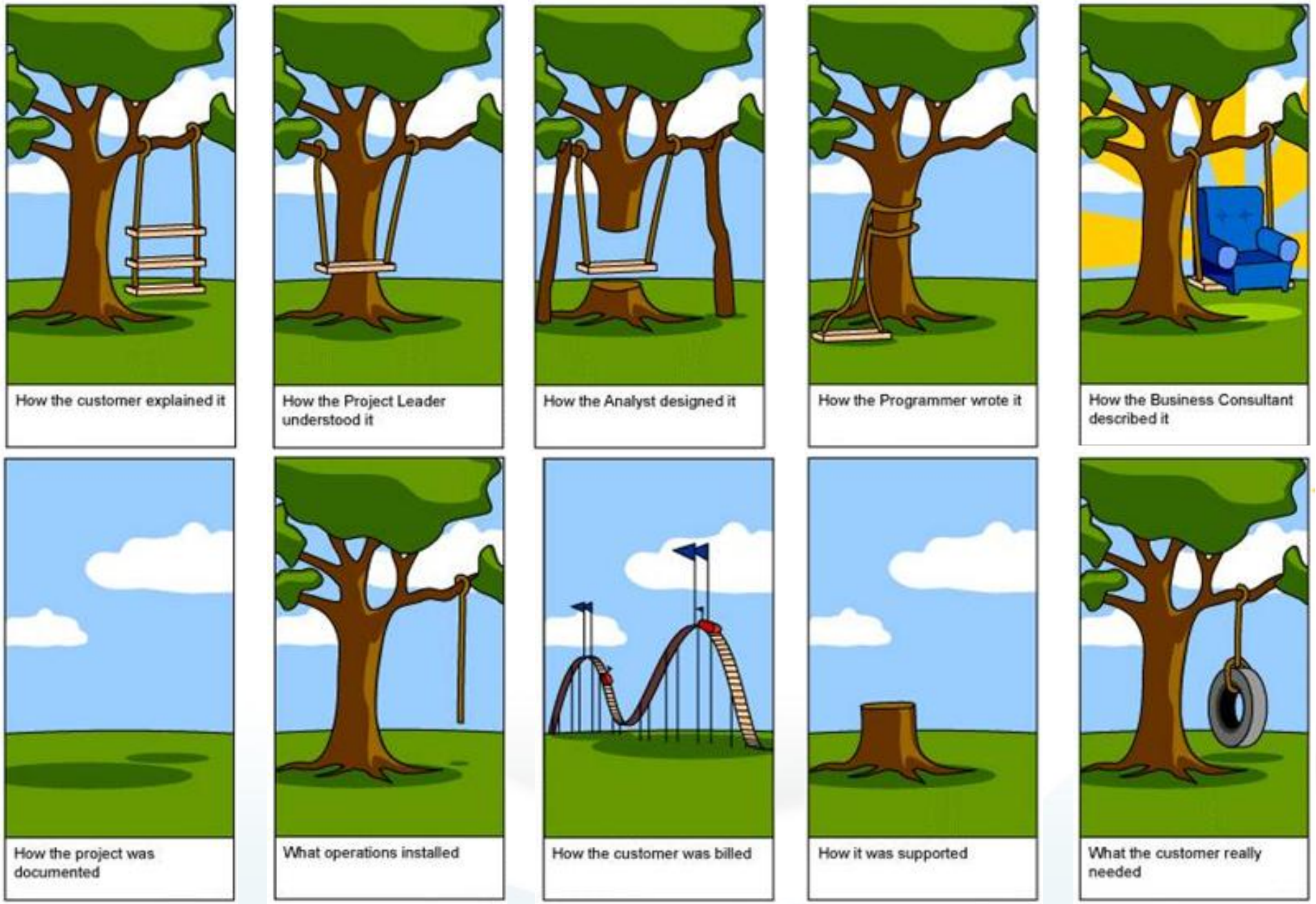
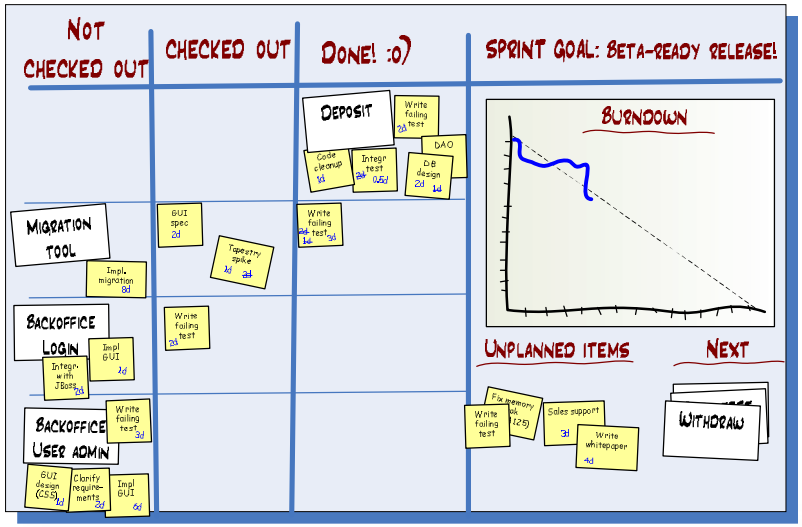
http://www.jacobsen.no/anders/blog/archives/images/project-thumb.jpg



Scrum & XP
From the Trenches

JavaForum
2008-01-29



Henrik Kniberg

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Who am I?

- **Henrik Kniberg**
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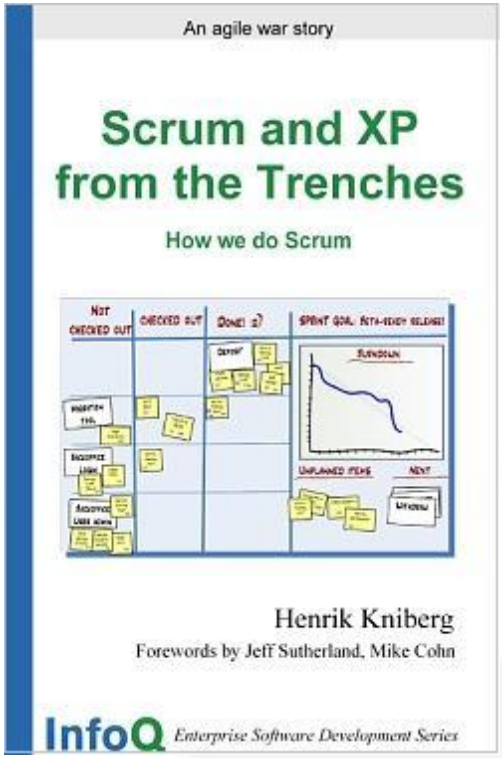
  - henrik.kniberg@crisp.se
- **Consultant & partner at Crisp AB (www.crisp.se)**



Agile software development

Coach, manager, developer, teacher

- **Goyada** (mobile services)
  - Co-founder & CTO
  - 30 developers
- **Ace Interactive** (gaming)
  - Lead architect
  - 20 developers
- **Tain** (gaming)
  - Chief of development
  - 40 developers

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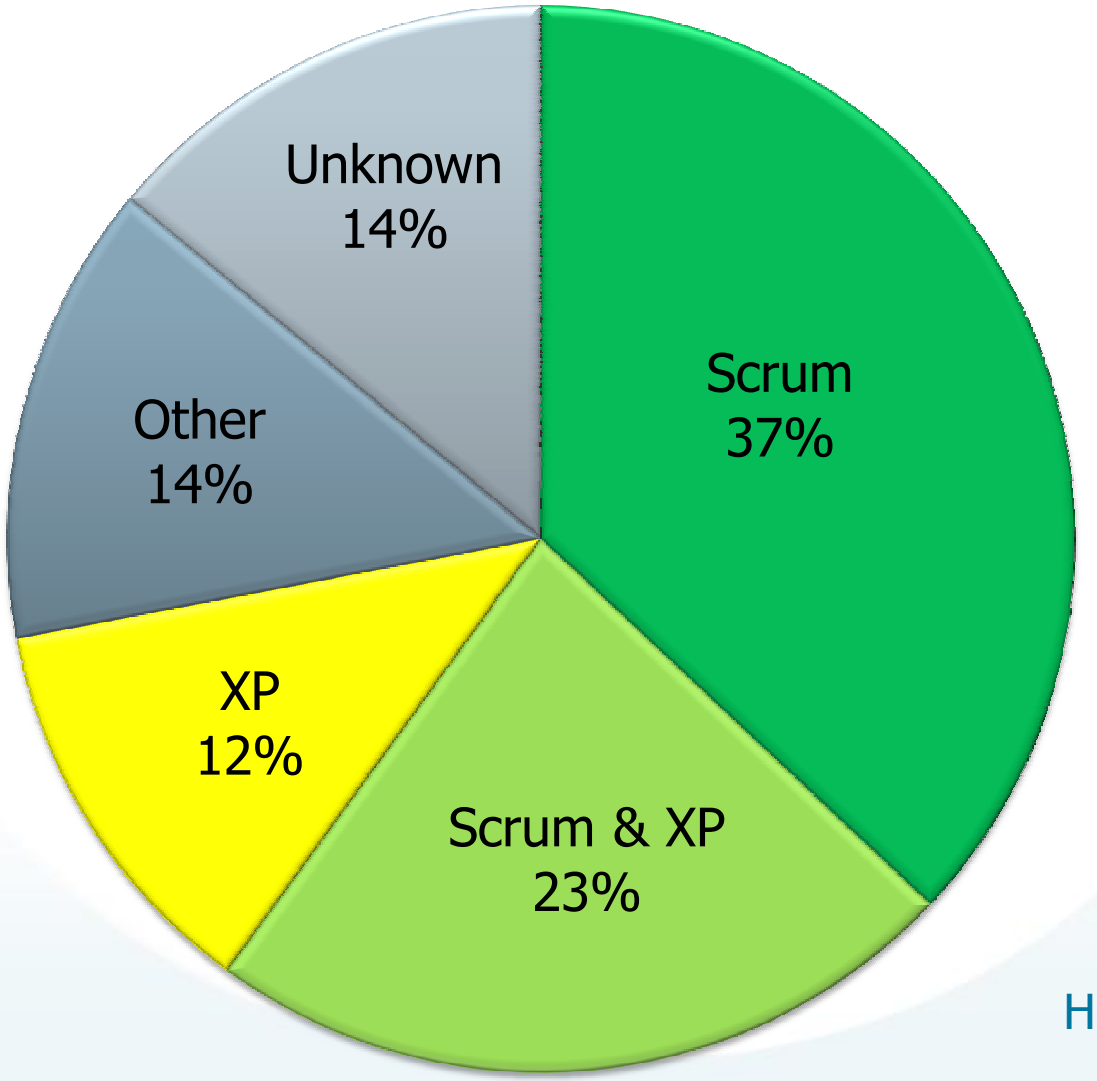
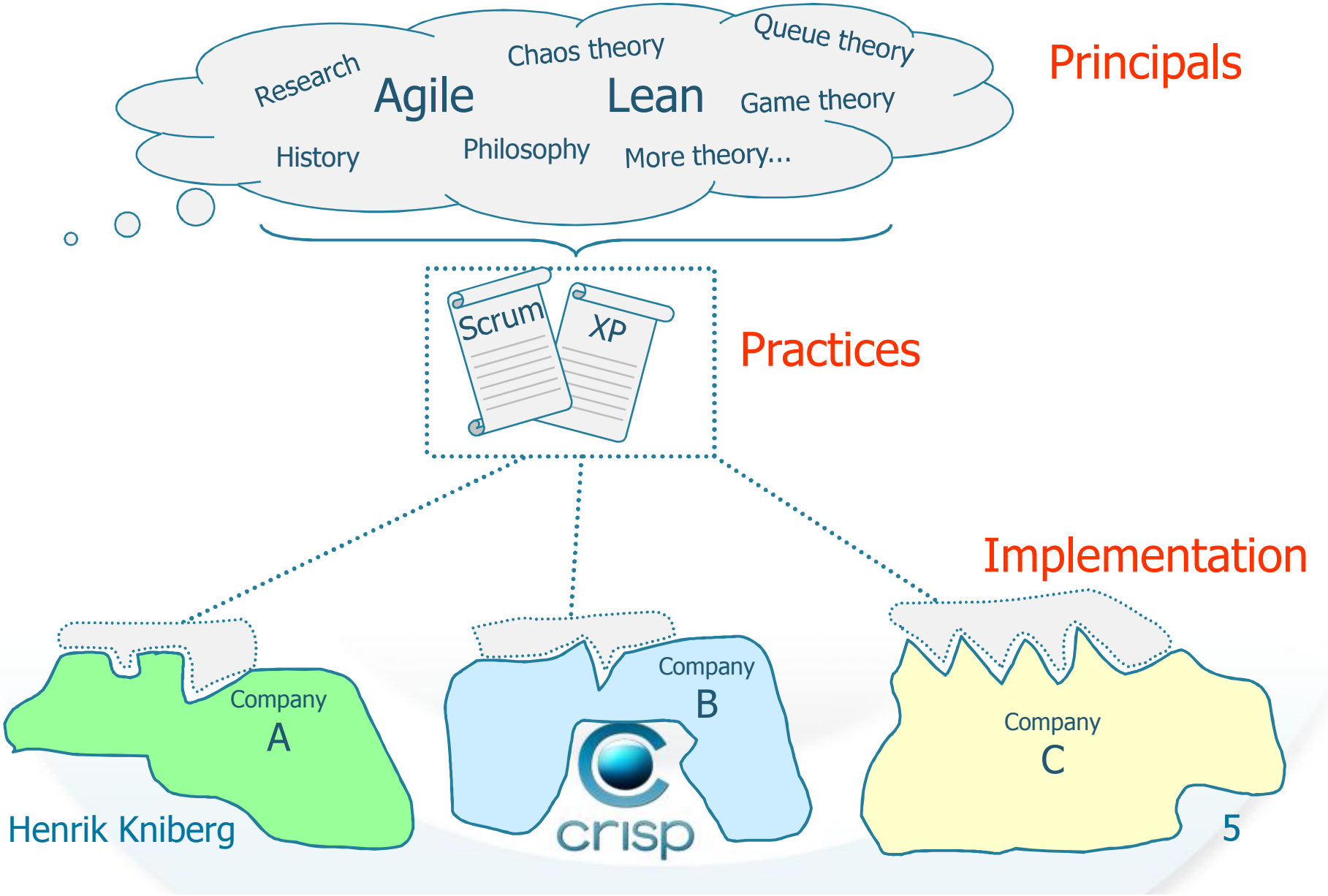
Which processes do agile companies use?

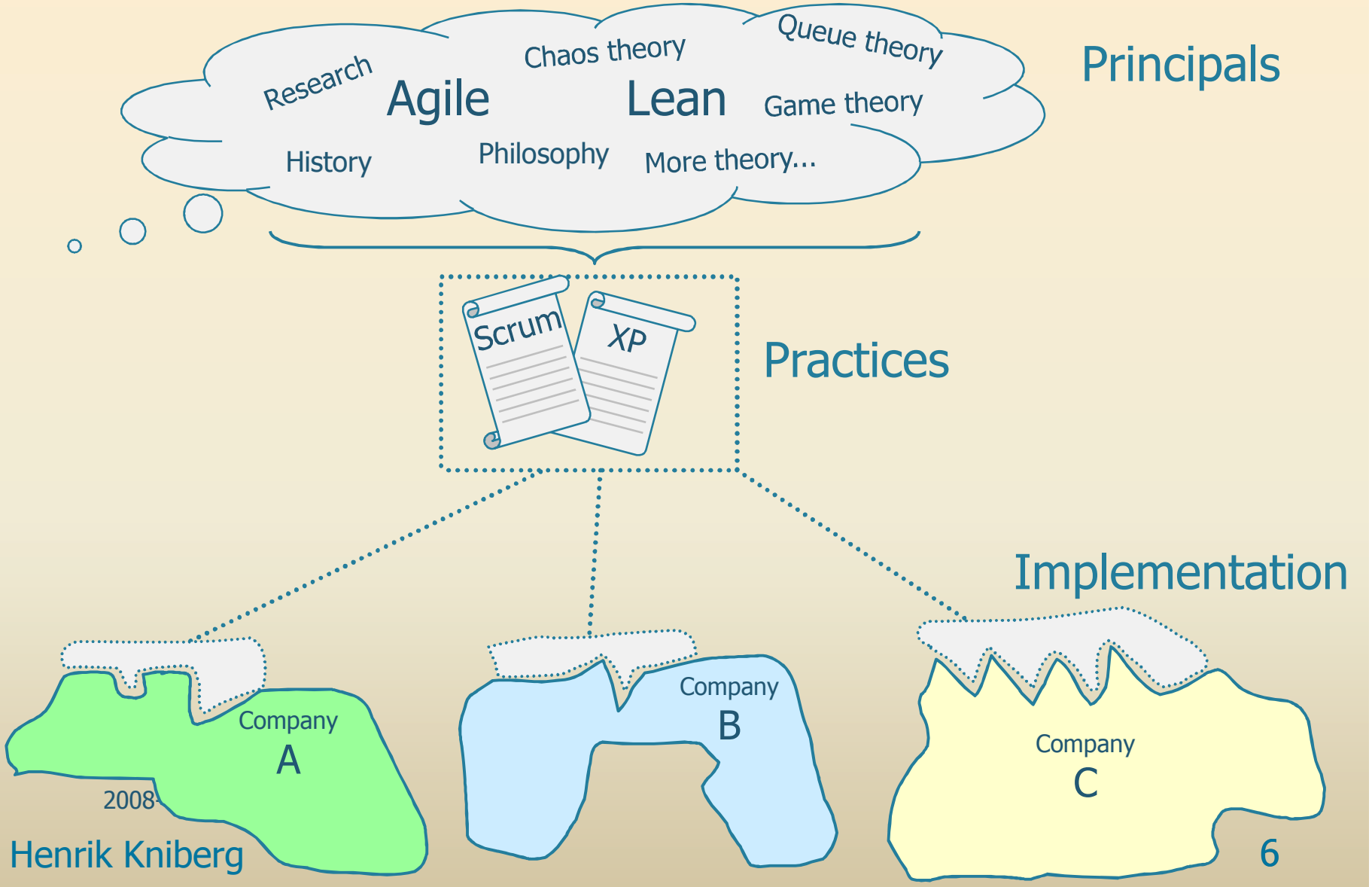
Source: 2nd Annual "State of Agile Development" Survey
June – July 2007



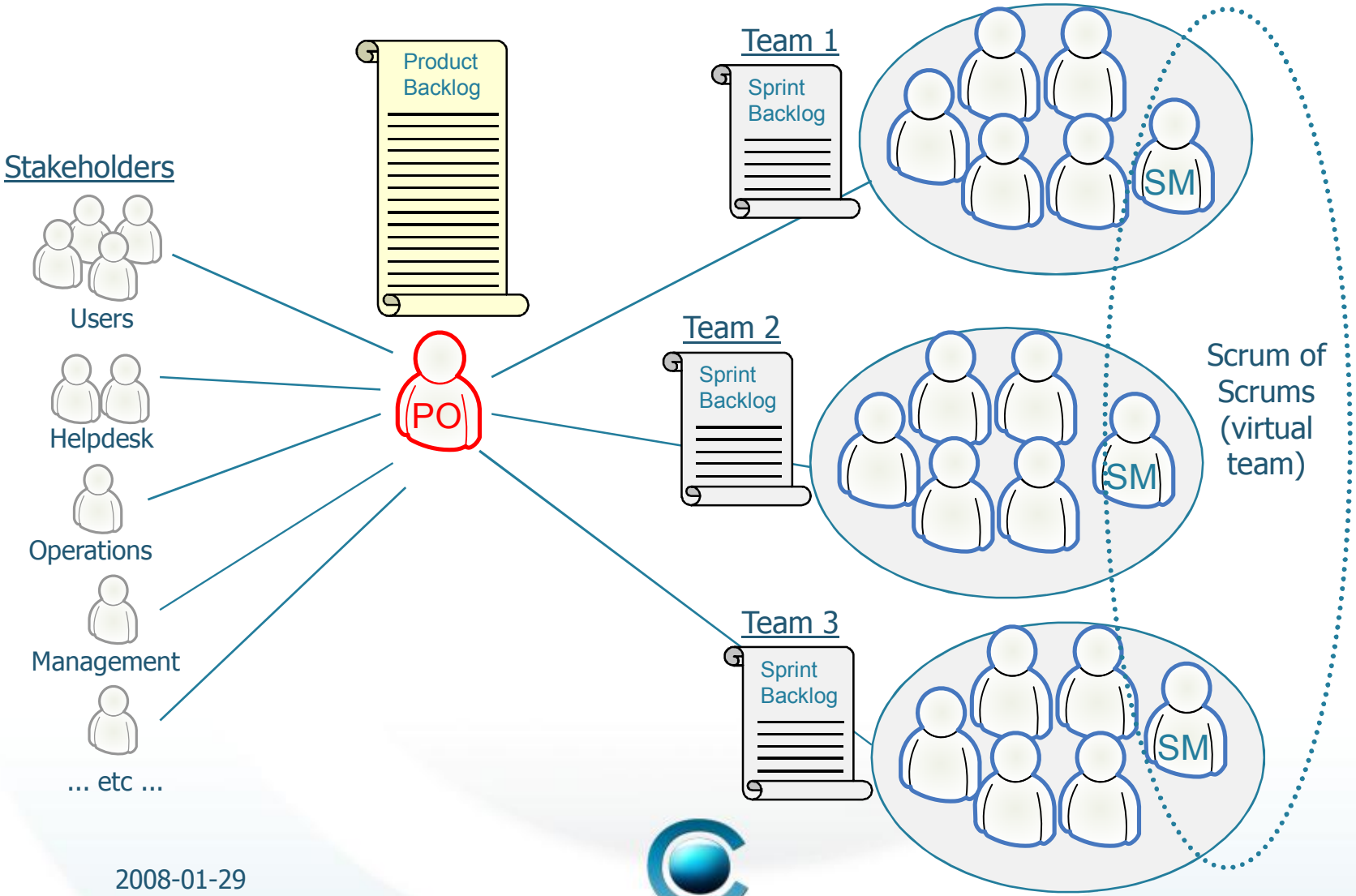
The big picture



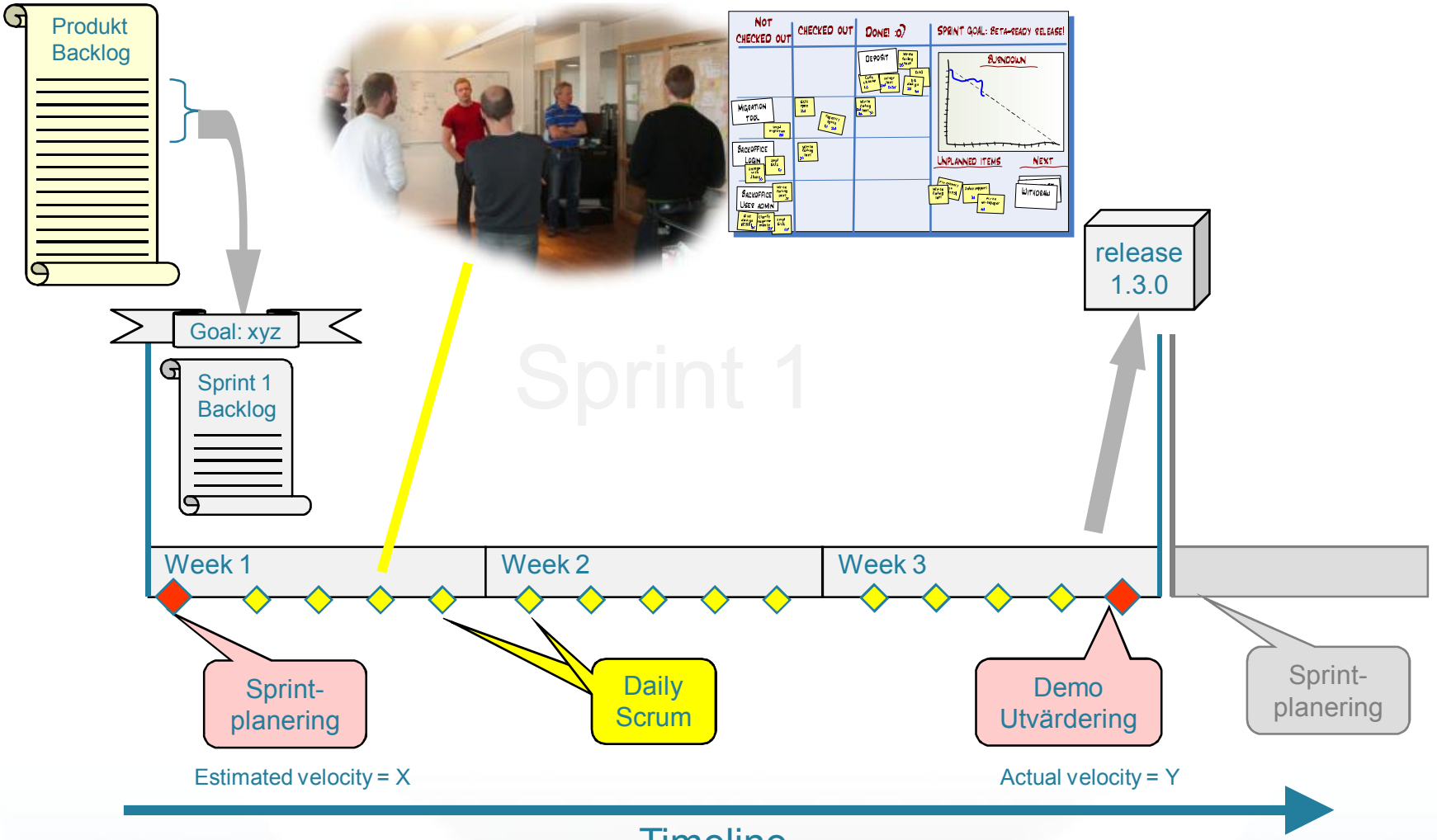
Part 1: Scrum & XP Overview



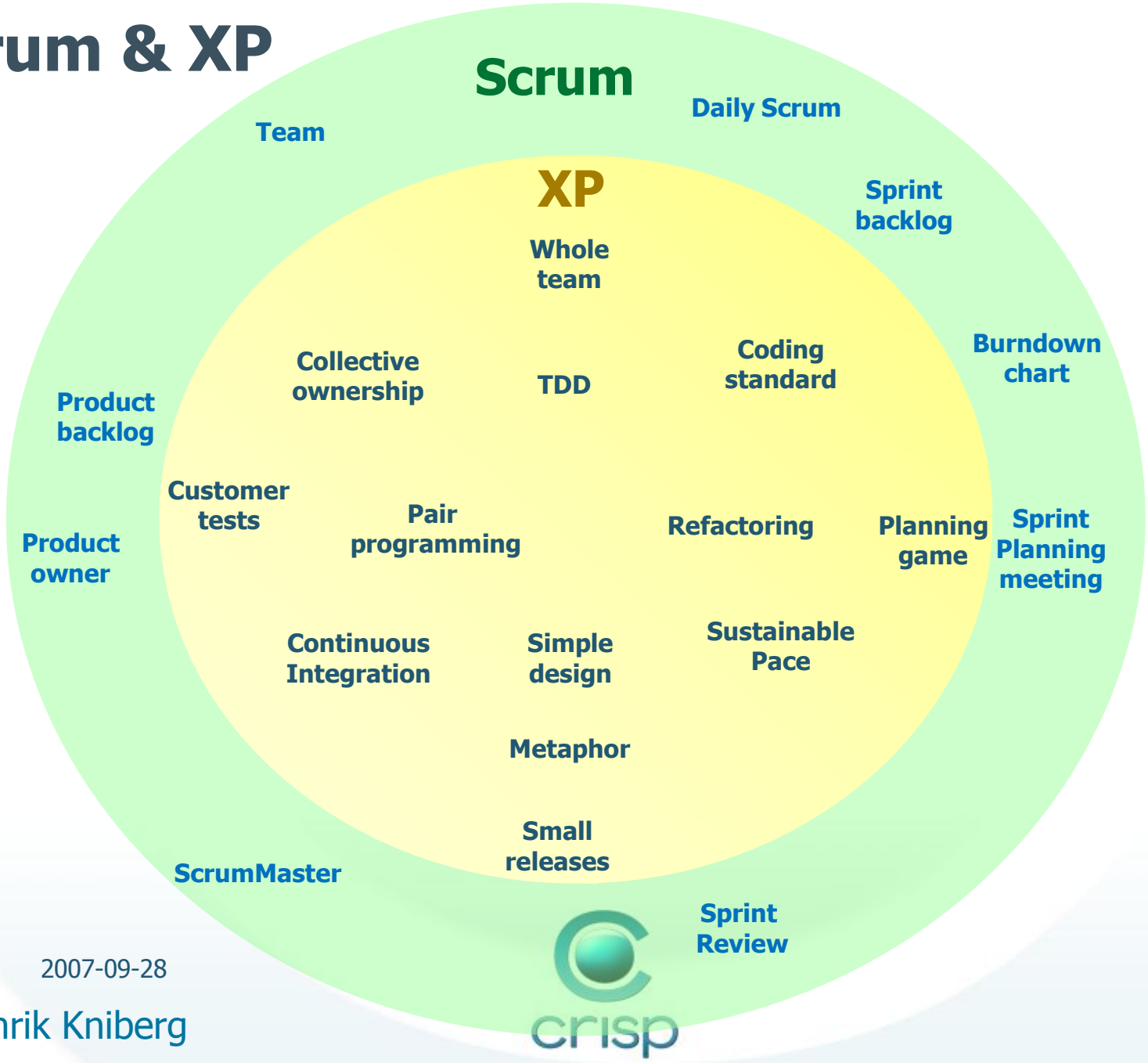
Scrum overview – structure



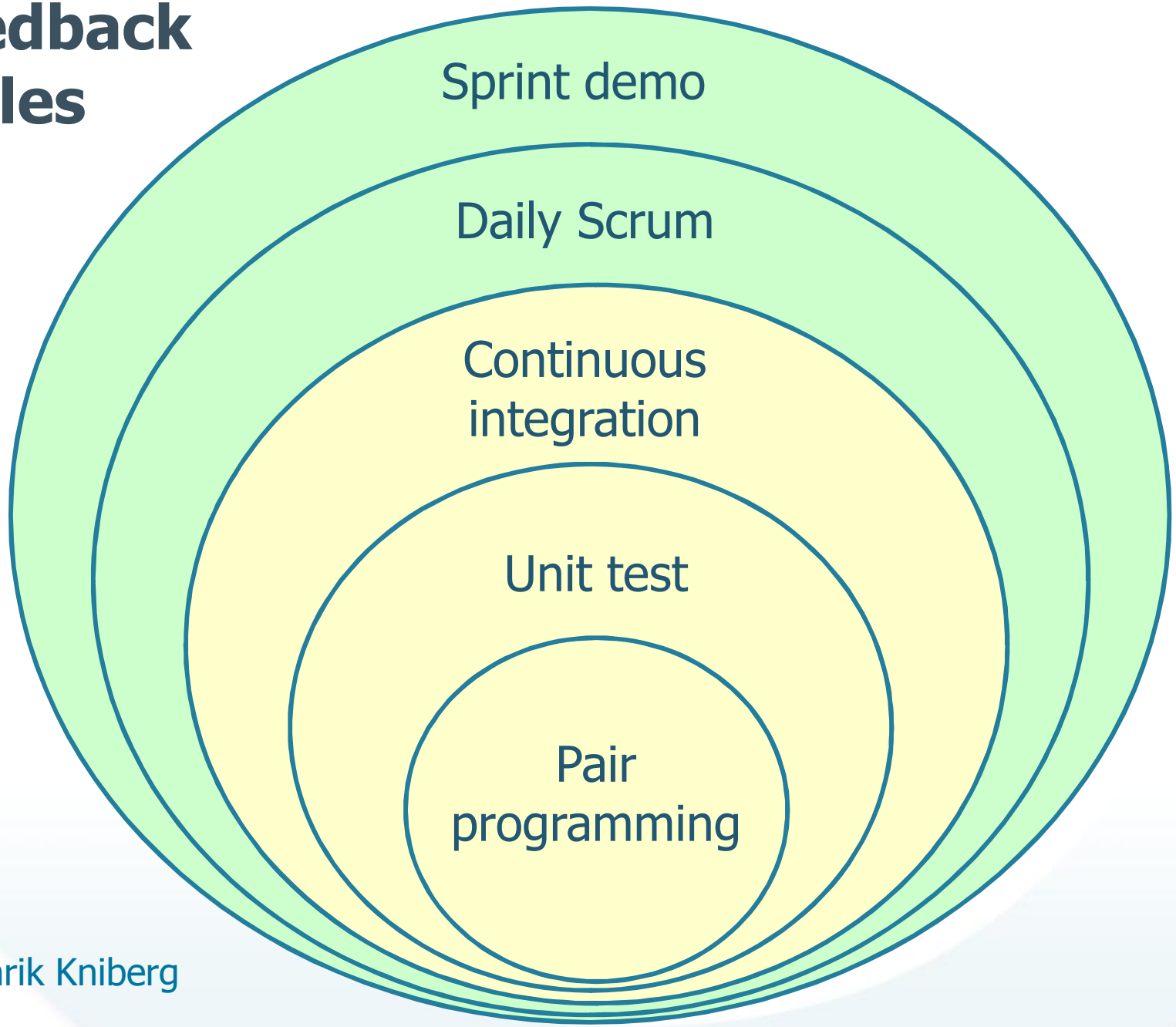
Scrum process

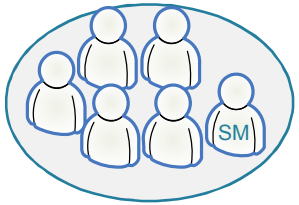


Scrum & XP


Scrum
Team
Daily Scrum
Sprint backlog
Burndown chart
Product backlog
Product owner
Sprint Planning meeting
Planning game
ScrumMaster
Sprint Review
XP
Whole team
Collective ownership
TDD
Coding standard
Customer tests
Pair programming
Refactoring
Continuous Integration
Simple design
Sustainable Pace
Metaphor
Small releases

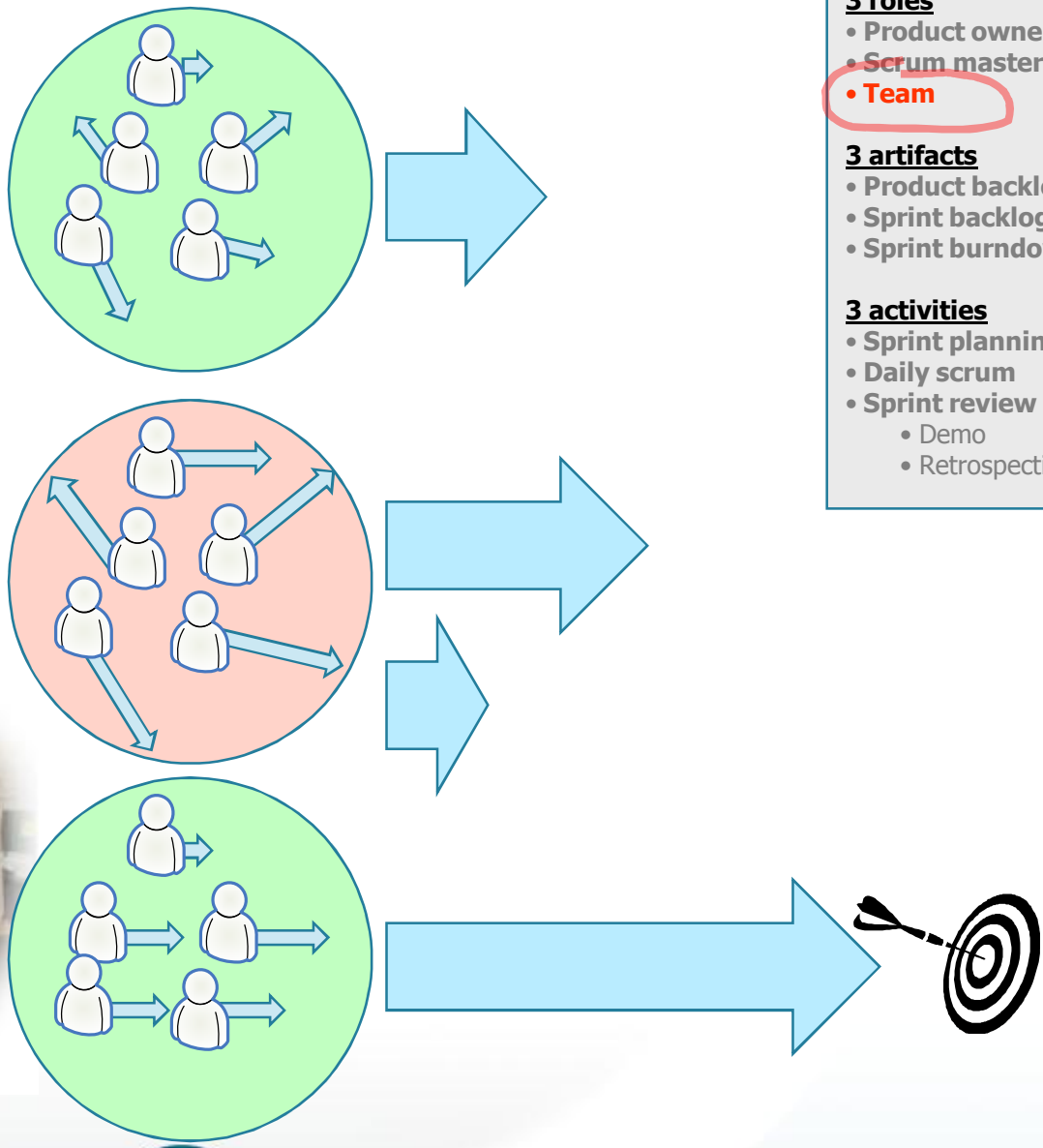
Feedback cycles





Team

- 5 – 8 full-time individuals
- Cross-functional
- Sits together
- Shared responsibility
- Self-organizing



3 roles
- Product owner
- Scrum master
- Team

3 artifacts
- Product backlog
- Sprint backlog
- Sprint burndown

3 activities
- Sprint planning
- Daily scrum
- Sprint review
  - Demo
  - Retrospective

Product owner

- Represents all stakeholders
- Decides where the team should go
  - Not how they get there
  - Not their speed
- Defines vision & scope
- Prioritizes
- Owns product backlog

- Does not estimate stories
- Usually Not the line manager

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ScrumMaster

- **Enforces Scrum practices**
  - **Coaching** rather than command & control
- **Removes impediments**
- **Part of the team**

- **Usually Not the line manager**
- **Usually Not the tech guru**

3 roles
- Product owner
- **Scrum master**
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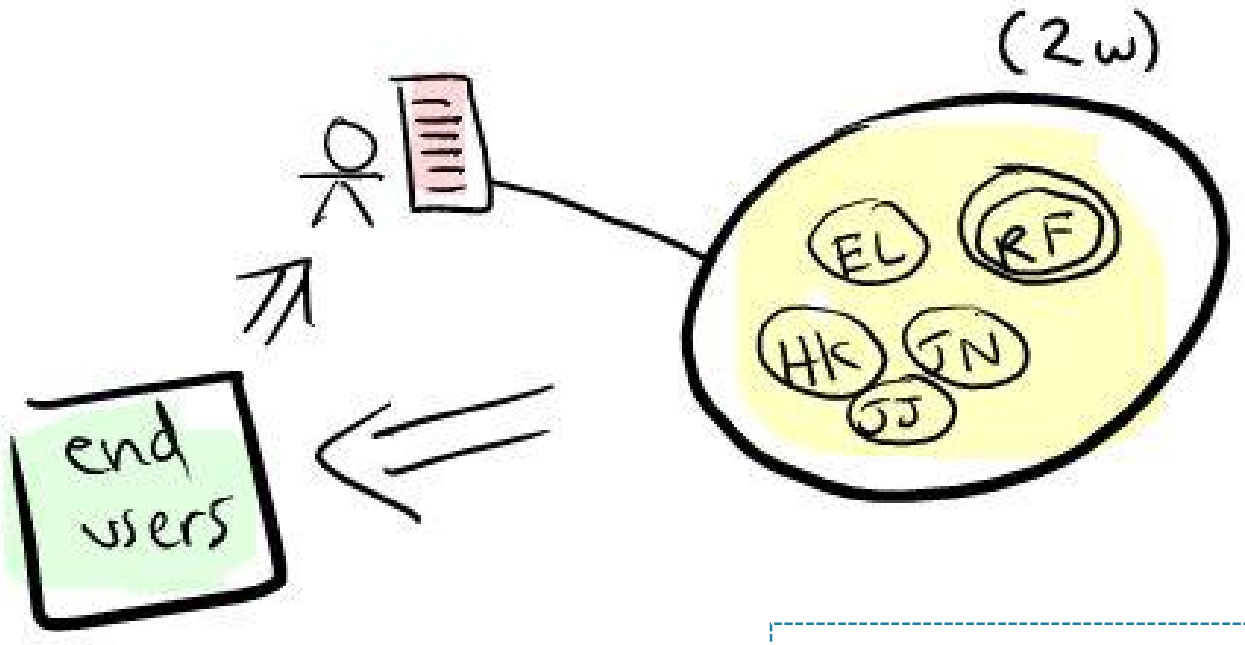
Is ScrumMaster a full-time role?

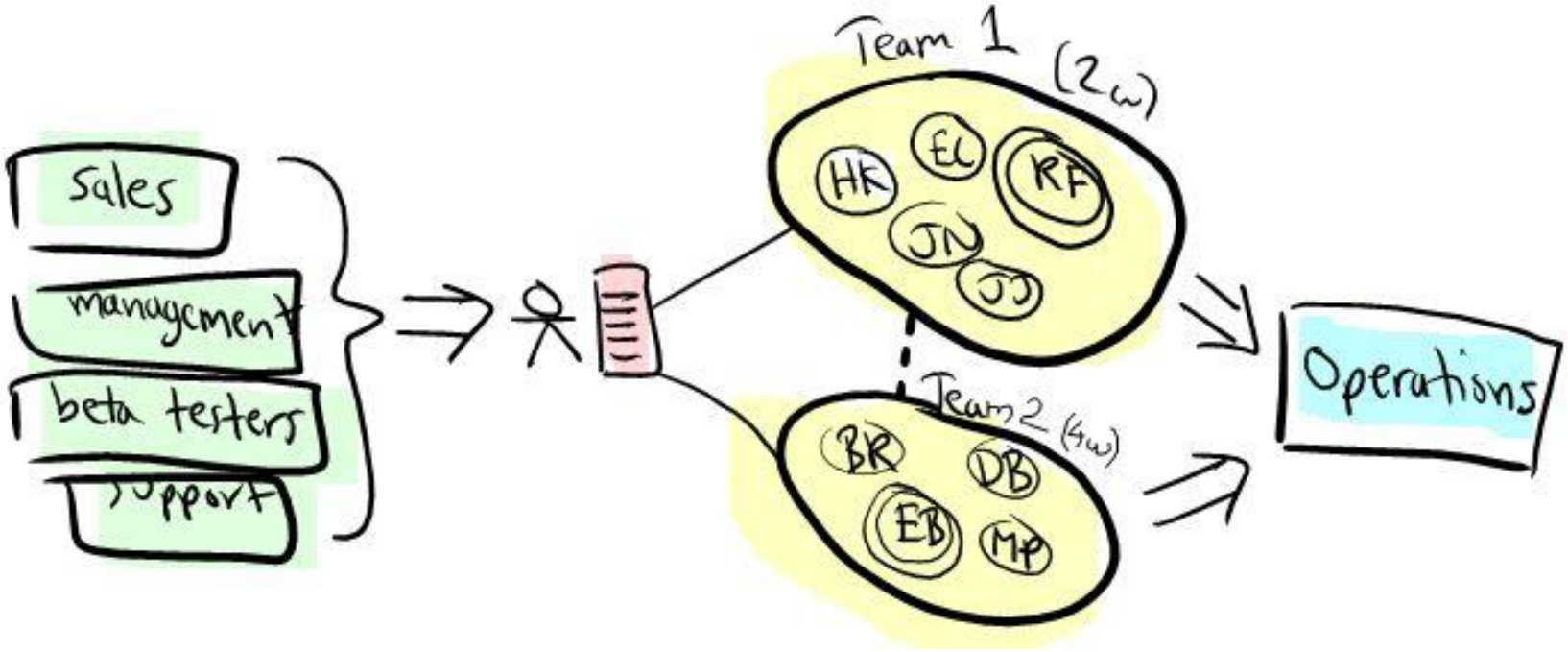
	Small team	Large team
Few problems	≈ 10%	≈ 50%
Many problems	≈ 50%	100%

Example: Simplest possible Scrum organization

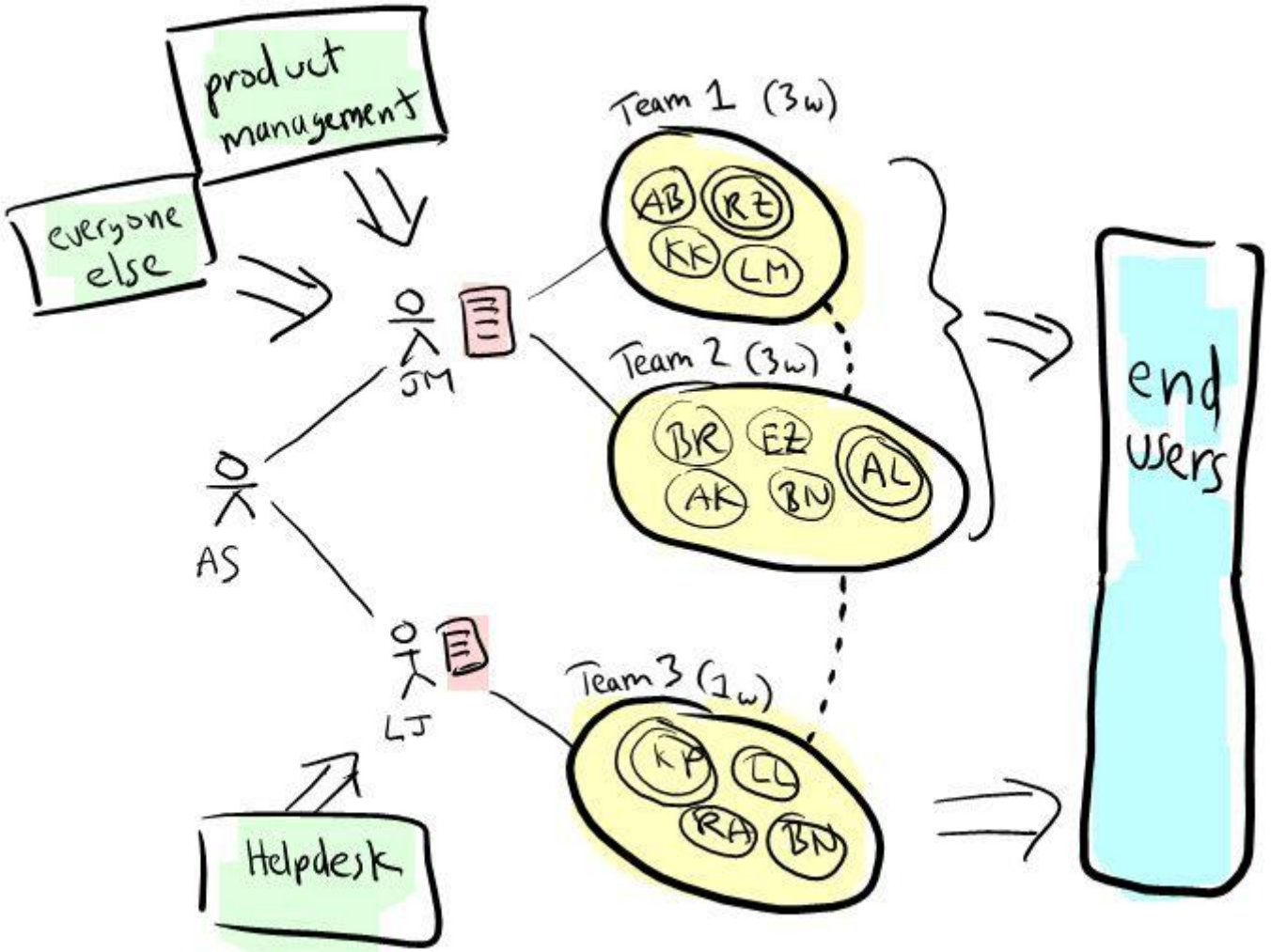


ScrUML
(inofficial Scrum Modeling Language)

Example: multiple teams



Example: multiple product owners



Manager

- Invisible hand
- Oil
- Firefighter
- Servant leader
- Bootstrapper
- Prioritize & fix corporate impediments
  - Listen to the teams!

- Doesn't control the roadmap
- Doesn't control the team

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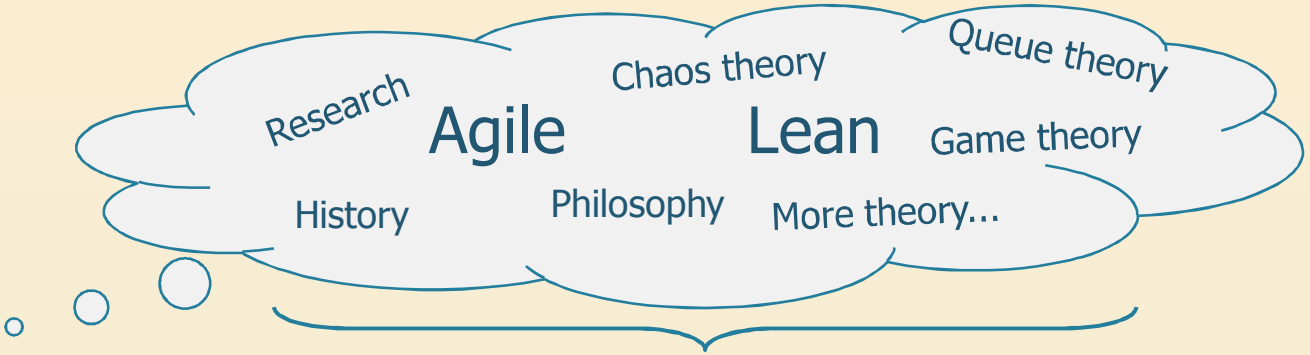
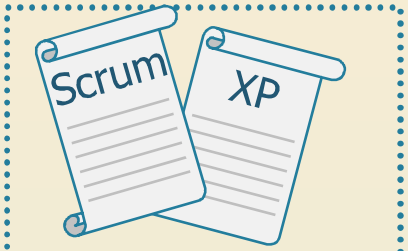
Part 2: Estimating & Planning

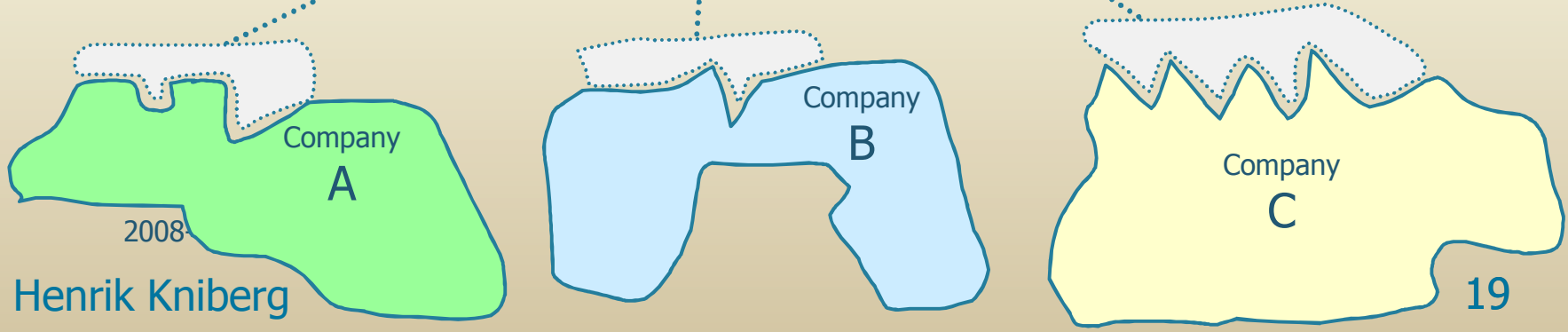


Principals

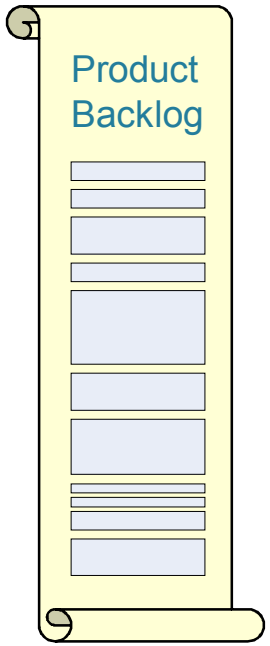


Practices

Implementation



Product backlog



Backlog item #55

Deposit

Importance: 30

Notes: Need a UML sequence diagram. No need to worry about encryption for now.

Estimate:

How to demo: Log in, open deposit page, deposit €10, go to my balance page and check that it has increased by €10.

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ID	Name	Imp	Est	How to demo	Notes
1	Deposit	30	5	Log in, open deposit page, deposit €10, go to my balance page and check that it has increased by €10.	Need a UML sequence diagram. No need to worry about encryption for now.
2	See your own transaction history	10	8	Log in, click on "transactions". Do a deposit. Go back to transactions, check that the new deposit shows up.	Use paging to avoid large DB queries. Design similar to view users page.

Story

Backlog item #55

Deposit

Importance: 30

Estimate:

Notes:
Need a UML sequence diagram. No need to worry about encryption for now.

How to demo:
Log in, open deposit page, deposit €10, go to my balance page and check that it has increased by €10.

Independent
Negotiable
Valuable
Estimable
Small
Testable

Acronym courtesy of Bill Wake – www.xp123.com

3 roles
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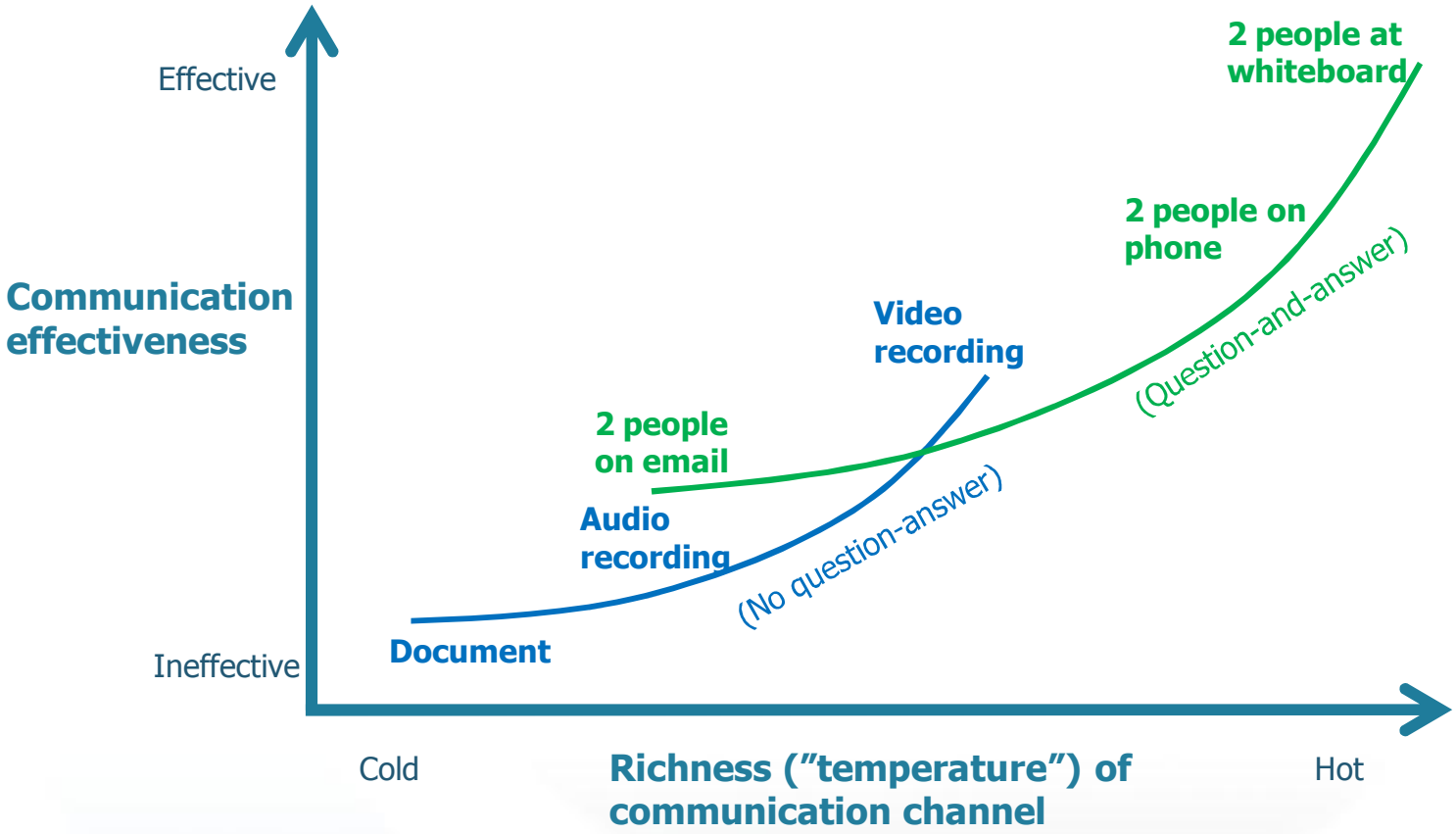
As a <role>
I want to <what>
so that <why>

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

Communication effectiveness



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Source: research from McCarthy and Monk (1994)

Definition of Done

Default Definition of Done

- Releasable

Default Definition of Done

- Unit/Integration tested
- Ready for acceptance test
- Deployed on demo server

Default Definition of Done

- Acceptance tested
- release notes written
- Releasable
- No increased technical debt

= I haven't messed up the codebase

What's NOT included in DoD?

- For example "customer acceptance test + user documentation"

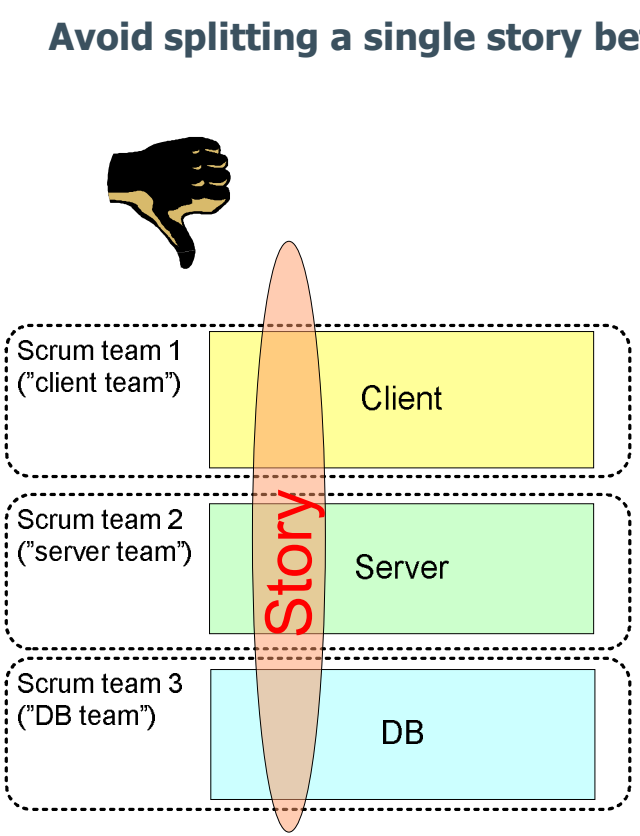
Why not? Who does it? When? What happens if a problem turns up?

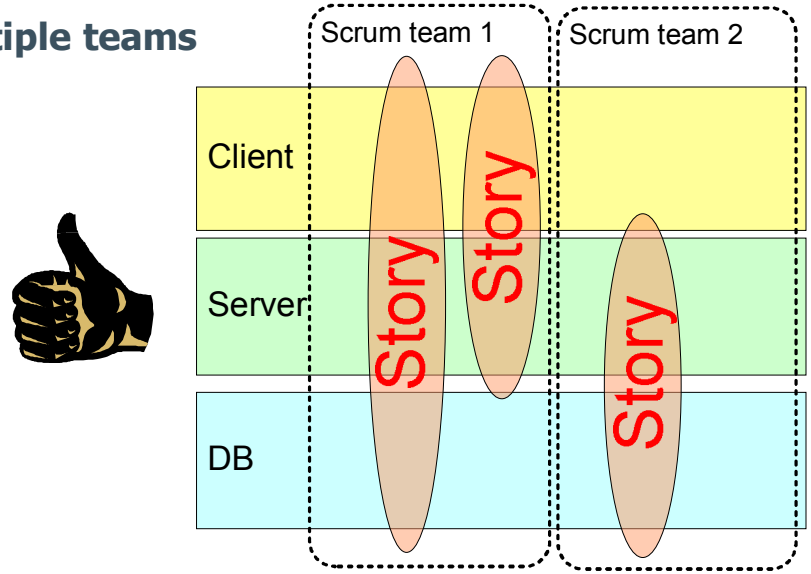
Sprint length & Definition of Done

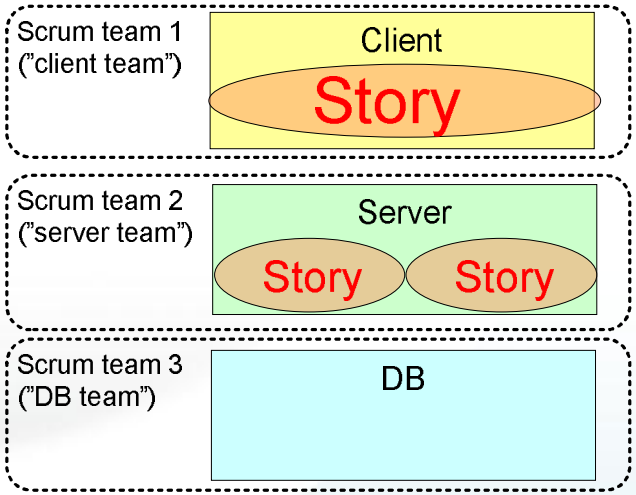
- **What is your greatest possible DoD?**
  - Can your DoD be ”Releasable”?
    - If not, why? Add to impediment backlog.
  - How close to Releasable can you get? That is your DoD.
- **What is your shortest possible sprint length?**
  - What is the *shortest time* in which you can complete a few stories according to your DoD?
    - Why not shorter? Add to impediment backlog.

Team allocation

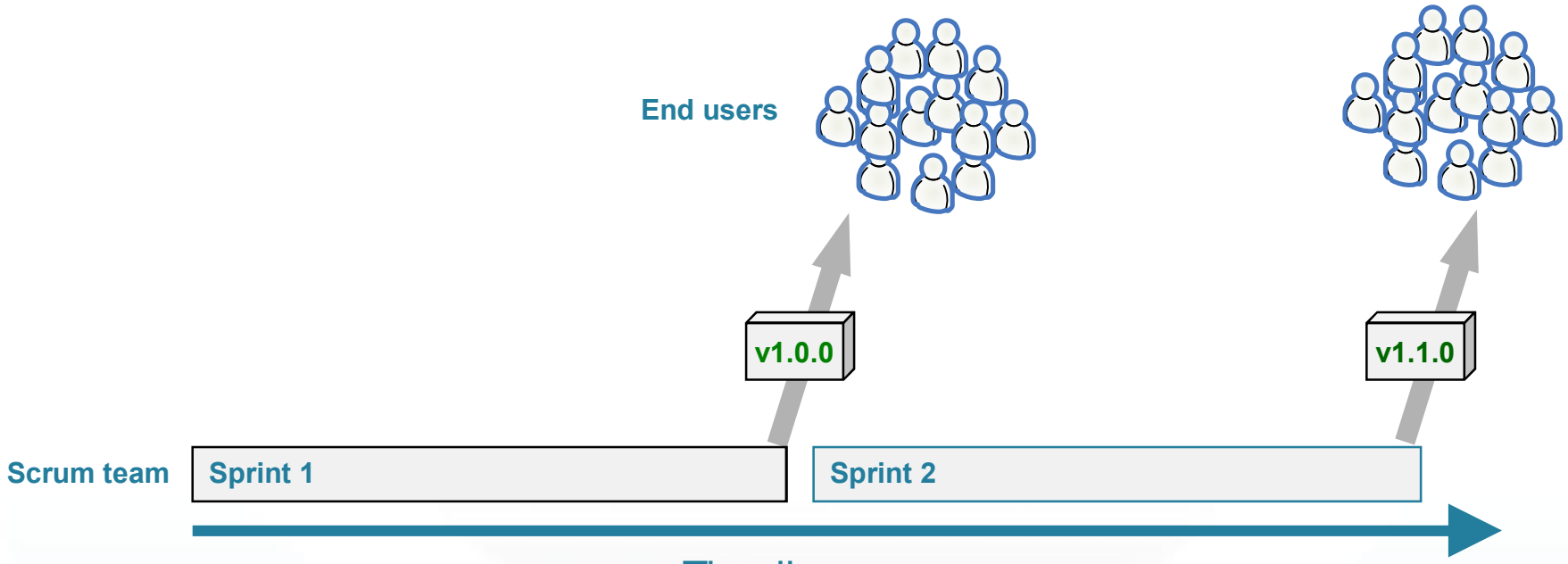
Avoid splitting a single story between multiple teams



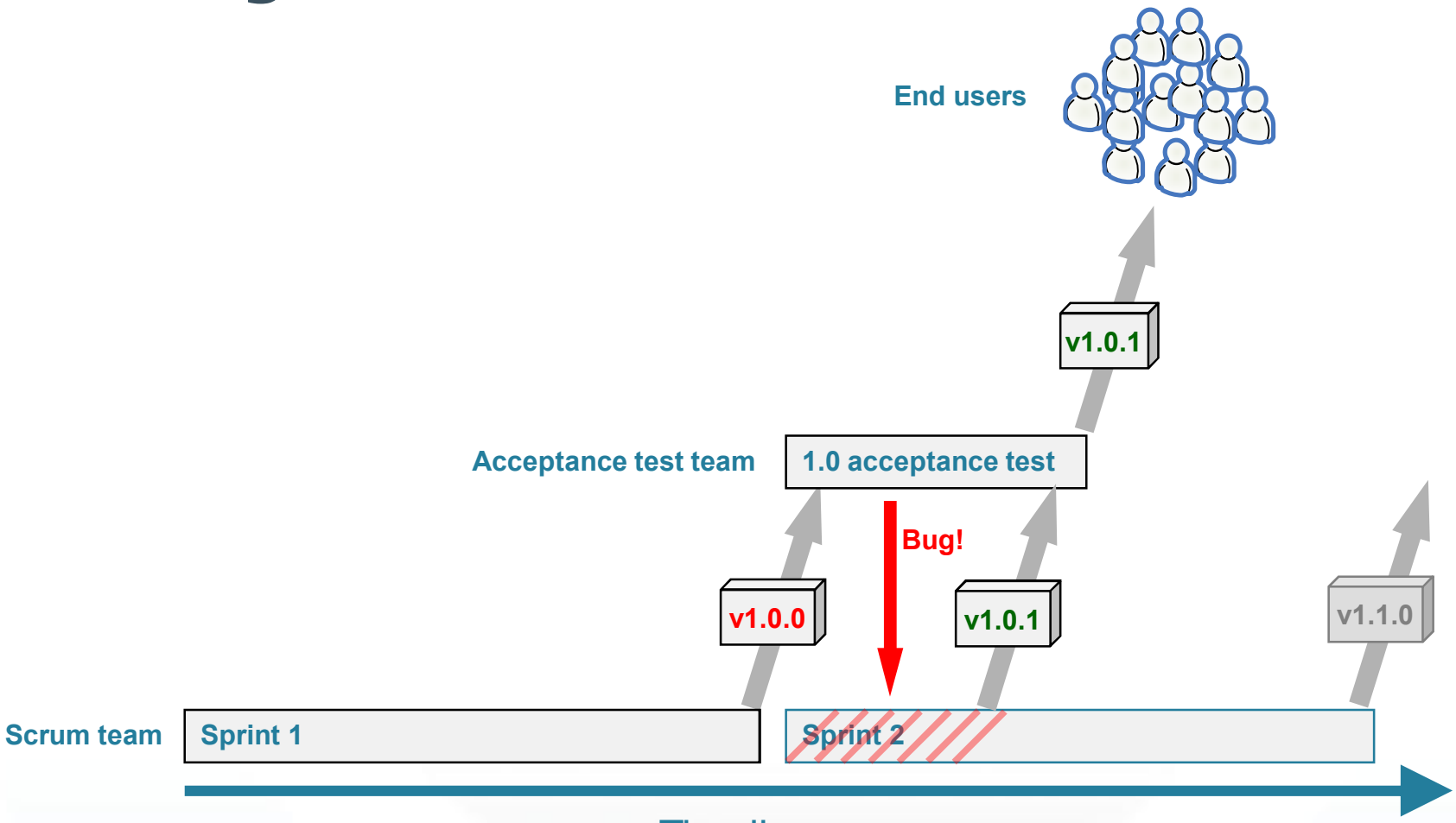




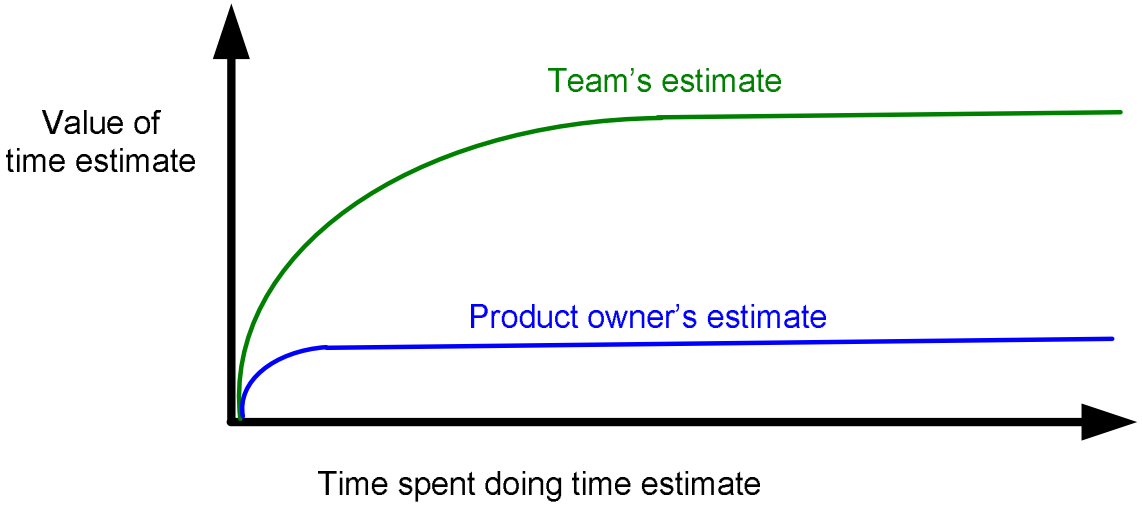
Testing – ideal case



Testing – common alternative



Estimates



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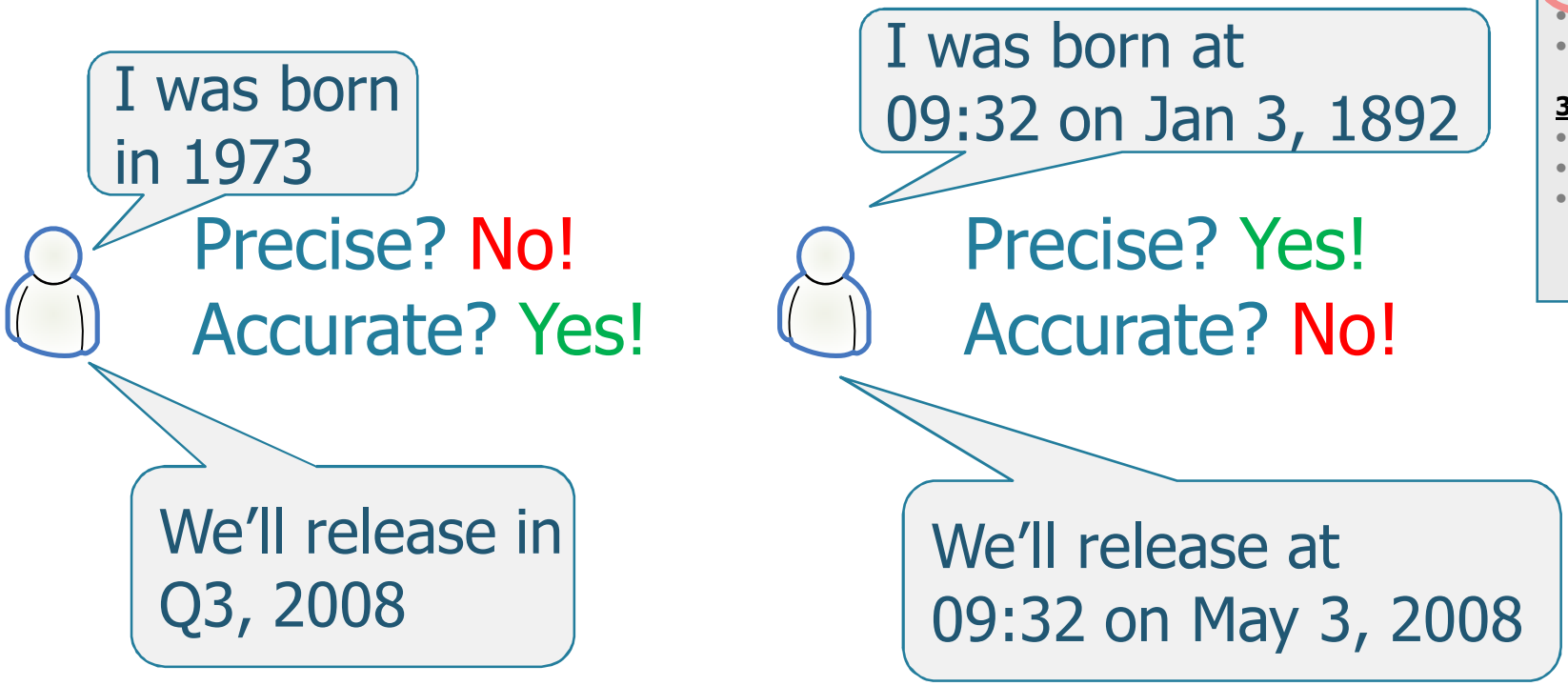
Know Thy Definition Of Done!

http://planningpoker.crisp.se

Precision vs Accuracy



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Better to be roughly right than precisely wrong!

Specification length

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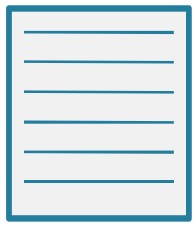
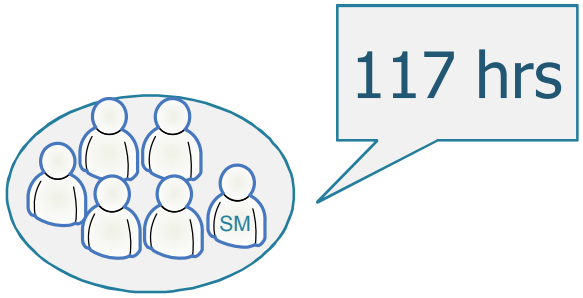
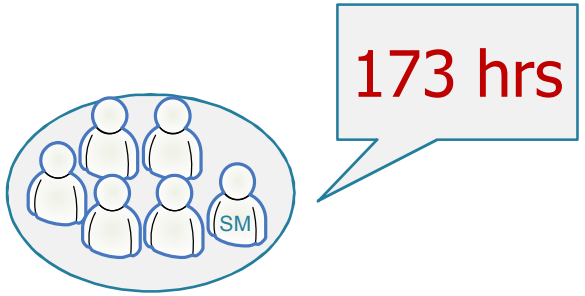
Spec





Same spec – more pages



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

Irrelevant information

3 roles
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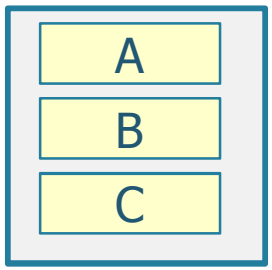
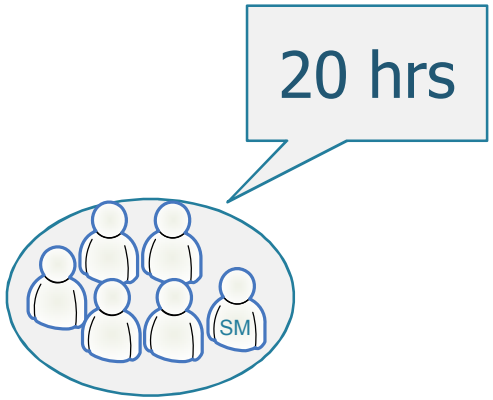
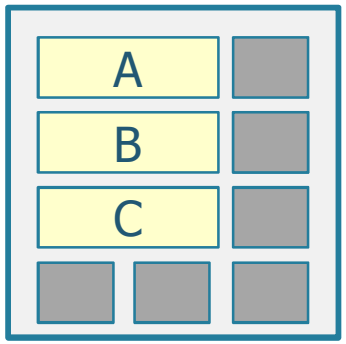
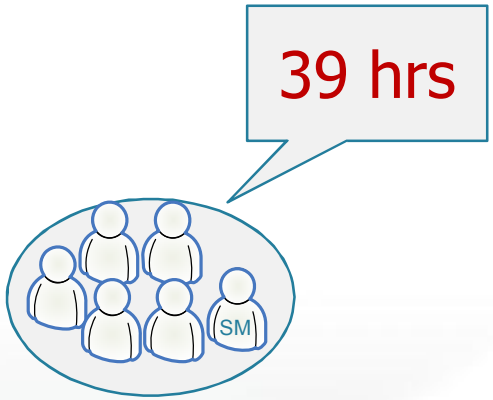
Spec 1





Same spec
+ irrelevant details





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

Extra requirements

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- Scrum master
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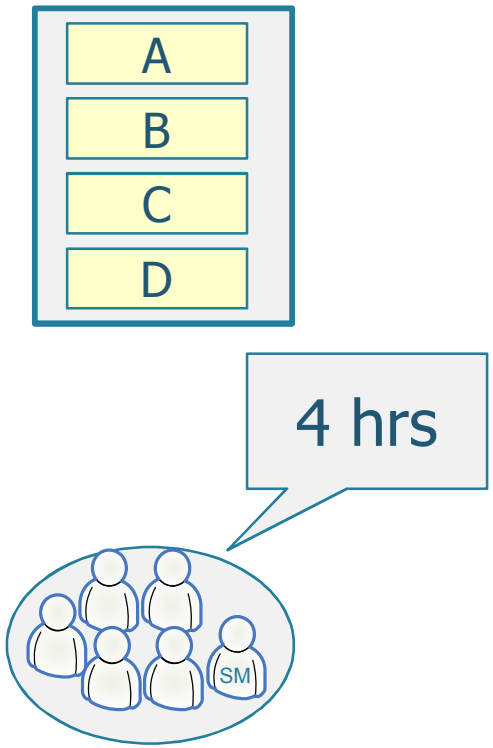
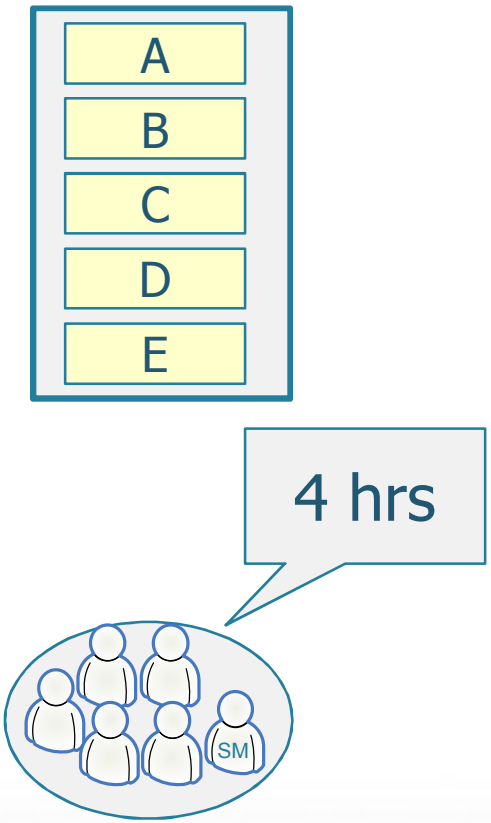
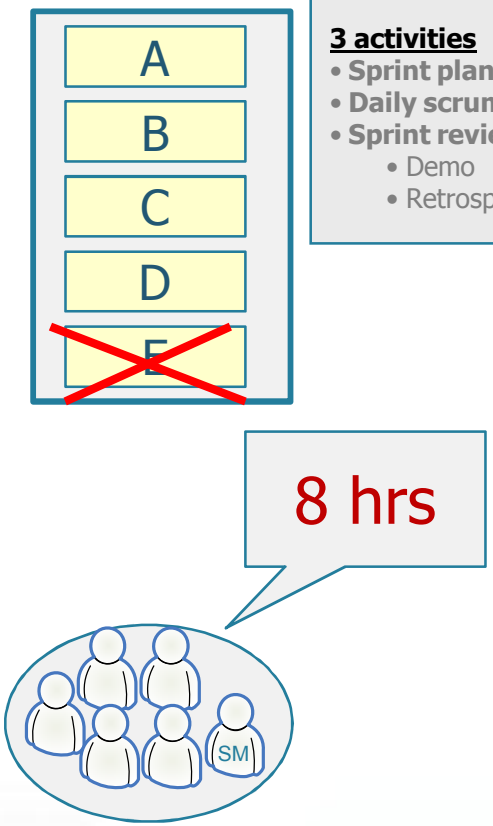
Spec 1



Spec 2



Spec 3



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

Anchoring

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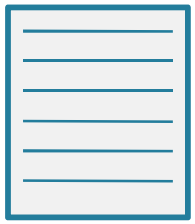
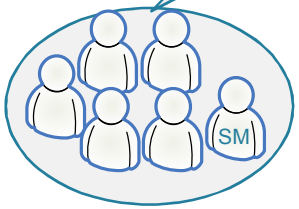
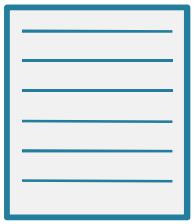
Spec



456 hrs

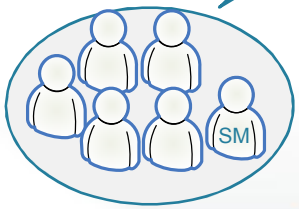


Same spec



500 hrs
Never mind me

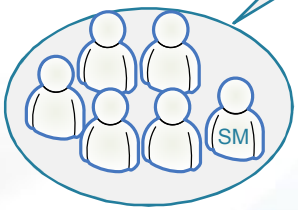
555 hrs



Same spec

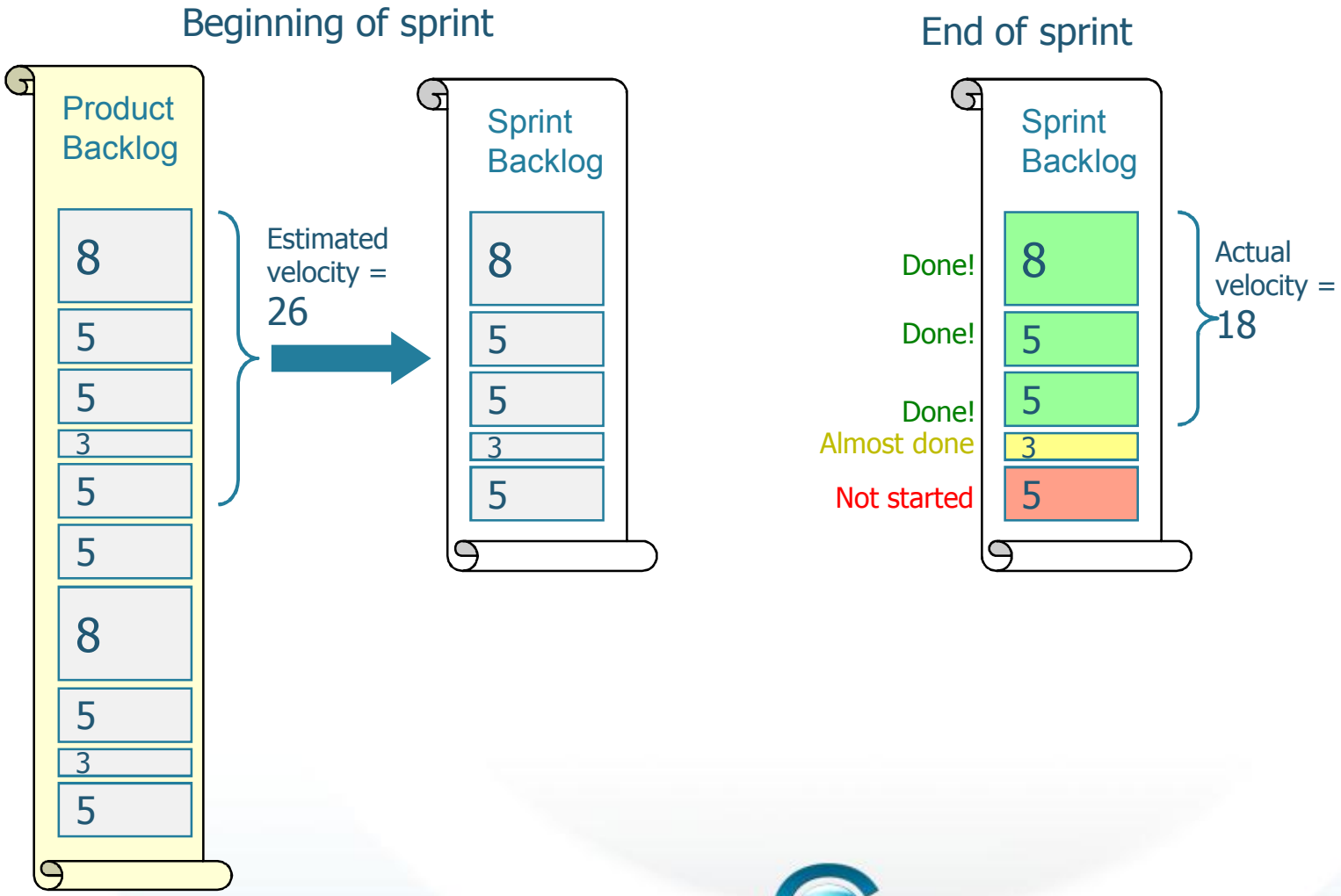
50 hrs
Never mind me

99 hrs



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

Velocity tracking



3 roles
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- Sprint backlog
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3 activities
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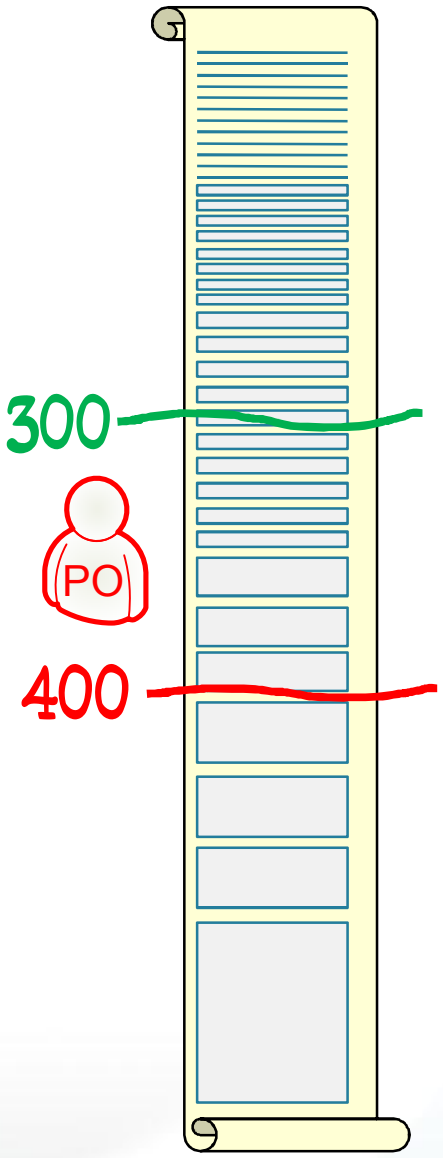
  - Demo
  - Retrospective

Release planning

- Today is Aug 6
- Sprint length = 2 weeks
- Velocity = 30 - 40

What will be done by X-mas?

(10 sprints)



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Velocity calibration

Estimated Velocity	Actual Velocity
40	30
30	28
30	31
30	30

Estimated	Actual
40	30
40	30
40	30

Estimated	Actual
40	30
50	30
60	30

Estimated	Actual
~~30~~ 40	35
~~25~~ 35	30
~~20~~ 30	25

Technical debt

- Code duplication
- Test coverage
- Code readability

Definition of Done

- .... bla bla ....
- No increased technical debt

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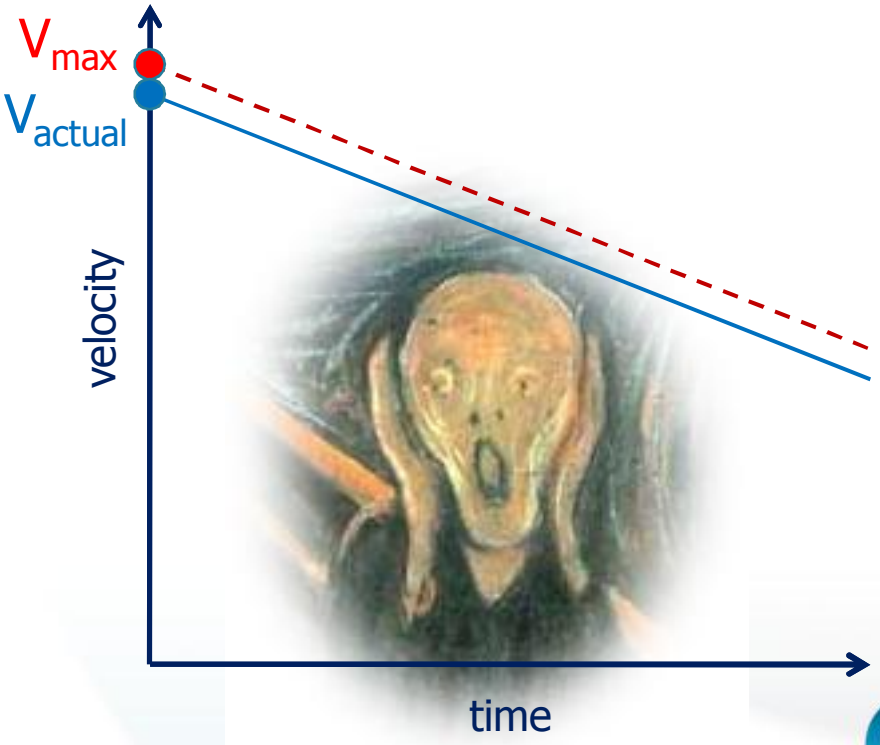
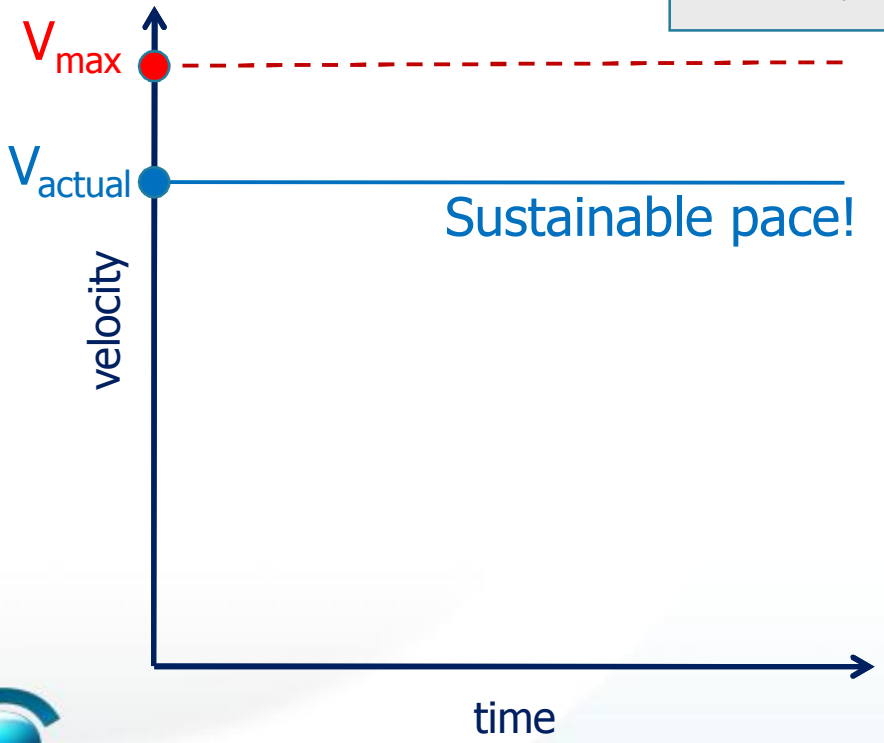
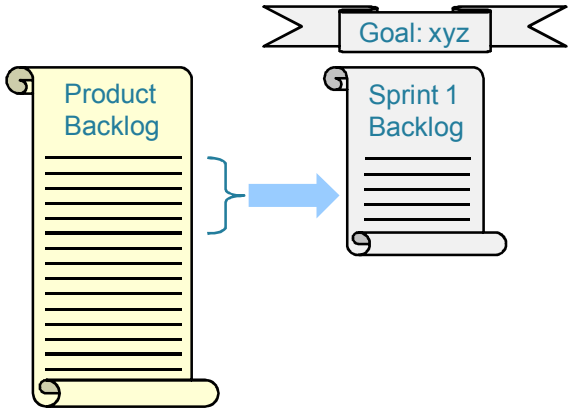




Sprint planning meeting



Jackass team, sprint 15

Sprint goal
- Beta-ready release!

Sprint backlog
- Deposit (5)
- Migration tool (13)
- Backoffice login (3)
- Backoffice user admin (5)

(Estimated velocity = 26)

Schedule
- Sprint period: 2006-11-06 to 2006-11-24
- Sprint demo: 2006-11-24, 13:00, in the cafeteria
- Daily scrum: 9:30 – 9:45, in conference room Jimbo

Team
- Jim
- Erica (scrum master)
- Tom (75%)
- Niklas
- Eva
- John

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Why the team AND product owner should be at the sprint planning meeting

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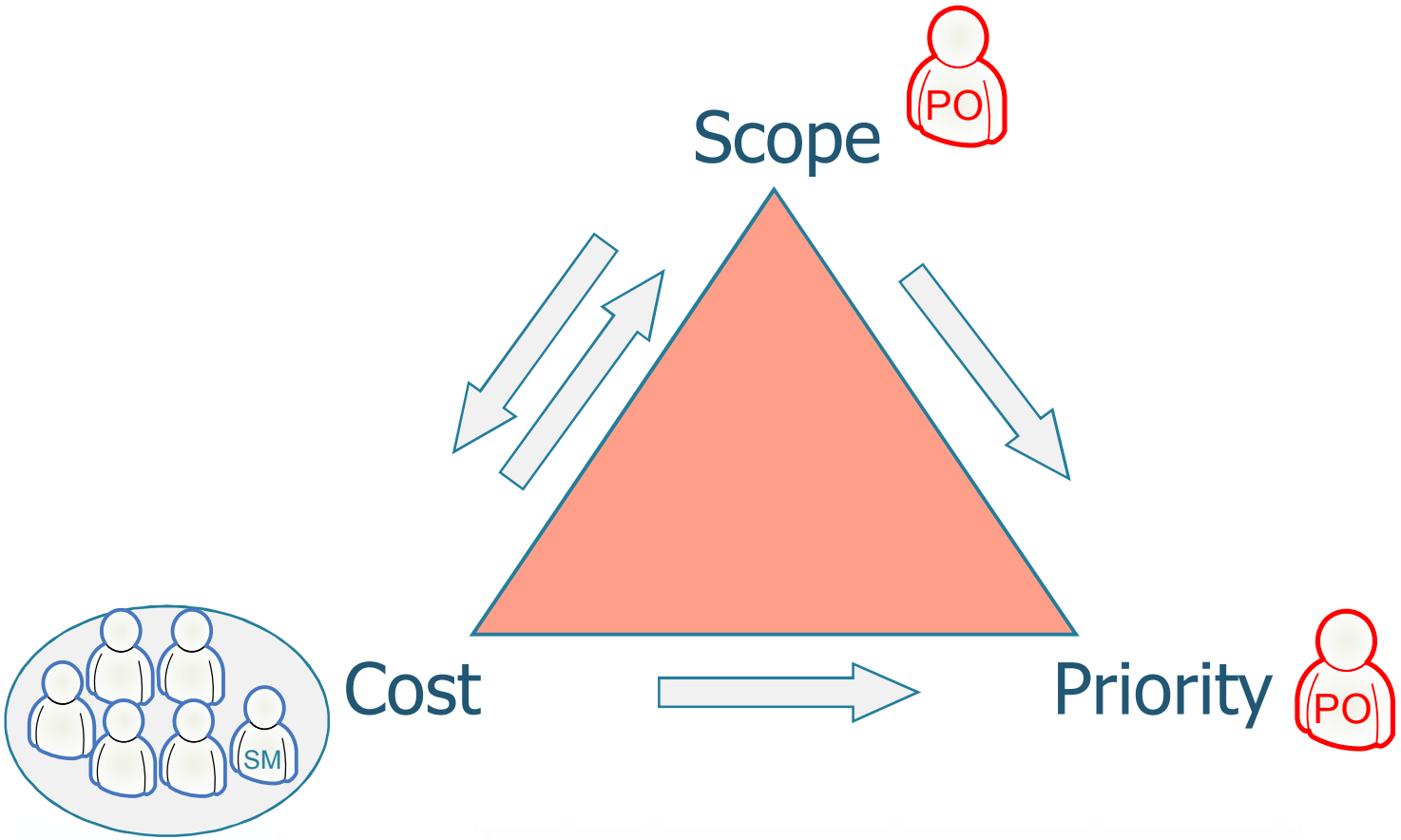
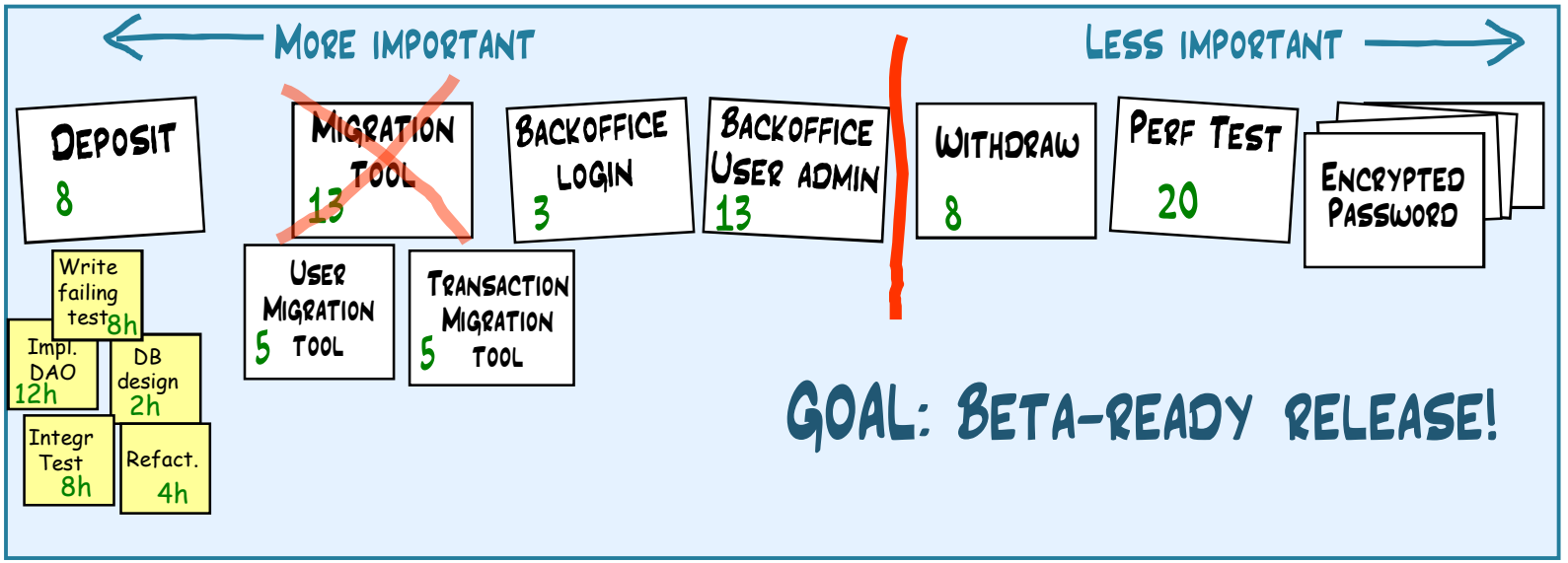


Sprint planning meeting - example



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- Goal
- Present backlog
- Reprioritize, Re-estimate, split stories, combine stories
- Break out tasks
- Estimate velocity, draw the line

Sprint planning meeting - example

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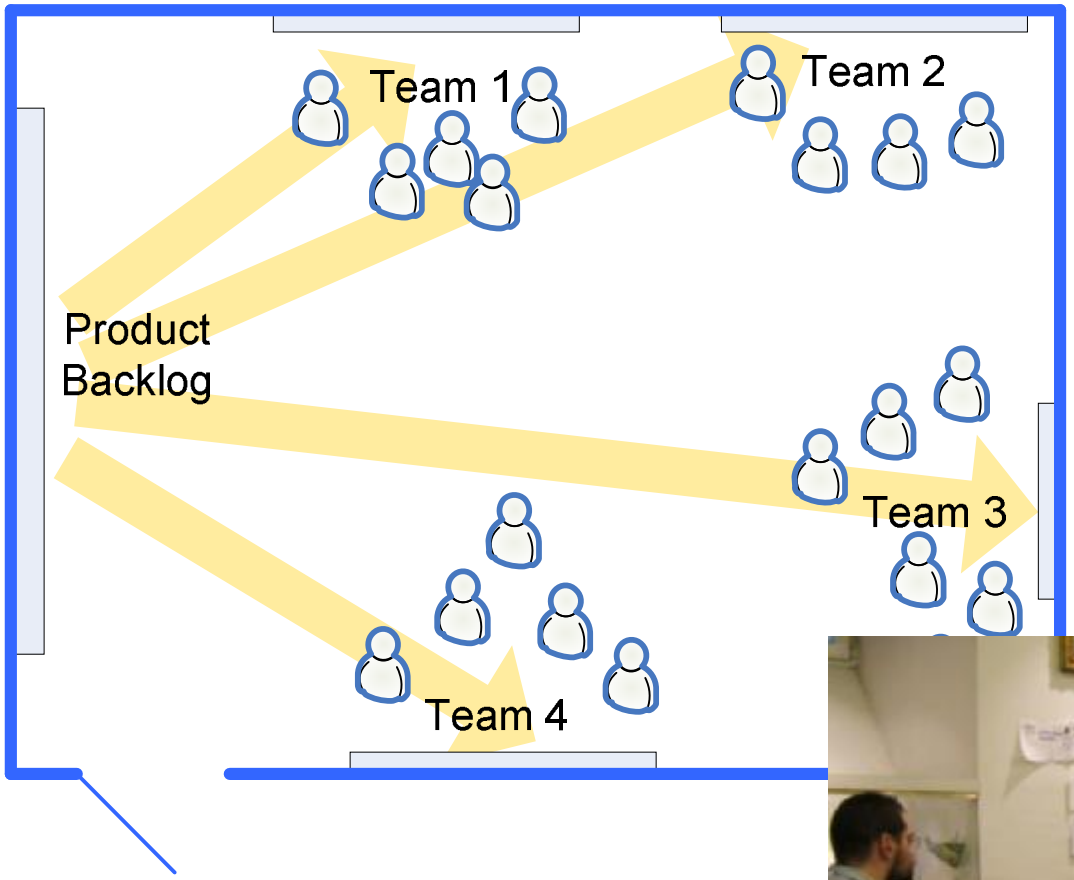
Multi-team sprint planning



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The sprint commitment

Team's commitment to the product owner:

"We promise that..."

- **... we believe we can reach the sprint goal.**
- **... we will do everything in our power to reach the sprint goal, and will let you know immediately if we no longer believe we can reach it.**
- **... we believe that we can complete all stories included in the sprint backlog.**
- **... we will release at the end of the sprint**
- **... if we fall behind schedule, we will remove the lower priority stories first.**
- **... if we get ahead of schedule, we will add stories to the sprint from the product backlog, in priority order.**
- **... we will display our progress and status on a daily basis.**
- **... every story that we do deliver is *complete.***

Common misconceptions

- **"We promise to achieve this goal"**
- **"We promise to deliver all stories included in the sprint backlog"**

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- Sprint review
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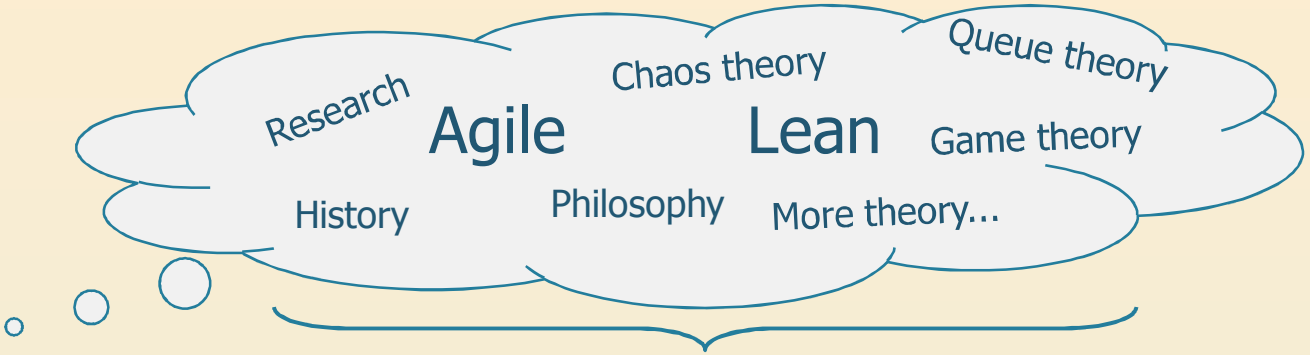
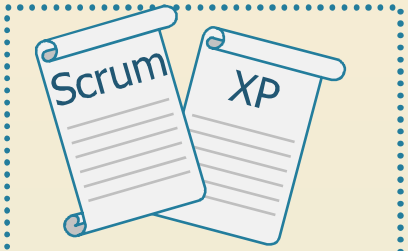
  - Retrospective

Part 3: Executing the sprint

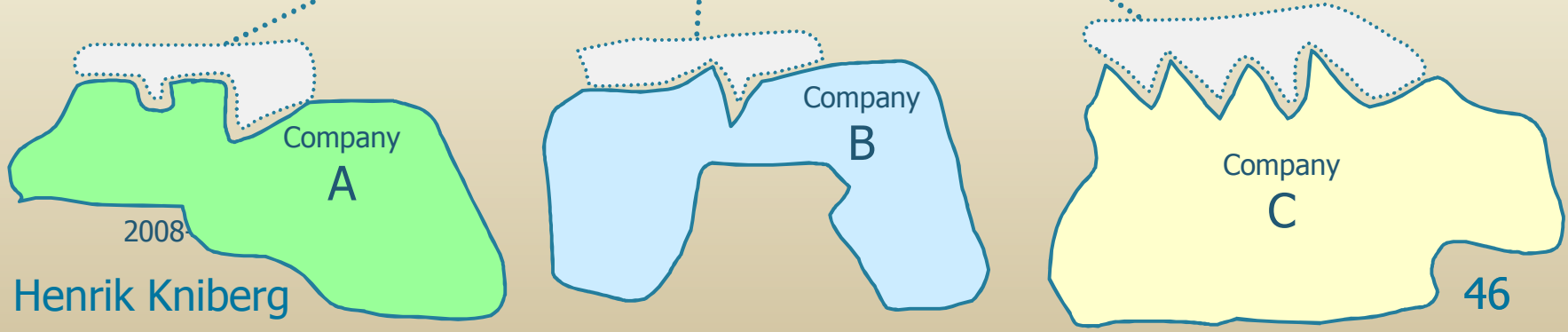


Principals

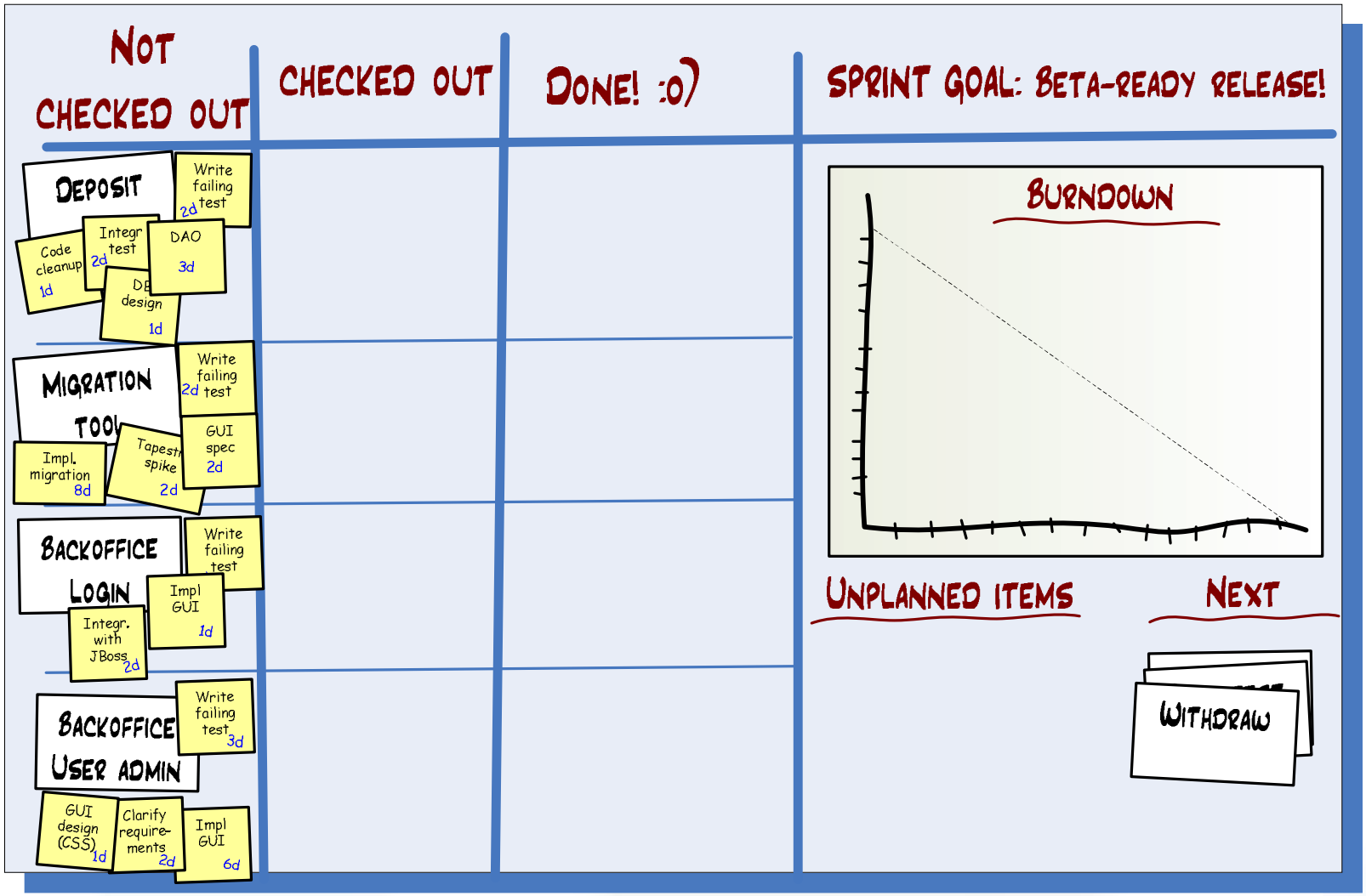


Practices

Implementation



Sprint backlog – day 0



3 roles
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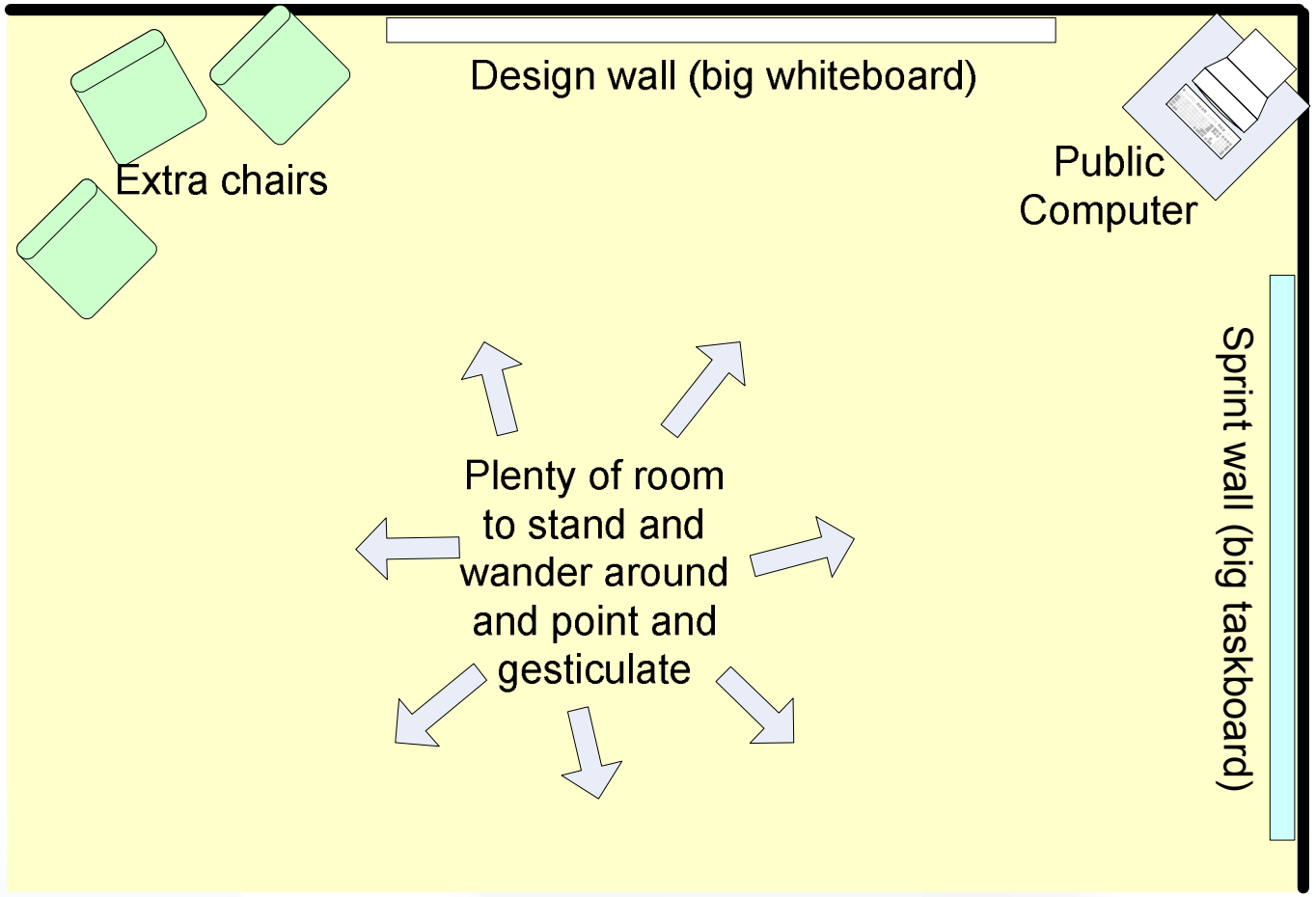
3 artifacts
- ~~Product backlog~~
- Sprint backlog
- ~~Sprint burndown~~

3 activities
- Sprint planning
- Daily scrum
- Sprint review
  - Demo
  - Retrospective

Design corner



3 roles
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3 artifacts
- Product backlog
- Sprint backlog
- Sprint burndown

3 activities
- ~~Sprint planning~~
- **Daily scrum**
- ~~Sprint review~~
  - Demo
  - Retrospective

Daily Scrum meeting

15 minutes
- **What did I accomplish yesterday?**
- **What will I accomplish today?**
- **What's stopping me?**

3 roles
- Product owner
- Scrum master
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3 artifacts
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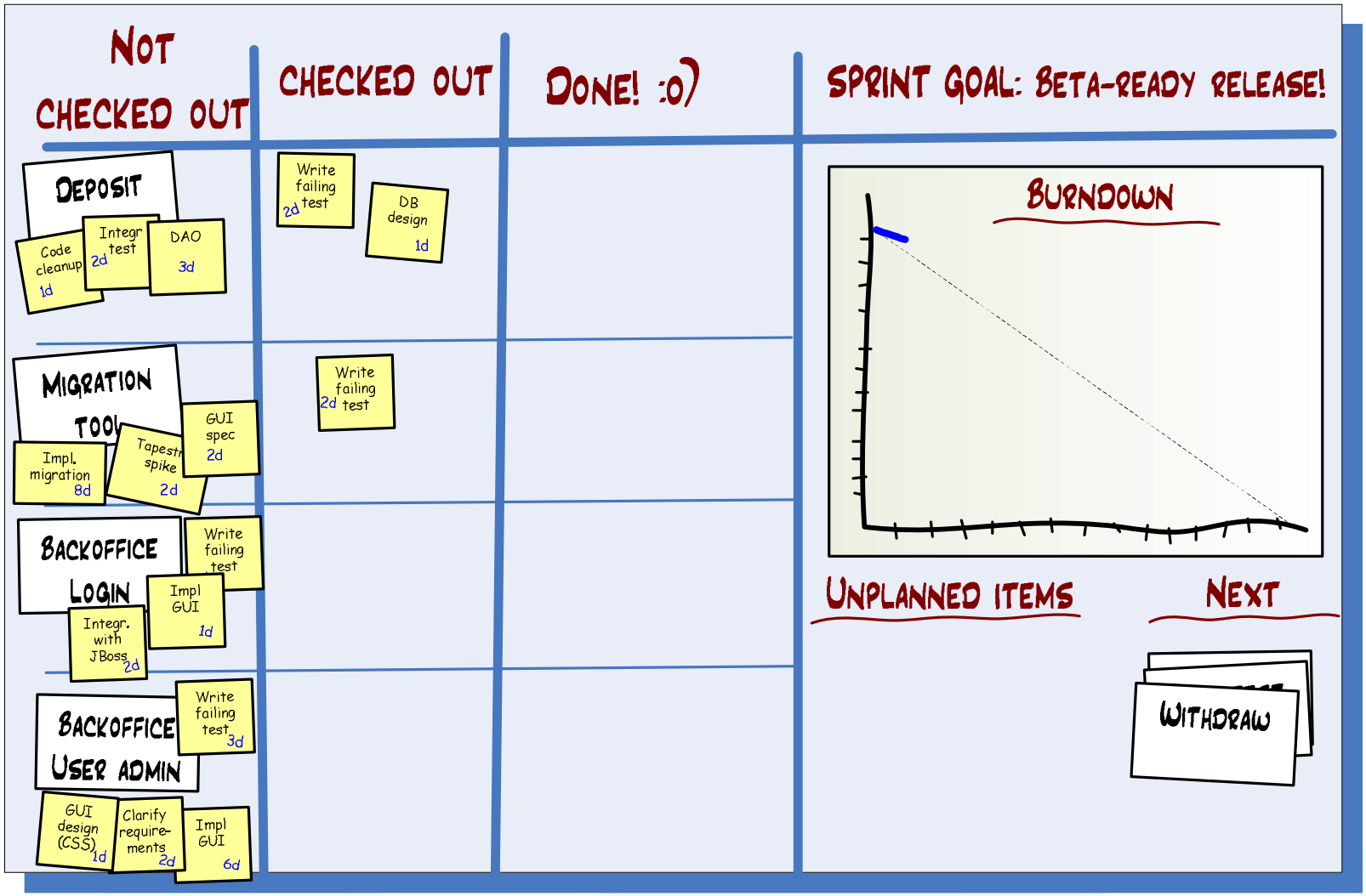
- Sprint burndown

3 activities
- ~~Sprint planning~~
- **Daily scrum**
- ~~Sprint review~~
  - Demo
  - Retrospective

Sprint backlog – after 1st meeting



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- Sprint backlog
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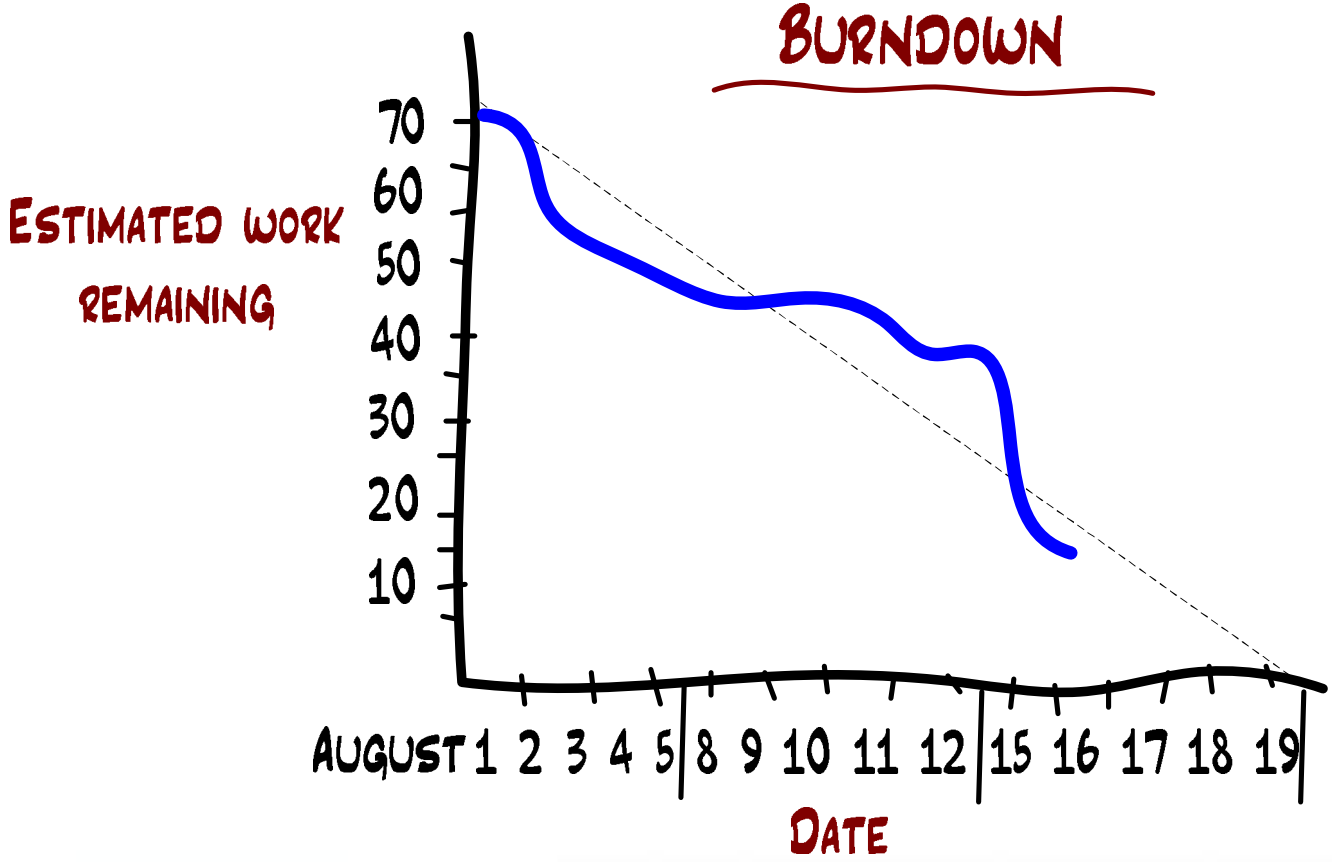
Sprint burndown chart



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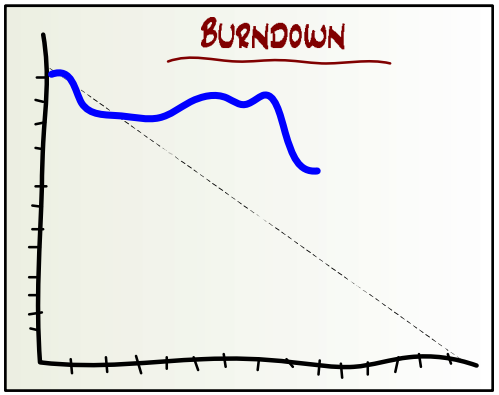
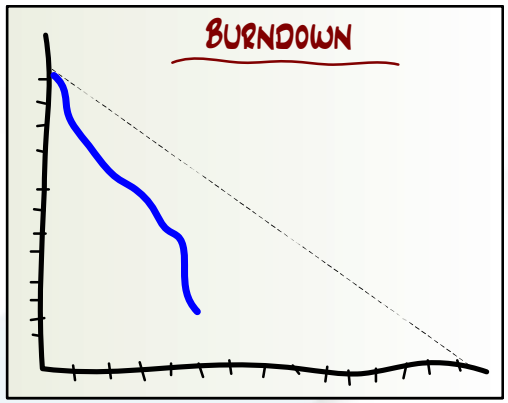
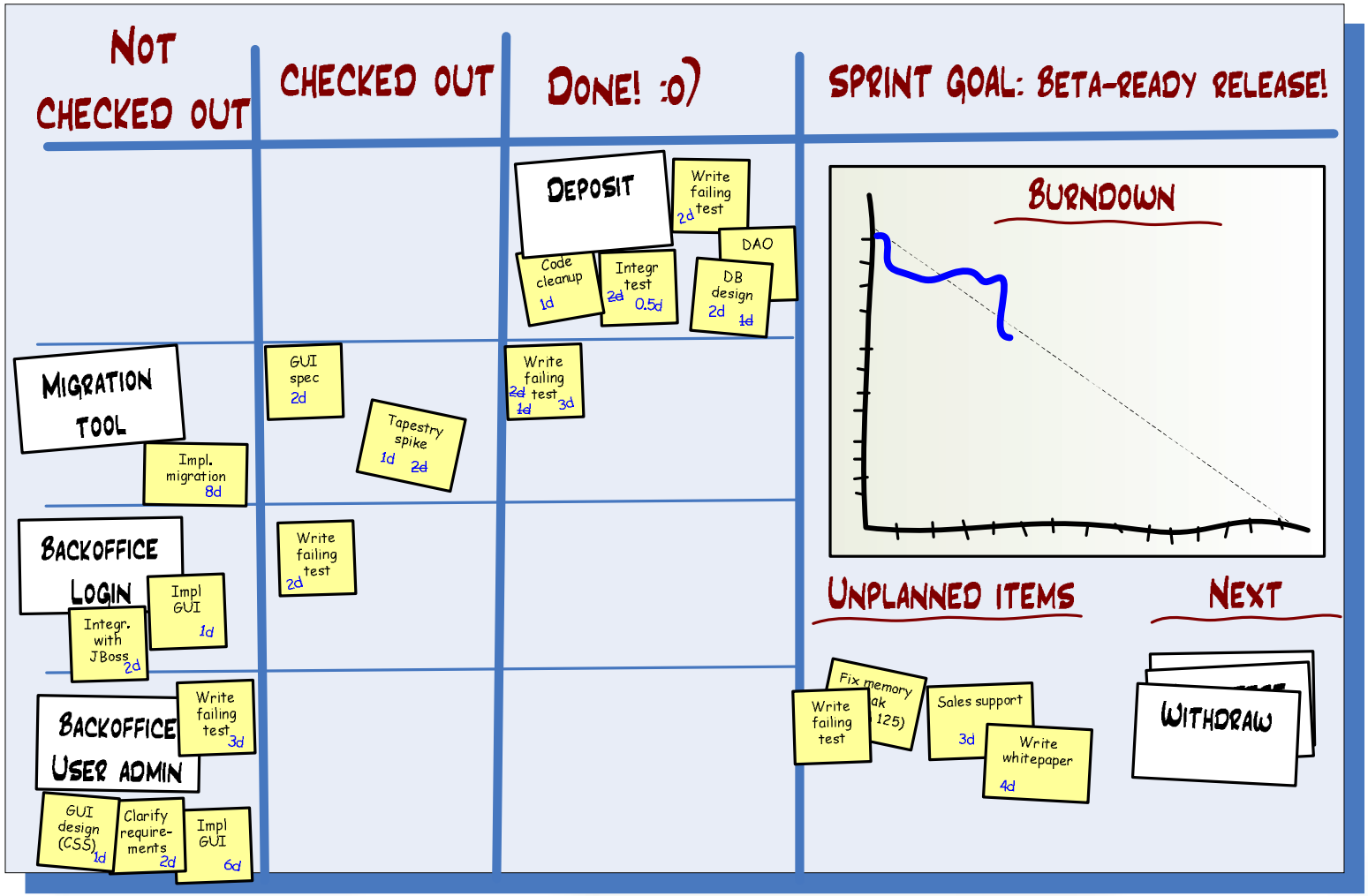




Henrik Kniberg

crisp

Sprint backlog – day X



3 roles
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3 artifacts
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- Sprint backlog
- ~~Sprint burndown~~

3 activities
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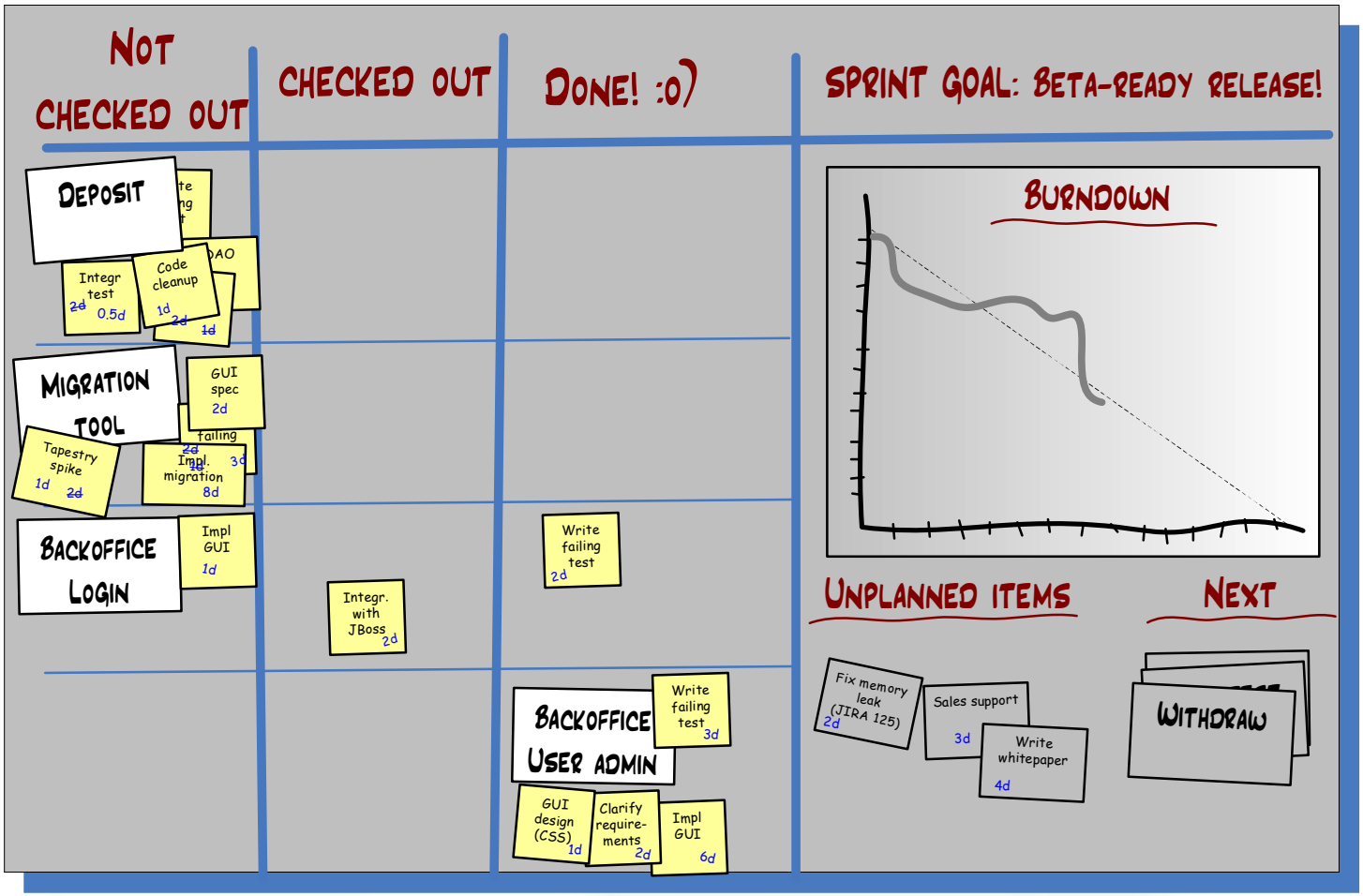
- Daily scrum
- Sprint review
  - Demo
  - Retrospective

Warning sign #1



3 roles
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3 artifacts
- ~~Product backlog~~
- **Sprint backlog**
- ~~Sprint burndown~~

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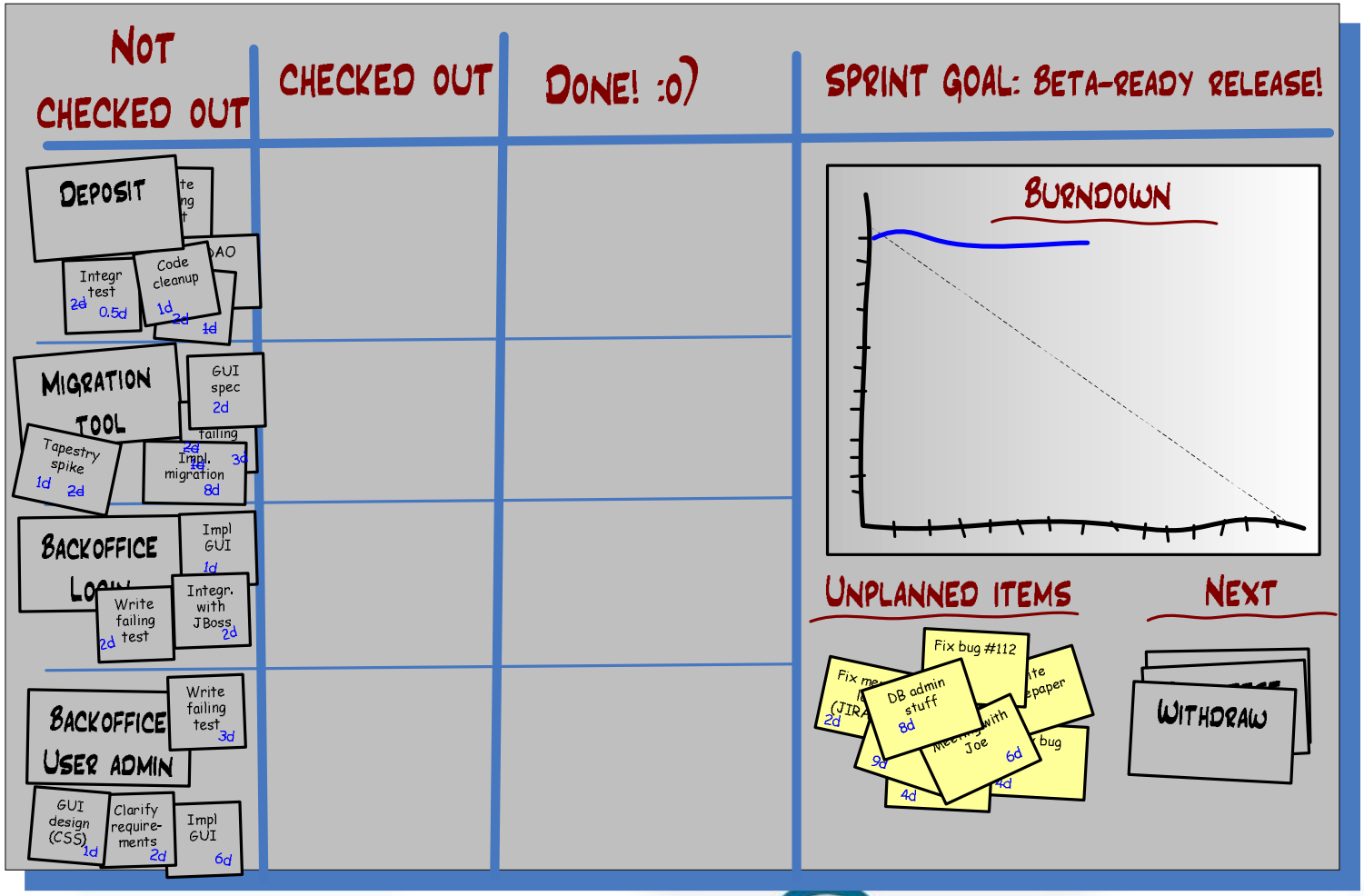
  - Retrospective

Warning sign #2



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- Team

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- **Sprint backlog**
- ~~Sprint burndown~~

3 activities
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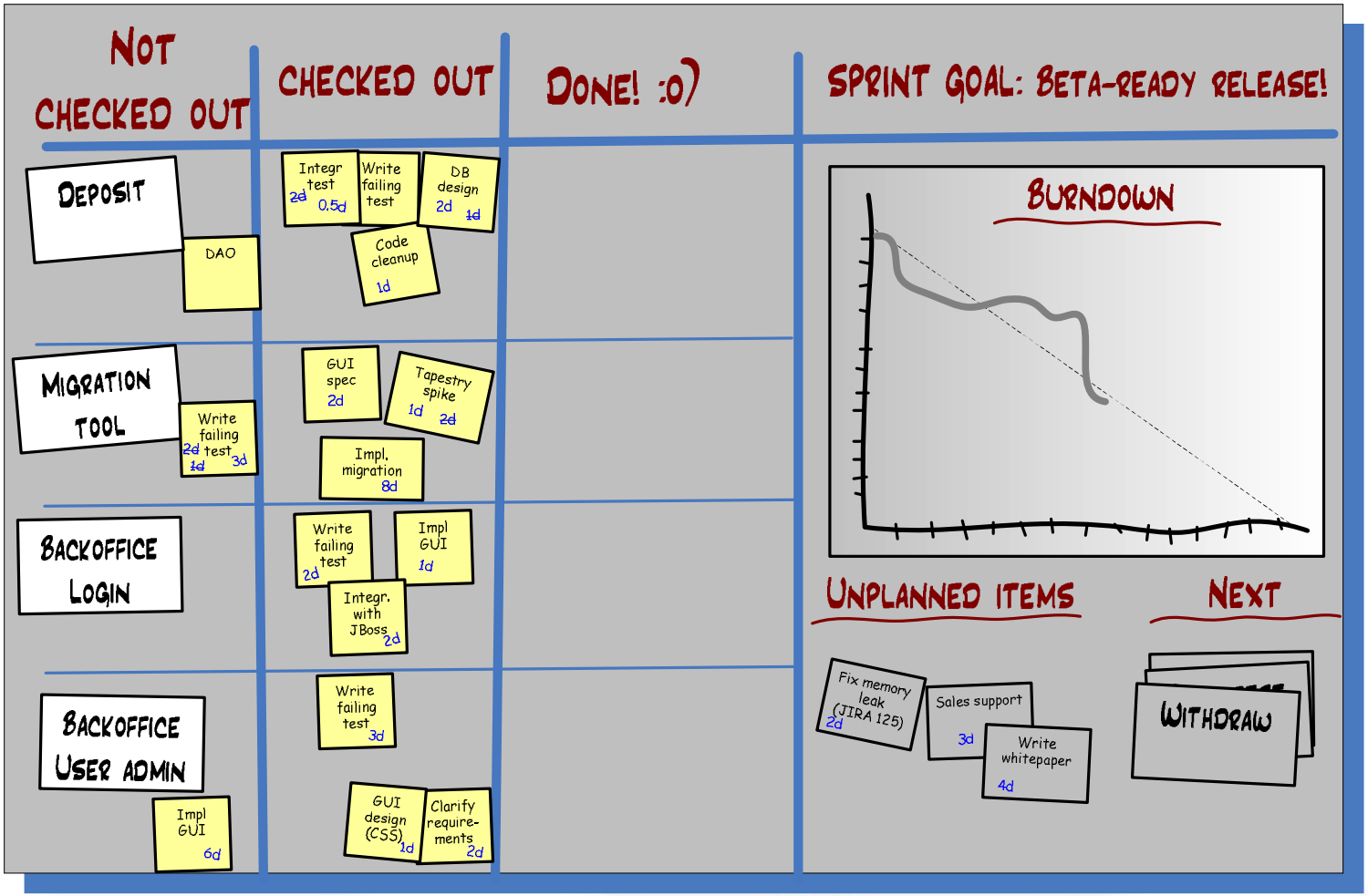
Warning sign #3



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- ~~Product backlog~~
- Sprint backlog
- ~~Sprint burndown~~

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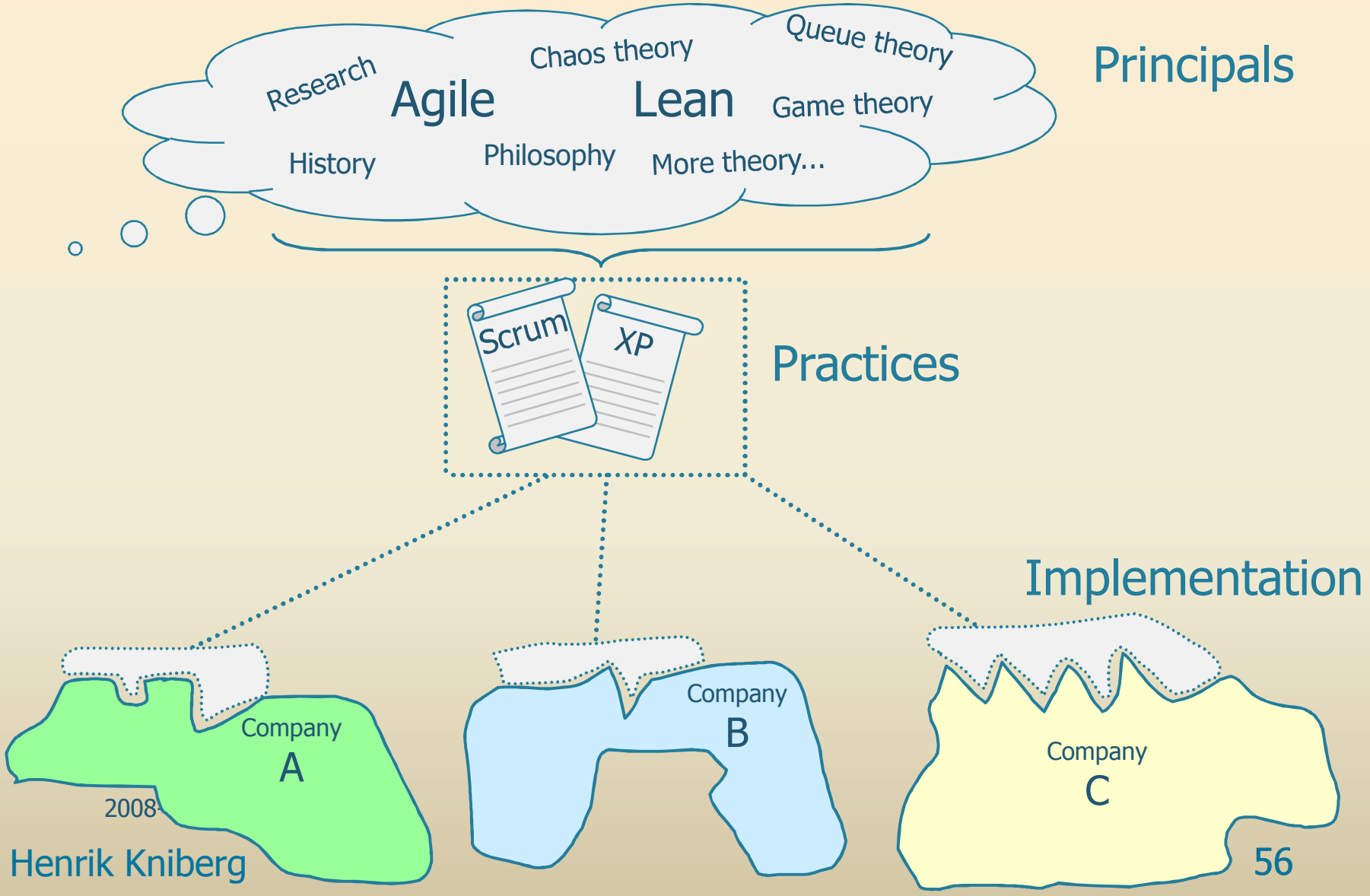
  - Demo
  - Retrospective

WAIT A SEC

How is that burndown calculated?

Part 4: Ending the sprint



Sprint demo

What have we accomplished?

- Team demonstrates working code to stakeholders
- Only 100% completed stories are demonstrated
  - Partially completed stories ignored
- Direct feedback from stakeholders
- Feedback incorporated into product backlog

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3 activities
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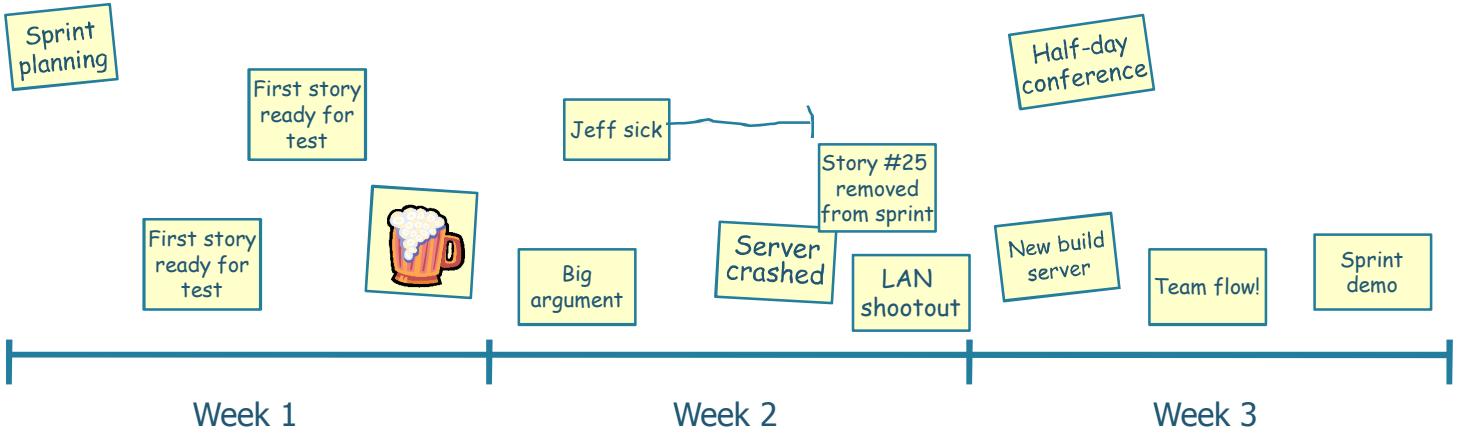
- Daily scrum
- **Sprint review**
  - Demo
  - Retrospective

Sprint retrospective

Part 1: What happened?



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  - Demo
  - Retrospective

Sprint retrospective

Part 2: What do we do differently next sprint?

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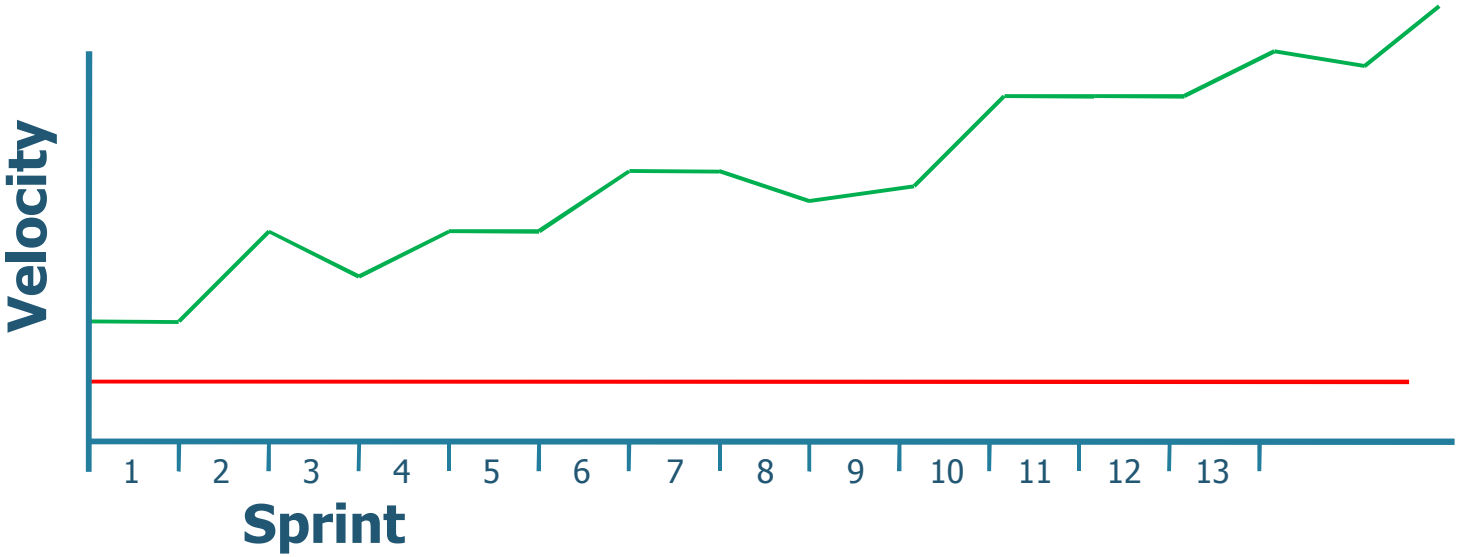
- Daily scrum
- **Sprint review**
  - Demo
  - Retrospective

Sprint retrospective

Long term effect



Effective velocity over time (with retrospectives)

Effective velocity over time (without retrospectives)

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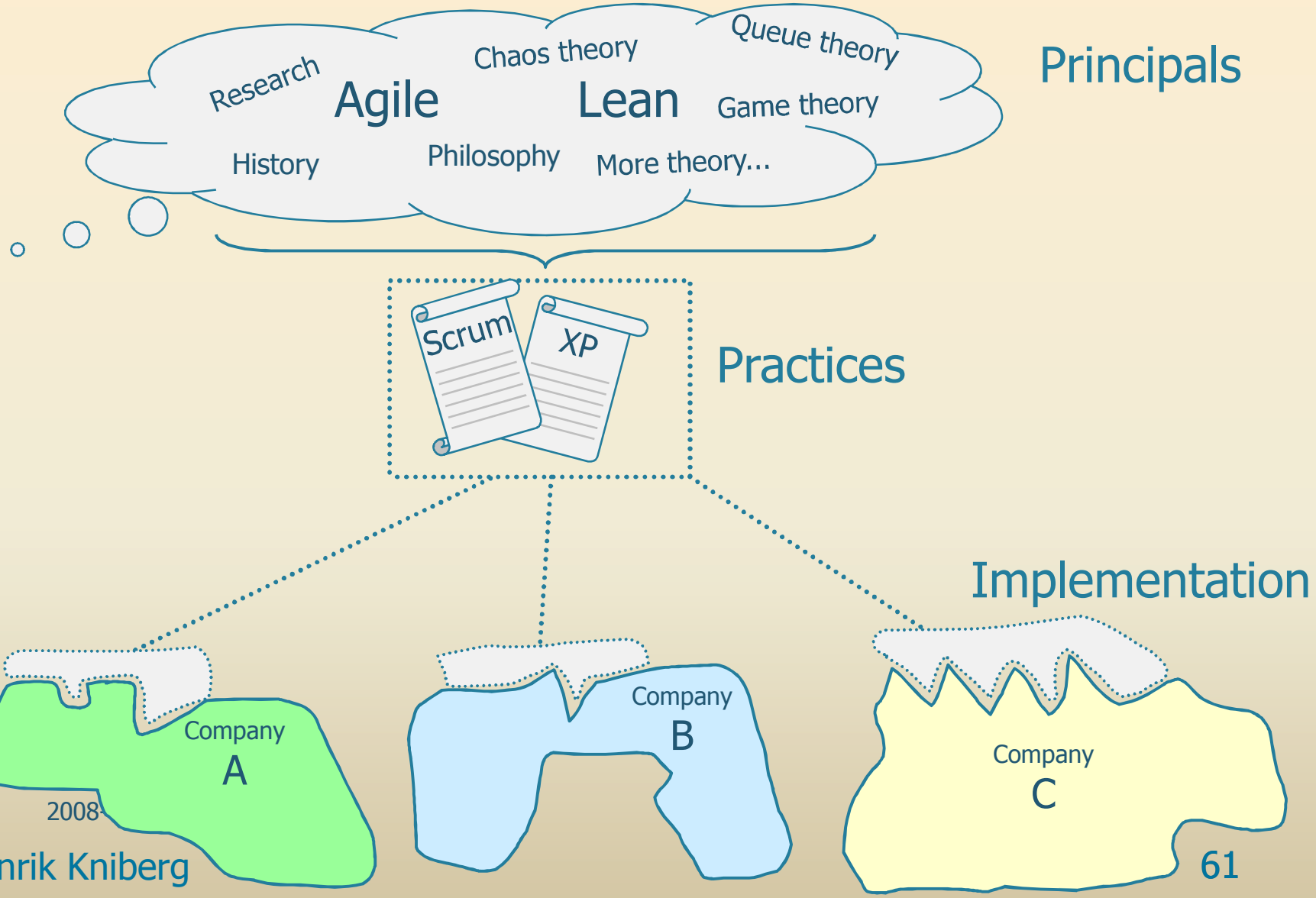
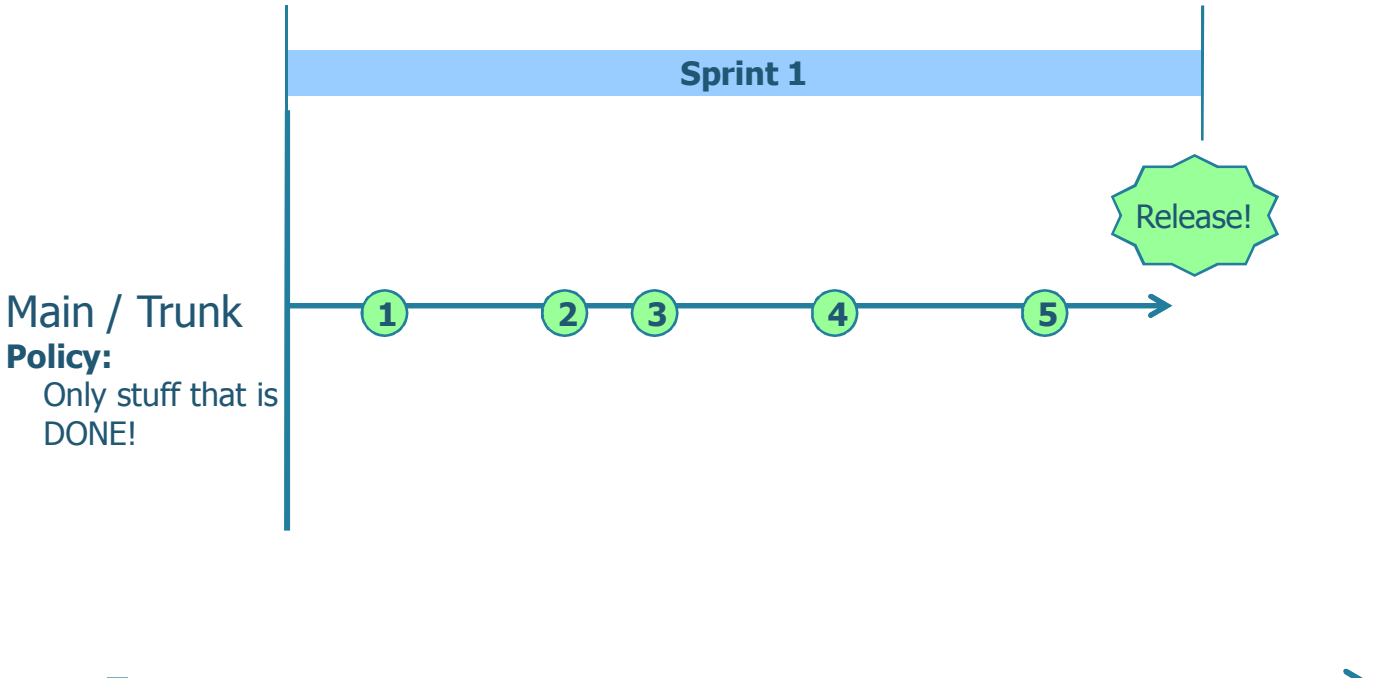
Part 5 (extra): Version control

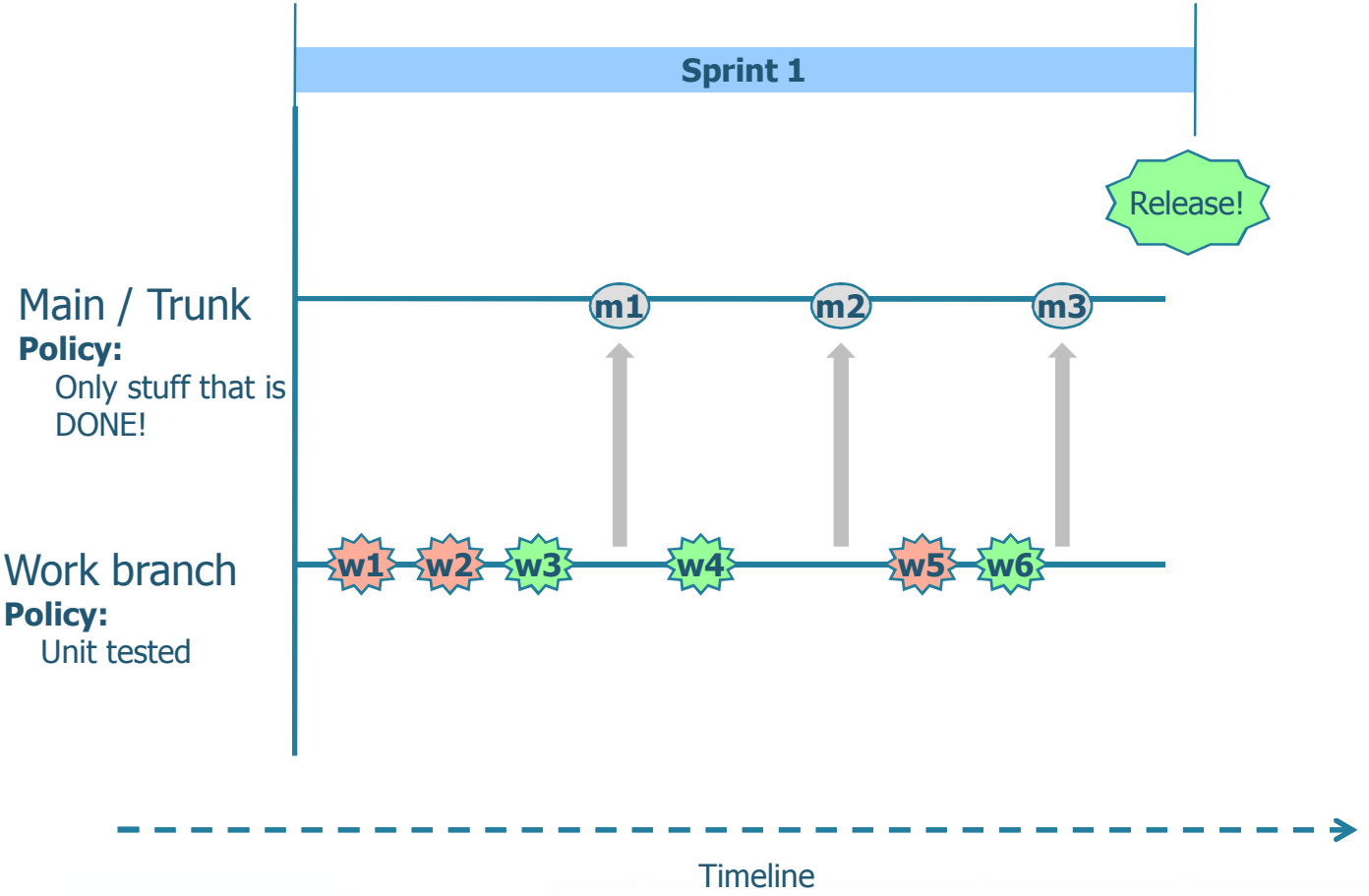


Version control

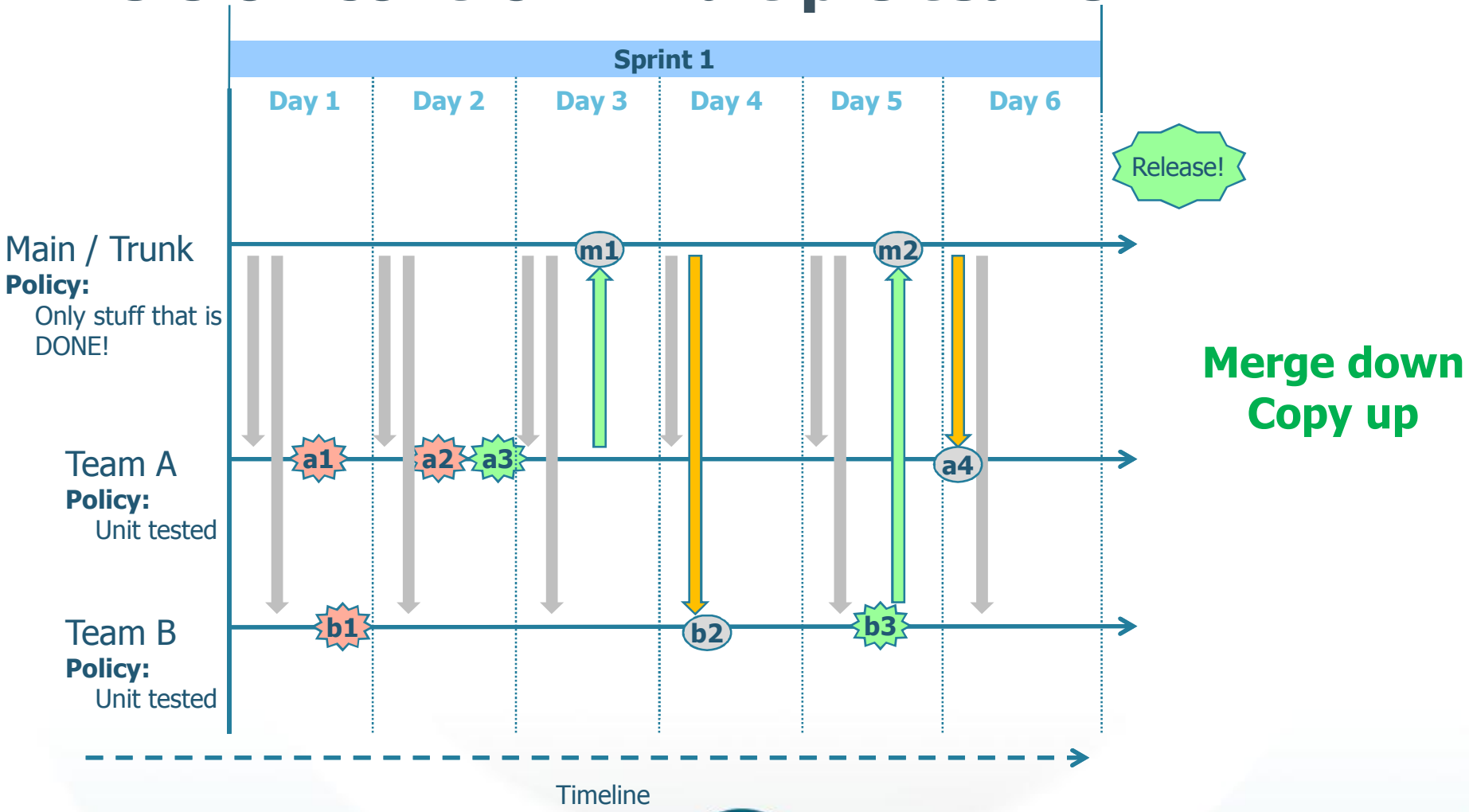
http://www.perforce.com/perforce/bestpractices.html



Version control – work branch

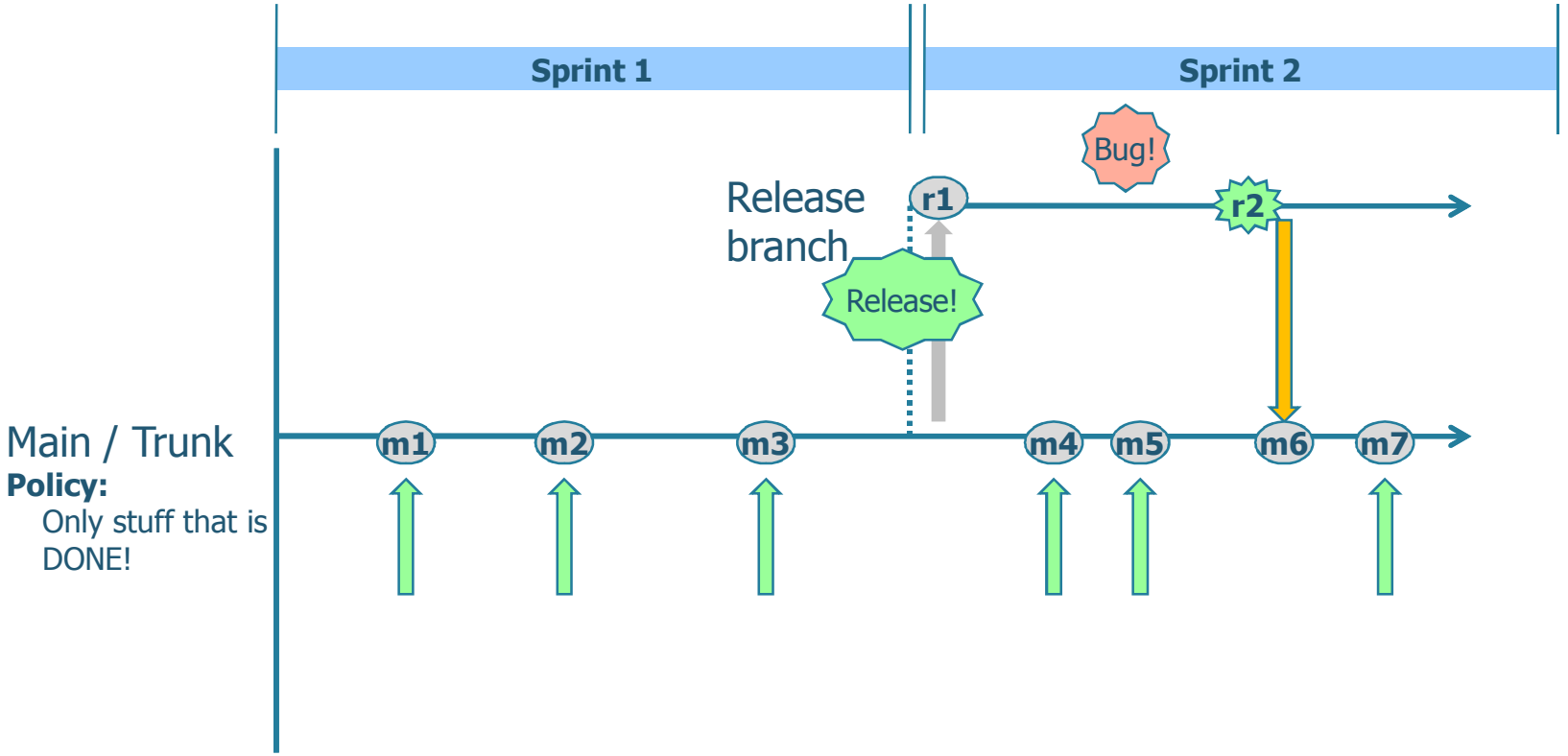
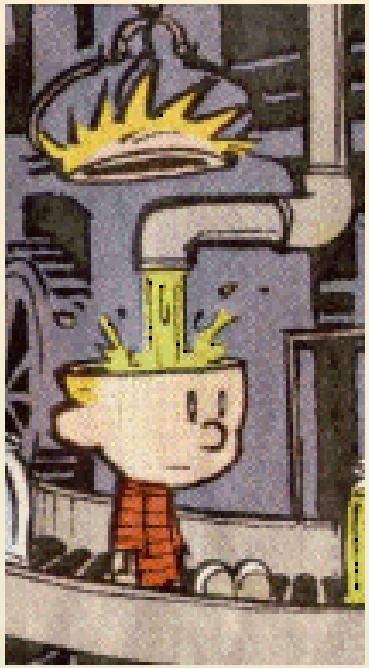


Version control – multiple teams



Merge down
Copy up

Version control – hotfixing



That's it! Questions?