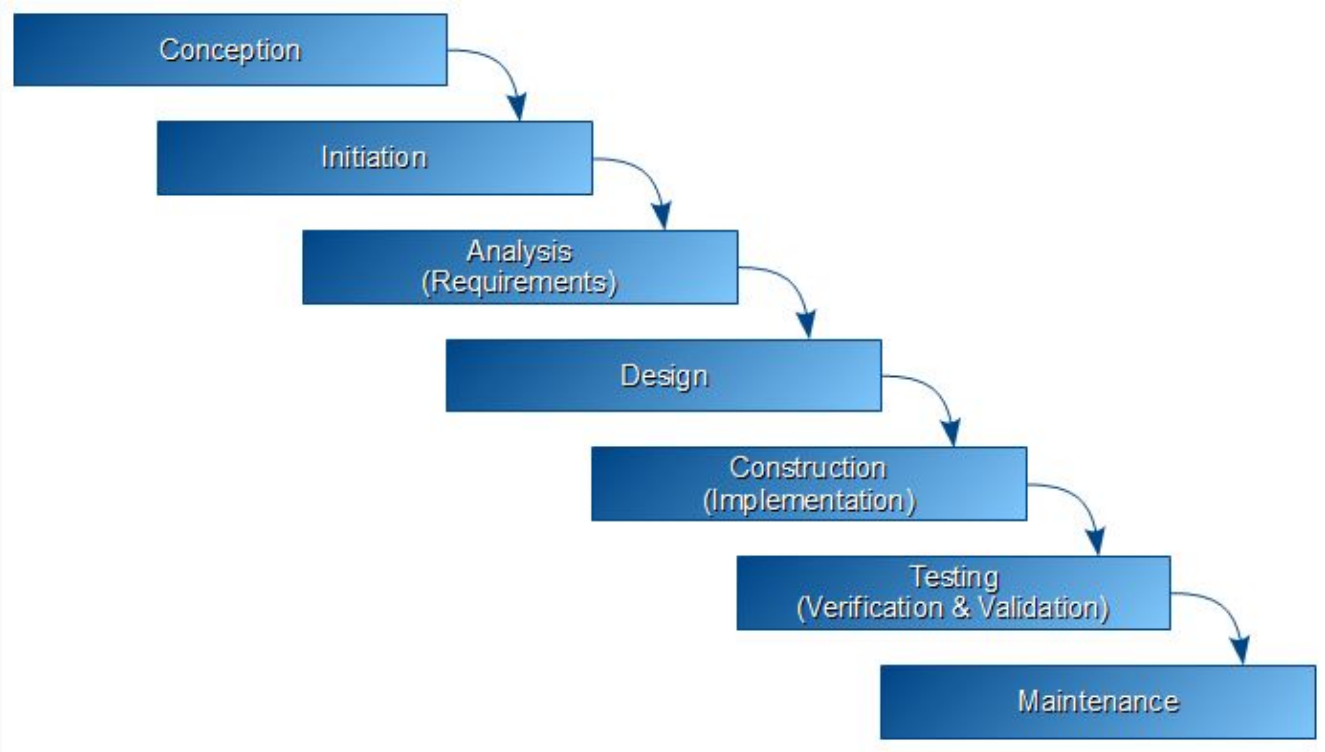
Agile Software Development

Ryan Henning

- The Waterfall Methodology (i.e. *not* agile)
- Agile Methodology
- One popular agile framework: Scrum
  - The actors
  - Sprint overview:
    - The sprint planning meeting
    - The scrum board
    - The daily scrum meeting
    - The demo
    - The sprint retrospective
    - <repeat>

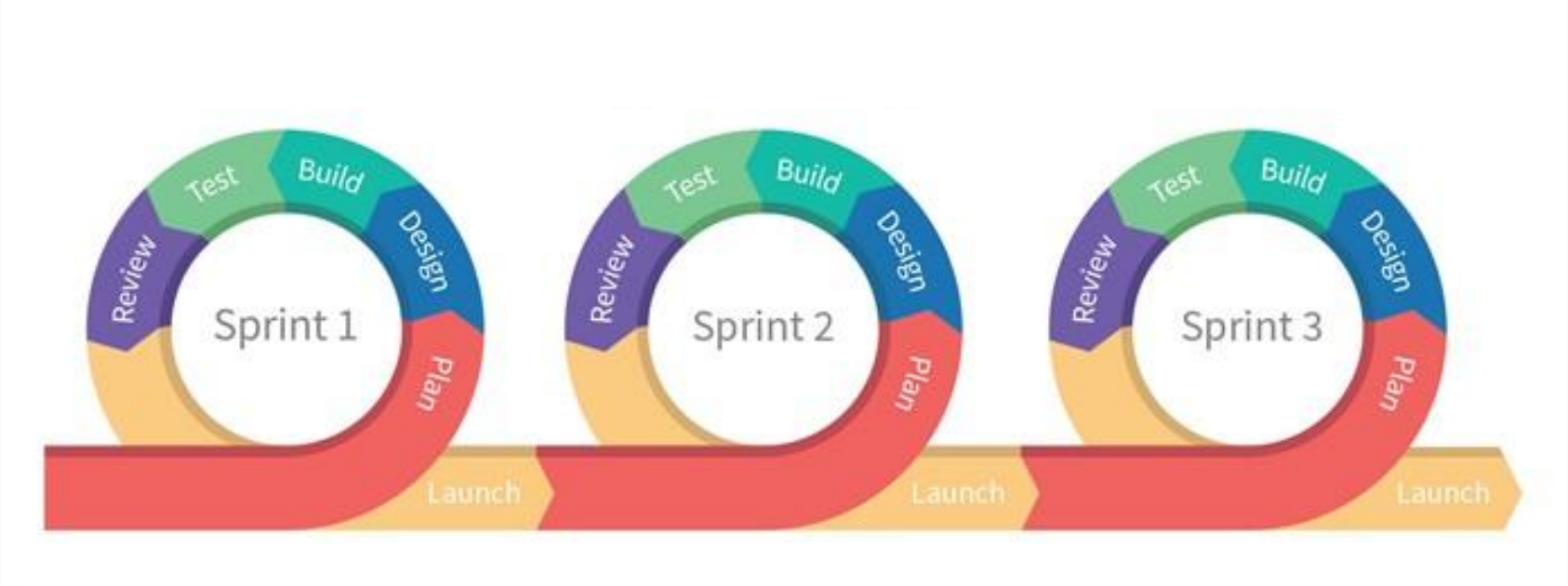
What’s a good development methodology for manufacturing/construction projects?

The Waterfall Methodology:



What makes more sense than the waterfall methodology for *software* development?

Agile Methodology:



The Agile Manifesto

www.agilemanifesto.org

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

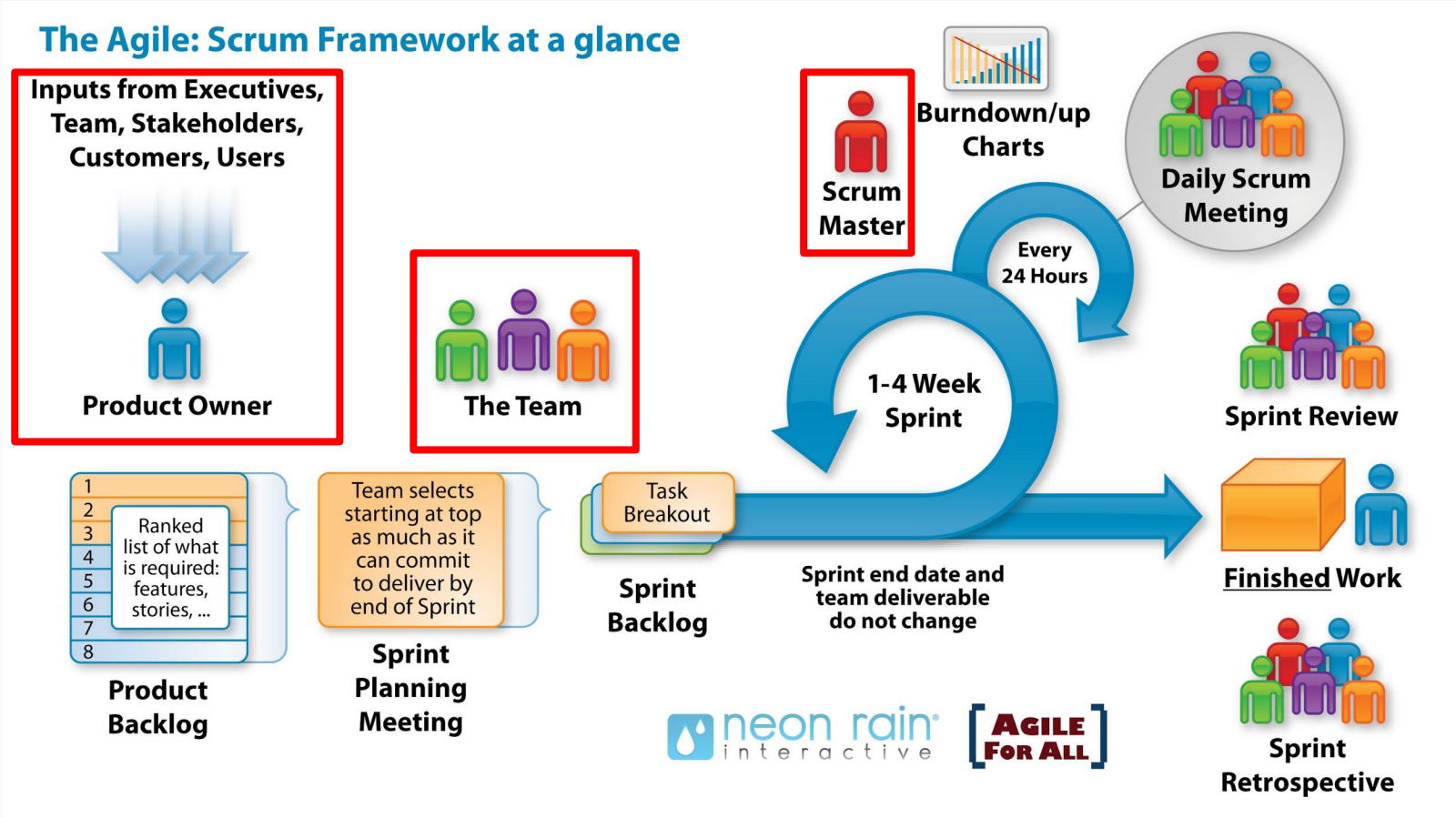
Responding to change over following a plan

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

One Popular Agile Framework: **Scrum**

Not the rugby kind...

One Popular Agile Framework: Scrum



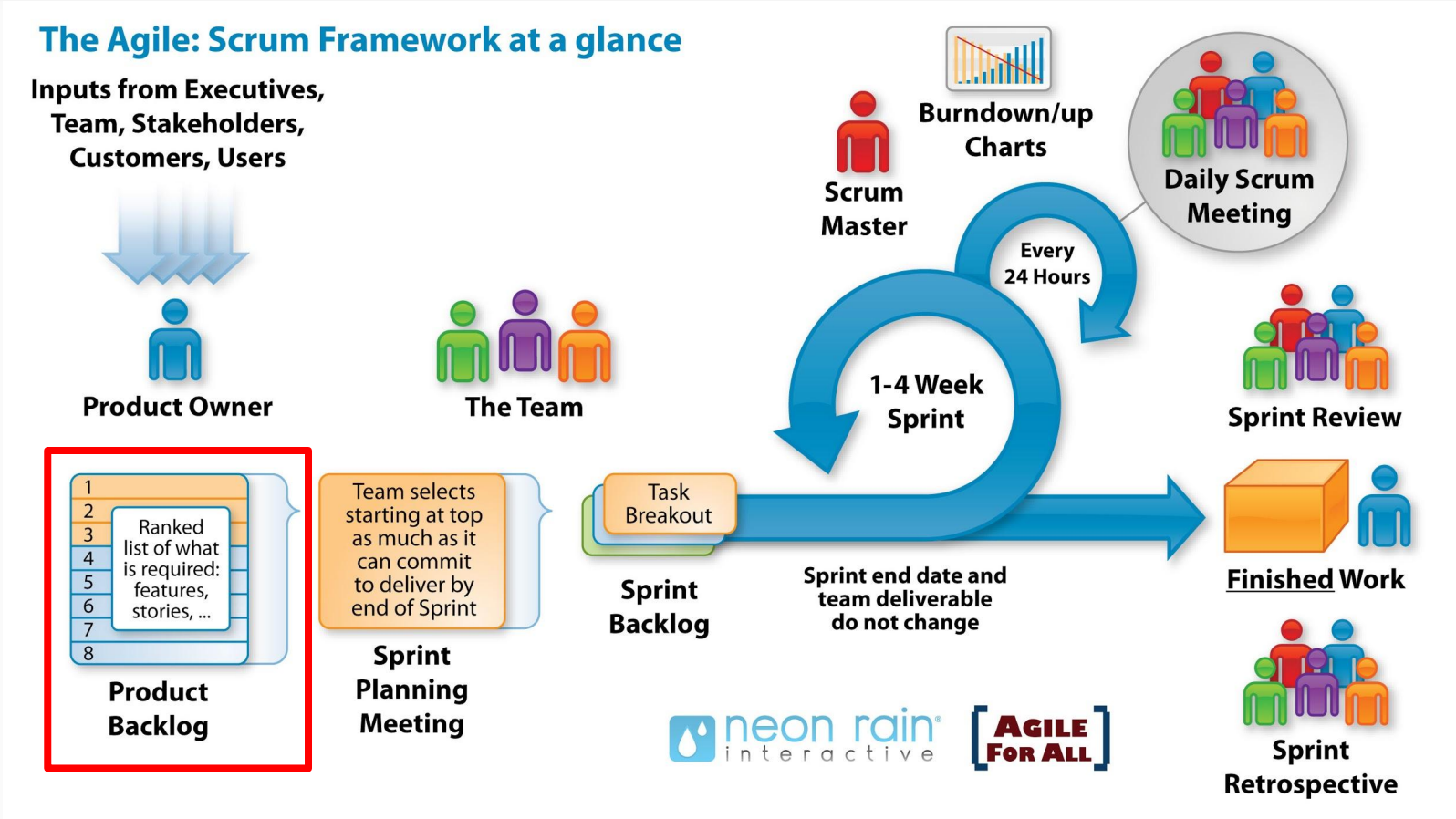
The Actors

Inputs from Executives, Team, Stakeholders, Customers, Users
Product Owner

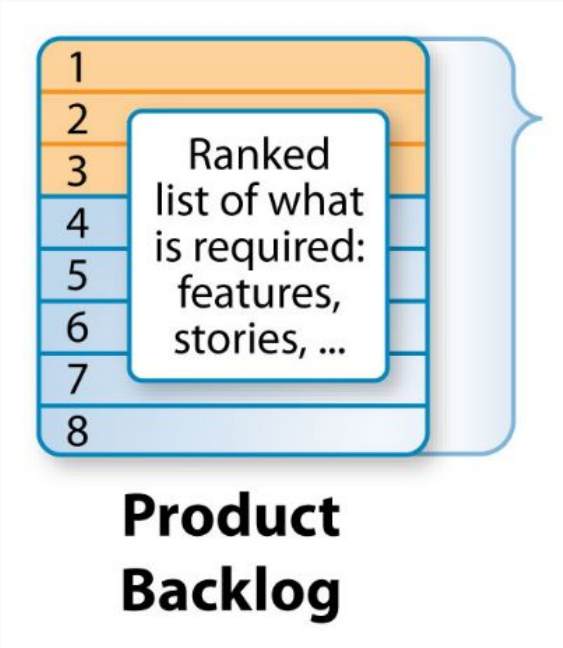
Scrum Master

The Team

One Popular Agile Framework: Scrum

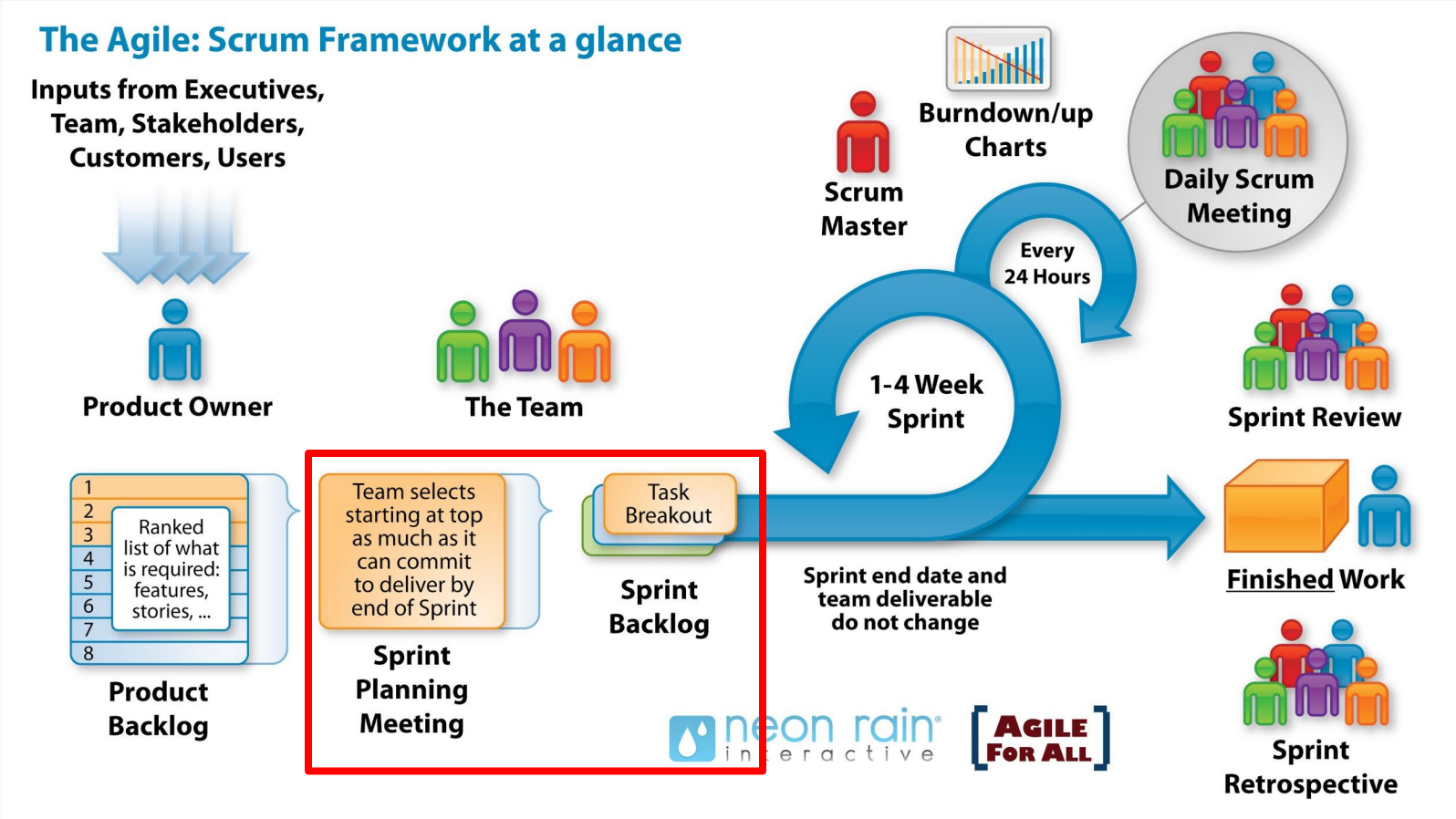


The Product Backlog

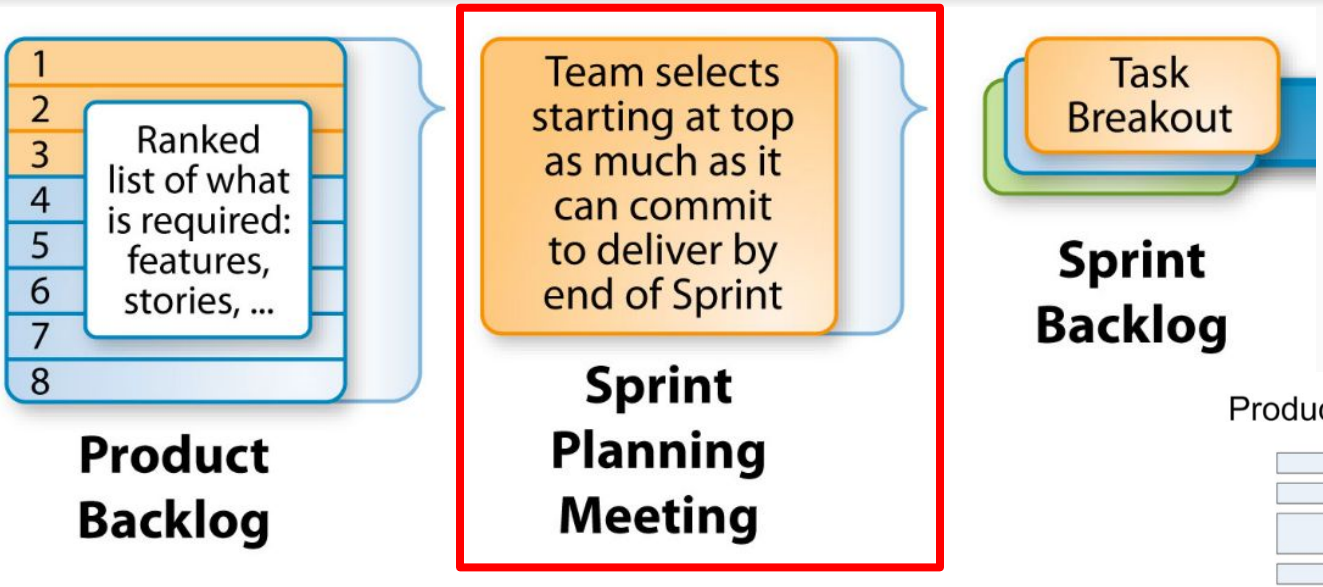


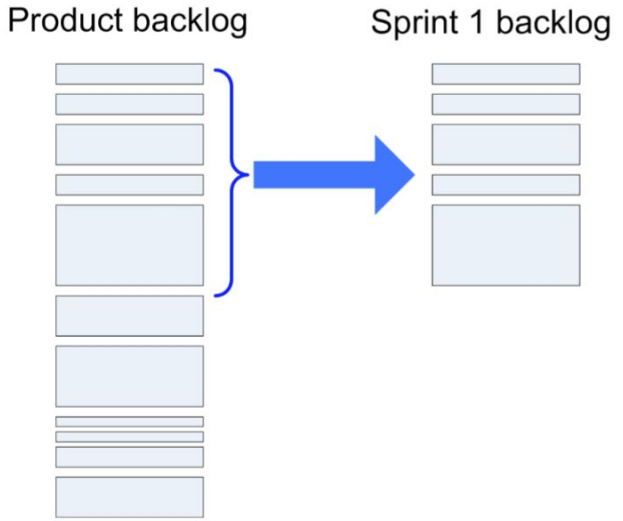
PRODUCT BACKLOG (example)					
ID	**Name**	**Imp**	**Est**	**How to demo**	**Notes**
1	*Deposit*	*30*	*5*	*Log in, open deposit page, deposit €10, go to my balance page and check that it has increased by €10.*	*Need a UML sequence diagram. No need to worry about encryption for now.*
2	*See your own transaction 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.*

One Popular Agile Framework: Scrum



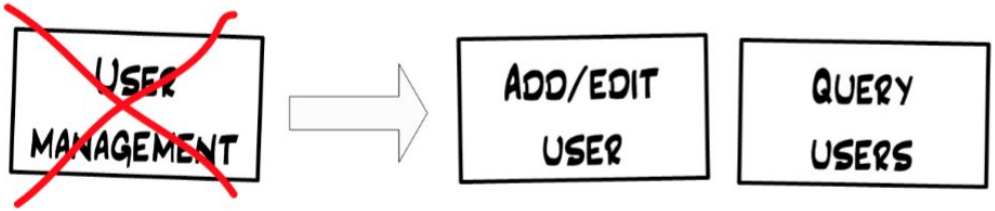
Sprint Planning Meeting → Sprint Backlog



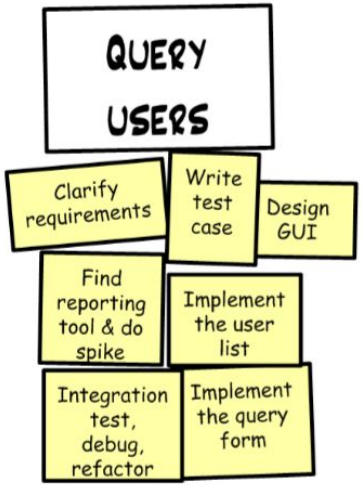


How to estimate ‘story points’ for each story

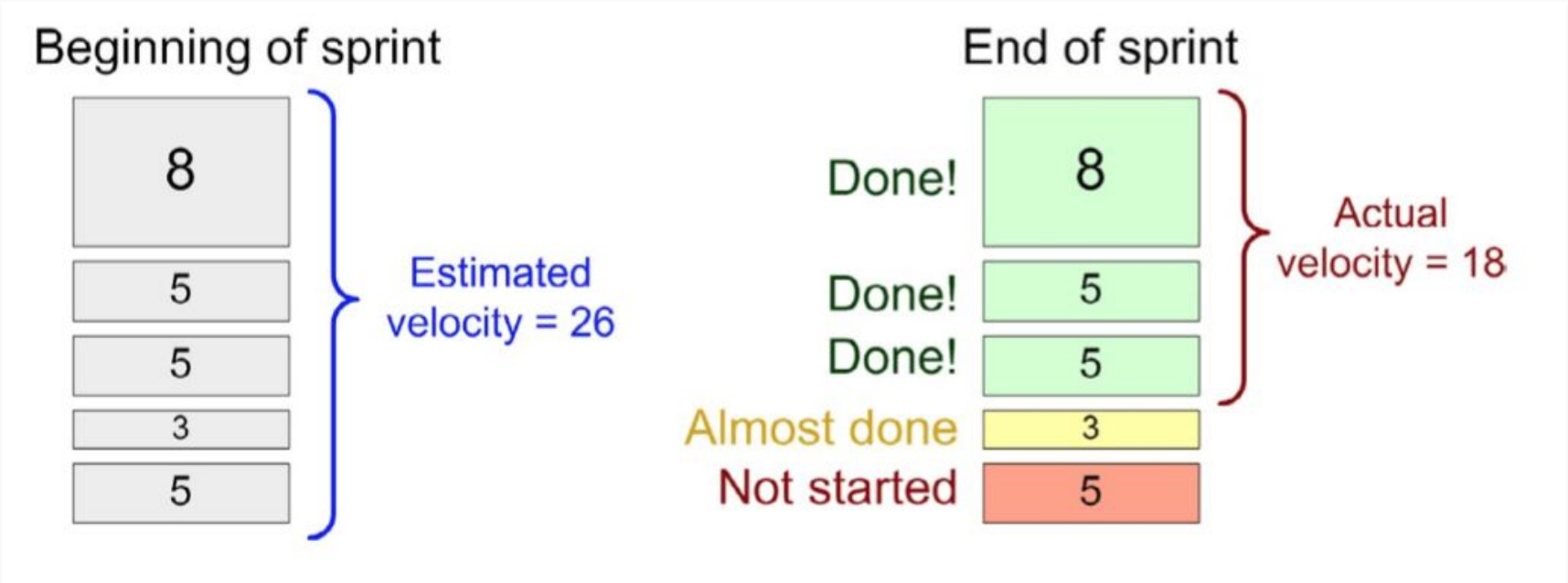
Example of breaking down a story into smaller stories:



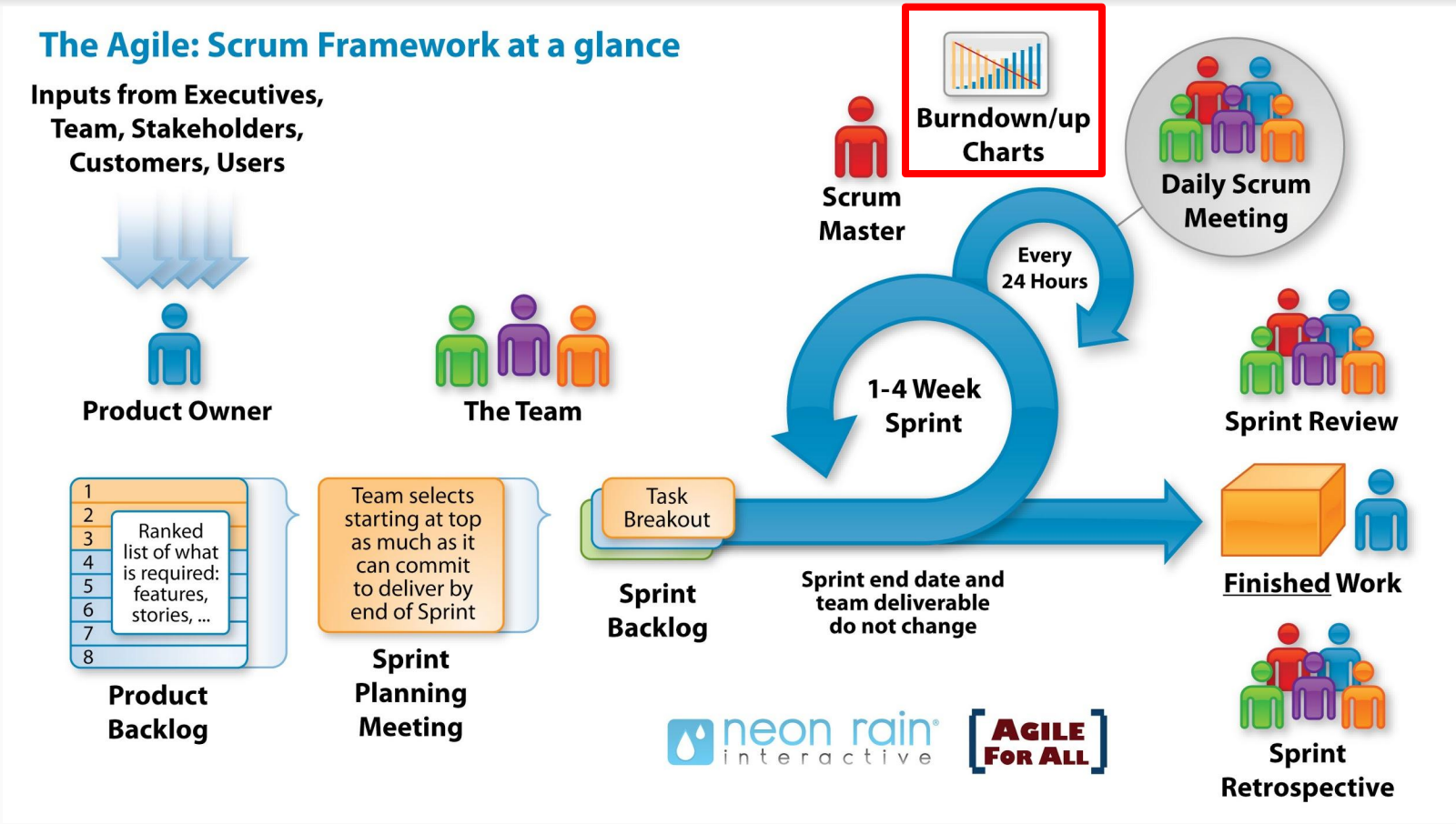
Example of breaking down a story into tasks:



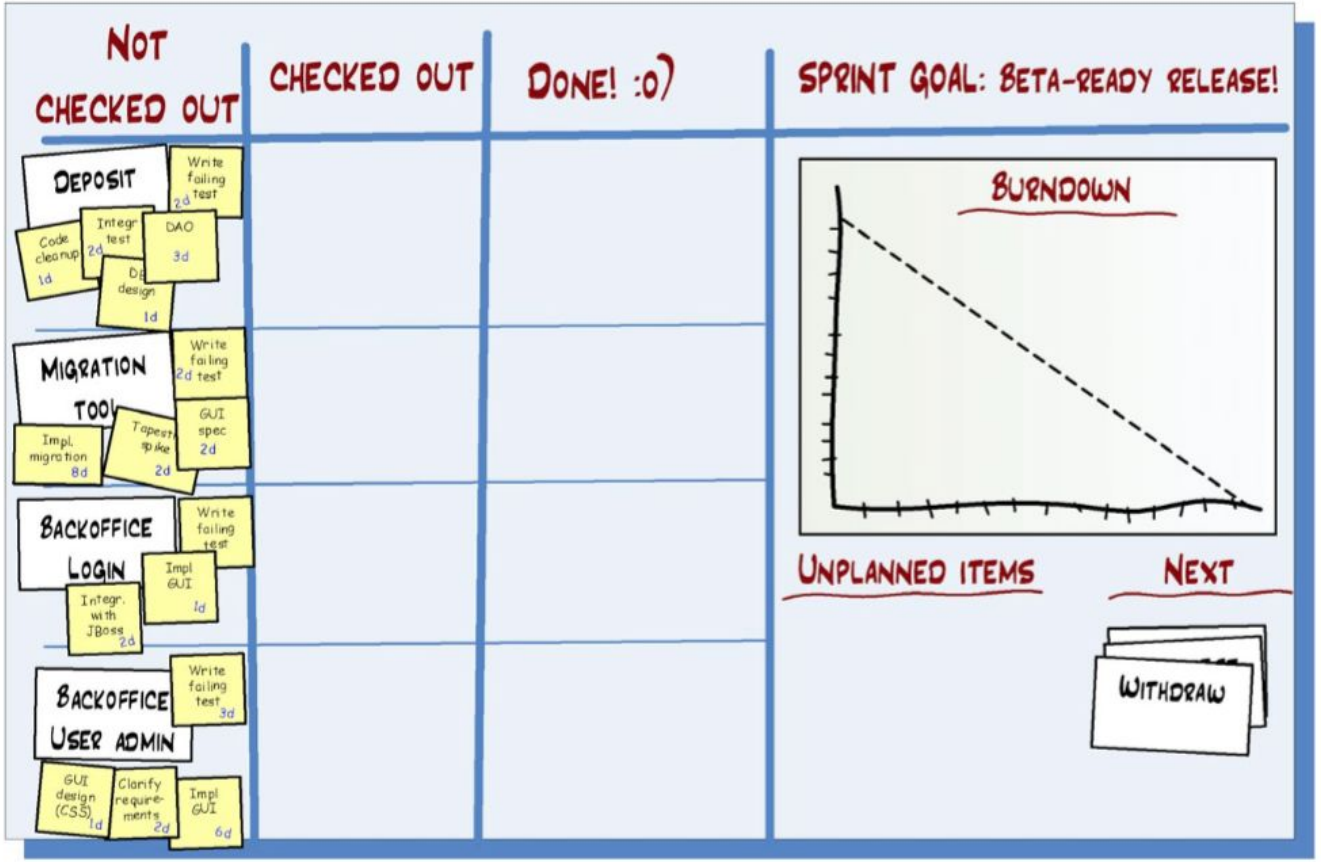
Keeping track of your team's velocity, sprint-after-sprint



One Popular Agile Framework: Scrum



The Sprint Backlog + The Burndown Chart (aka, the Scrum Board)



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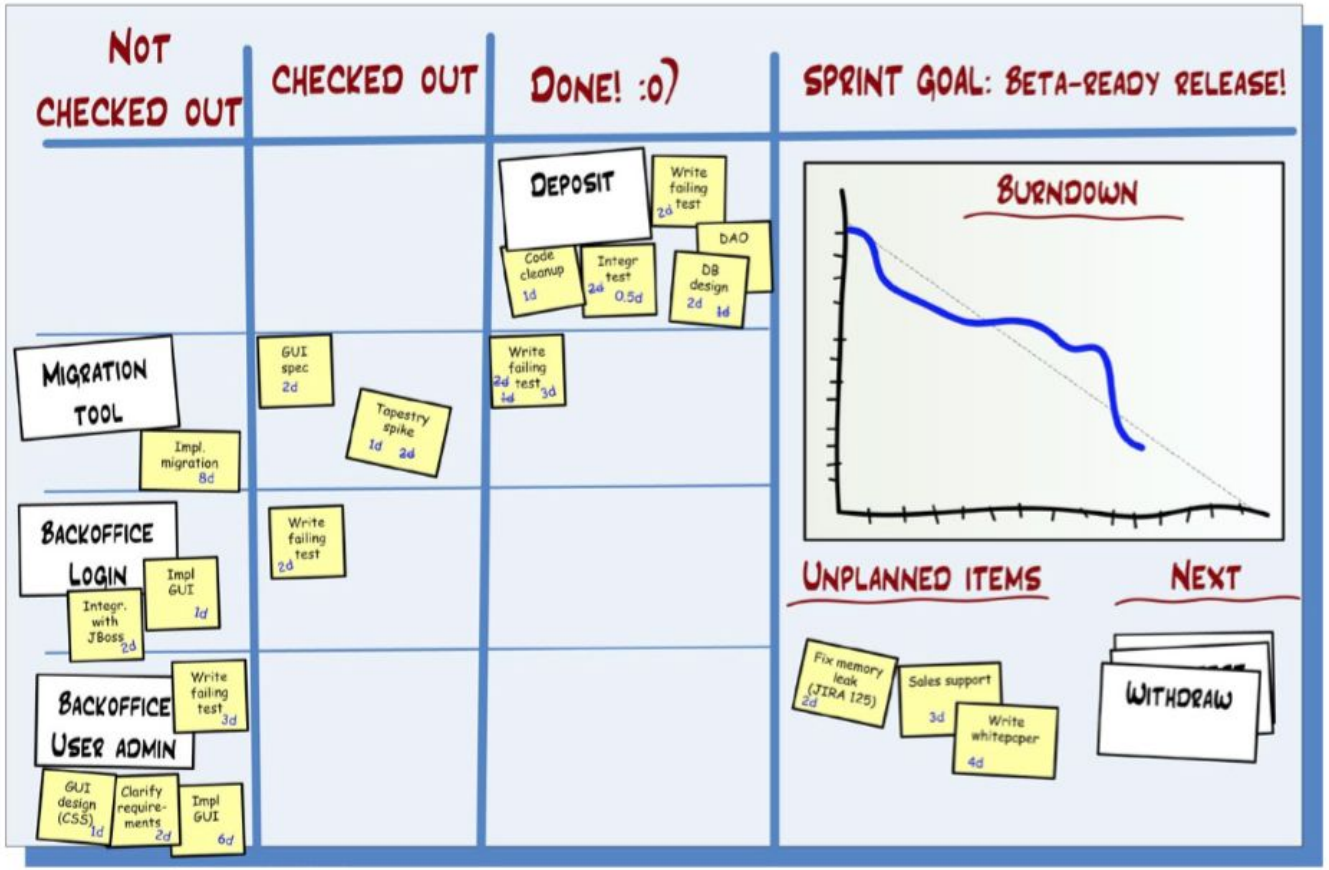

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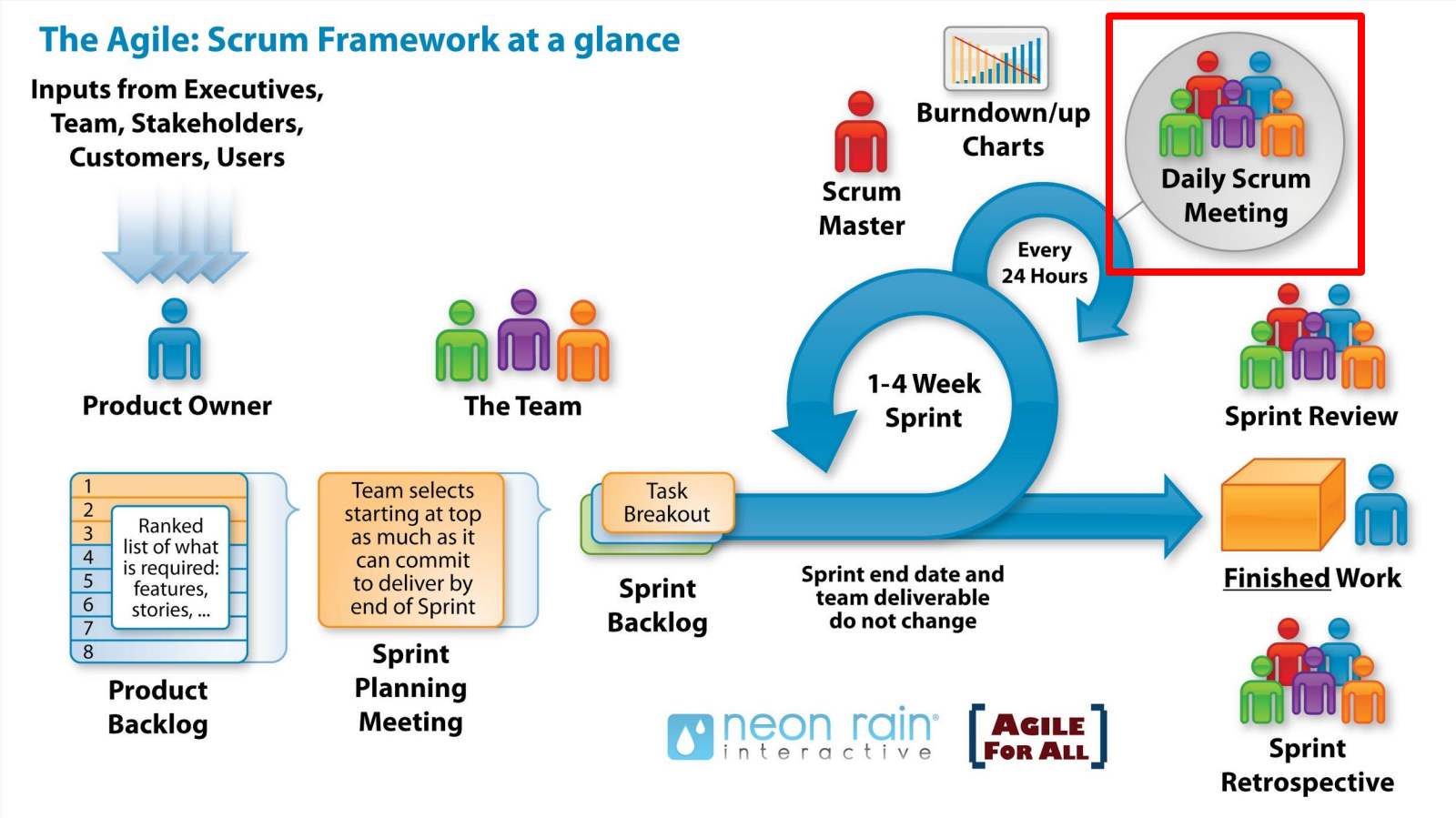


The daily scrum: A brief stand-up meeting where you state your progress to the team.

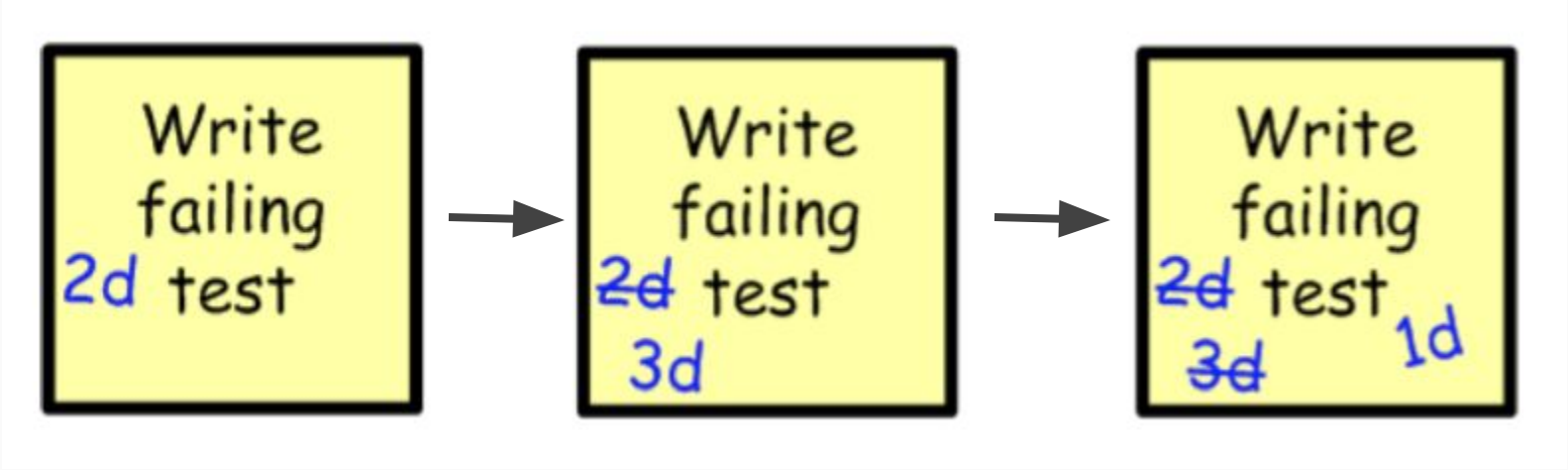
Answer:

“What did I do yesterday that helped our team meet the sprint goal?”

“What will I do today to help our team meet the sprint goal?”

“Do I see any impediments that prevent me or our team from meeting the sprint goal?”

Update the team on your progress!
(or lack thereof)



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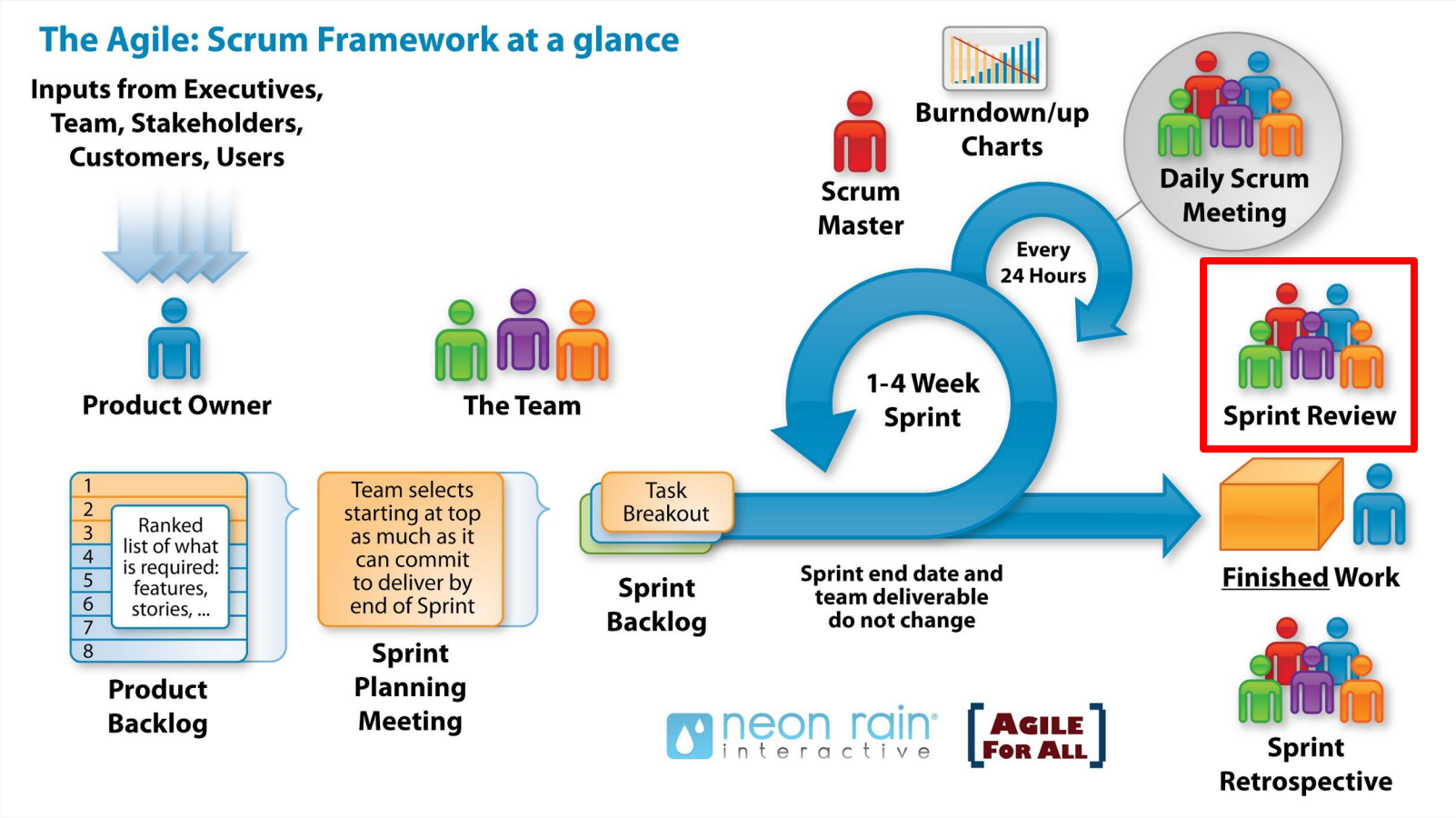


Why?

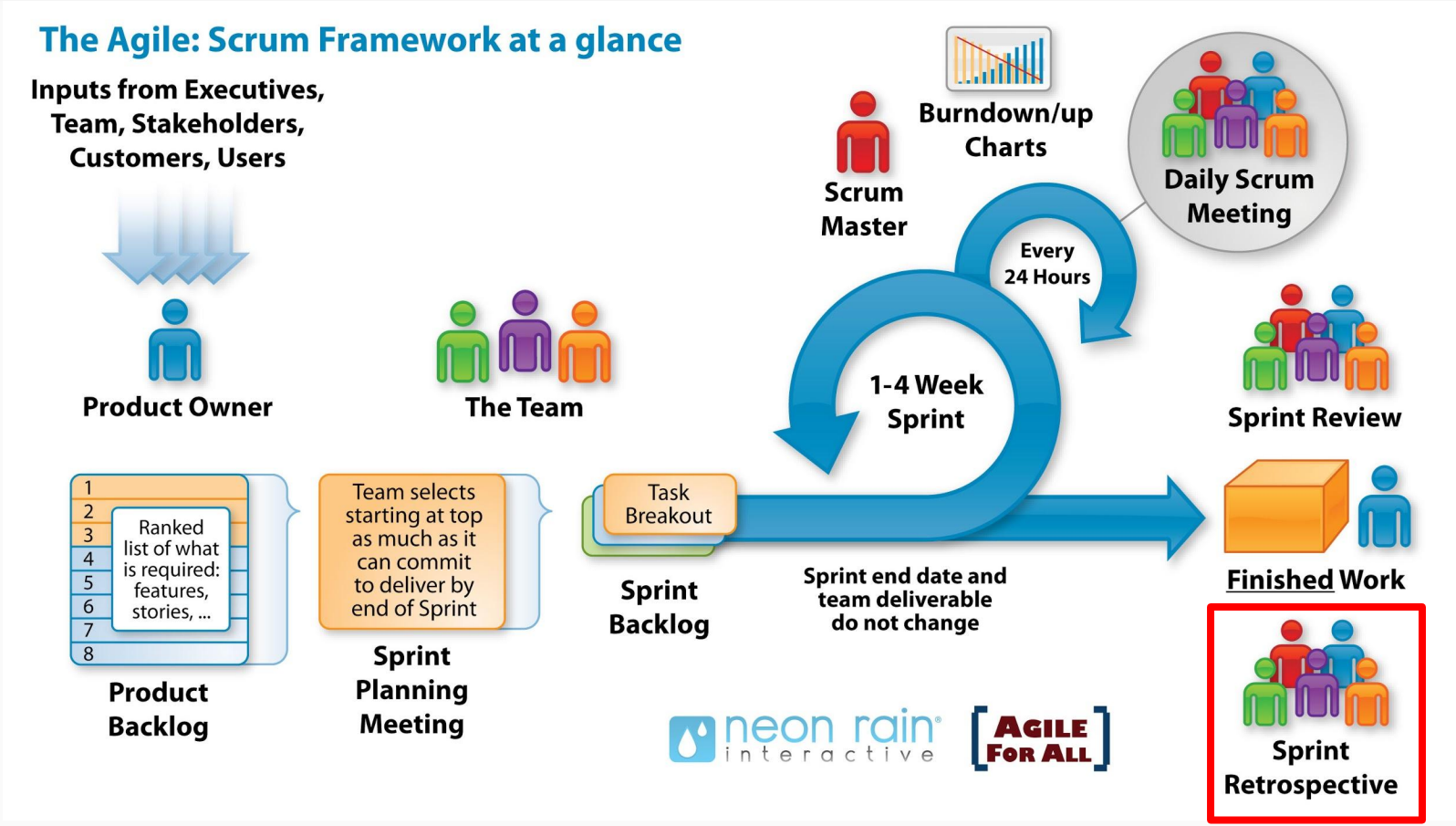
Other people learn what your team is doing.

The demo attracts vital feedback from stakeholders.

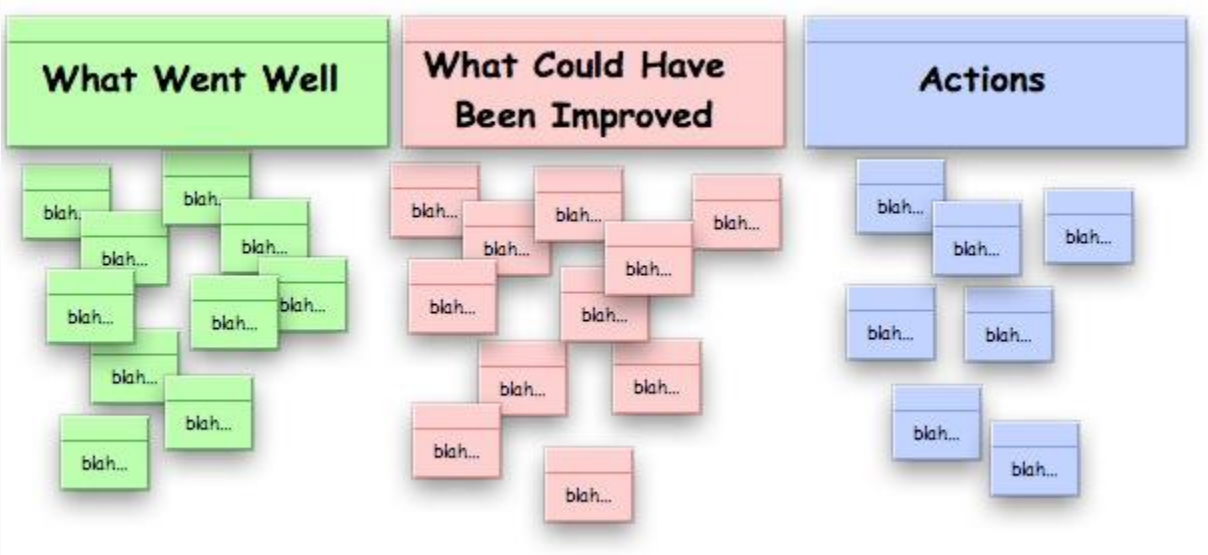
Demos are (or should be) social events where teams interact.

Doing a demo forces the team to actually finish stuff and release it (even if it is only to a test environment). “Without demos, we kept getting huge piles of 99%-finished stuff.”

One Popular Agile Framework: Scrum



The Sprint Retrospective

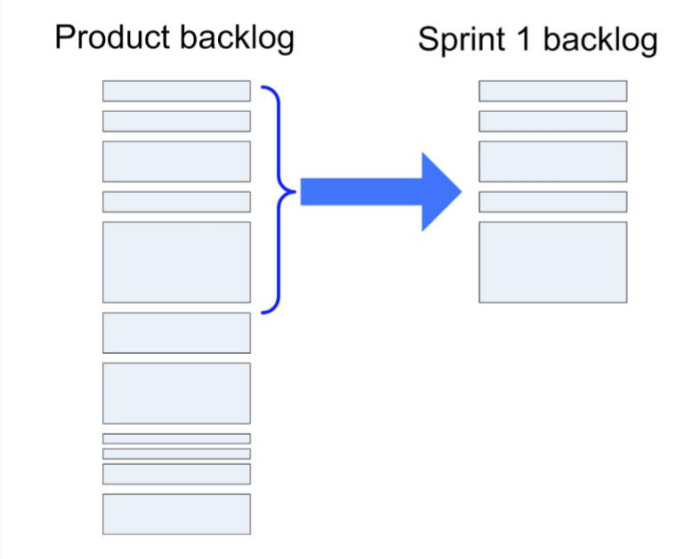


“Without retrospectives you will find that the team keeps making the same mistakes over and over again.”

The parts of scrum we'll simulate in your capstone project:

The sprint planning meeting:

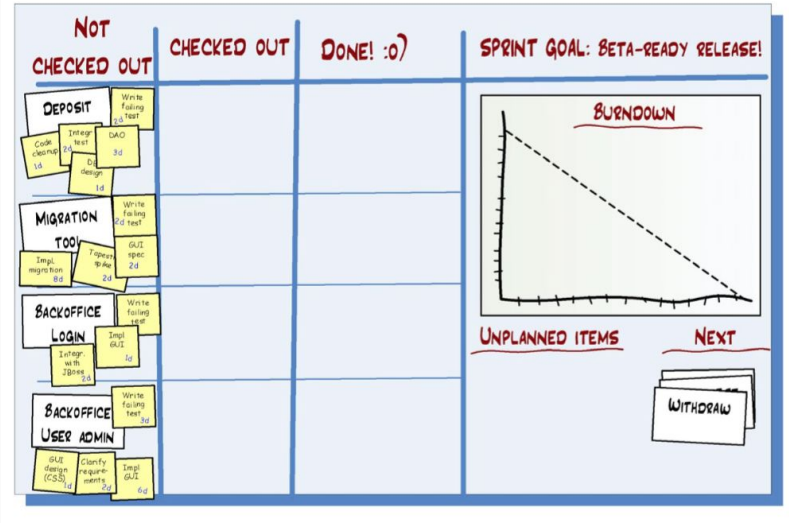
1. You create the *product backlog* (i.e. a comprehensive list of stories for your project -- dream big here!).
2. An instructor plays the role of 'product owner' and prioritizes your *product backlog*.
3. You + one other student + an instructor play planning poker to create your *sprint backlog*. Along the way you create several tasks for each story in your *sprint backlog*.



The parts of scrum we'll simulate in your capstone project:

The scrum board:

1. You get a 2'x2' slice of white board.
2. Create three columns: 'not checked out', 'checked out', and 'done'.
3. Put your stories and tasks in the 'not checked out' column.
4. Draw an empty burndown chart spanning 2.5 weeks.
5. Begin working!



The parts of scrum we'll simulate in your capstone project:

The daily scrum standup meetings:

1. You will be assigned to a scrum group of 3-5 students + 1 instructor.
2. You will hold scrum standup meetings every morning at 9:30am with your scrum group.
3. You will update your scrum board and inform your scrum group of your progress yesterday + your plan for today + any obstacles you foresee.
4. You will **not** drone on and on and on.

The parts of scrum we'll simulate in your capstone project:

The sprint review (i.e. the demo):

1. This is Hiring Day, basically. :)

The sprint retrospective:

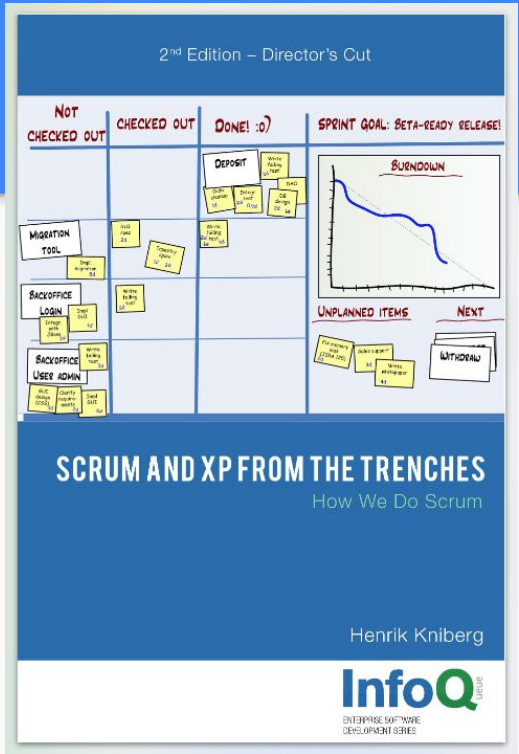
1. Will be held Monday of the final week (i.e. Monday the week following Hiring Day).

Credit

Many of the photos and text in this deck are from:

Scrum and XP from the Trenches

by Henrik Kniberg



Btw: the PDF version is free; a hard copy is $25.
(It's a great read if you plan to work in a Scrum dev shop.)