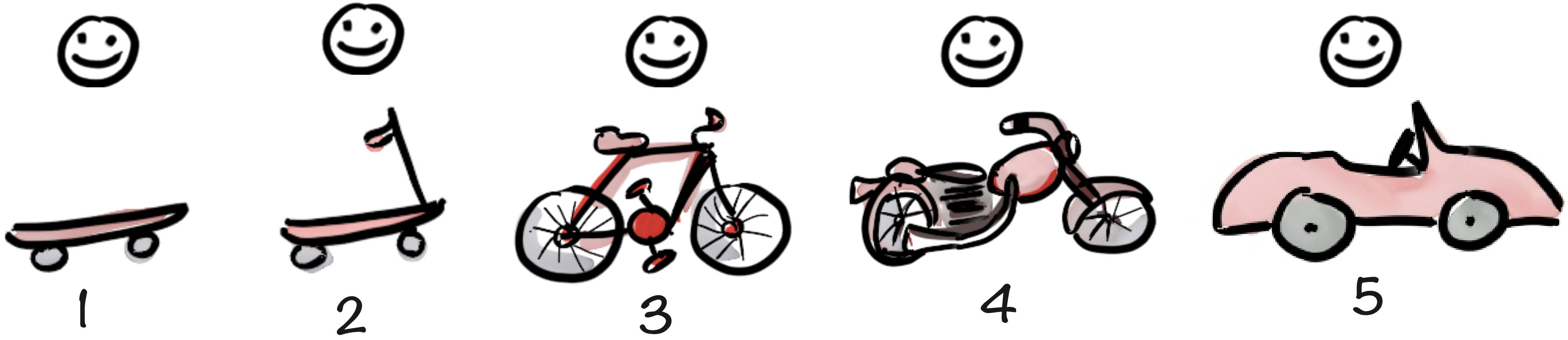
"Vertical" increments!







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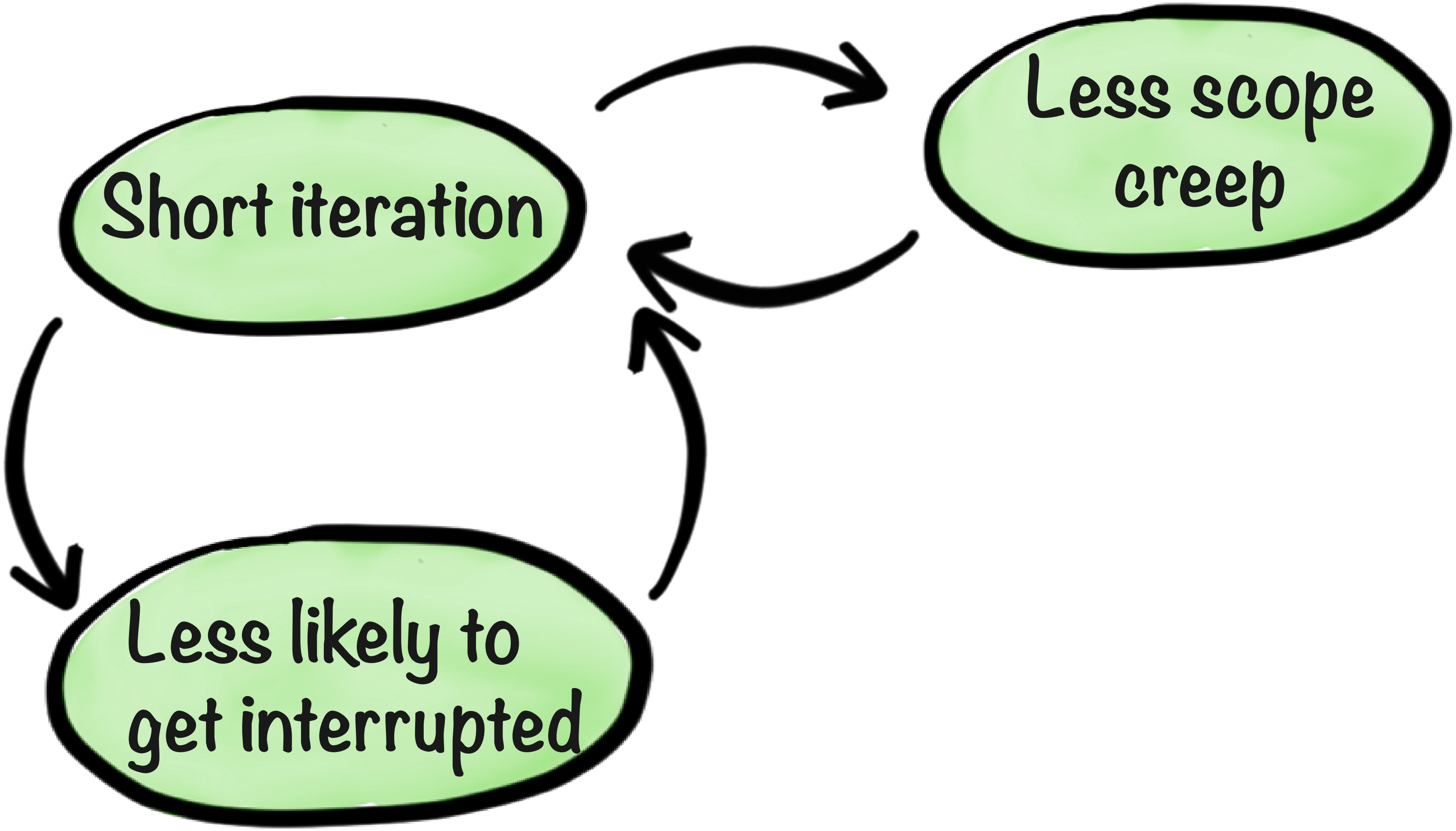
Keep iterations short
(2-3 weeks)



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Planning is easier with frequent releases

Planning

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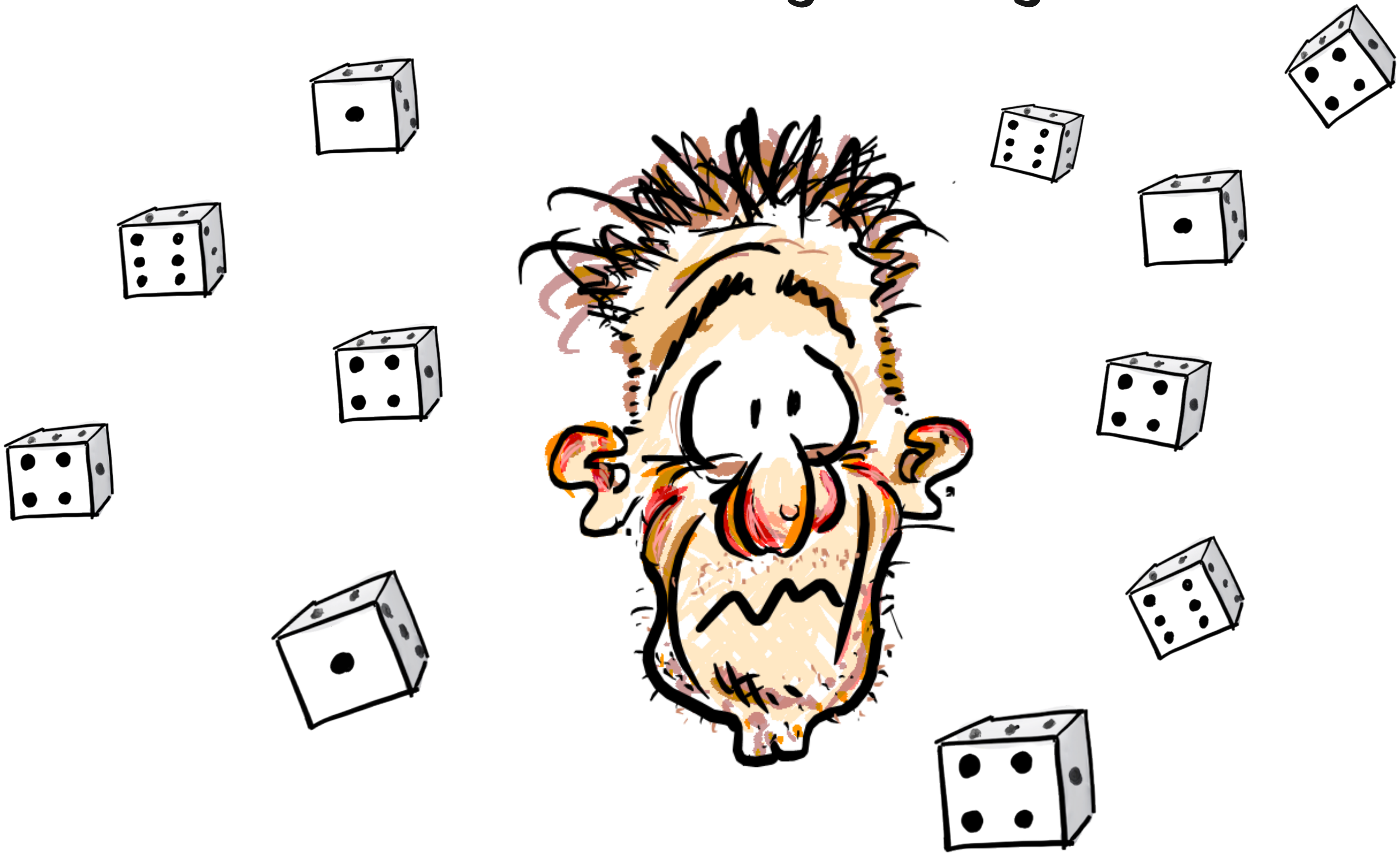
Face it.
Estimates are almost always Wrong!



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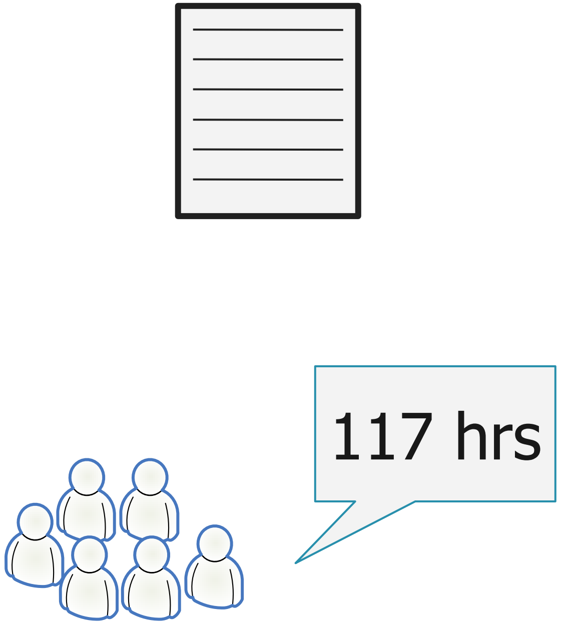
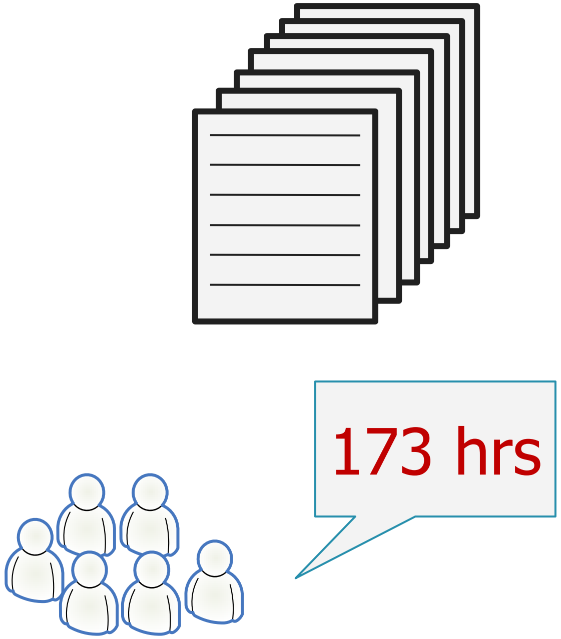
How estimates are affected by specification length

Spec



117 hrs

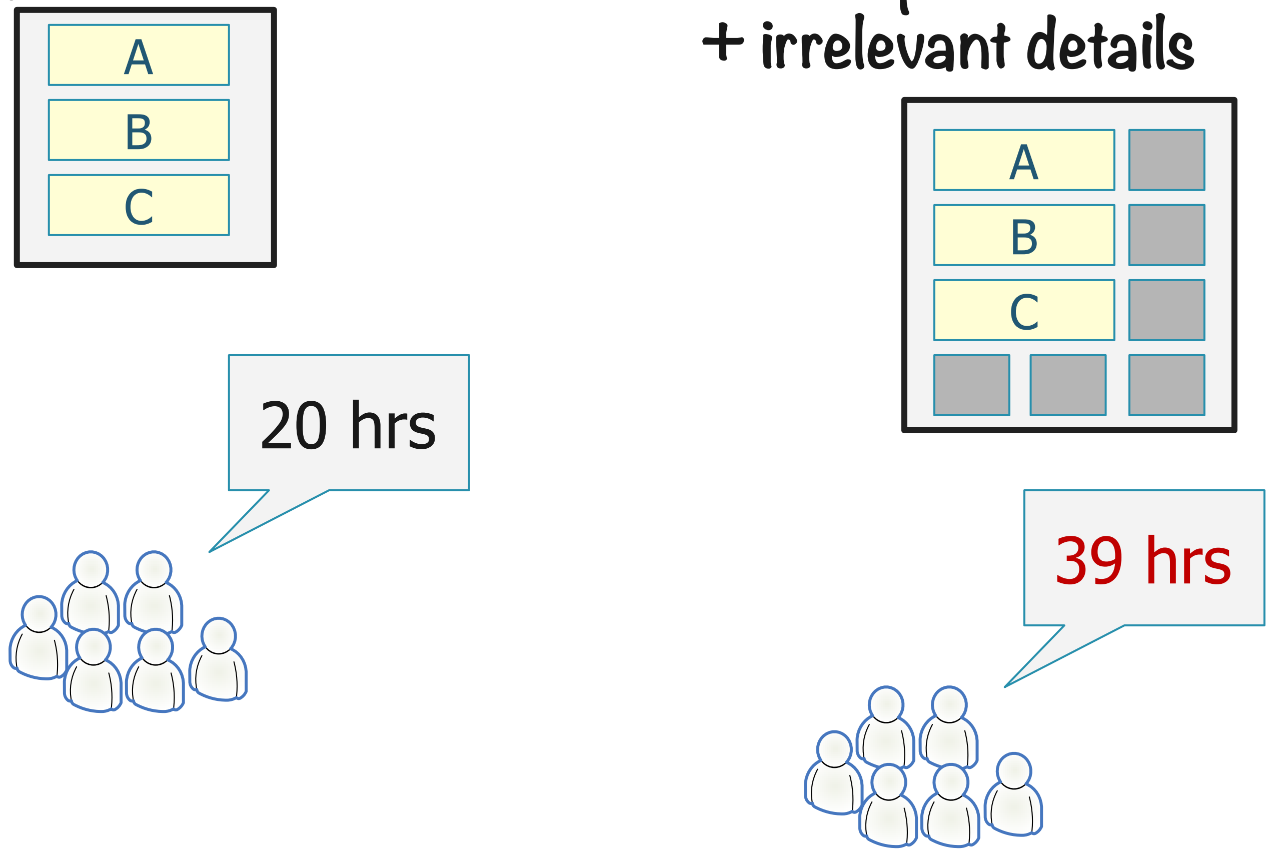
Same spec – more pages



173 hrs

Source: How to avoid impact from irrelevant and misleading info on your cost estimates, Simula research labs estimation seminar, Oslo, Norway, 2006

How estimates are affected by irrelevant information



Spec 1

A

B

C

20 hrs

Same spec + irrelevant details

A

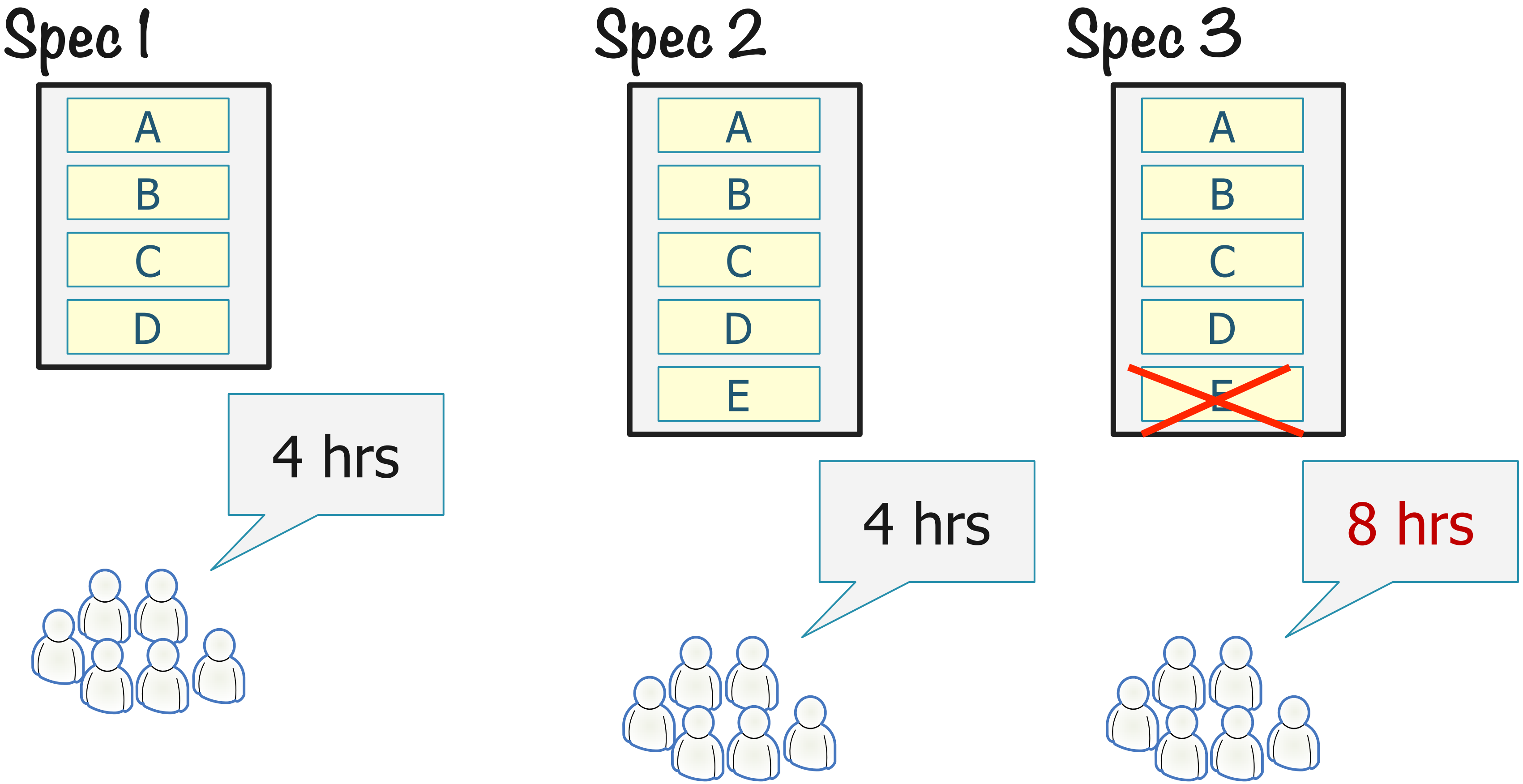
B

C

39 hrs

Source: How to avoid impact from irrelevant and misleading info on your cost estimates, Simula research labs estimation seminar, Oslo, Norway, 2006

How estimates are affected by extra requirements



Source: How to avoid impact from irrelevant and misleading info on your cost estimates, Simula research labs estimation seminar, Oslo, Norway, 2006

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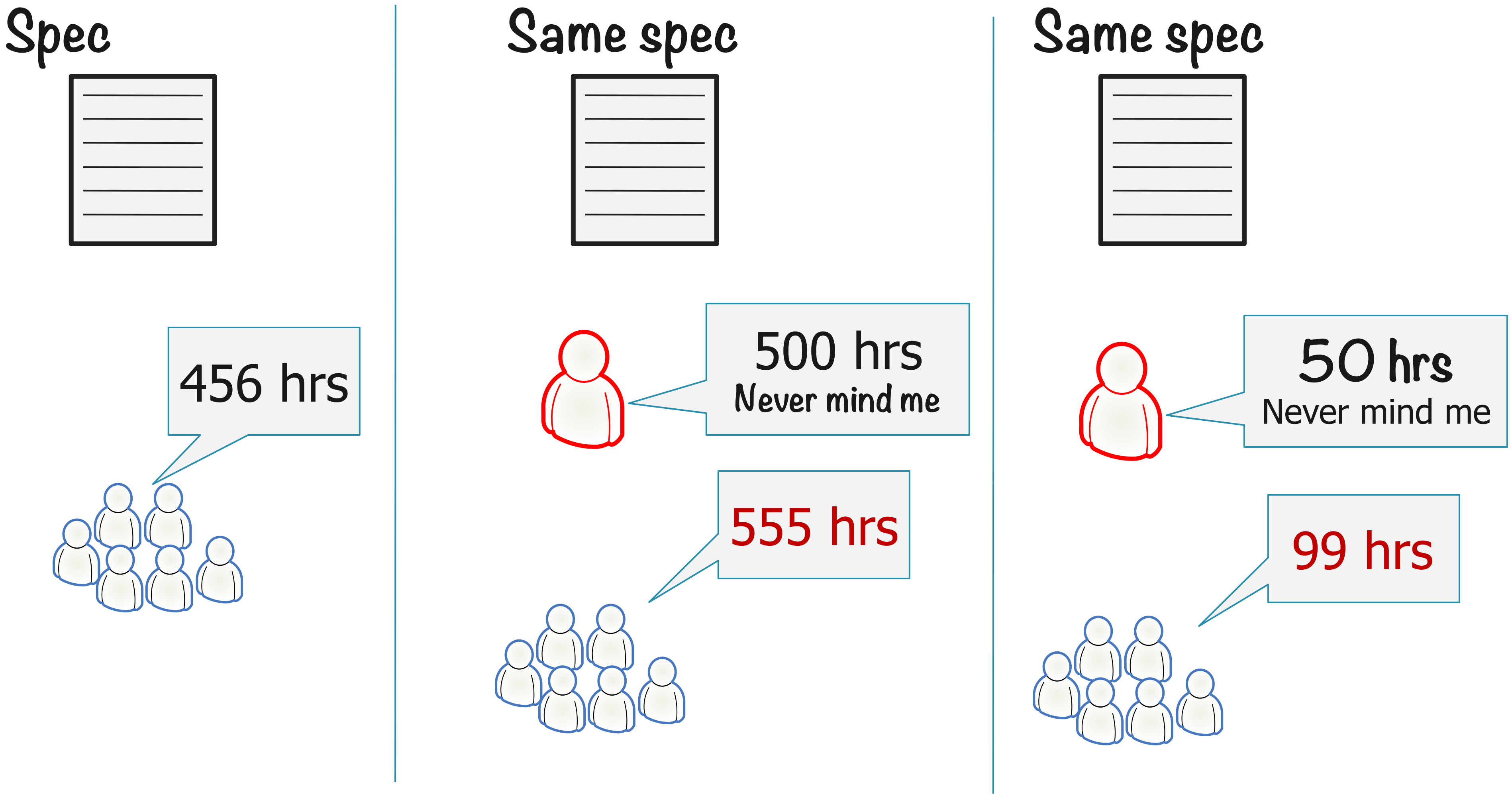
How estimates are affected by anchoring



Spec

456 hrs

Same spec

500 hrs
Never mind me

555 hrs

Same spec

50 hrs
Never mind me

99 hrs

Source: How to avoid impact from irrelevant and misleading info on your cost estimates, Simula research labs estimation seminar, Oslo, Norway, 2006

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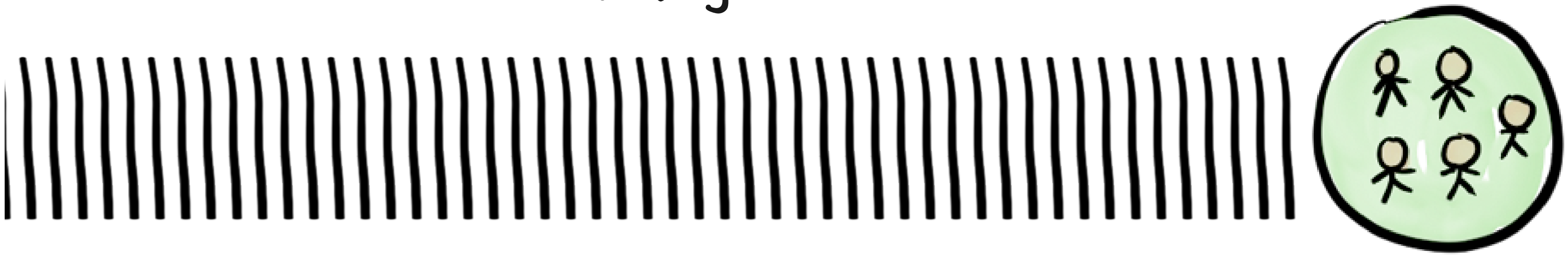
Velocity

to know the future, you need to know the past

When will we get there?
Our steps so far
We are here

Velocity-based release planning

Backlog



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Velocity-based release planning

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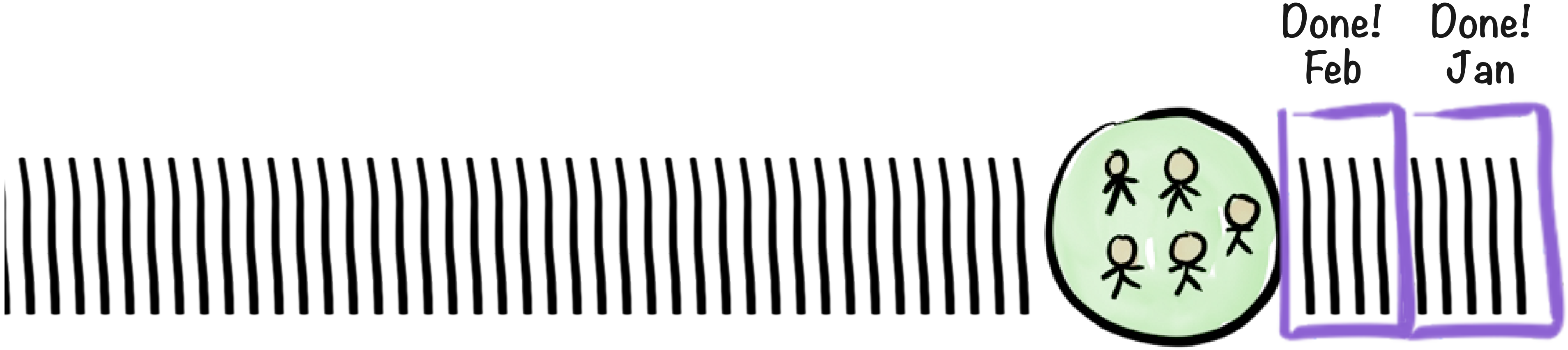
Velocity-based release planning



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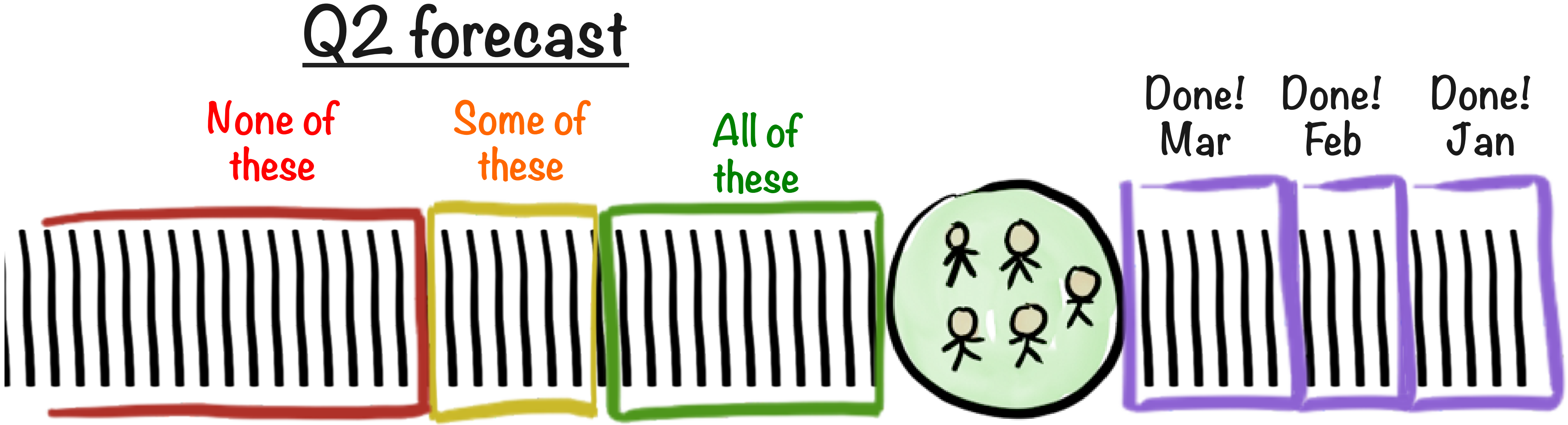
Velocity-based release planning



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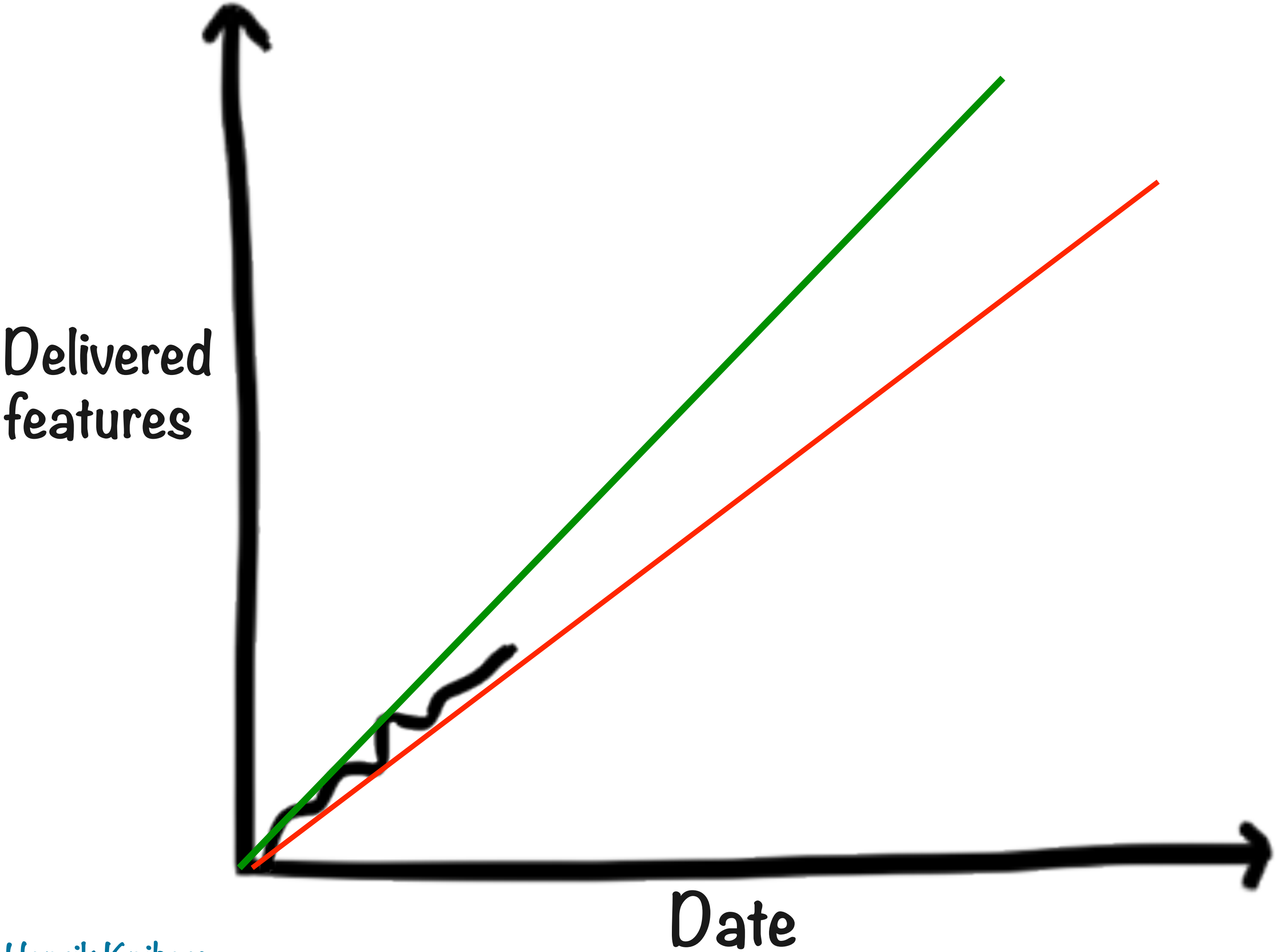
Release burnup chart



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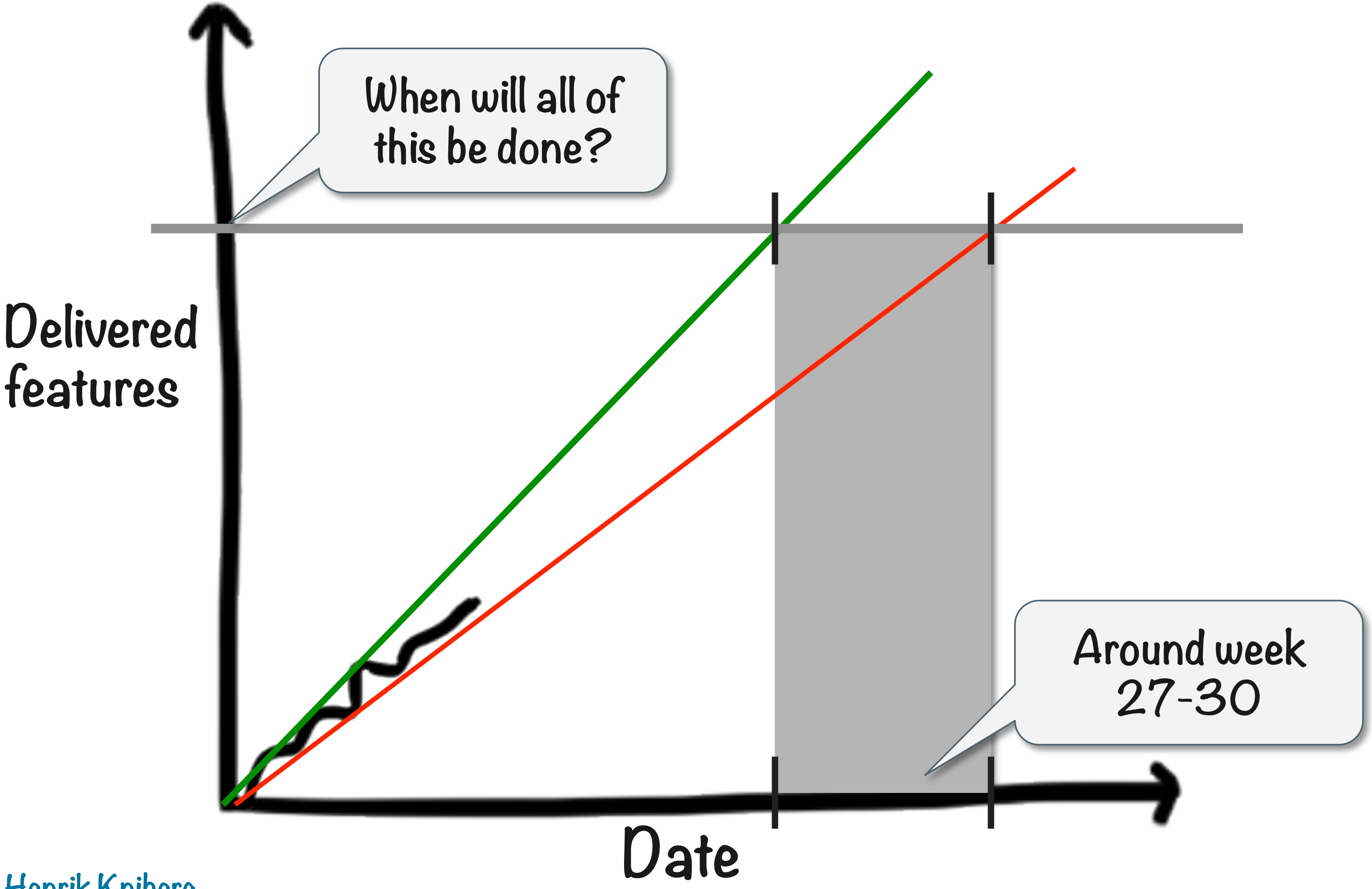
Fixed scope forecast



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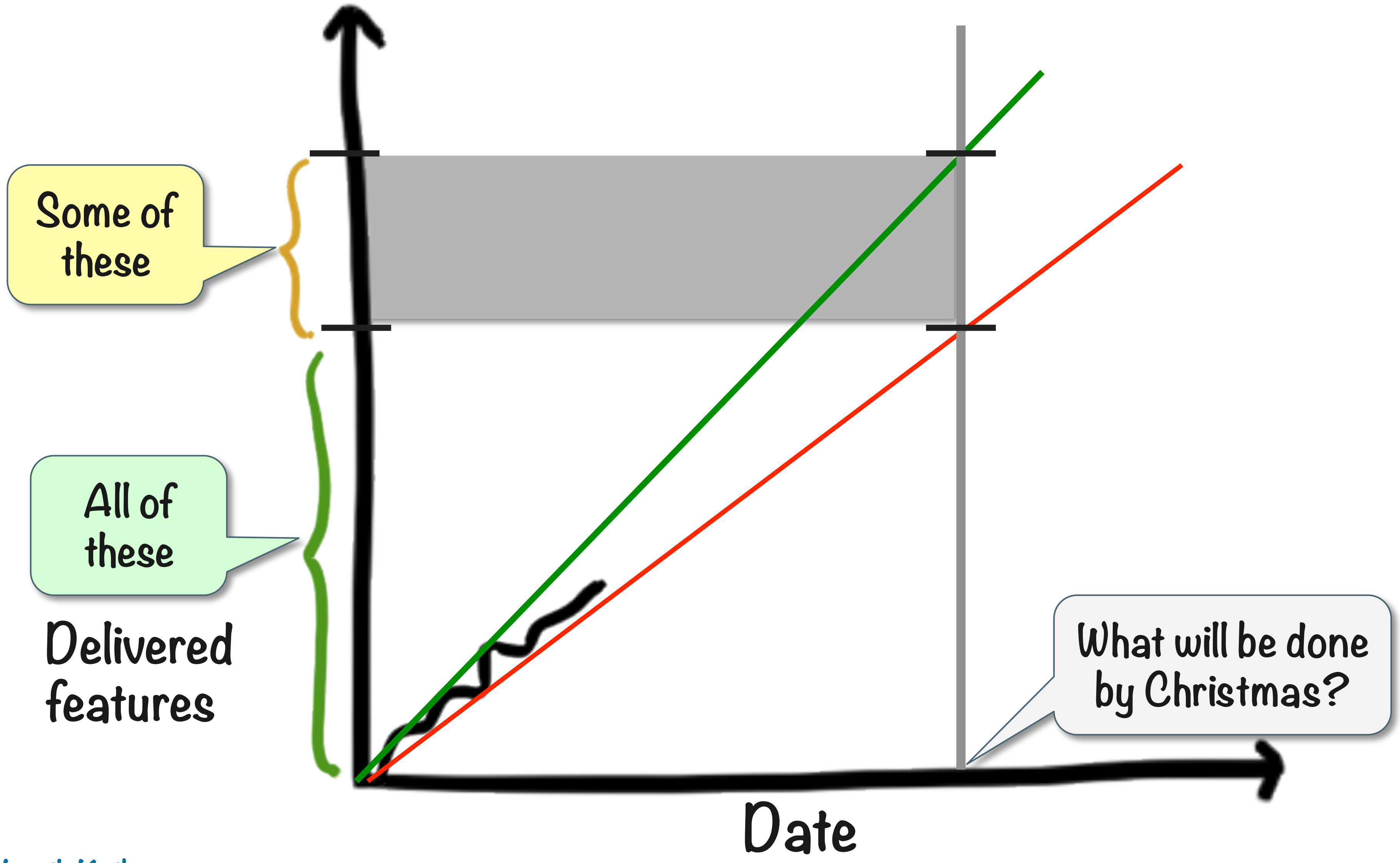
Fixed time forecast



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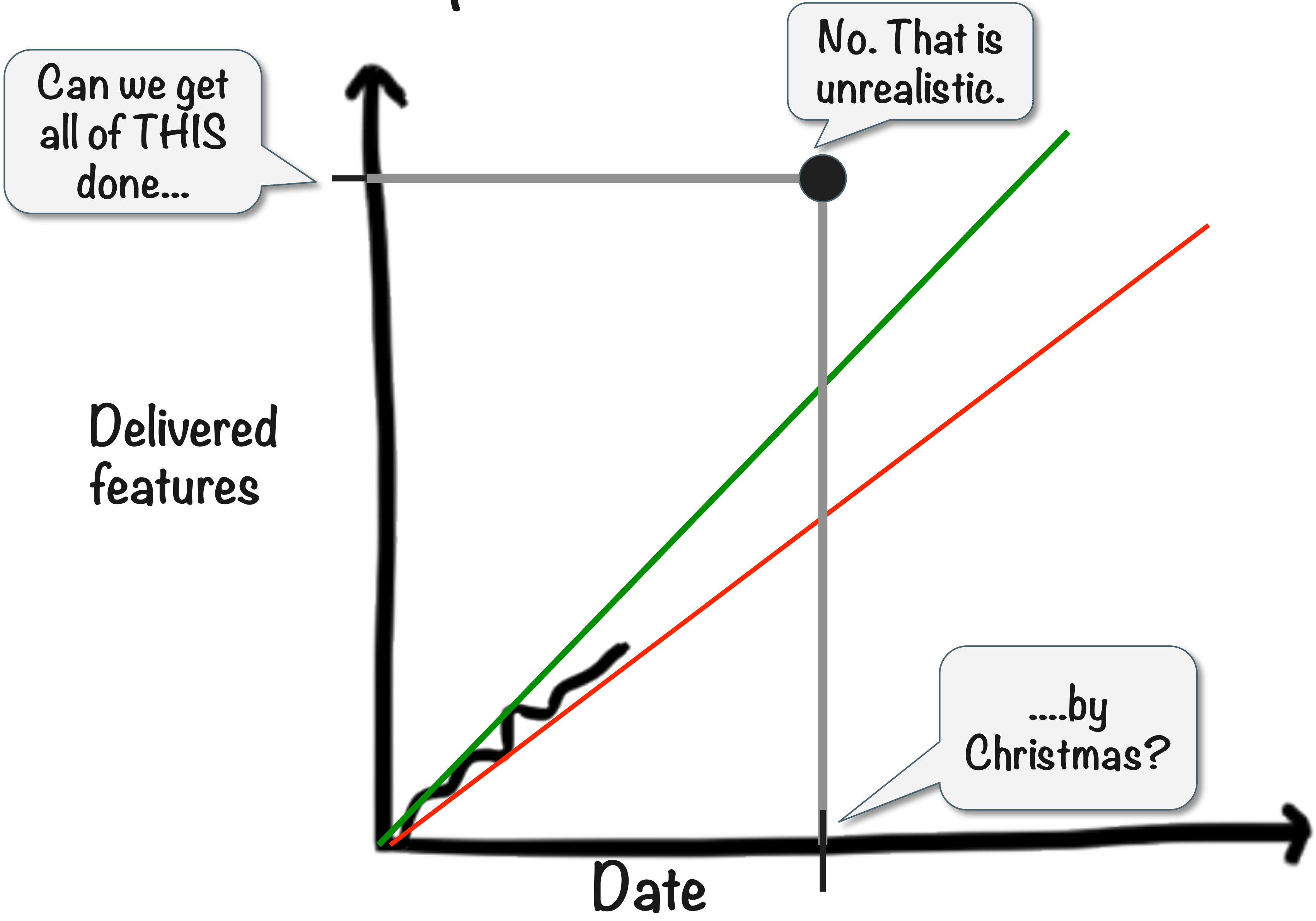
Fixed time & scope forecast



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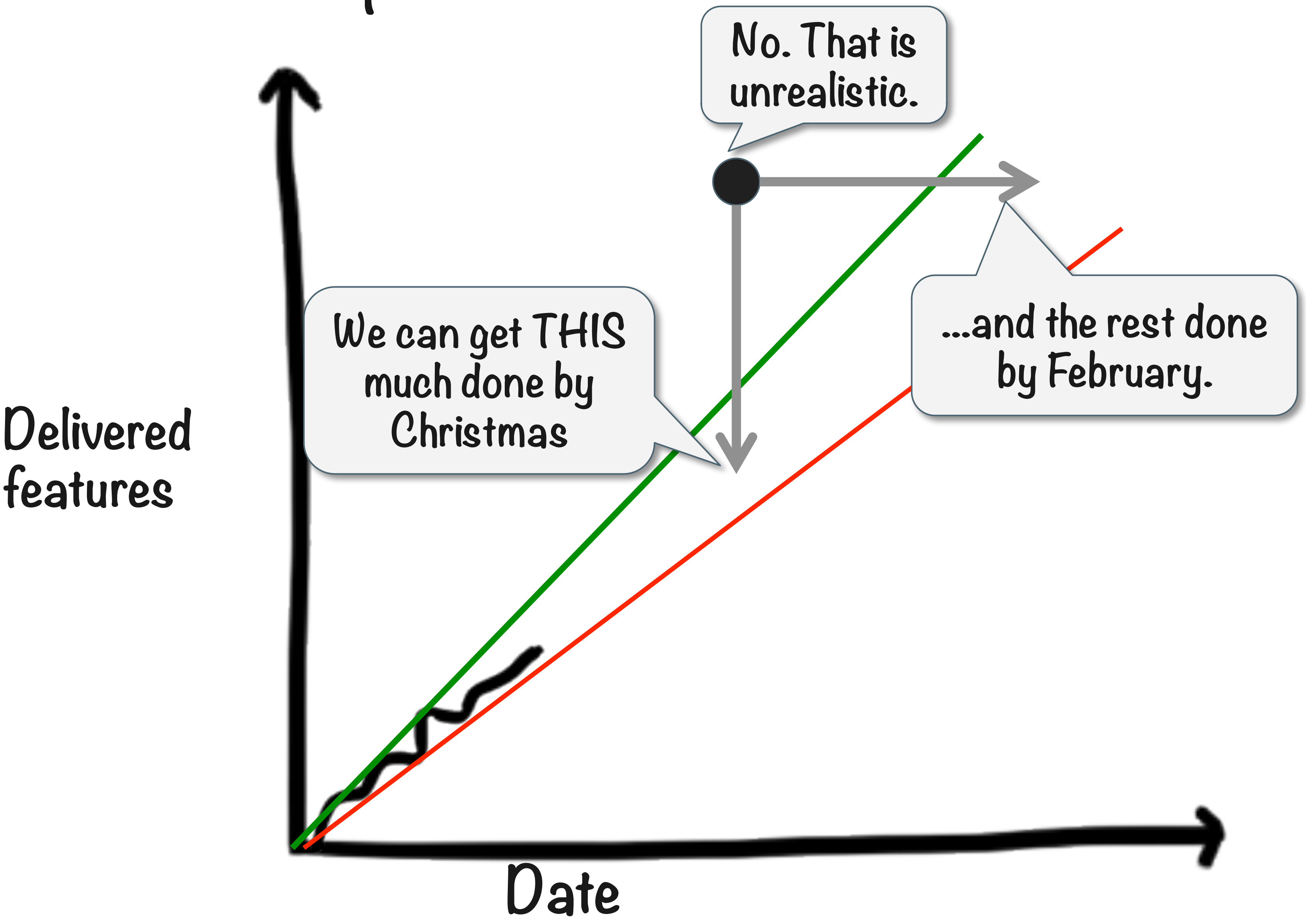
Fixed time & scope forecast



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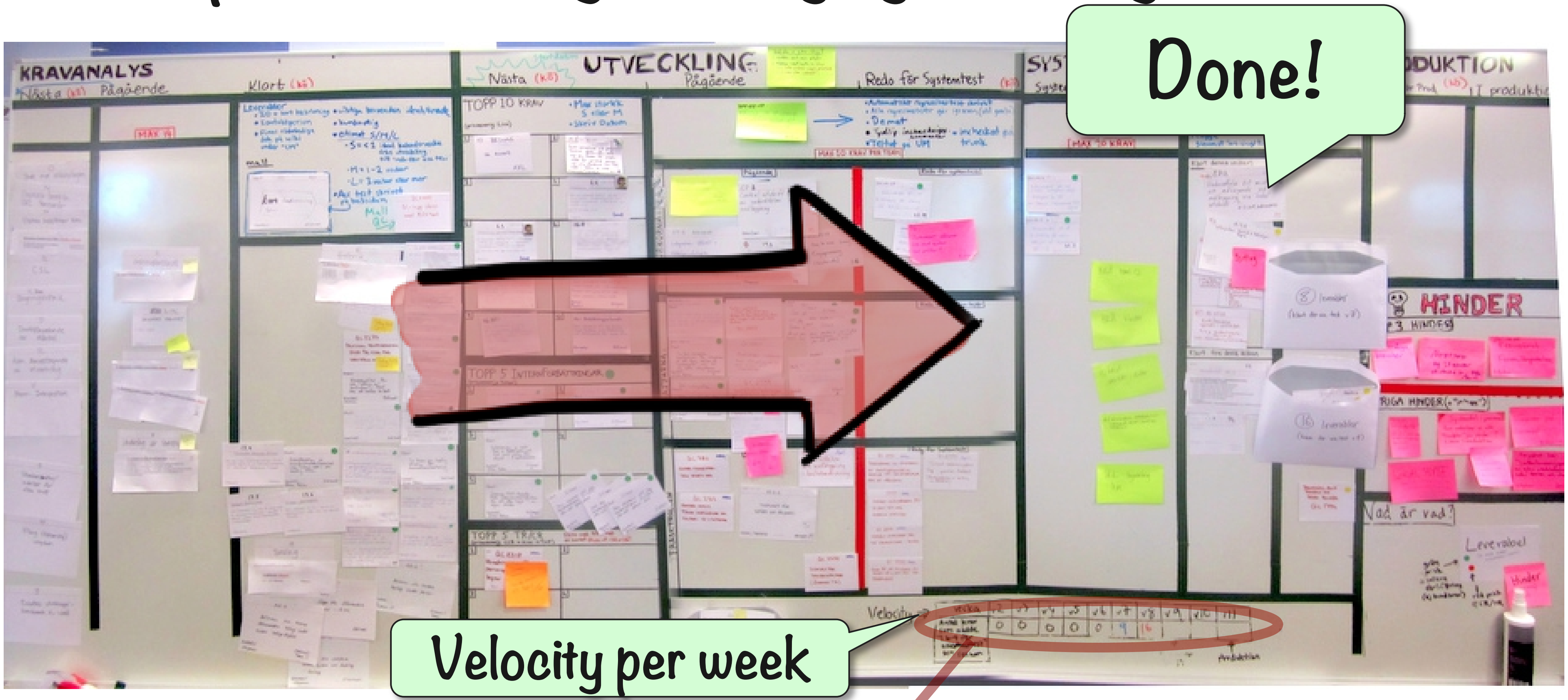
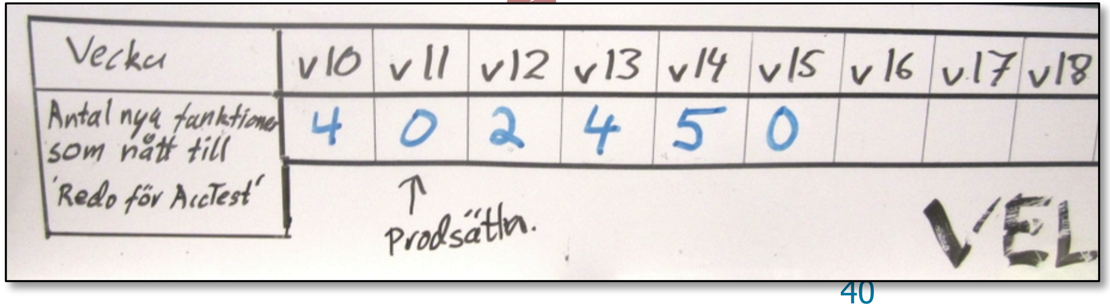
Example: Measuring velocity by counting cards



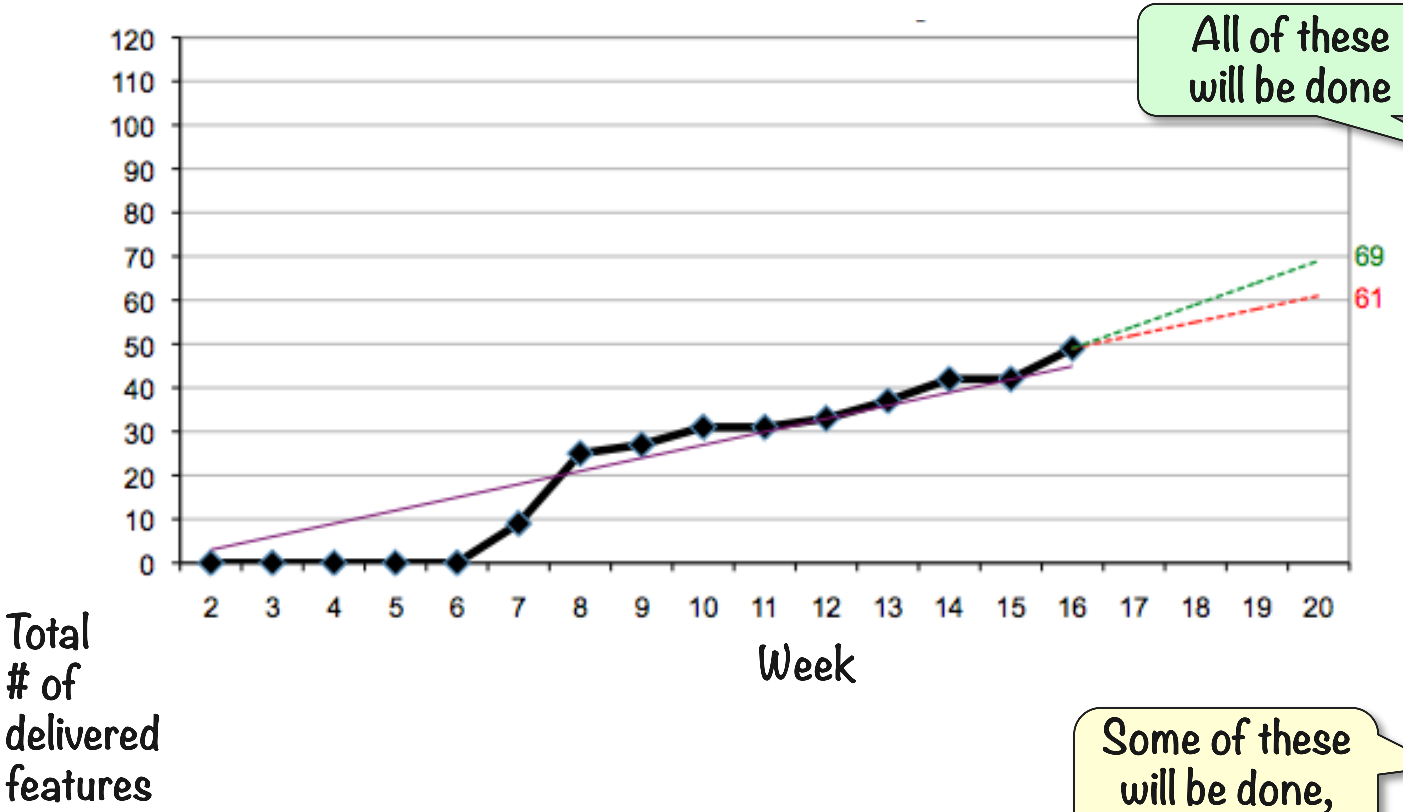


Vecka	v10	v11	v12	v13	v14	v15	v16	v17	v18
Antal nya funktioner som nått till 'Redo för AccTest'	4	0	2	4	5	0			

↑ Prodsättn.

VEL

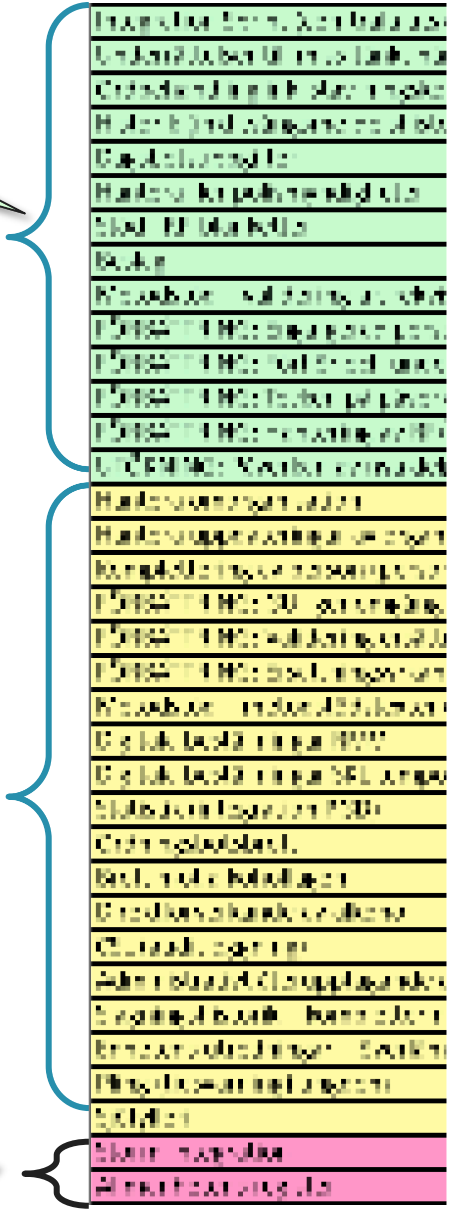
Example: Release planning using a burnup chart



All of these will be done

Some of these will be done, but not all

None of these will be done



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Estimating

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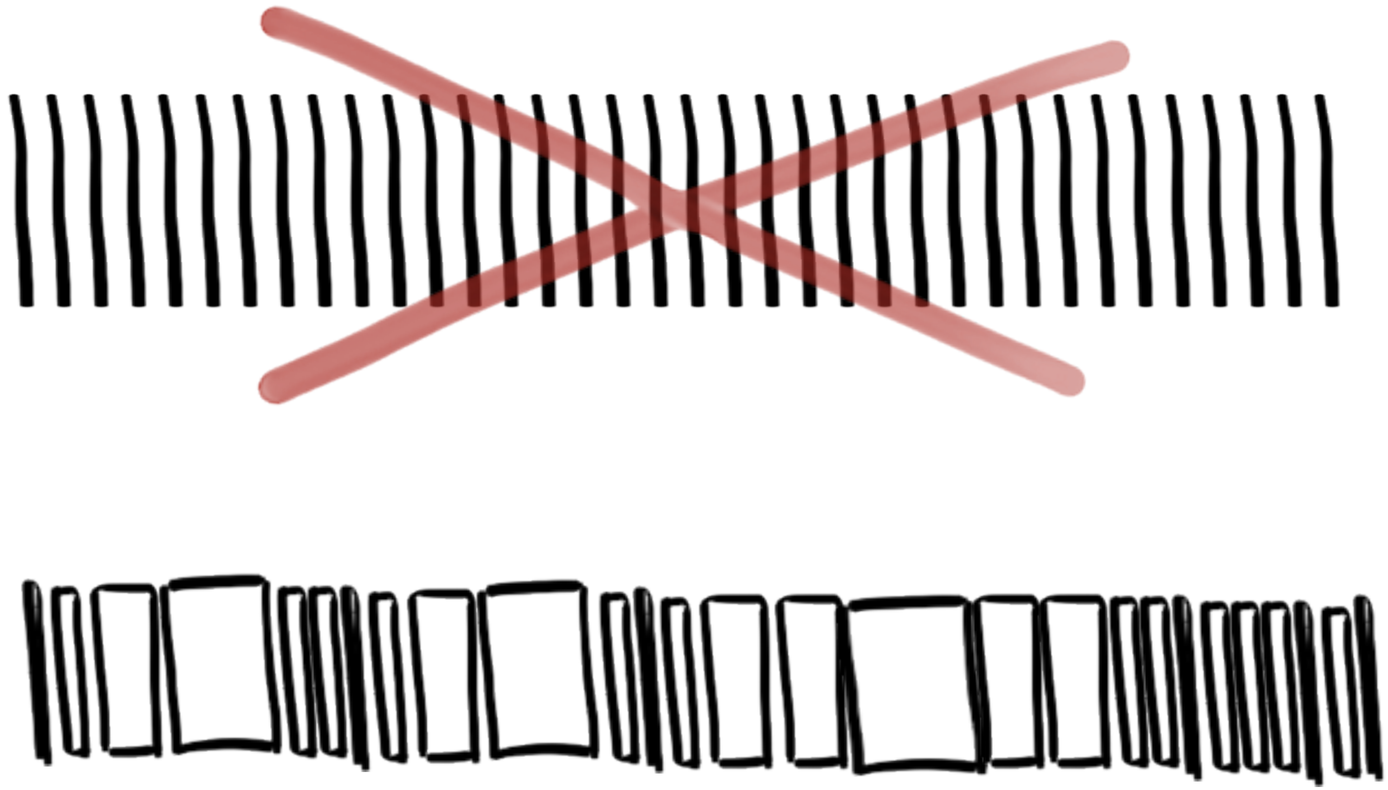
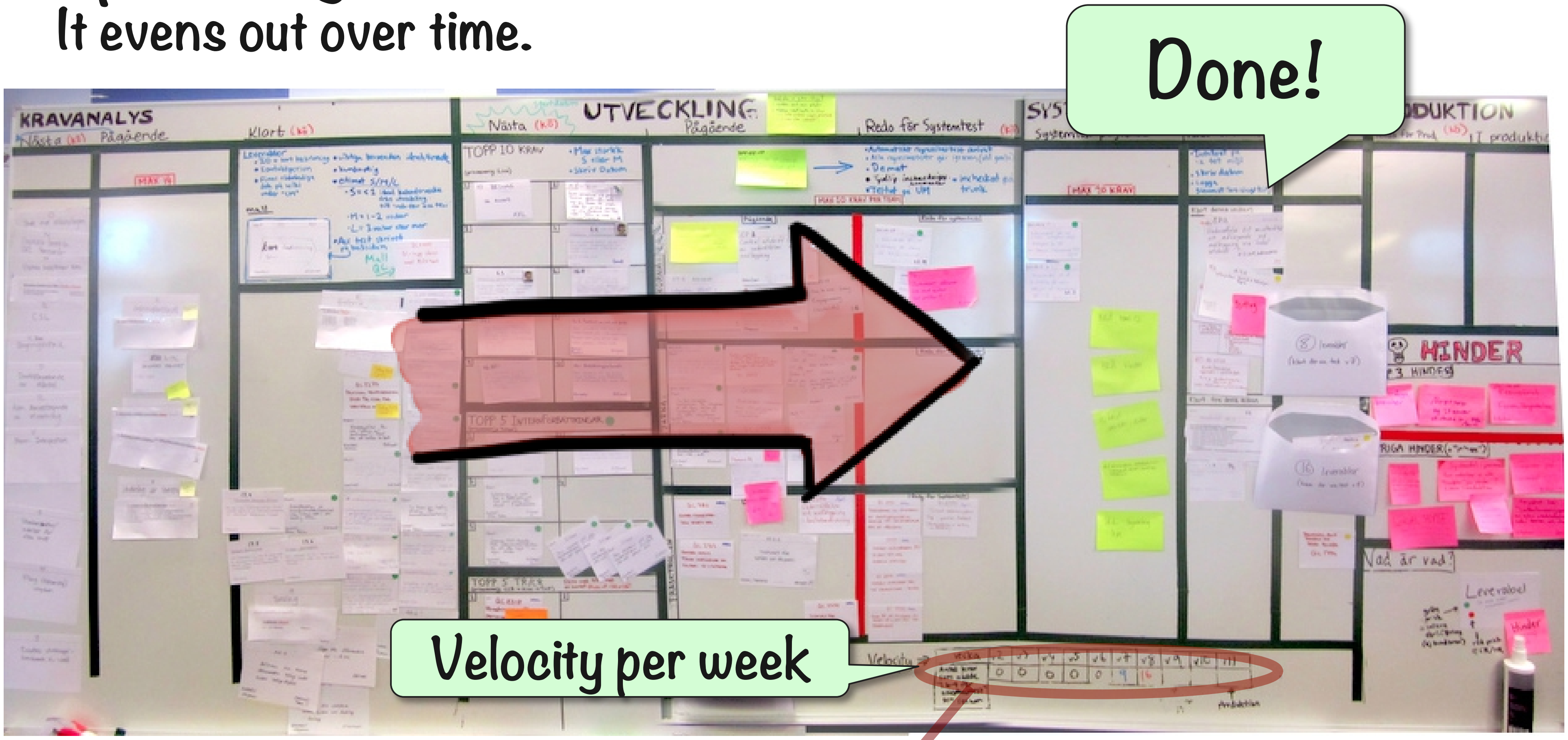
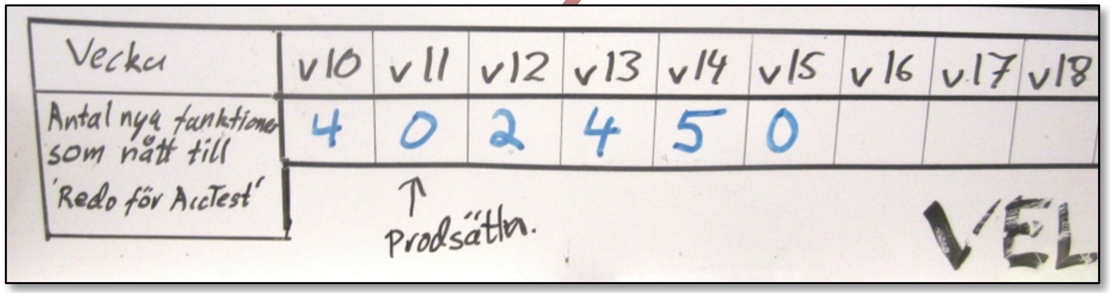
Fact: Features have different sizes



Option 1: Ignore the size difference.

It evens out over time.



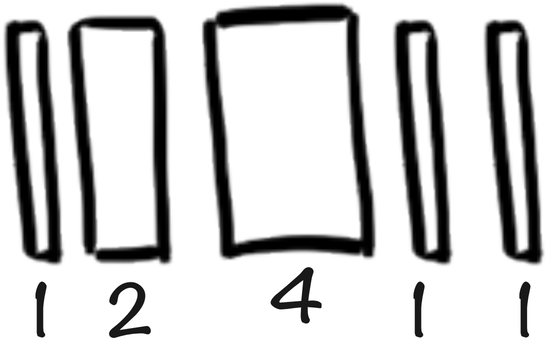


Vecka	v10	v11	v12	v13	v14	v15	v16	v17	v18
Antal nya funktioner som nått till 'Redo för AccTest'	4	0	2	4	5	0			

↑ Prodsättn.

VEL

Option 2: Estimate relative feature Size.

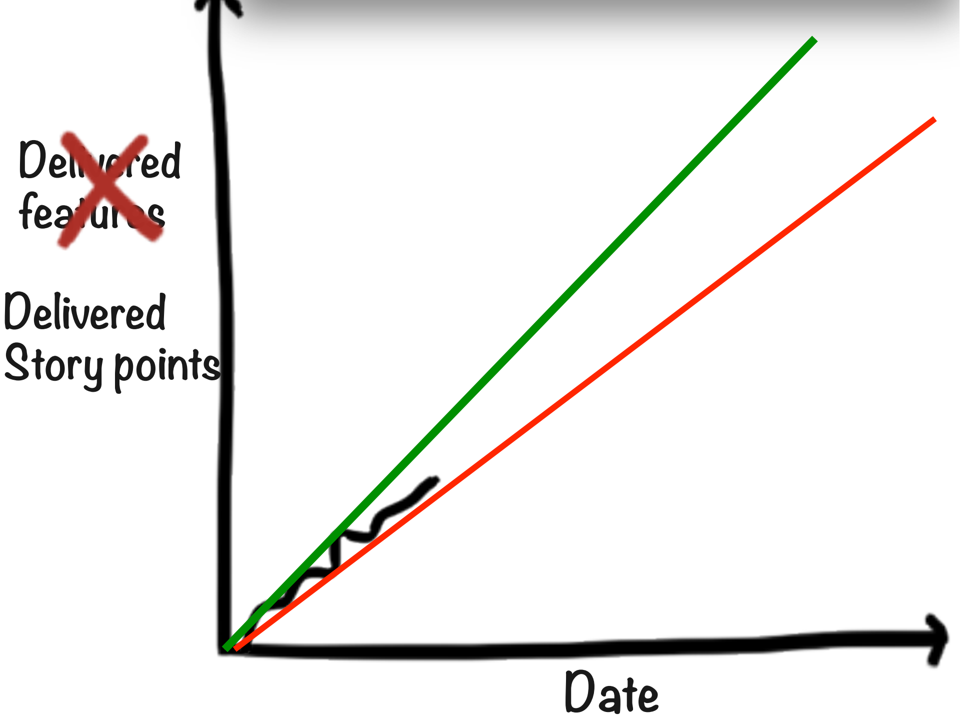


Week 1 Week 2 Week 3

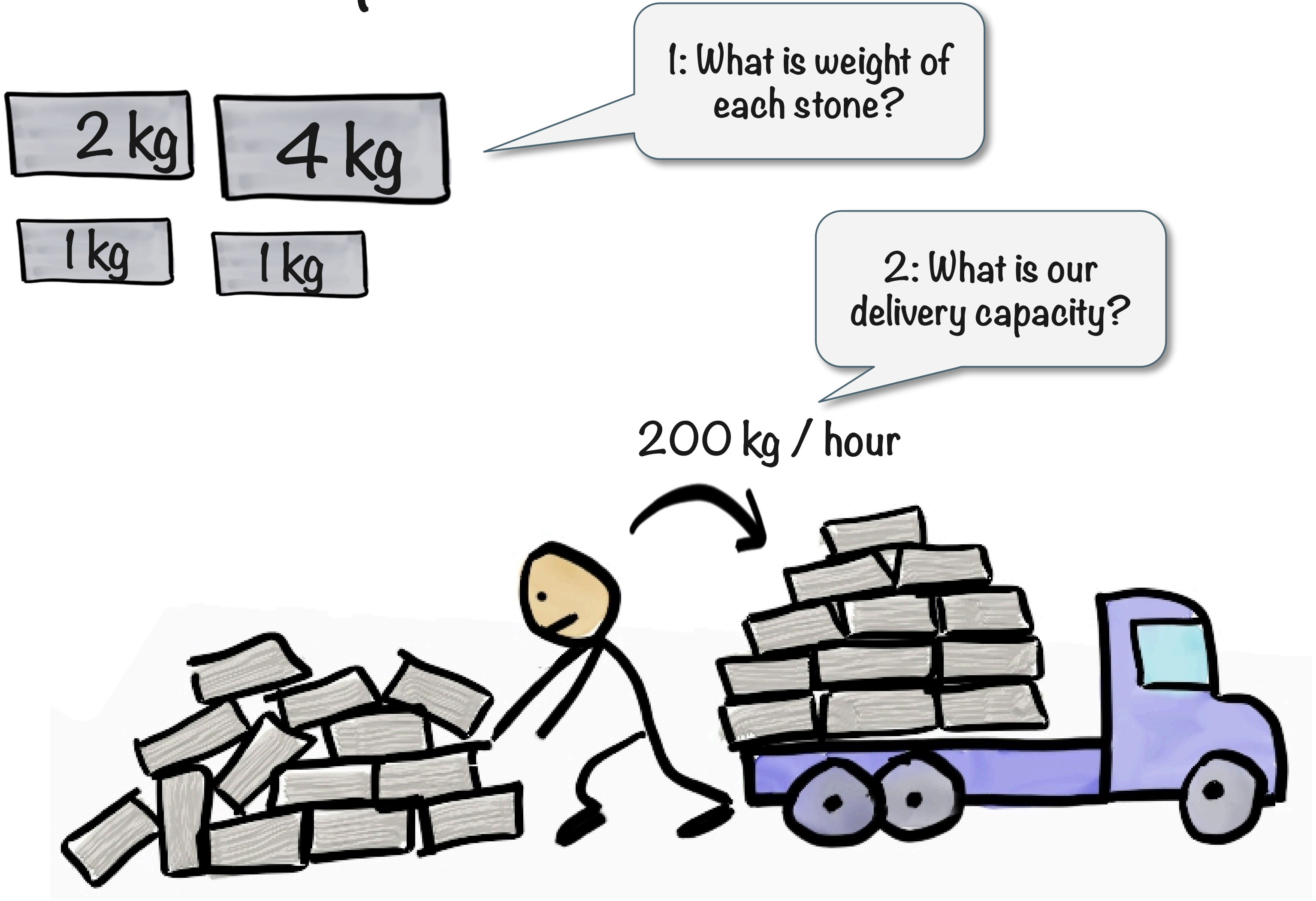
Velocity:
5 story points

Velocity:
4 story points

Velocity:
4 story points



Two different questions: Size & Time

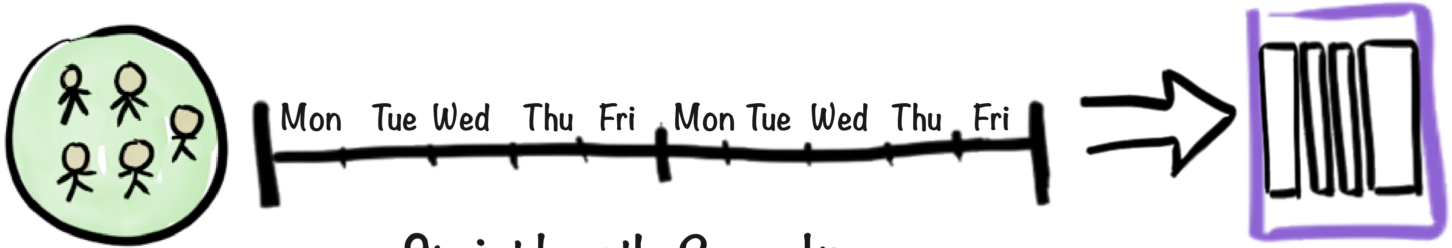

1: What is weight of each stone?
2 kg
4 kg
1 kg
1 kg
2: What is our delivery capacity?
200 kg / hour

Henrik Kniberg

Agile estimating strategy

- **Don't estimate time.**
  - Estimate *relative size* of features.
  - Measure velocity per sprint.
  - *Derive* release plan.
- **(Scrum rule) Estimates done by the people who are going to *do the work.***
  - Not by the people who want the work done.
- **Estimate & reestimate continuously during project**
  - Don't trust early estimates
- **Prefer verbal communication over detailed, written specifications.**
- **Avoid false precision**
  - Better to be roughly right
    than precisely wrong

Cost control without time reports



Team size: 5 people

Sprint length: 2 weeks

Average velocity:
10 story points per sprint

1 sprint = 200,000kr
(salary cost of 5 people for 2 weeks)

1 story point = 20,000kr
(200,000kr / 10 story points)

1 story point = 5 mandays
(50 mandays / 10 story points)

Better to be Roughly Right
than Precisely Wrong

Feature	Size	Cost	Cost
Delete user	3 sp	15 mandays	60,000kr
PDF export	2 sp	10 mandays	40,000kr
Outlook integration	8 sp	40 mandays	160,000kr

Value

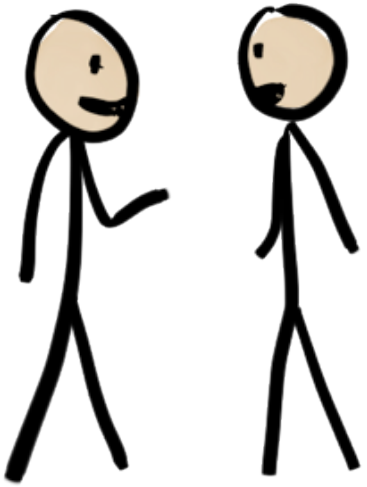
Henrik Kniberg

Features have different value

(and value is independent of size)

Weight: 1 gram
Value: 100 000 kr

Weight: 2000 grams
Value: 5 kr



2 minute standup discussion (pair/trio):

- Give a real-life example of a feature that is **small** and **very valuable**
- Give a real-life example of a feature that is **large** and **not very valuable.**

Henrik Kniberg

Maximize Value, not Output

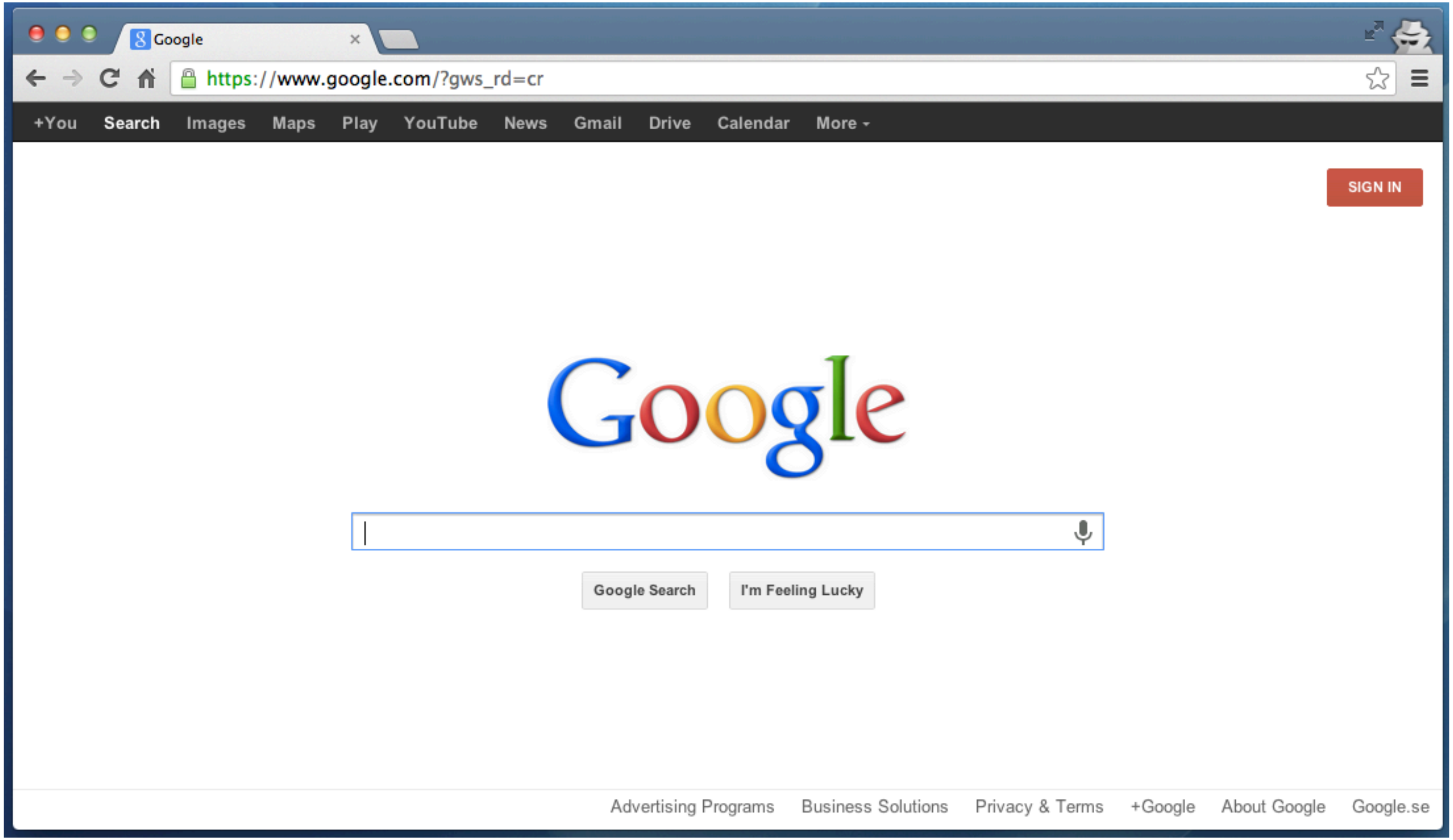
Henrik Kniberg

Less is More

Perfection is attained,
not when there is nothing more to add,
but when there is **nothing left to take away**

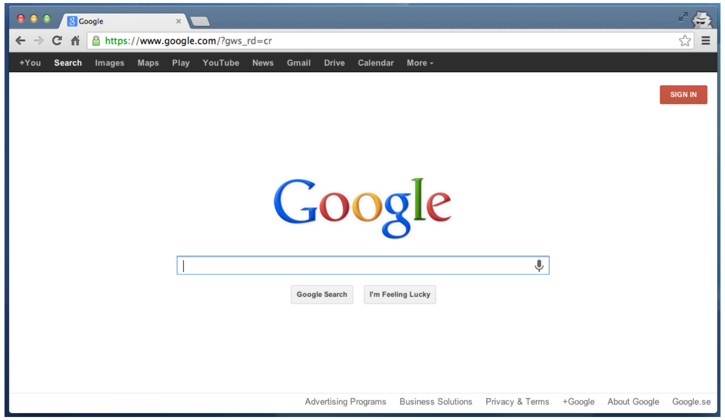
Antoine de Saint-Exupery

Example: Google

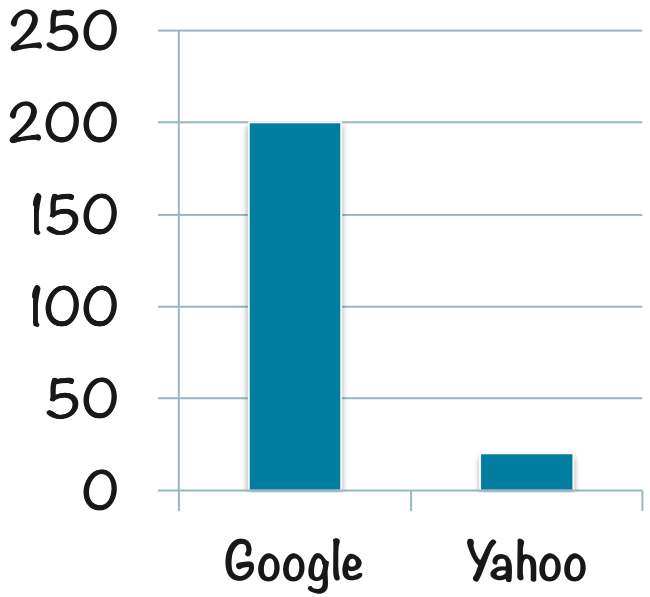


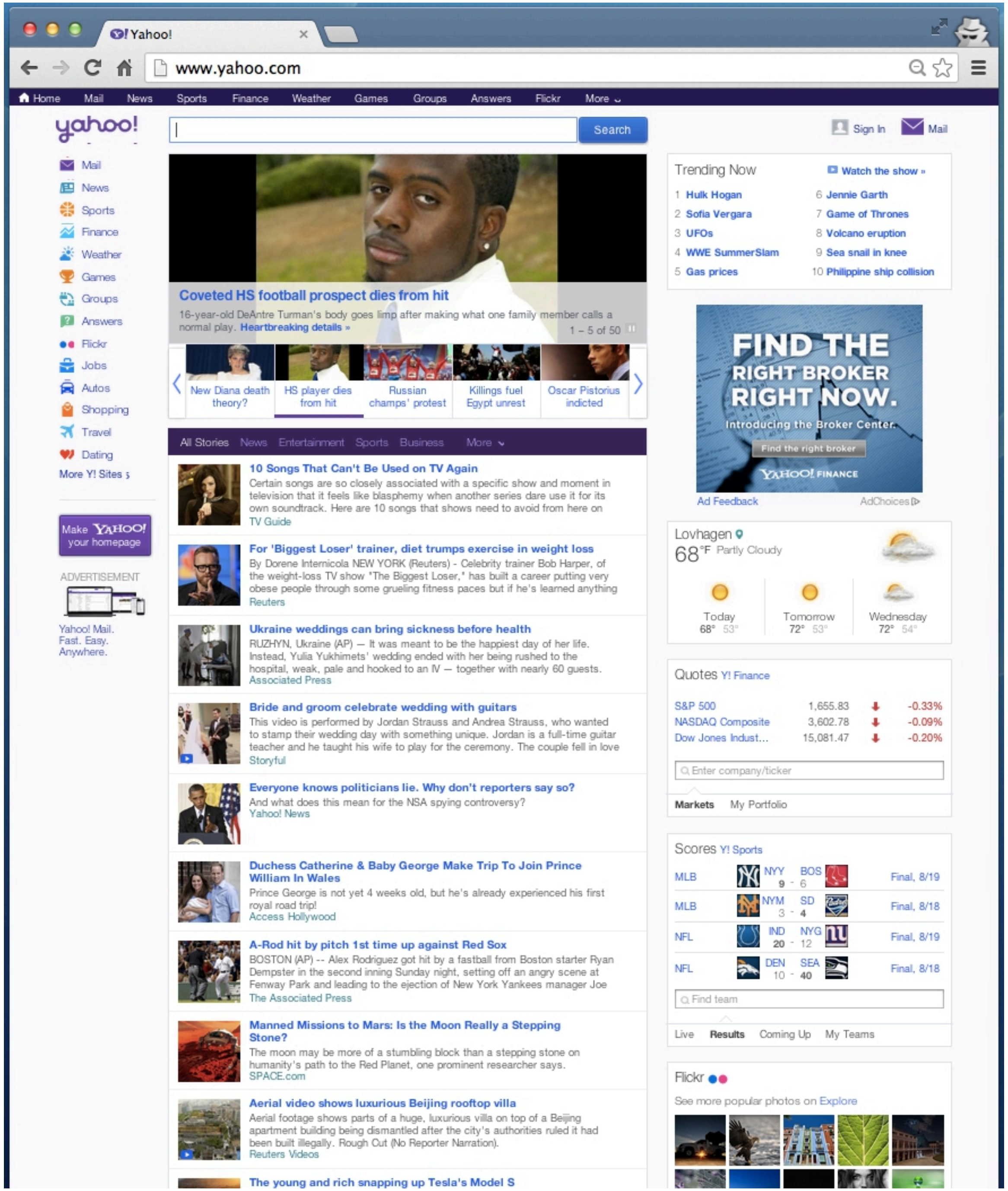
Henrik Kniberg

Google vs Yahoo



Value (billion $)





Coveted HS football prospect dies from hit

16-year-old DeAntre Turman's body goes limp after making what one family member calls a normal play. Heartbreaking details »

1 – 5 of 50

New Diana death theory? | HS player dies from hit | Russian champs' protest | Killings fuel Egypt unrest | Oscar Pistorius indicted

All Stories | News | Entertainment | Sports | Business | More

10 Songs That Can't Be Used on TV Again
Certain songs are so closely associated with a specific show and moment in television that it feels like blasphemy when another series dare use it for its own soundtrack. Here are 10 songs that shows need to avoid from here on
TV Guide

For 'Biggest Loser' trainer, diet trumps exercise in weight loss
By Dorene Internicola NEW YORK (Reuters) - Celebrity trainer Bob Harper, of the weight-loss TV show "The Biggest Loser," has built a career putting very obese people through some grueling fitness paces but if he's learned anything
Reuters

Ukraine weddings can bring sickness before health
RUZHYN, Ukraine (AP) — It was meant to be the happiest day of her life. Instead, Yulia Yukhimets' wedding ended with her being rushed to the hospital, weak, pale and hooked to an IV — together with nearly 60 guests.
Associated Press

Bride and groom celebrate wedding with guitars
This video is performed by Jordan Strauss and Andrea Strauss, who wanted to stamp their wedding day with something unique. Jordan is a full-time guitar teacher and he taught his wife to play for the ceremony. The couple fell in love
Storyful

Everyone knows politicians lie. Why don't reporters say so?
And what does this mean for the NSA spying controversy?
Yahoo! News

Duchess Catherine & Baby George Make Trip To Join Prince William In Wales
Prince George is not yet 4 weeks old, but he's already experienced his first royal road trip!
Access Hollywood

A-Rod hit by pitch 1st time up against Red Sox
BOSTON (AP) -- Alex Rodriguez got hit by a fastball from Boston starter Ryan Dempster in the second inning Sunday night, setting off an angry scene at Fenway Park and leading to the ejection of New York Yankees manager Joe
The Associated Press

Manned Missions to Mars: Is the Moon Really a Stepping Stone?
The moon may be more of a stumbling block than a stepping stone on humanity's path to the Red Planet, one prominent researcher says.
SPACE.com

Aerial video shows luxurious Beijing rooftop villa
Aerial footage shows parts of a huge, luxurious villa on top of a Beijing apartment building being dismantled after the city's authorities ruled it had been built illegally. Rough Cut (No Reporter Narration).
Reuters Videos

The young and rich snapping up Tesla's Model S

Trending Now — Watch the show »

1 Hulk Hogan
2 Sofia Vergara
3 UFOs
4 WWE SummerSlam
5 Gas prices
6 Jennie Garth
7 Game of Thrones
8 Volcano eruption
9 Sea snail in knee
10 Philippine ship collision

FIND THE RIGHT BROKER RIGHT NOW.
Introducing the Broker Center.
Find the right broker
YAHOO! FINANCE
Ad Feedback AdChoices

Lovhagen
68°F Partly Cloudy

Today	Tomorrow	Wednesday
68° 53°	72° 53°	72° 54°

Quotes Y! Finance

S&P 500	1,655.83	⬇	-0.33%
NASDAQ Composite	3,602.78	⬇	-0.09%
Dow Jones Indust...	15,081.47	⬇	-0.20%

Enter company/ticker
Markets My Portfolio

Scores Y! Sports

MLB	NYY	9 - 6	BOS	Final, 8/19
MLB	NYM	3 - 4	SD	Final, 8/18
NFL	IND	20 - 12	NYG	Final, 8/19
NFL	DEN	10 - 40	SEA	Final, 8/18

Find team
Live Results Coming Up My Teams

Flickr
See more popular photos on Explore

Henrik Kniberg

Example: Apple

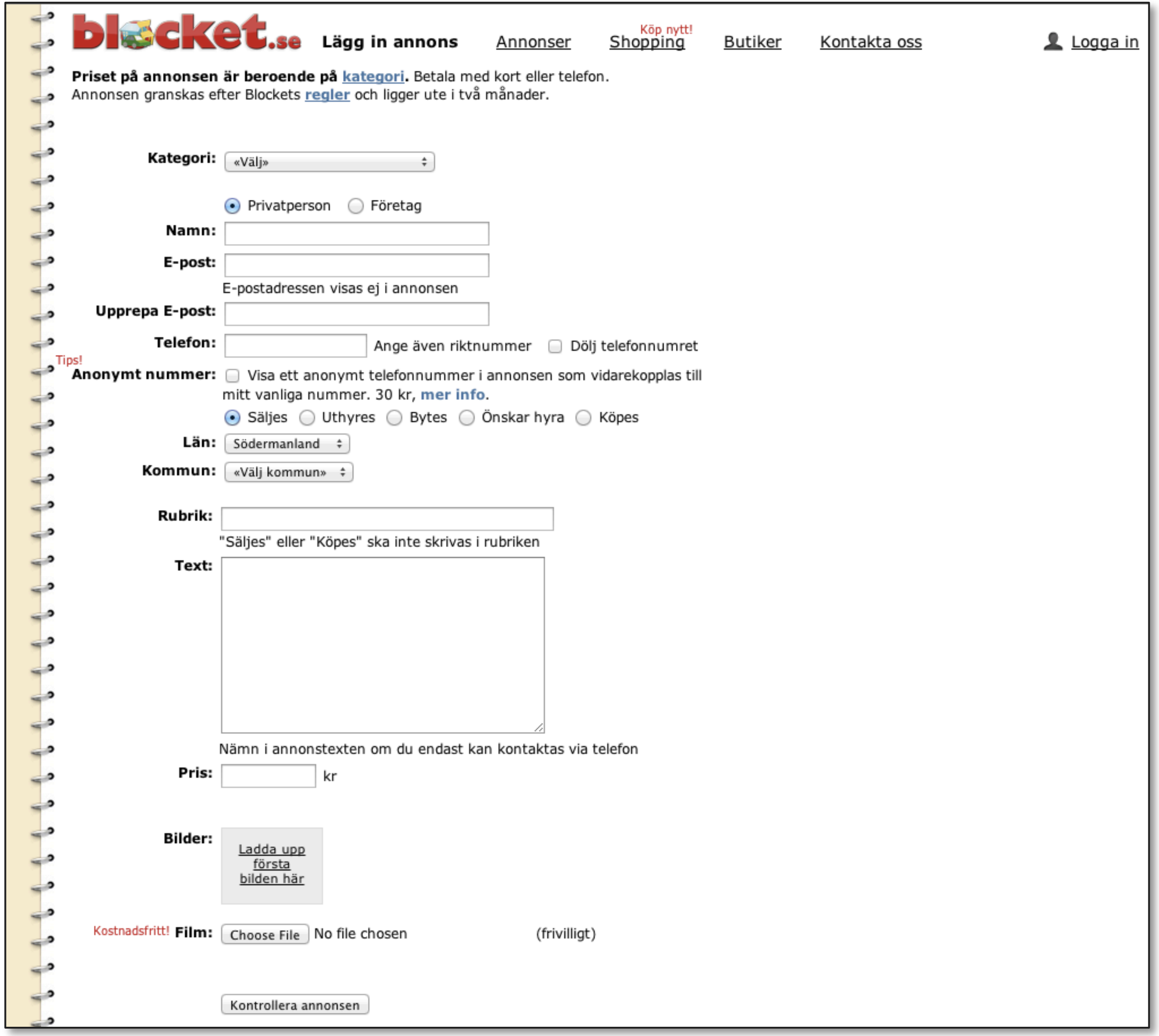
2007

2008
- App Store
- 3G

2009
- Copy/Paste
- Search

2010
- Multitasking
- Video calls

Example: Blocket



blocket.se **Lägg in annons** Annonser Köp nytt! Shopping Butiker Kontakta oss Logga in

Priset på annonsen är beroende på kategori. Betala med kort eller telefon.
Annonsen granskas efter Blockets regler och ligger ute i två månader.

Kategori: «Välj»

● Privatperson ○ Företag

Namn:

E-post:

E-postadressen visas ej i annonsen

Upprepa E-post:

Telefon: Ange även riktnummer □ Dölj telefonnumret

Tips! **Anonymt nummer:** □ Visa ett anonymt telefonnummer i annonsen som vidarekopplas till mitt vanliga nummer. 30 kr, mer info.

● Säljes ○ Uthyres ○ Bytes ○ Önskar hyra ○ Köpes

Län: Södermanland

Kommun: «Välj kommun»

Rubrik:

"Säljes" eller "Köpes" ska inte skrivas i rubriken

Text:

Nämn i annonstexten om du endast kan kontaktas via telefon

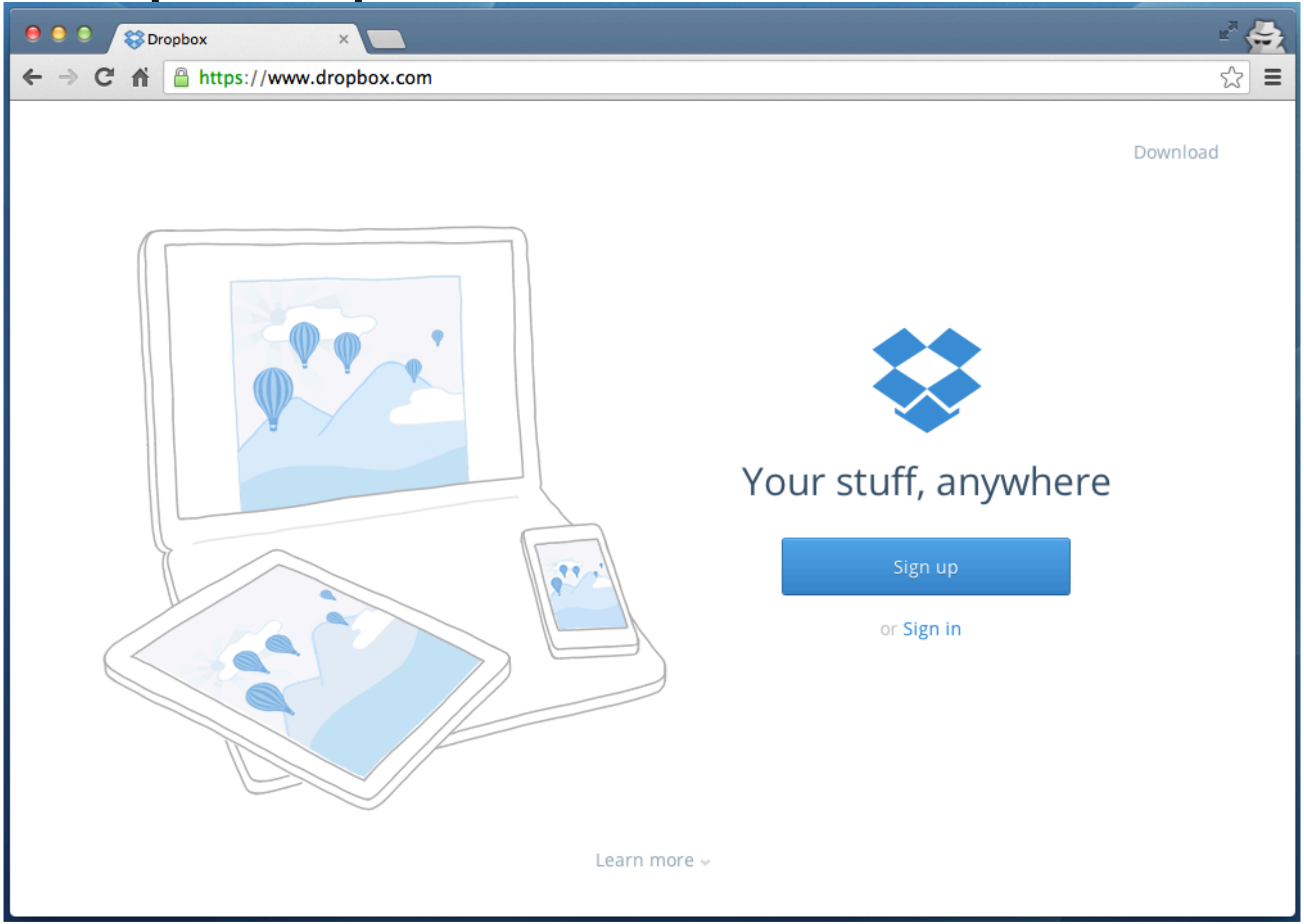
Pris: kr

Bilder: Ladda upp första bilden här

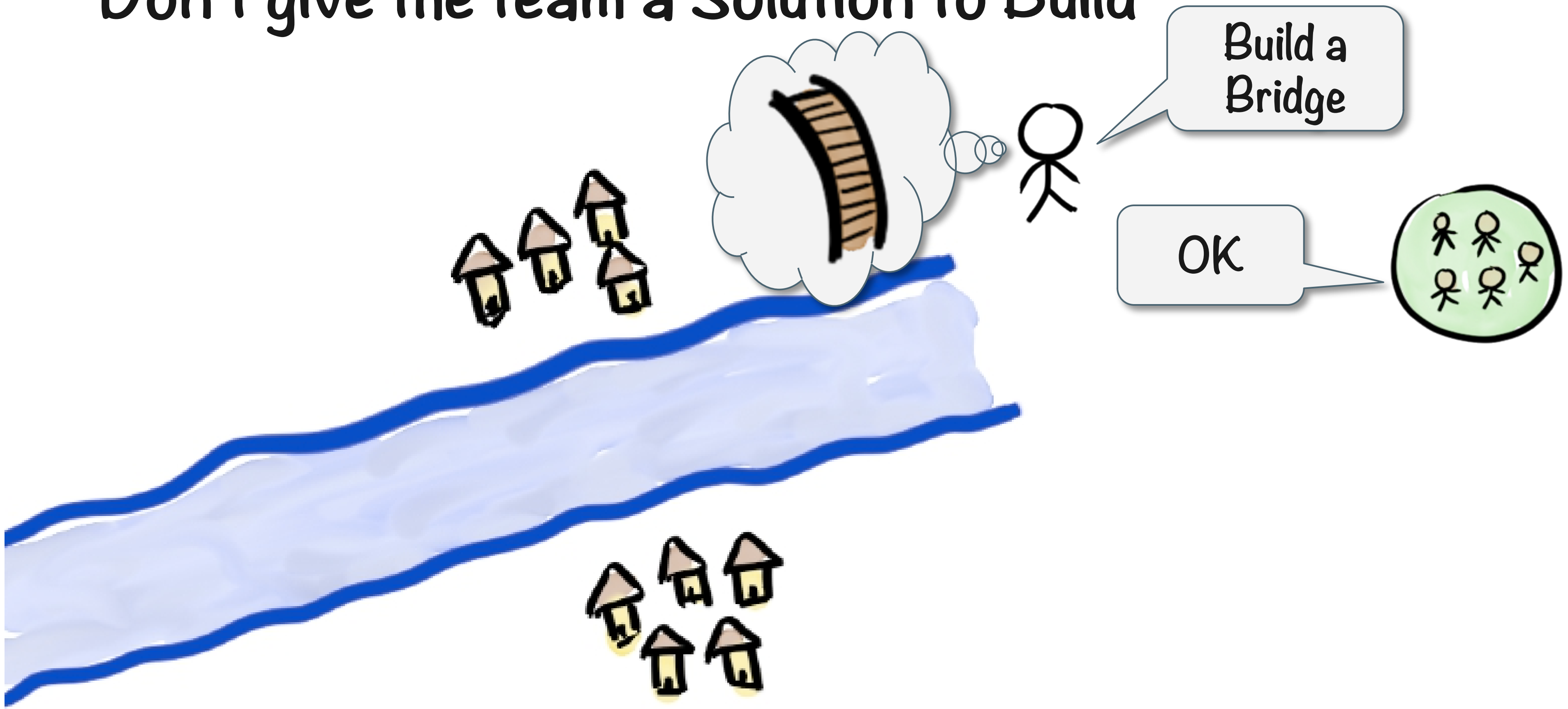
Kostnadsfritt! **Film:** Choose File No file chosen (frivilligt)

Kontrollera annonsen

Example: Dropbox

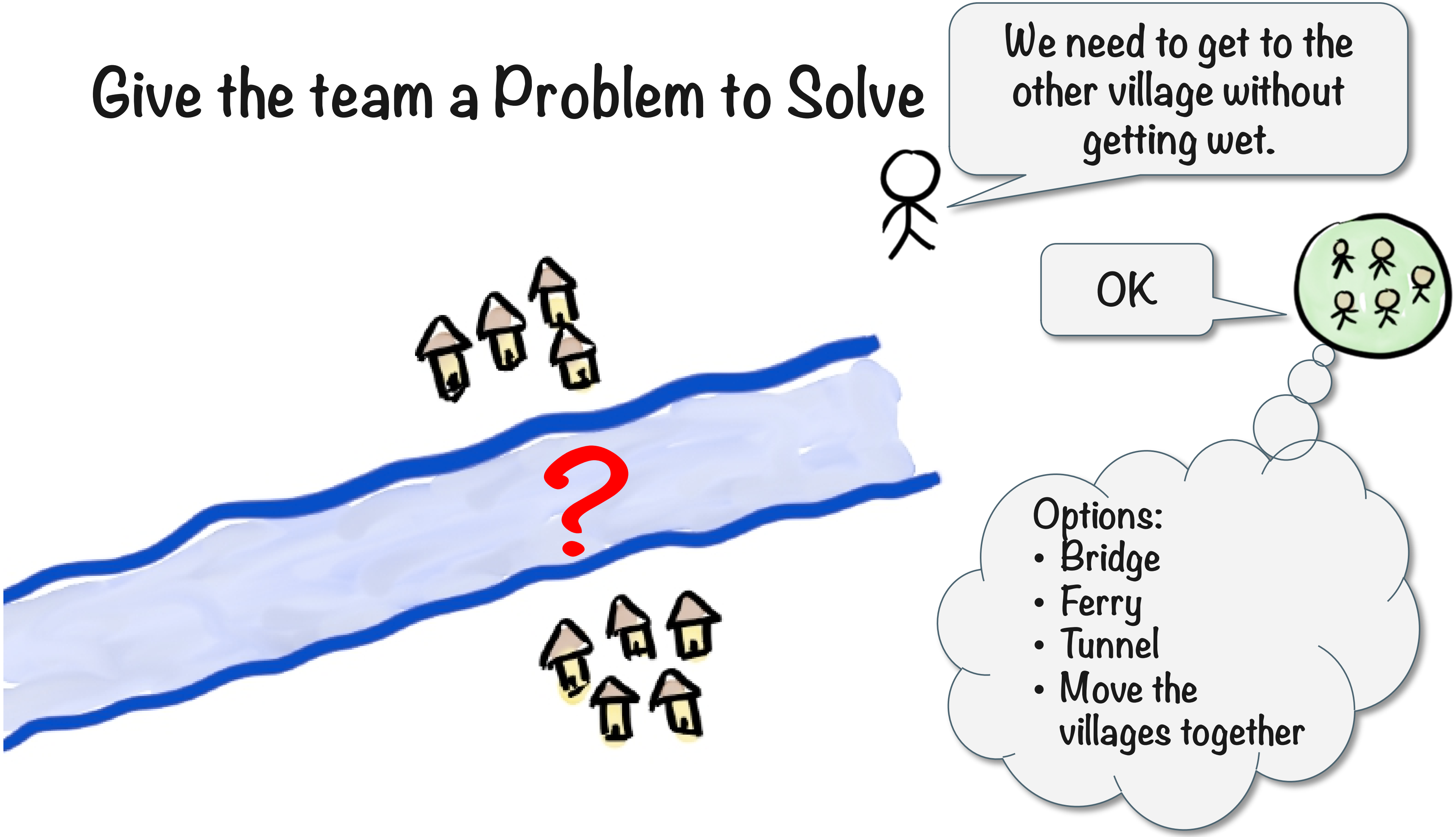


Don't give the team a Solution to Build



Henrik Kniberg

Give the team a Problem to Solve



We need to get to the other village without getting wet.

OK

Options:

- Bridge
- Ferry
- Tunnel
- Move the villages together

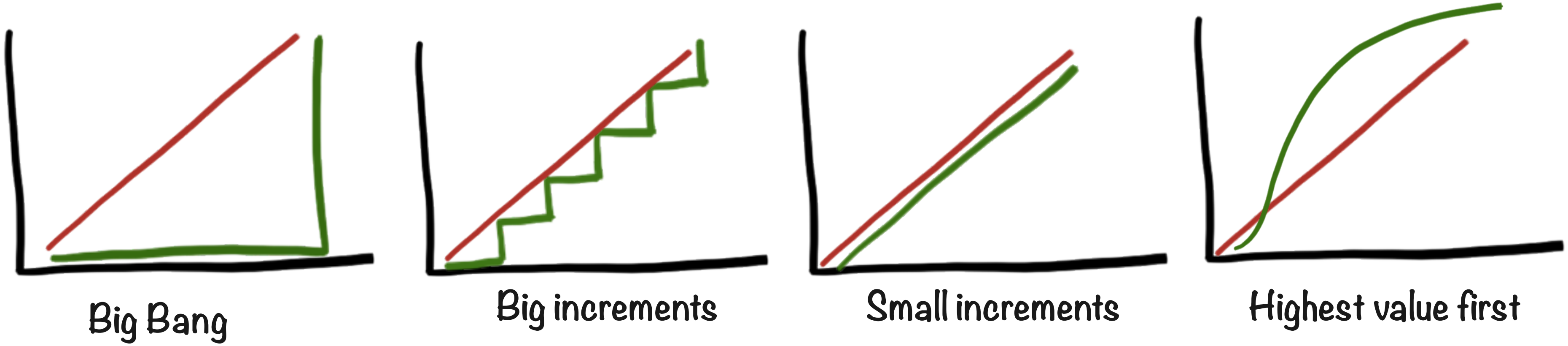
Always include the Why

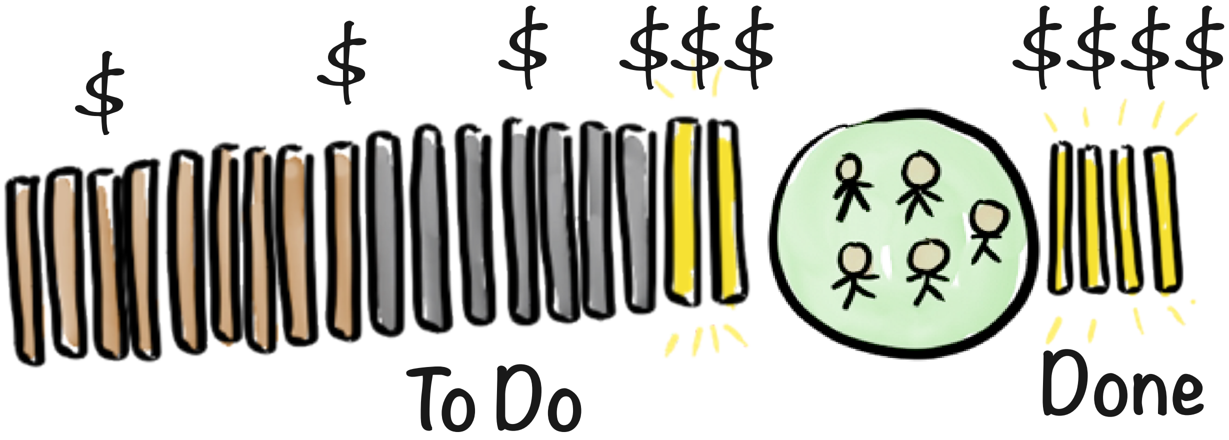
As X
I want Y
so that Z

As online buyer
I want to save my shopping cart
so that I can continue shopping later

Henrik Kniberg

Improving the Value Curve



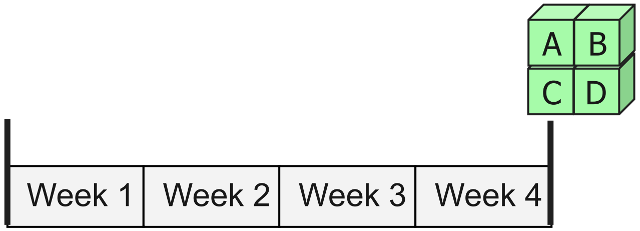


Henrik Kniberg

Timeboxing

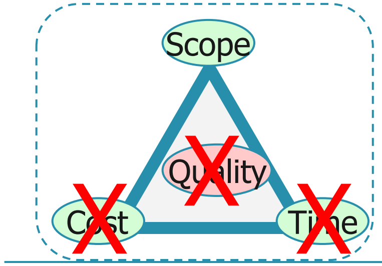
Plan

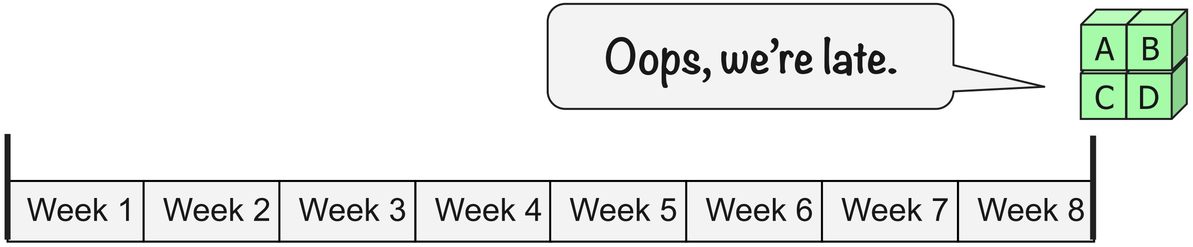
(doomed to fail, but we don't know it yet)



Big Bang scenario

"We will deliver ABCD in 4 weeks"



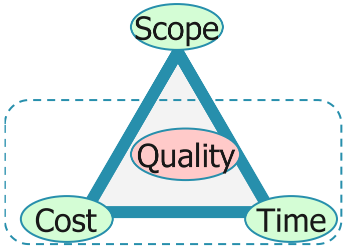


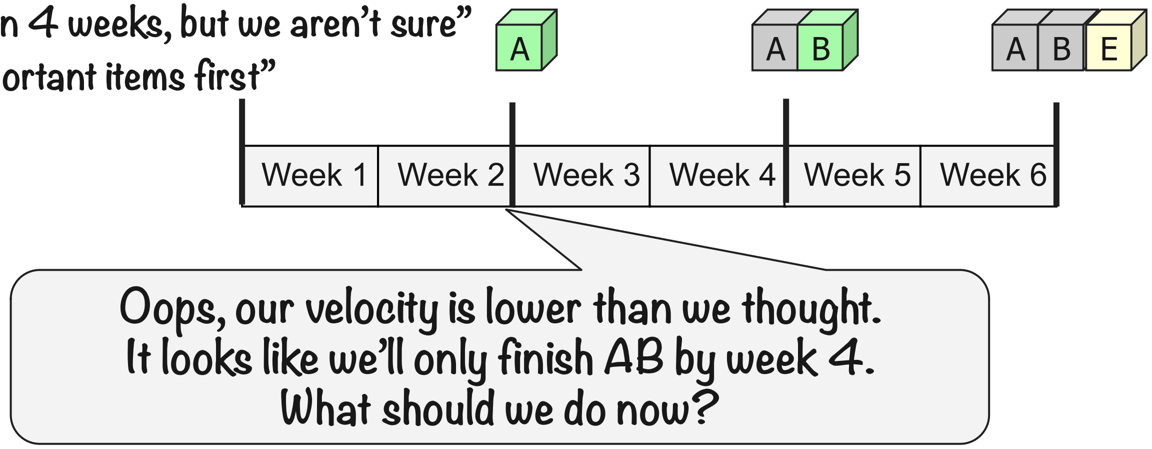
Agile scenario

"We always deliver something every sprint (2 weeks)"

"We *think* we can finish ABCD in 4 weeks, but we aren't sure"

"We always deliver the most important items first"

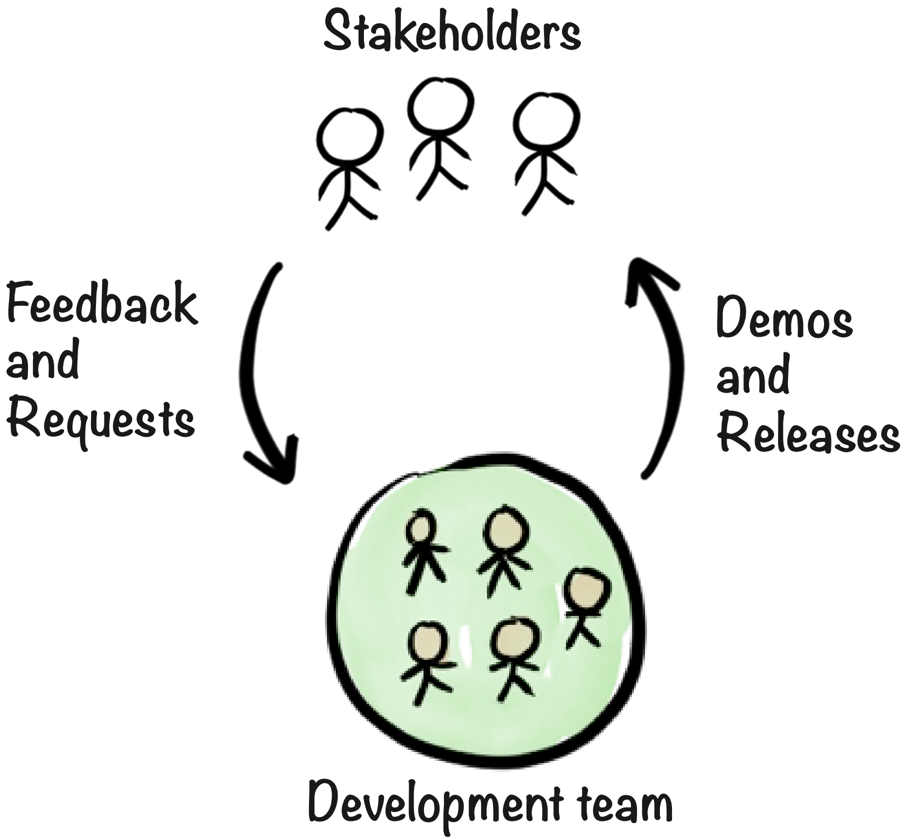



A
A
B
A
B
E
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Oops, our velocity is lower than we thought.
It looks like we'll only finish AB by week 4.
What should we do now?

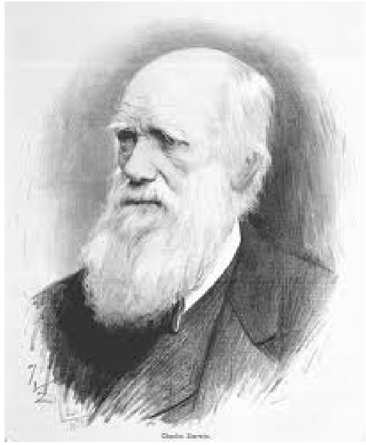
Henrik Kniberg

Focus on Feedback!

Delivery frequency = Speed of learning



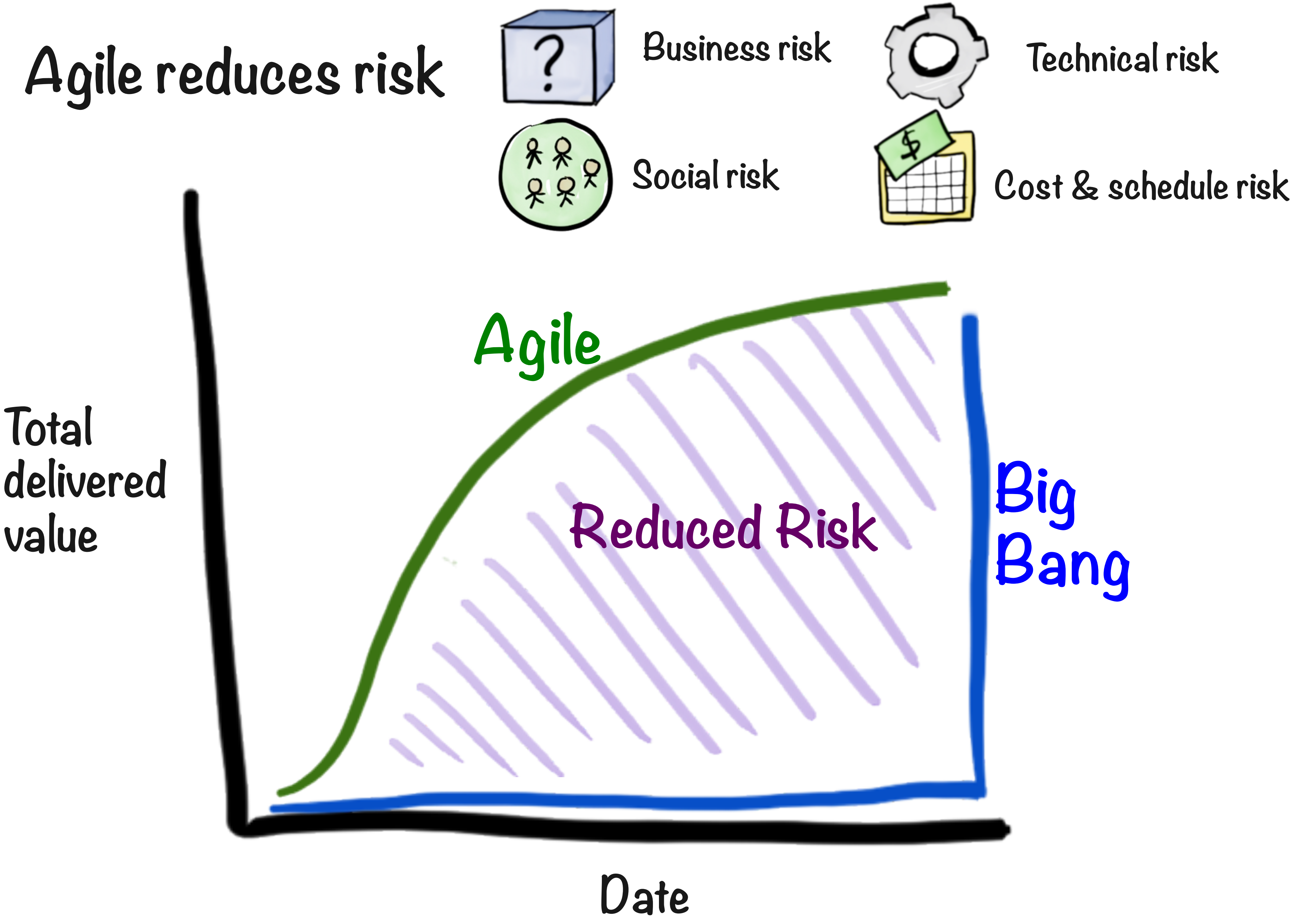
It is not the strongest species that survive, nor the most intelligent, but the ones most responsive to change.



Charles Darwin

Henrik Kniberg

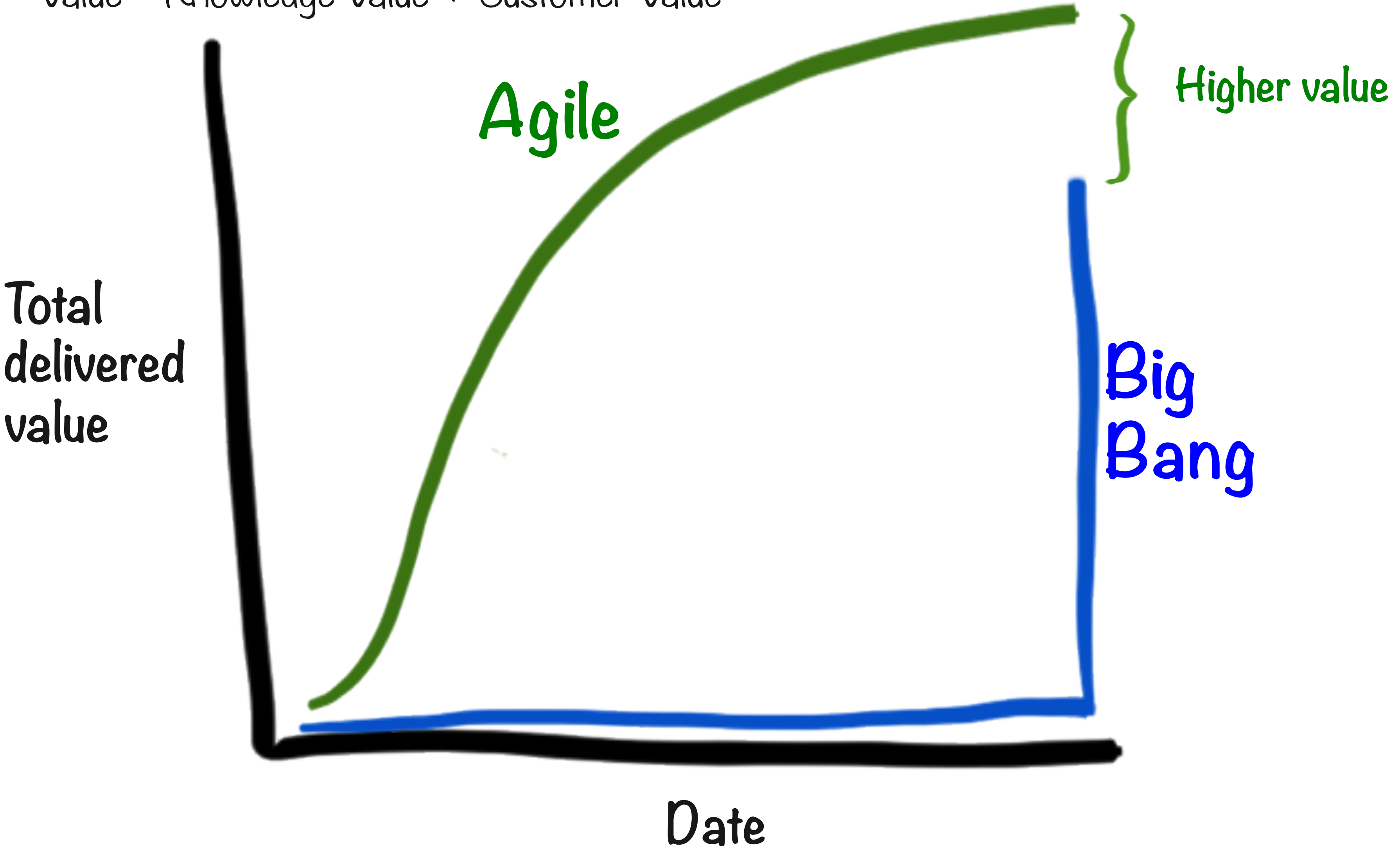
Agile reduces risk



Henrik Kniberg

Faster learning = Higher value

Value = Knowledge Value + Customer Value



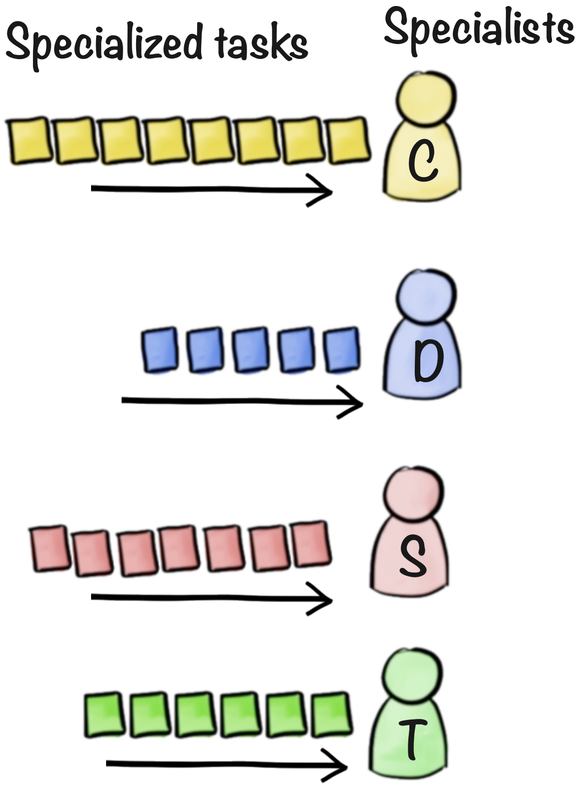
Henrik Kniberg

The Development Team

Henrik Kniberg

Resource optimization vs Time-to-market optimzation

Resource optimization



Specialized tasks

Specialists

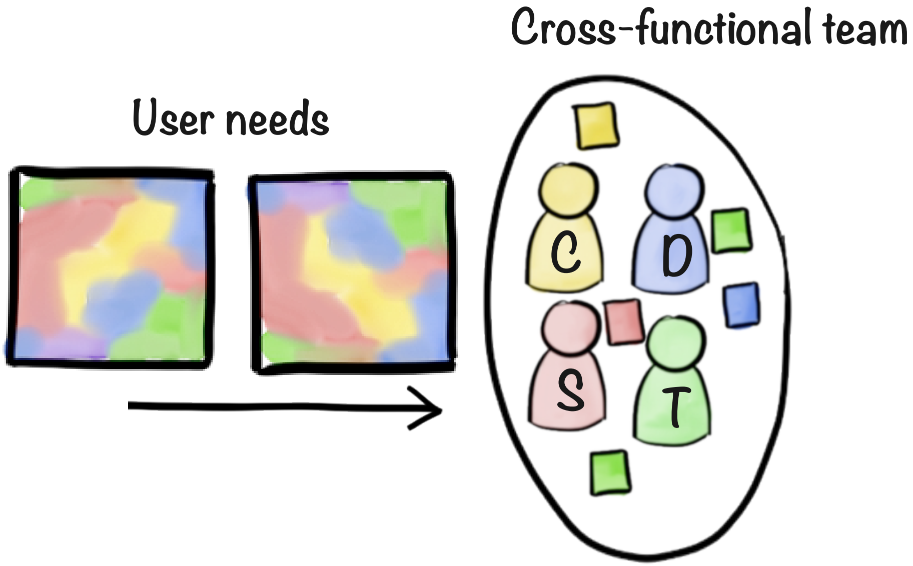
C

D

S

T

Time-to-market optimization



User needs

Cross-functional team

C

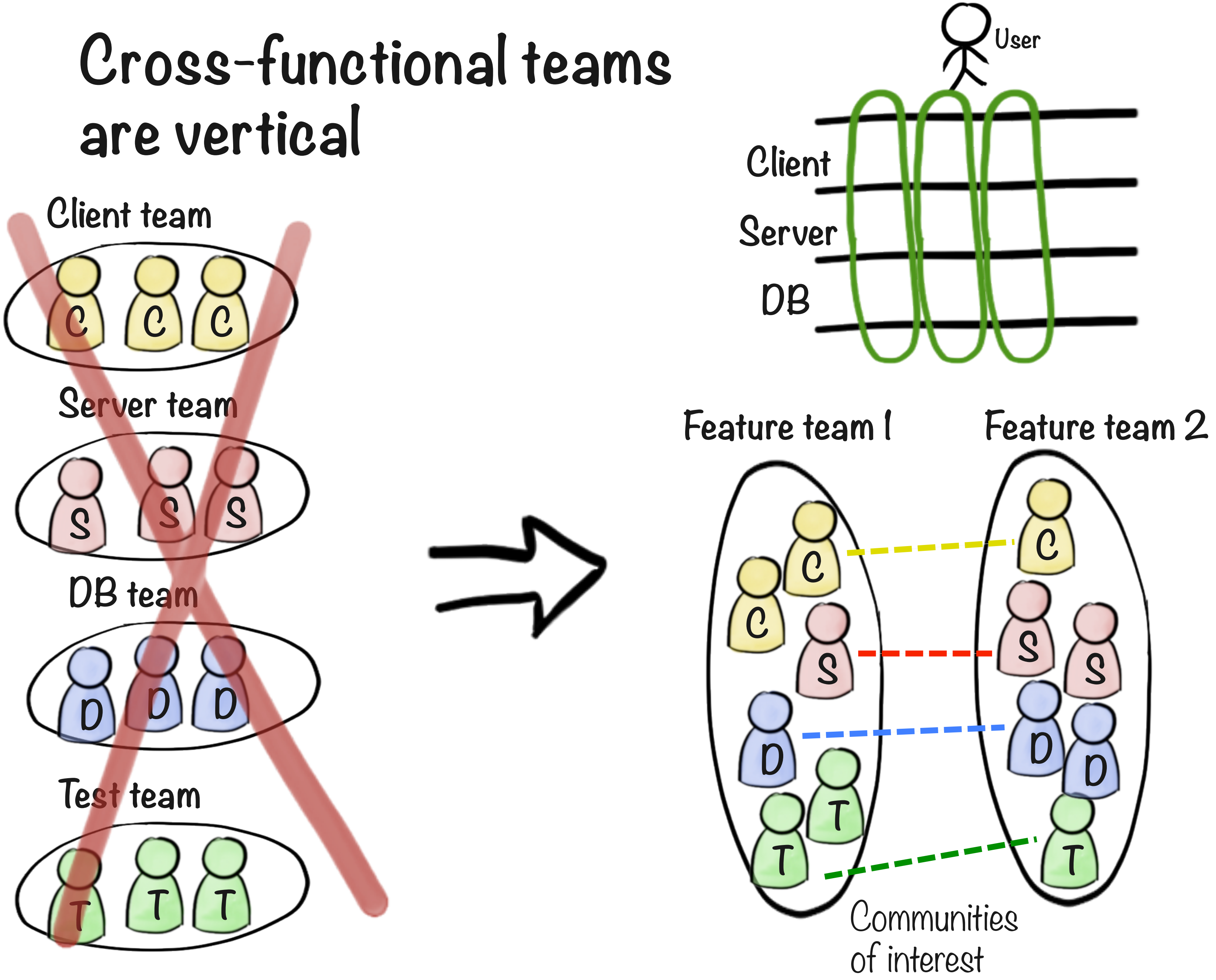
D

S

T

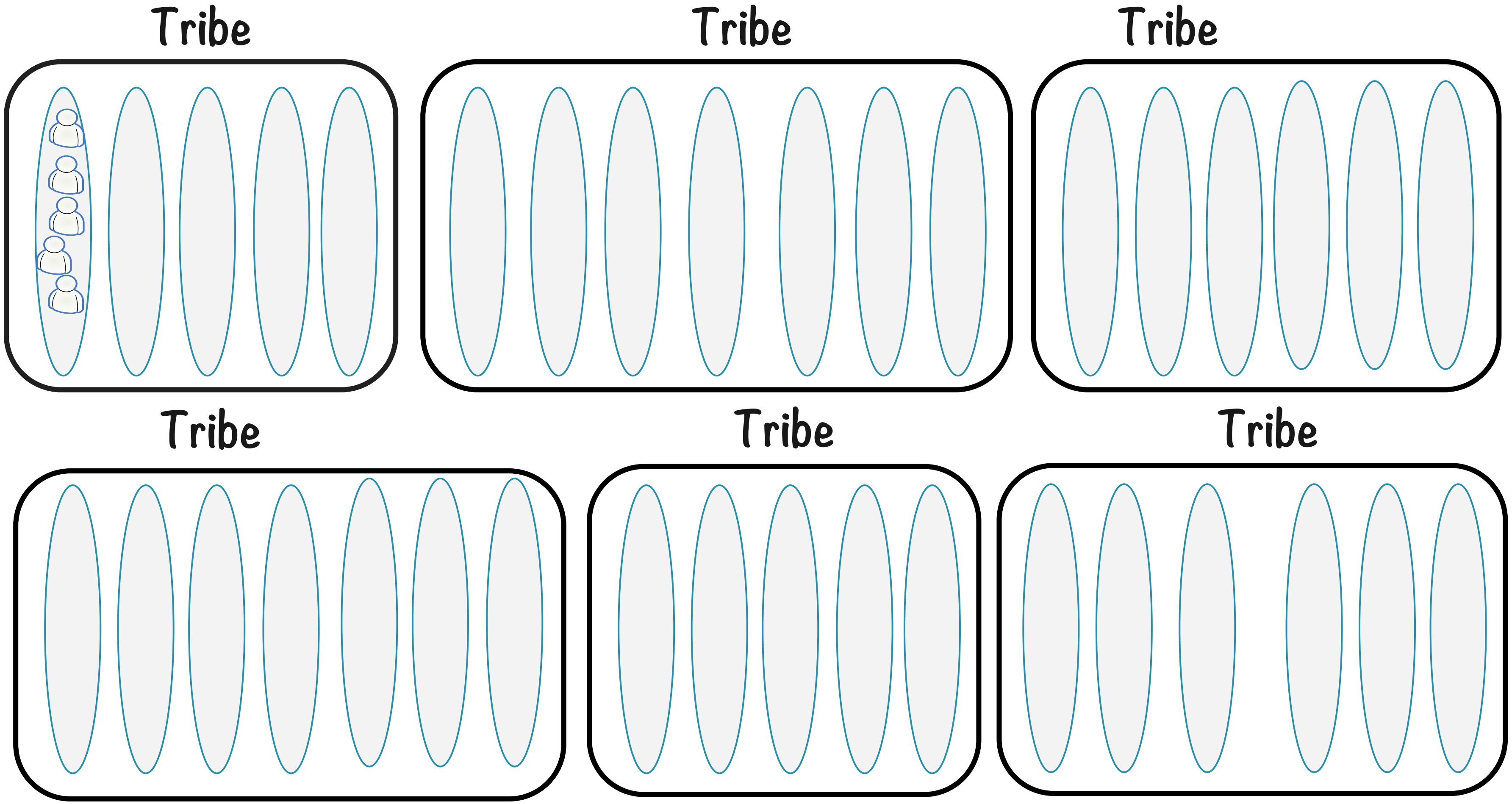
Henrik Kniberg

Cross-functional teams are vertical



Henrik Kniberg

Spotify



Tribe

Tribe

Tribe

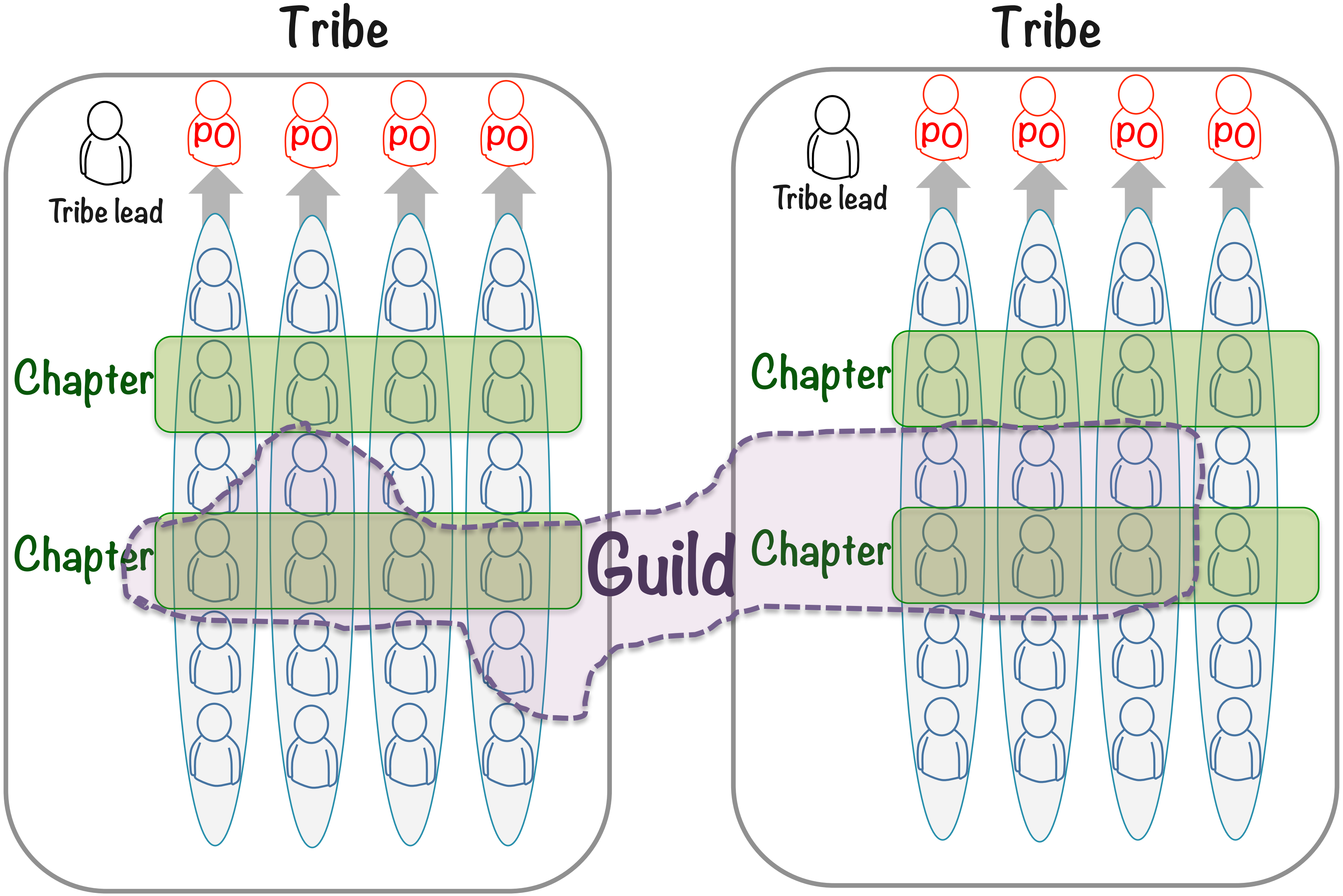
Tribe

Tribe

Tribe

Henrik Kniberg

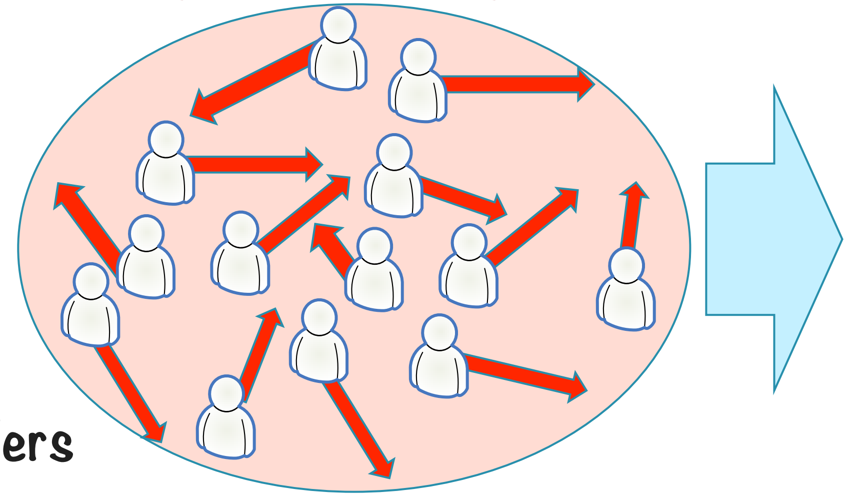
Spotify


Tribe
Tribe
Tribe lead
PO
PO
PO
PO
Chapter
Chapter
Guild
Tribe lead
PO
PO
PO
PO
Chapter
Chapter

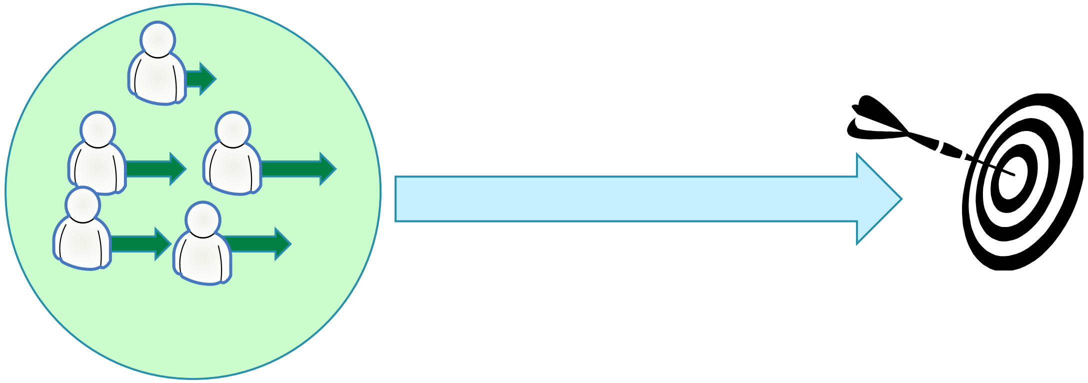
Cultivating a Great Team

- Colocated
- Small (3-7 ppl)
- Self-organizing
- Cross-functional
- Clear mission & product owner
- Empowered to deliver
- Direct contact with users & stakeholders
- Focused. No multitasking.
- Transparent

Big team working hard



Small team working smart



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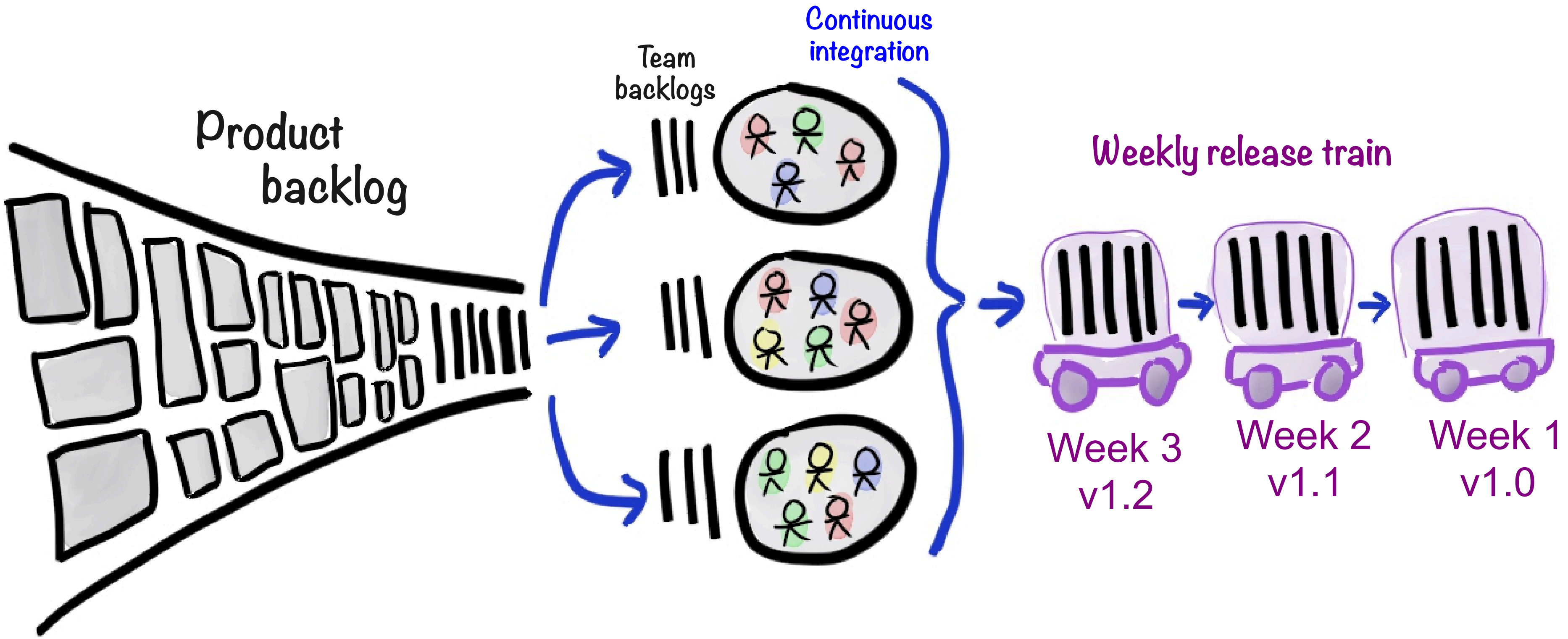
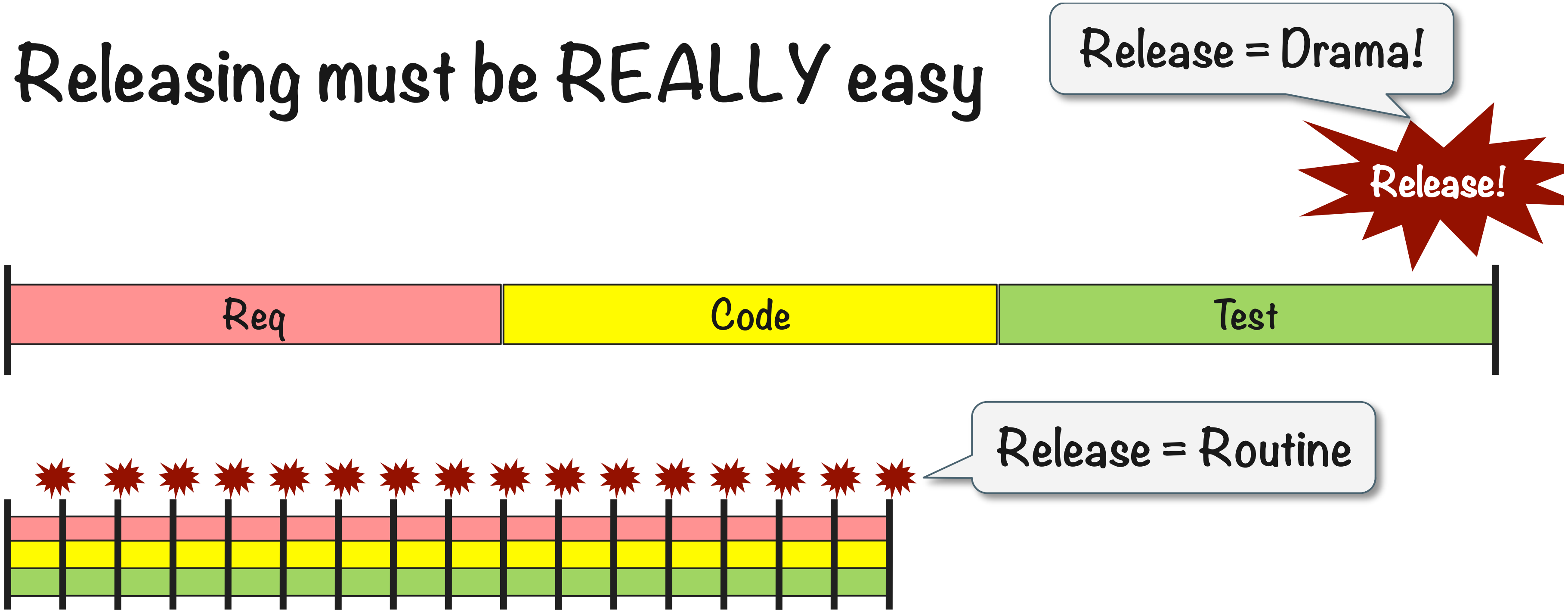
Multiple teams working together



Henrik Kniberg

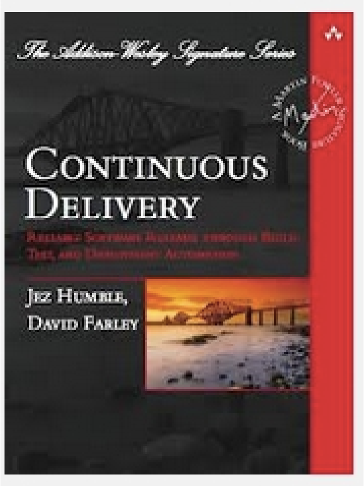
Releasing must be REALLY easy



Release = Drama!

Release!

Release = Routine



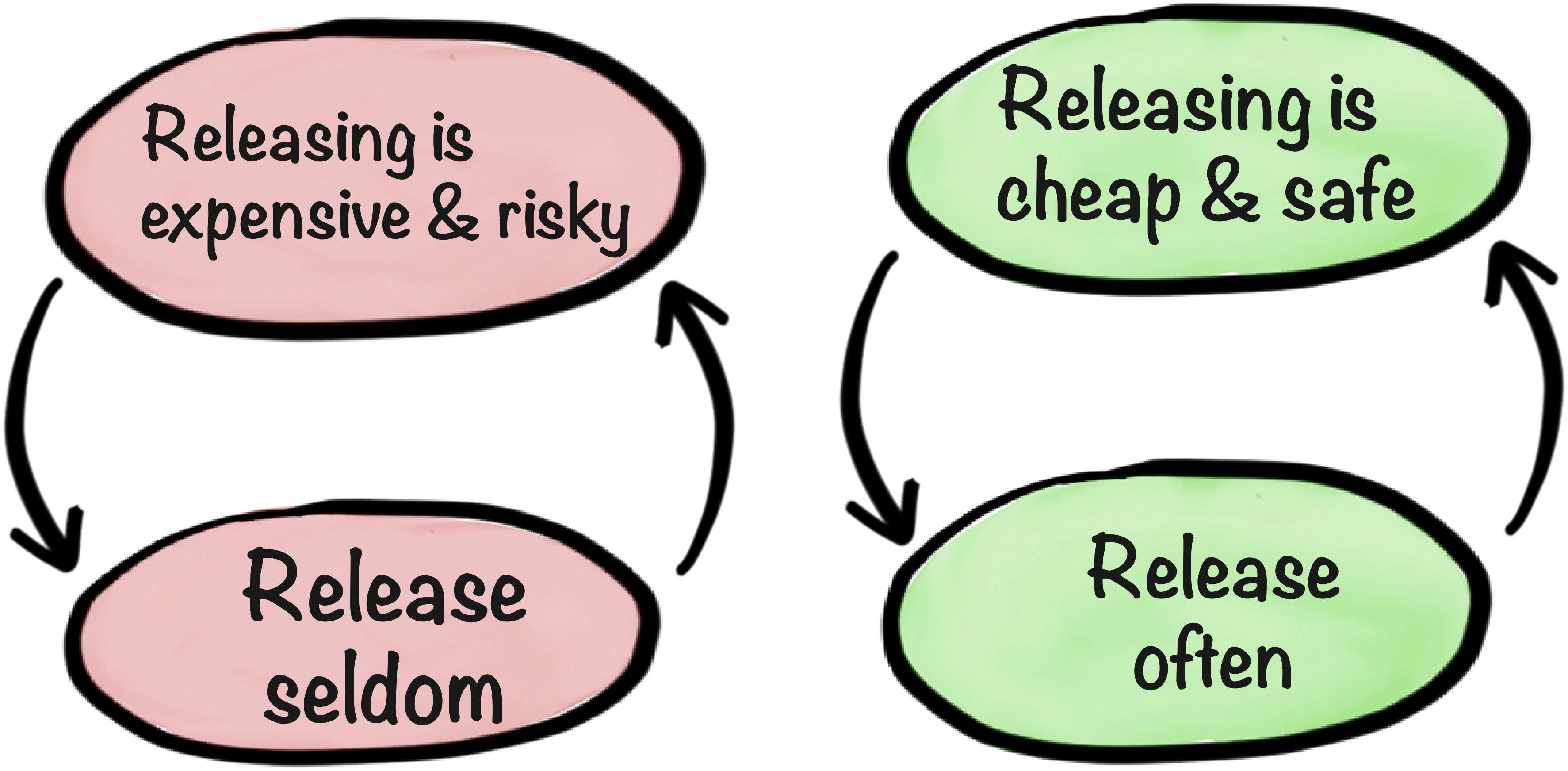
The Addison-Wesley Signature Series

CONTINUOUS DELIVERY

RELIABLE SOFTWARE RELEASES THROUGH BUILD, TEST, AND DEPLOYMENT AUTOMATION

JEZ HUMBLE,
DAVID FARLEY

Why we get stuck in Big Bang thinking



Releasing is expensive & risky

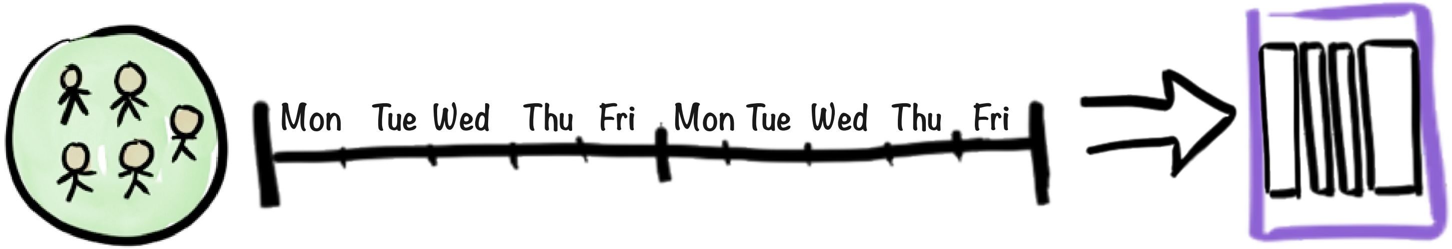
Release seldom

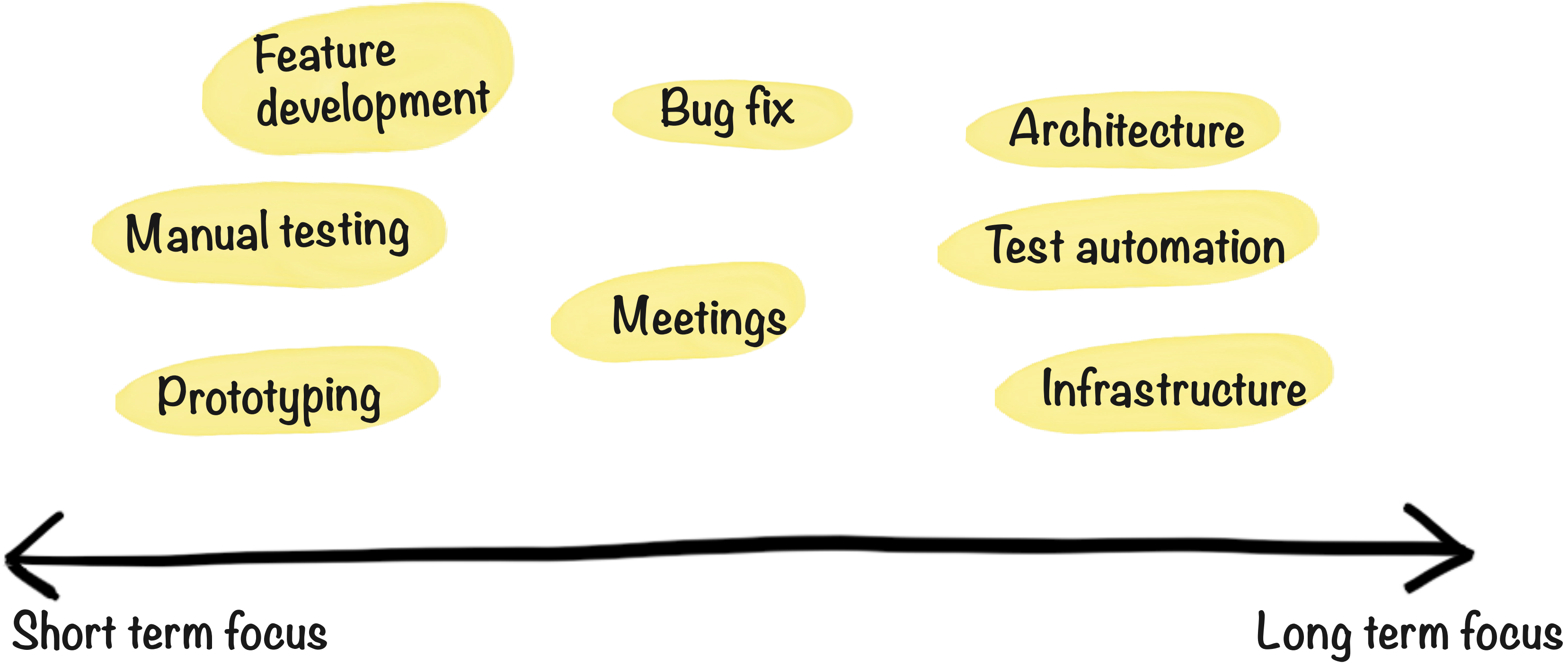
Releasing is cheap & safe

Release often

Henrik Kniberg

The team balances long-term and short-term work




Feature development

Bug fix

Architecture

Manual testing

Test automation

Meetings

Prototyping

Infrastructure

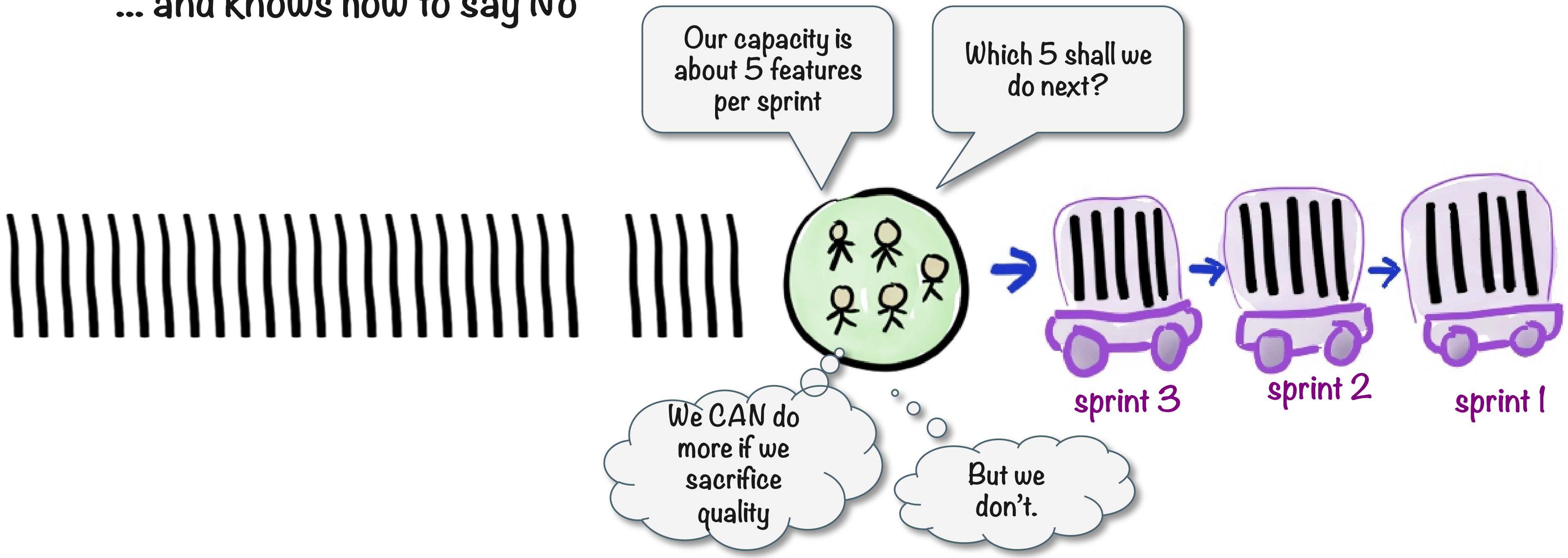
Short term focus

Long term focus

Henrik Kniberg

The team Limits work to capacity

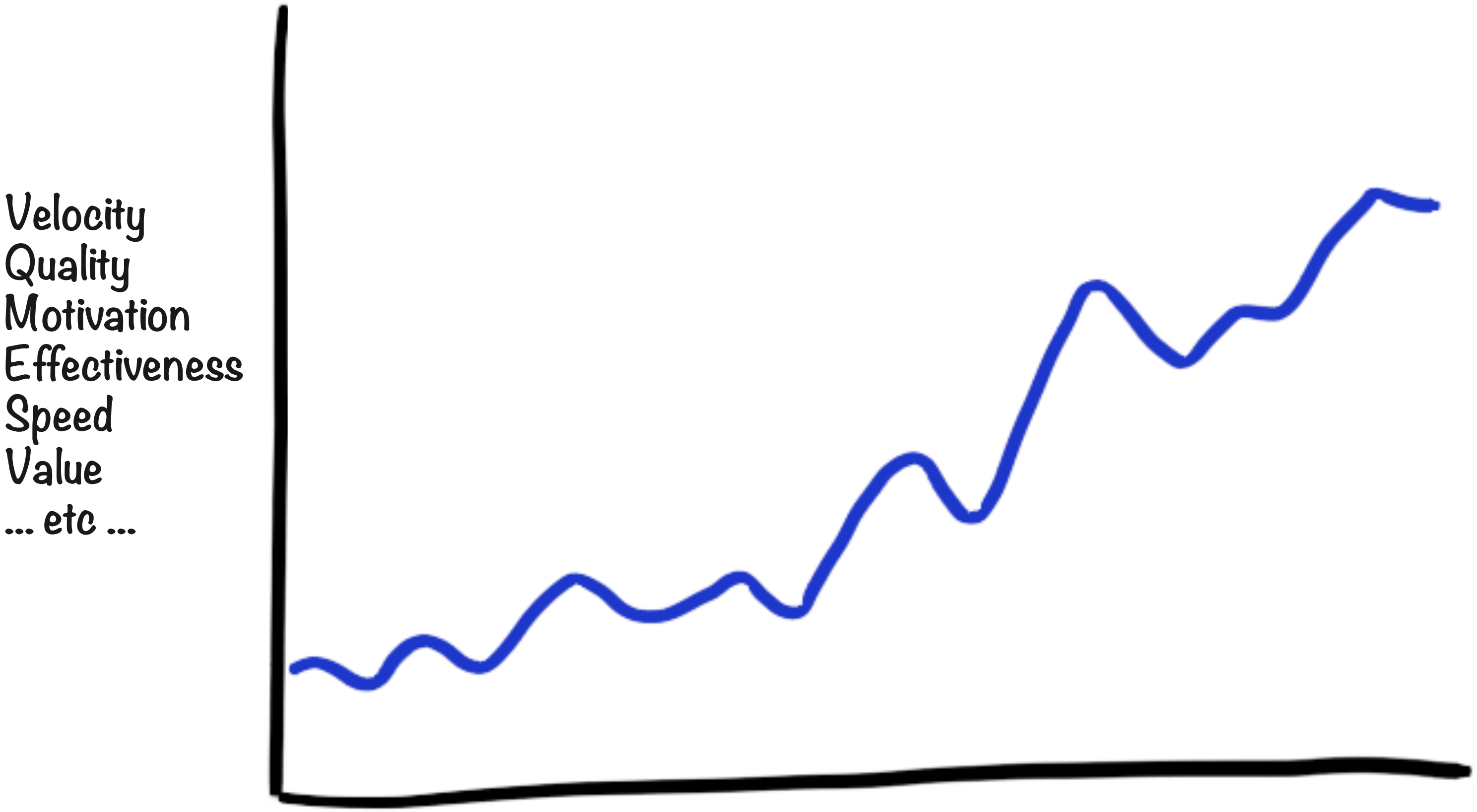
... and knows how to say No


Our capacity is about 5 features per sprint
Which 5 shall we do next?
We CAN do more if we sacrifice quality
But we don't.
sprint 3
sprint 2
sprint 1

Henrik Kniberg

The team continuously experiments and gradually improves it's way of working

- Driven from the bottom
- Supported from the top

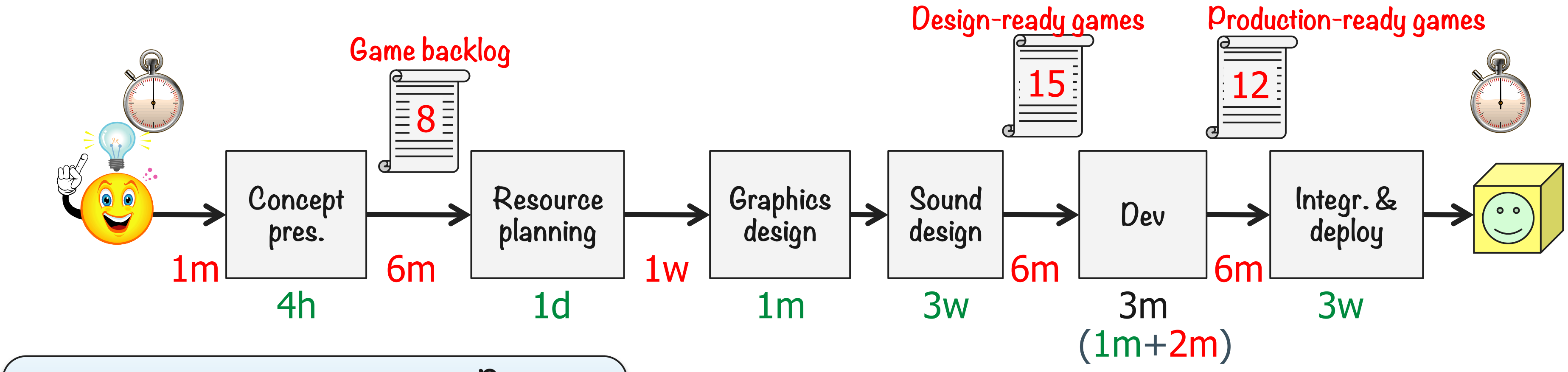


Henrik Kniberg

Example

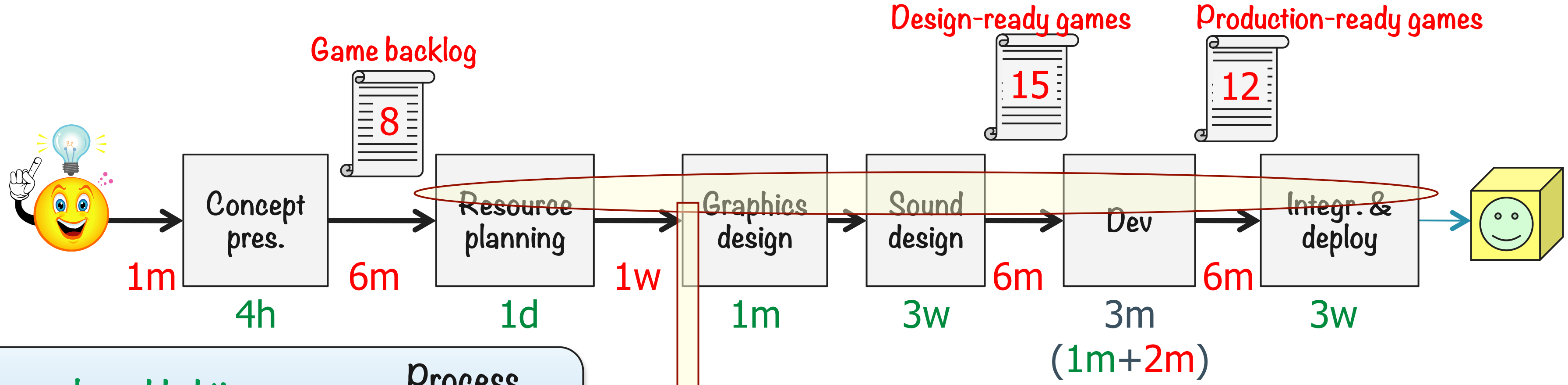
Henrik Kniberg

Before



3 m value added time / 25 m cycle time = 12% Process cycle efficiency

Before



Game backlog

8

Design-ready games

15

Production-ready games

12

1m

Concept pres.

4h

6m

Resource planning

1d

1w

Graphics design

1m

Sound design

3w

6m

Dev

3m (1m+2m)

6m

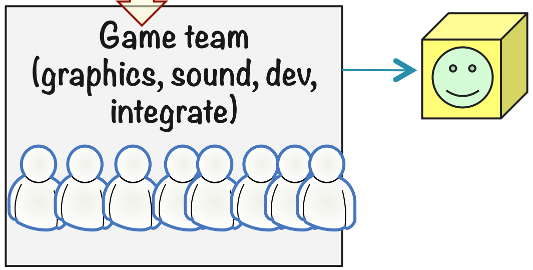
Integr. & deploy

3w

$$\frac{\text{3 m value added time}}{\text{25 m cycle time}} = 12\%$$ Process cycle efficiency

After

Cross-functional game team

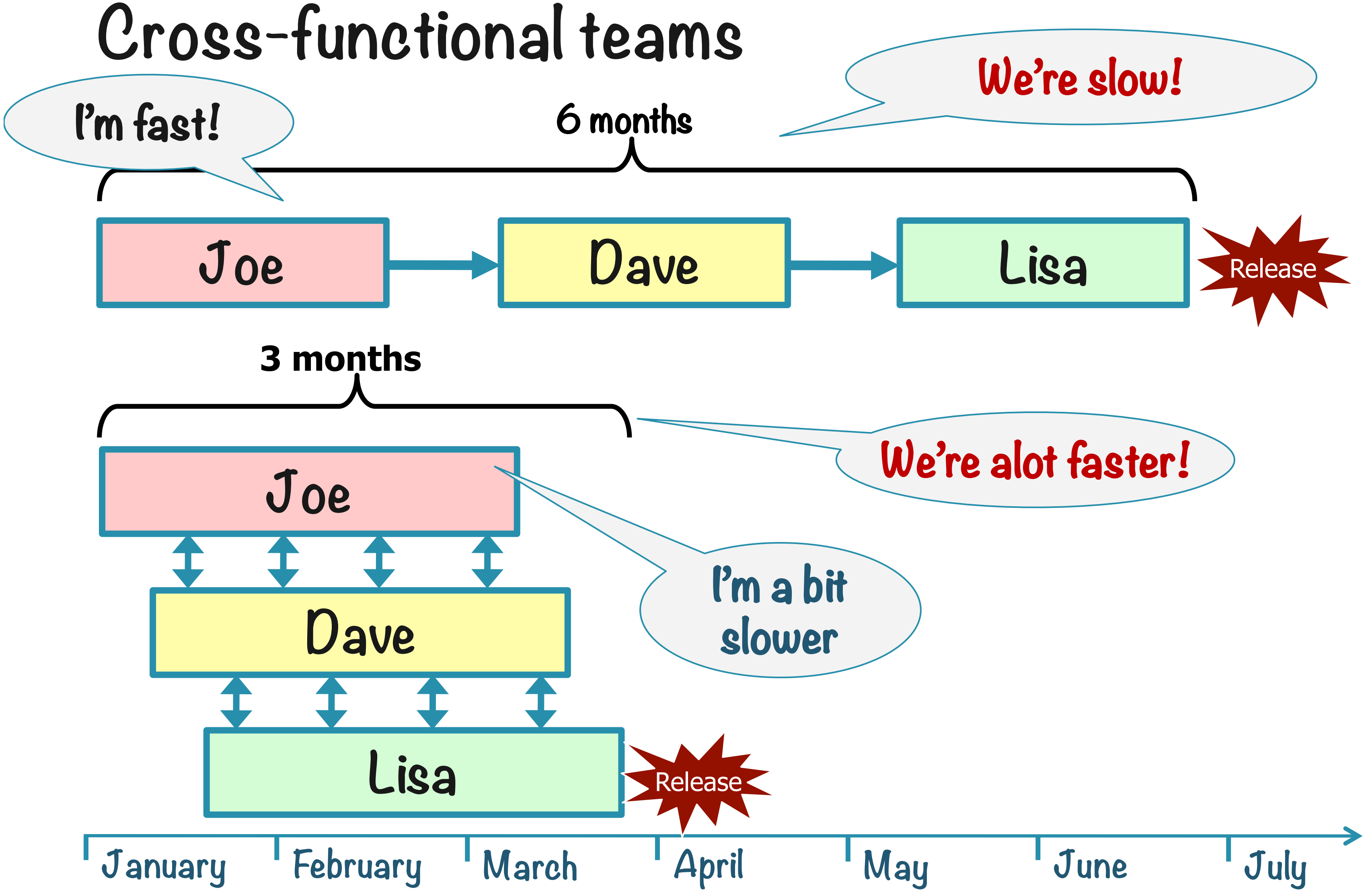


Game team (graphics, sound, dev, integrate)

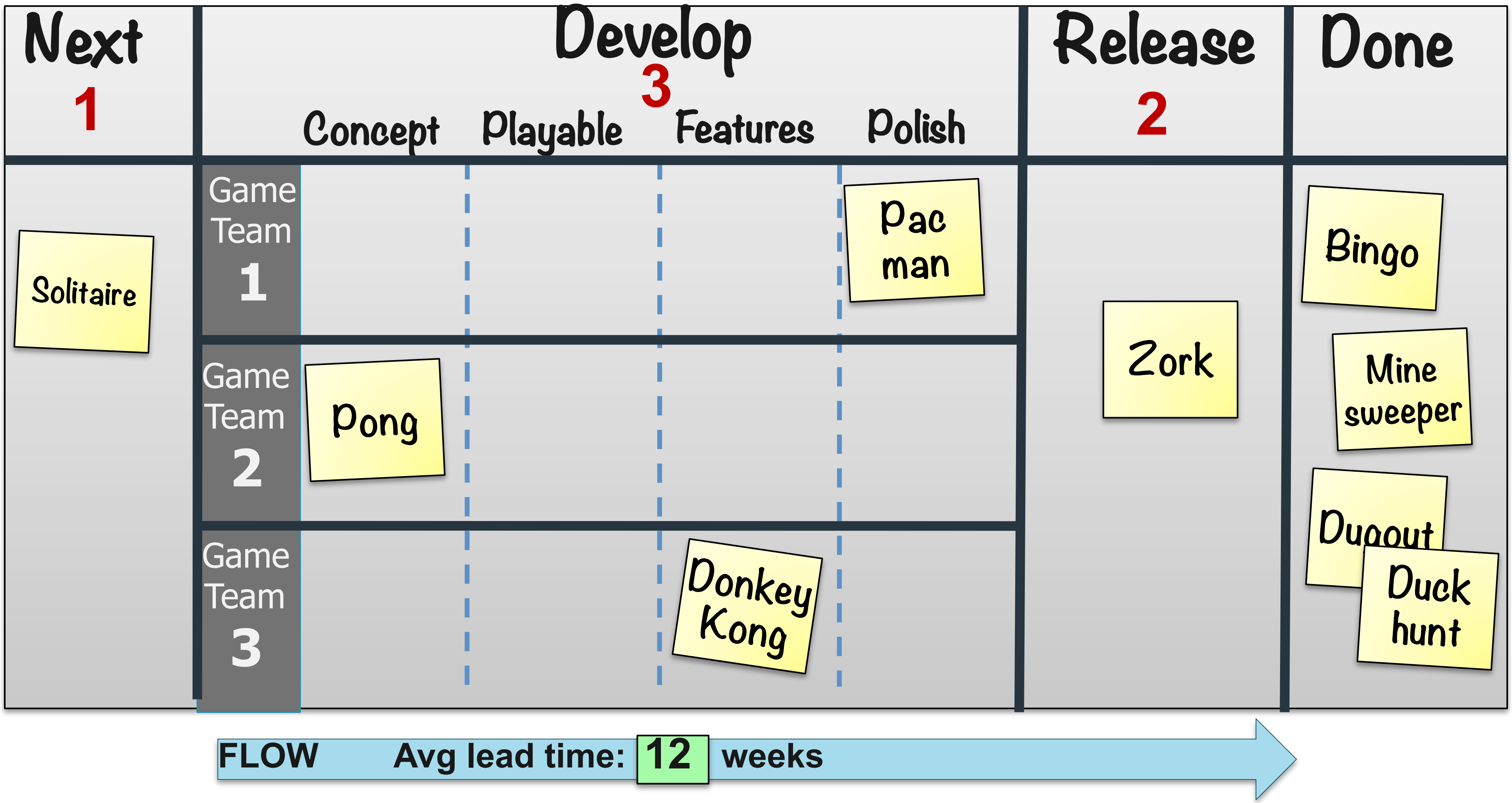
3-4 months

7 times faster!

Cross-functional teams



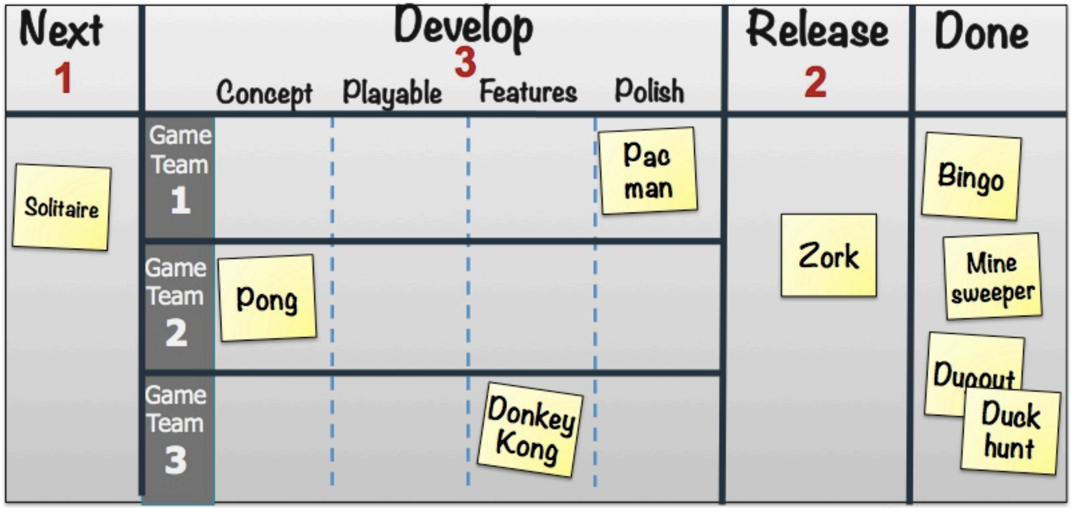
Portfolio-level board



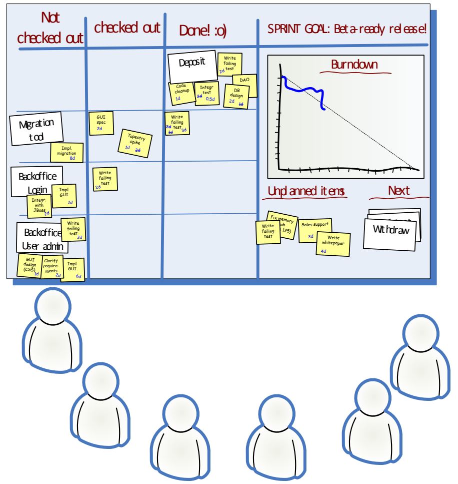
Next 1	Develop 3					Release 2	Done
		Concept	Playable	Features	Polish		
Solitaire	Game Team 1				Pac man	Zork	Bingo Mine sweeper Dugout Duck hunt
	Game Team 2	Pong					
	Game Team 3			Donkey Kong			

FLOW Avg lead time: 12 weeks

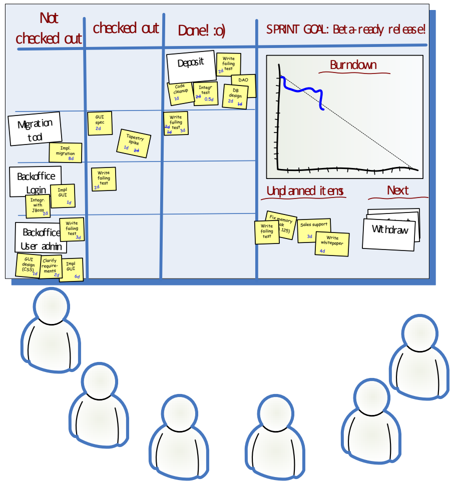
Game teams



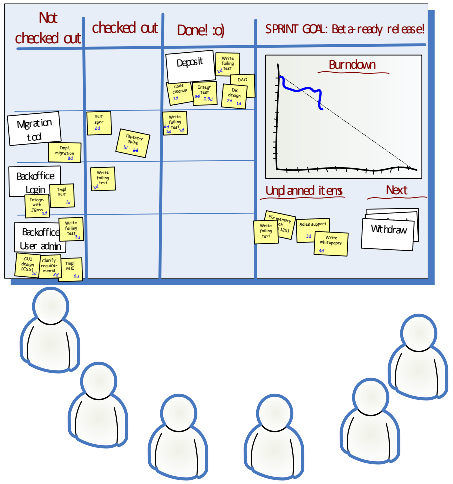
Game team 1
Current game: Pac Man



Game team 2
Current game: Pong



Game team 2
Current game: Donkey Kong



Succeeding with software development

Henrik Kniberg

10,000 person-years of experience

Communication!

Especially between Developers and Users

Henrik Kniberg

What have we learned?

IT project success rate 1994: 15%

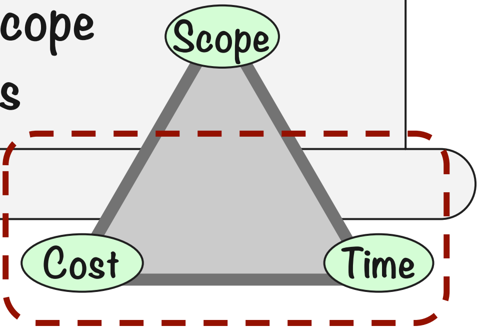
Average cost & time overrun: 170%

IT project success rate 2004: 34%

Average cost & time overrun: 70%

Top 5 reasons for success

1. User involvement
2. Executive management support
3. Clear business objectives
4. Optimizing scope
5. Agile process



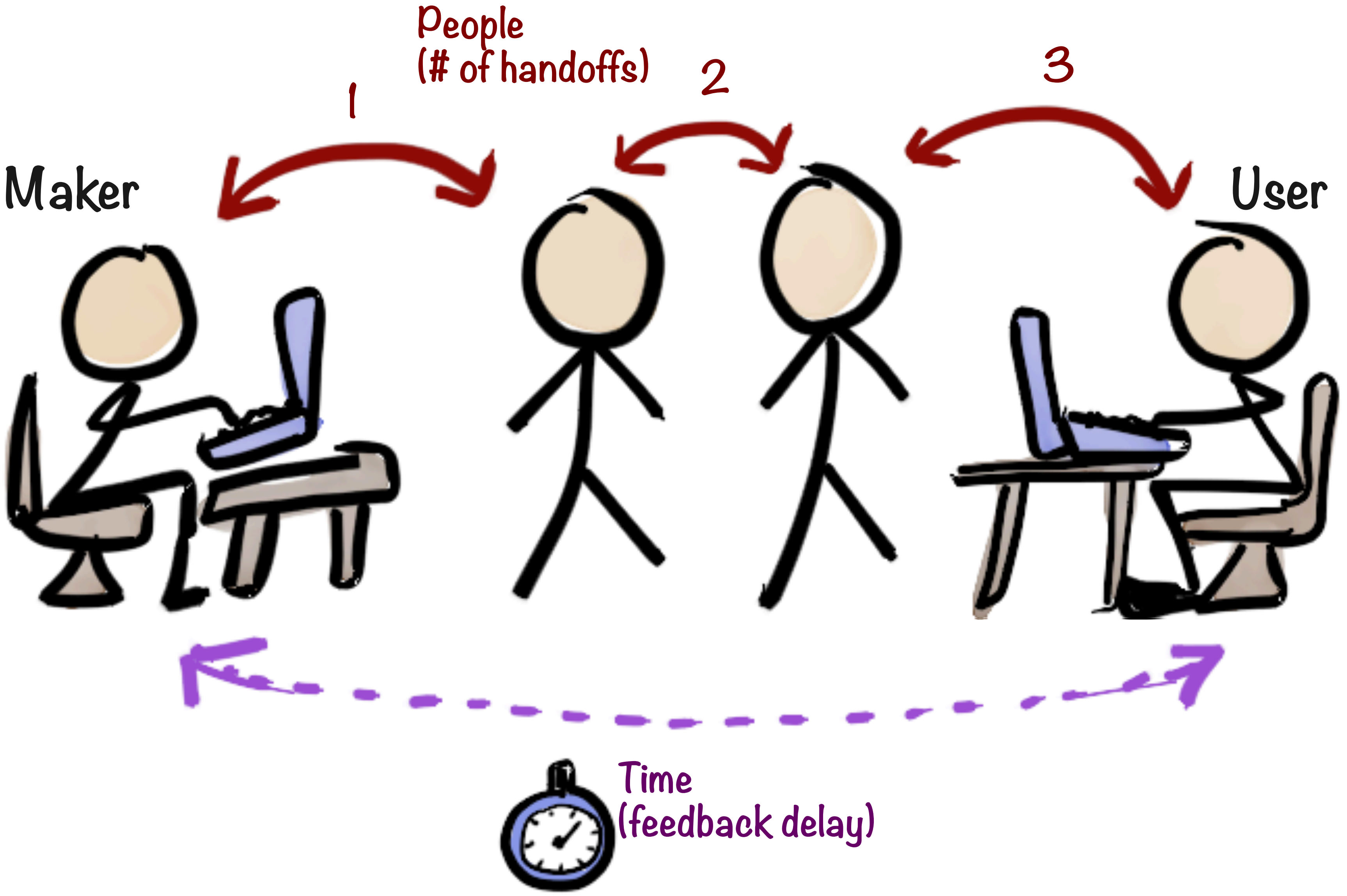
"The primary reason [for the improvement] is that projects have gotten a lot smaller."

Jim Johnson
Chairman of
Standish Group

"Doing projects with iterative processes as opposed to the waterfall method, which called for all project requirements to be defined up front, is a major step forward."

Sources:
http://www.softwaremag.com/L.cfm?Doc=newsletter/2004-01-15/Standish
http://www.infoq.com/articles/Interview-Johnson-Standish-CHAOS
"My Life is Failure", Jim Johnson's book

Minimize distance between Maker and User



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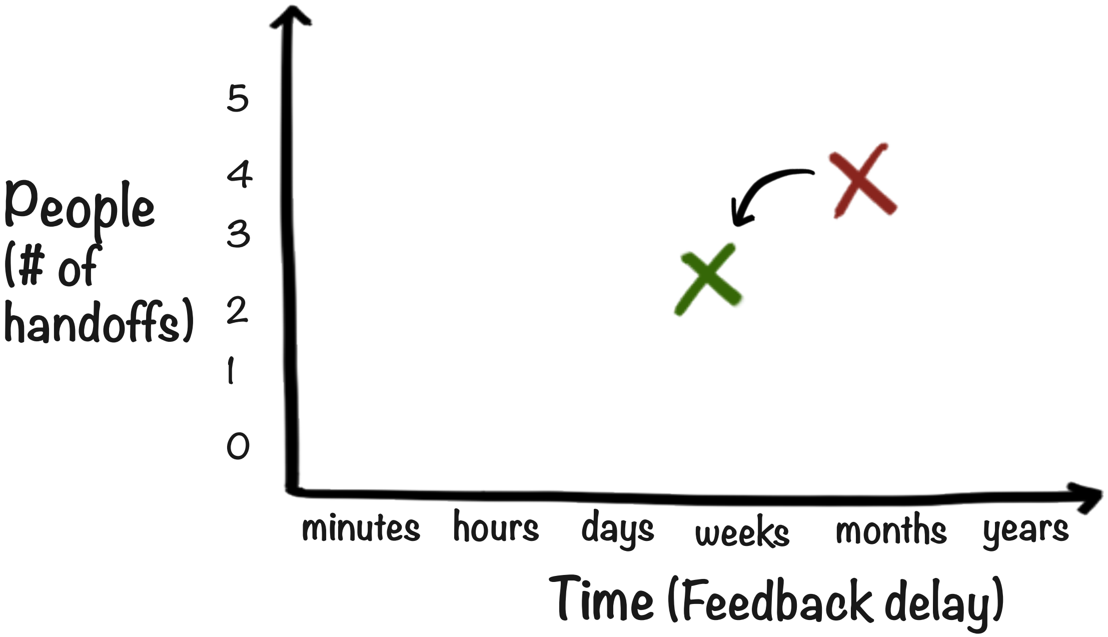
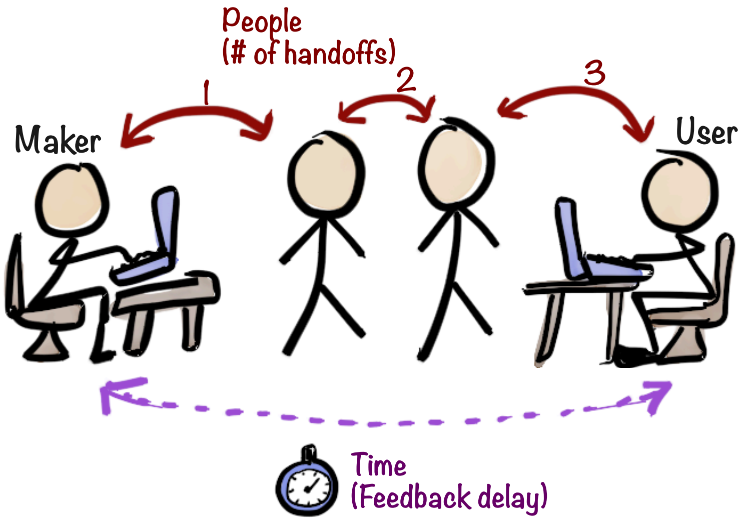
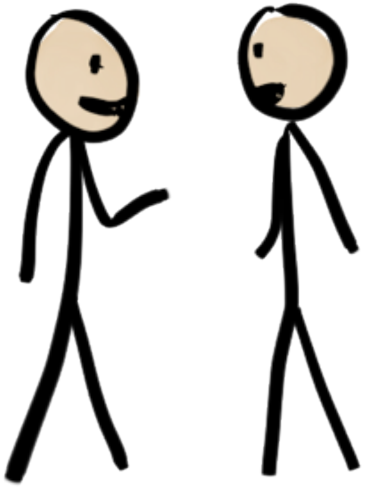
Minimize distance between Maker and User







2 minute standup discussion (pair/trio):

- Think of any ongoing project
- What is the distance between Developer & User?
- **What can YOU do to reduce the distance?**

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Final points

The price of agile

(there is no such thing as a free lunch....)

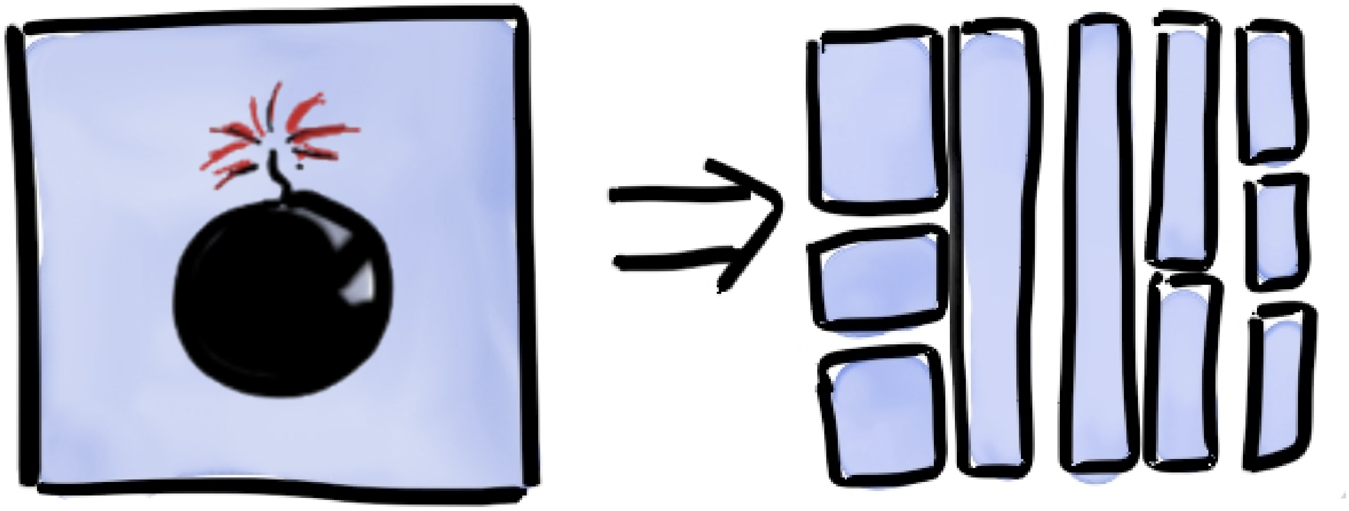
Avoid Big-Bang transformation! Do it gradually.

- **Infrastructure Investments**
  (release automation, test automation, etc)
- **Reorganization**
  (new roles, cross-functional teams, etc)
- **New skills**
  (Vertical story-slicing, retrospectives, agile architecture, etc)
- **New habits**
  (Frequent customer interaction, frequent release, less specialization)
- **Transparancy**
  (problems and uncertainty painfully visible rather than hidden)

Big is Bad!

Break it down!

- Big project => Several small projects
- Big feature => Several small features
- Big team => Several small teams
- Big transformation => Several small transformations



Agile is...

Early delivery of business value

Less bureaucracy

(Thanks Alistair Cockburn for this simplified definition of Agile)

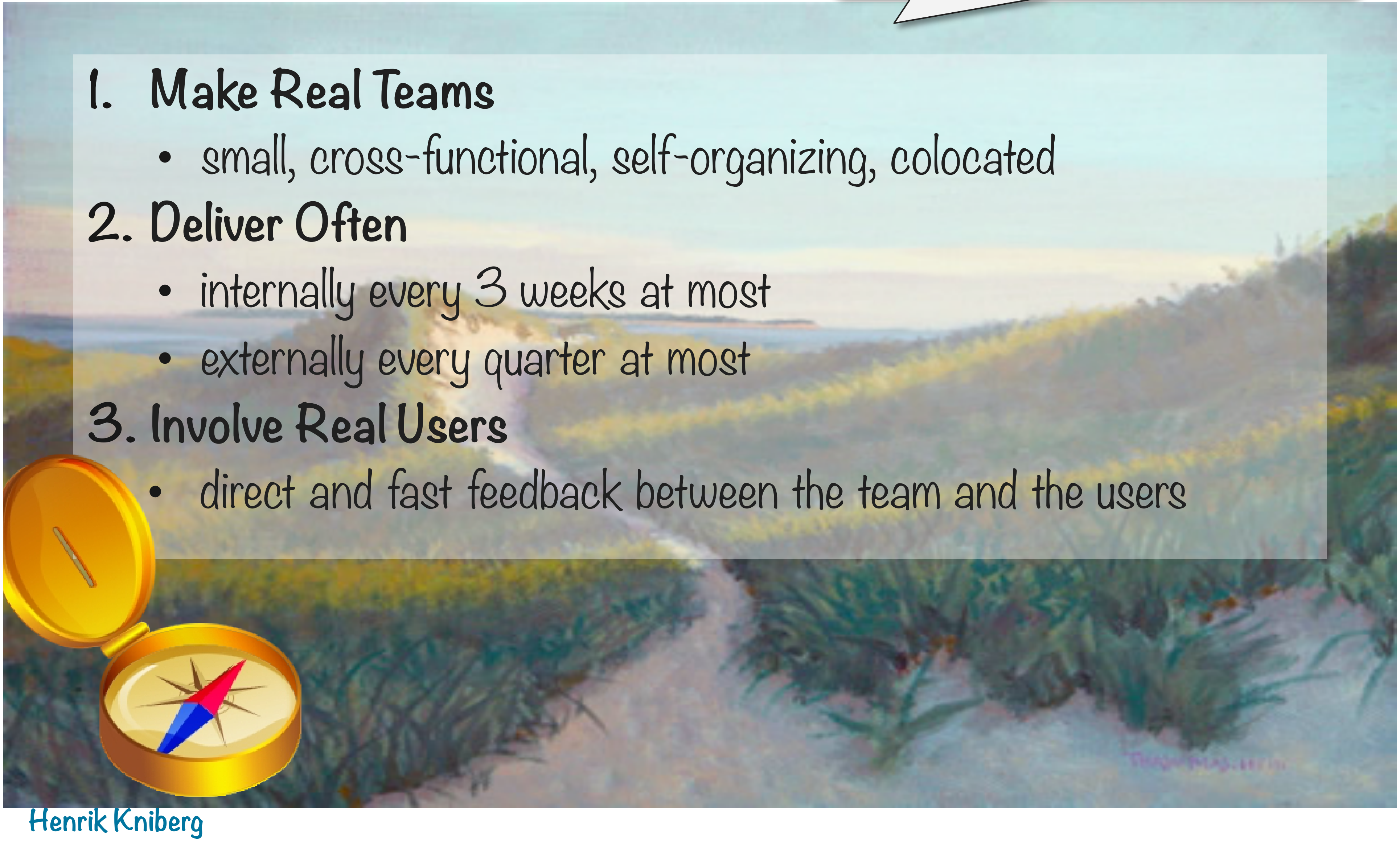
3 concrete changes

...gradually...

1. **Make Real Teams**
   - small, cross-functional, self-organizing, colocated
2. **Deliver Often**
   - internally every 3 weeks at most
   - externally every quarter at most
3. **Involve Real Users**
   - direct and fast feedback between the team and the users

Agile is a **direction**, not a place

The important thing is not your process.
The important thing is
your *process for improving your process*



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