

Turning Visions
into Business.



TECHNISCHE
UNIVERSITÄT
DARMSTADT

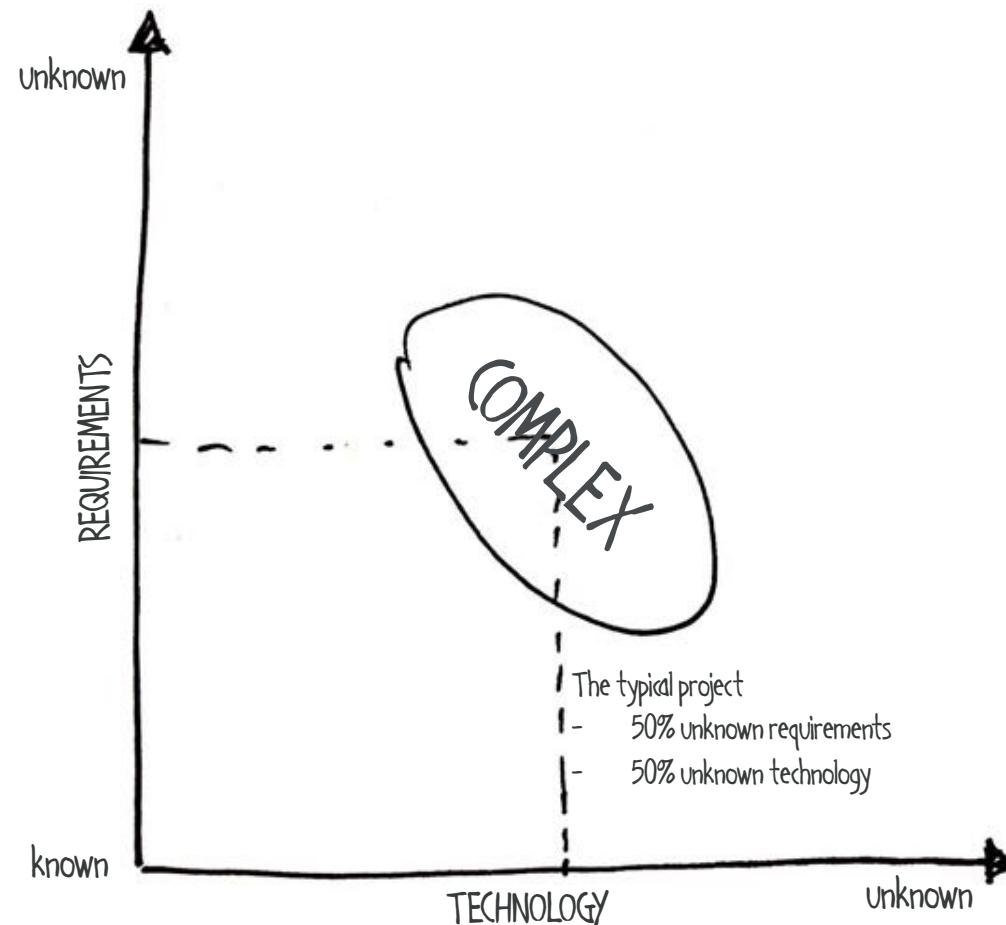
Project Management

Introduction to Scrum

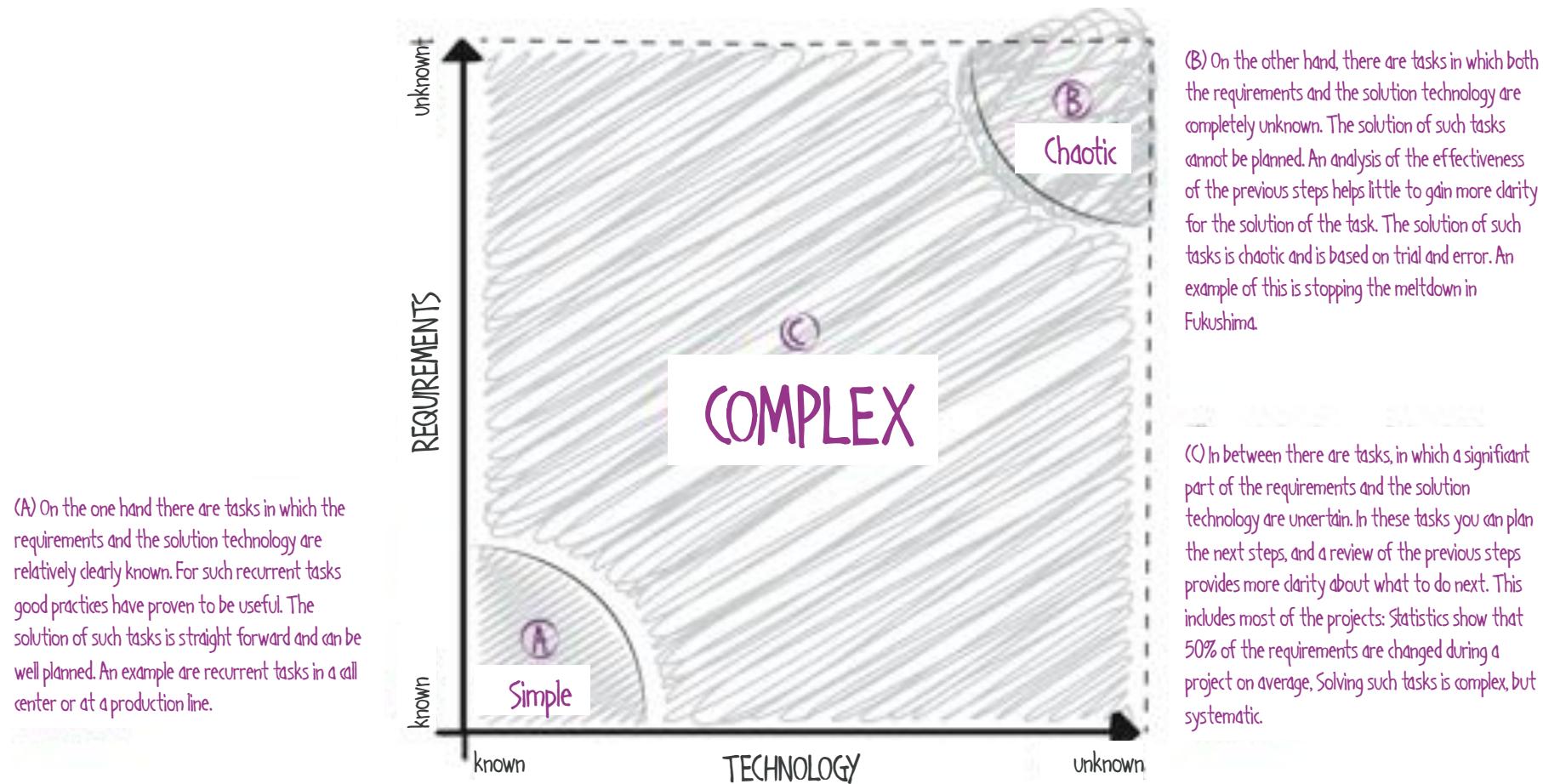


Why Scrum?

Projects have different complexity.



Scrum is especially useful for developing and sustaining complex products.

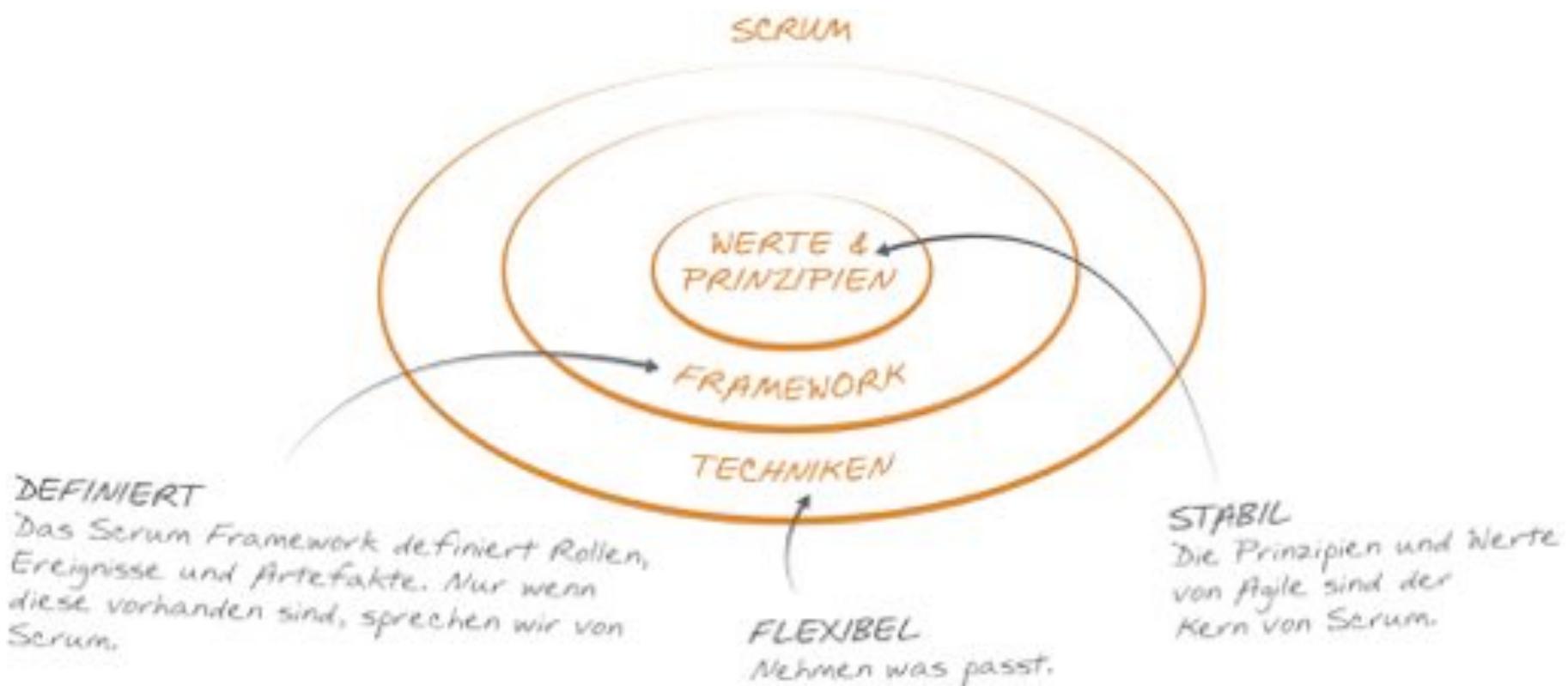


Scrum is designed for TEAMS with 3-9 people.
(+ Scrum Master + Product Owner)



Agile Principles

Agile values and principles are the foundation of Scrum.





Empowerment and Self-Organization





**Early and Regular
Deliveries**



Inspect
and
Adapt

A wooden gavel with a dark head and a light-colored wooden handle lies diagonally across the frame. To its right is a sand timer with two interlocking glass bulbs containing white sand. The top bulb is nearly empty, while the bottom bulb is mostly full. The entire scene is set against a plain, light-colored background.

Timeboxing



Transparency





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

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

Initially signed by
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

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

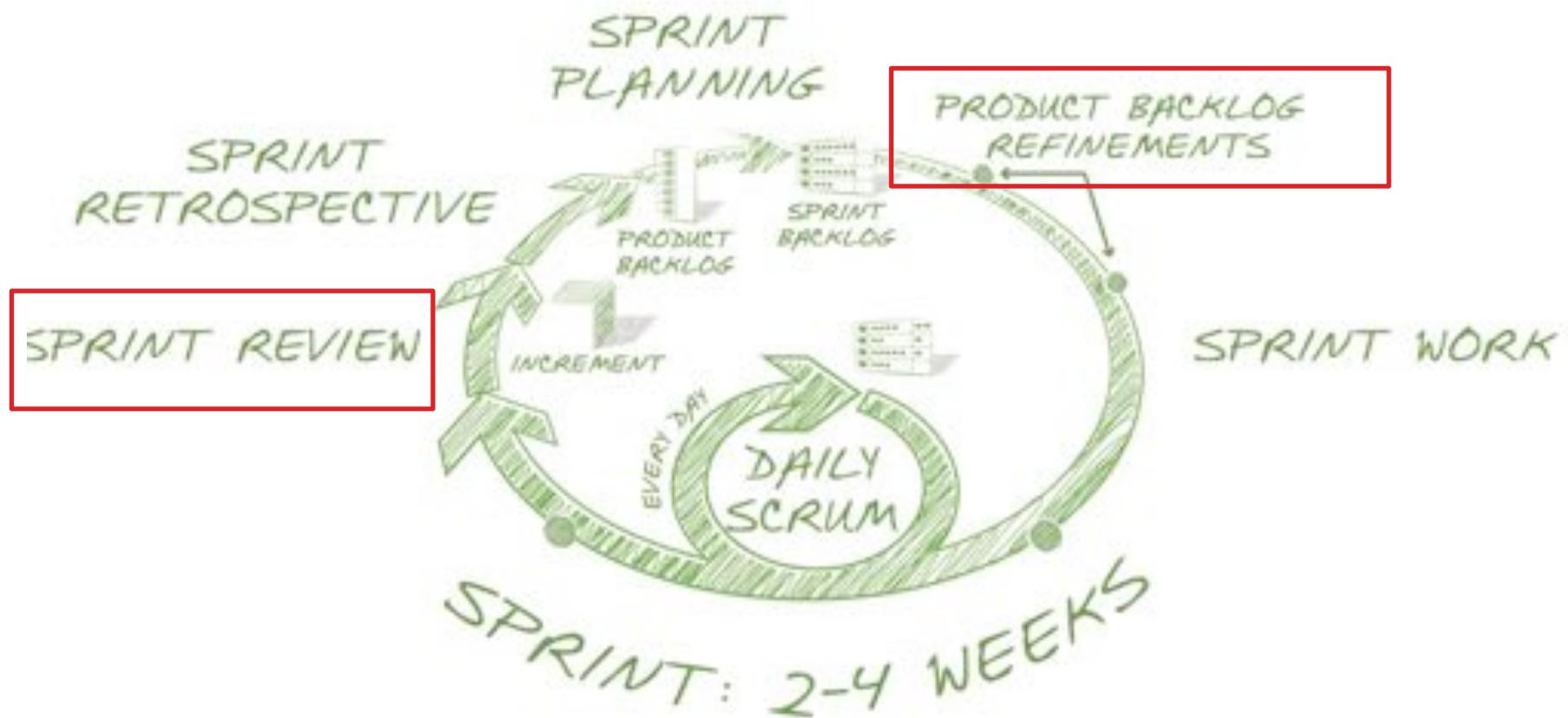
Quelle:
» <http://agilemanifesto.org/iso/de>

Agile Principles

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

Scrum Overview

SCRUM is a framework for developing and maintaining products.



Roles



The Product Owner creates the product vision and defines the features of the product

- Details the vision into Product Backlog Items and maintains the Product Backlog
- Orders the Product Backlog items and makes scope versus schedule decisions
- Evaluates the delivered increments to make decisions about the future
- Monitors progress of the product using the Release Burndown and make it visible
- Is always one person (not a group) but may be supported by other individuals



The Team is independent, cross functional and self organized and delivers the increment

- Cross functional 3-9 team members that are available to the project full-time
- Forecasts how much they can do in one Sprint
- Makes the Sprint Backlog
- Self-organizes to accomplish the Sprint goal and produce the Increment
- Has the authority to do everything inside the framework and Sprint to reach the goal



The Scrum Master coaches the Scrum Team and ensures the Scrum methodology

- Ensures that Scrum is understood and in place
- Helps the Scrum Team follow their process
- Acts as a coach for the Scrum Team
- Protects the Scrum Team from internal and external distractions.
- Fosters cooperation between roles and stakeholders and tracks impediments till closure

Meetings



During Sprint Planning the Scrum Team selects and plans the work.

- Planning is divided into two parts.
- In Sprint Planning 1 the Scrum Team decides how many items will be completed in the Sprint.
- In Sprint Planning 2 the Development Team determines how the work will be accomplished.



During Daily Scrum the Development Team ensures that they are on track.

- For internal team coordination.
- Daily, 15. min, Standup
- 3 questions:
 - What I accomplished since our last Daily Scrum ...
 - What will I accomplish till our next Daily Scrum ...
 - What is impeding my progress ...
- Not for problem solving



During Sprint Review the Scrum Team and stakeholders review the Increment.

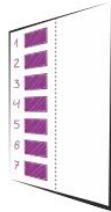
- Look at where we are and collaborate on how to go forward
- Central point of discussion is the Product Increment
- Entire team participates
- Stakeholders and their input is key to this meeting



During Sprint Retrospective the Scrum Team improves its process.

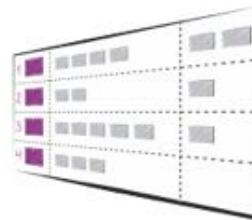
- Review how things went with respect to process, relationships and tools
- Identify what went well and not so well
- Identify potential improvements and actions for improving
- Whole Scrum Team participates

Artifacts



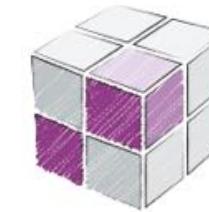
The Product Backlog is an ordered list of requirements, which are desired in the product.

- Single source of requirements
- Often in the form of user stories
- Each item has a description and an estimate
- Ordered
- Kept up to date
- Everybody can participate and suggest
- Product Owner is responsible and accountable for maintaining and ordering



The Sprint Backlog is the list of Product Backlog Items selected for the Sprint together with the Team's plan how to deliver them.

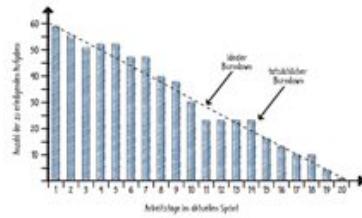
- Tasks are never assigned. Anybody can choose a task of his or her choice
- Product Backlog Items are fixed. Activities are continuously updated based on new information
- If an activity is not clear, it will be discussed and split up into smaller activities in the Sprint Backlog which can be addressed later



Every Sprint produces a Product Increment.

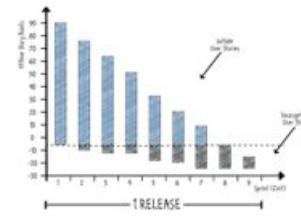
- Most important Scrum artifact
- Product Increment is the sum of all Product backlog Items completed during this Sprint and all previous ones
- Must be of high enough quality to be given to users (potentially shippable)
- Must meet the current Definition of Done

Scrum requires transparency within the team and outside the team. Common additional artifacts include burndown charts.



The Sprint Burndown is a technique to make the progress of a Sprint transparent.

- X-Axis contains days of Sprint
- Y-Axis contains number of tasks still to be completed
- Tasks are ≤ 1 day effort
- Every day (preferably at the daily Scrum) the current number of tasks on the Sprint backlog are noted on the Sprint Burndown chart
- Maintained by Development Team



The Release Burndown is a technique to make the progress of a product transparent.

- X-Axis contains number of Sprints in the current release
- Y-Axis contains number of Story Points of Product Backlog Items still to be completed in the current release
- After every Sprint the number of Story Points of the initial Product Backlog Items is counted and marked in the burndown
- Story Points that have been added to / dropped from the release are noted below the x-Axis
- Maintained by Product Owner

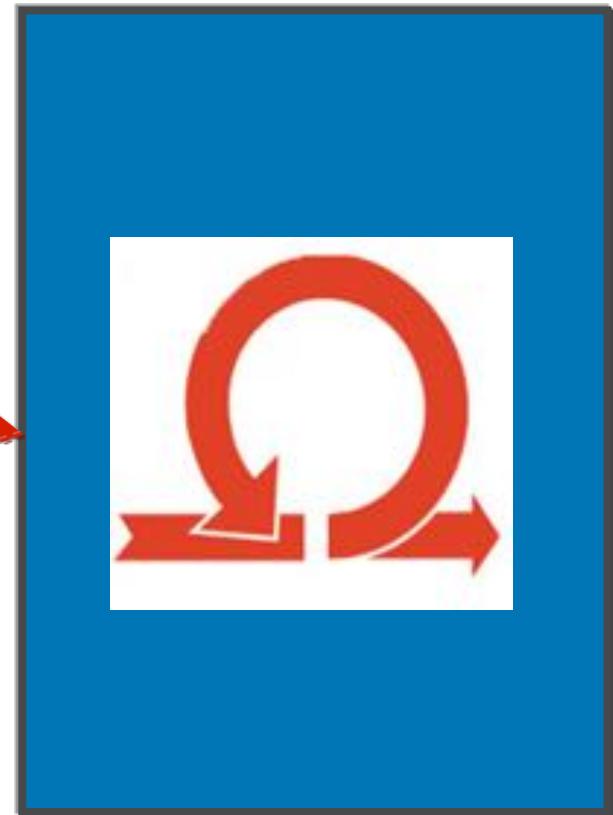
No scope changes during a sprint.

The length of a Sprint depends on the period to which the Product Owner can commit himself not to change the scope.



But:

- New requirements can always be placed into the Product Backlog to be covered in the NEXT Sprint
- Ultimate option: Unplanned cancelation of a Sprint and re-planning



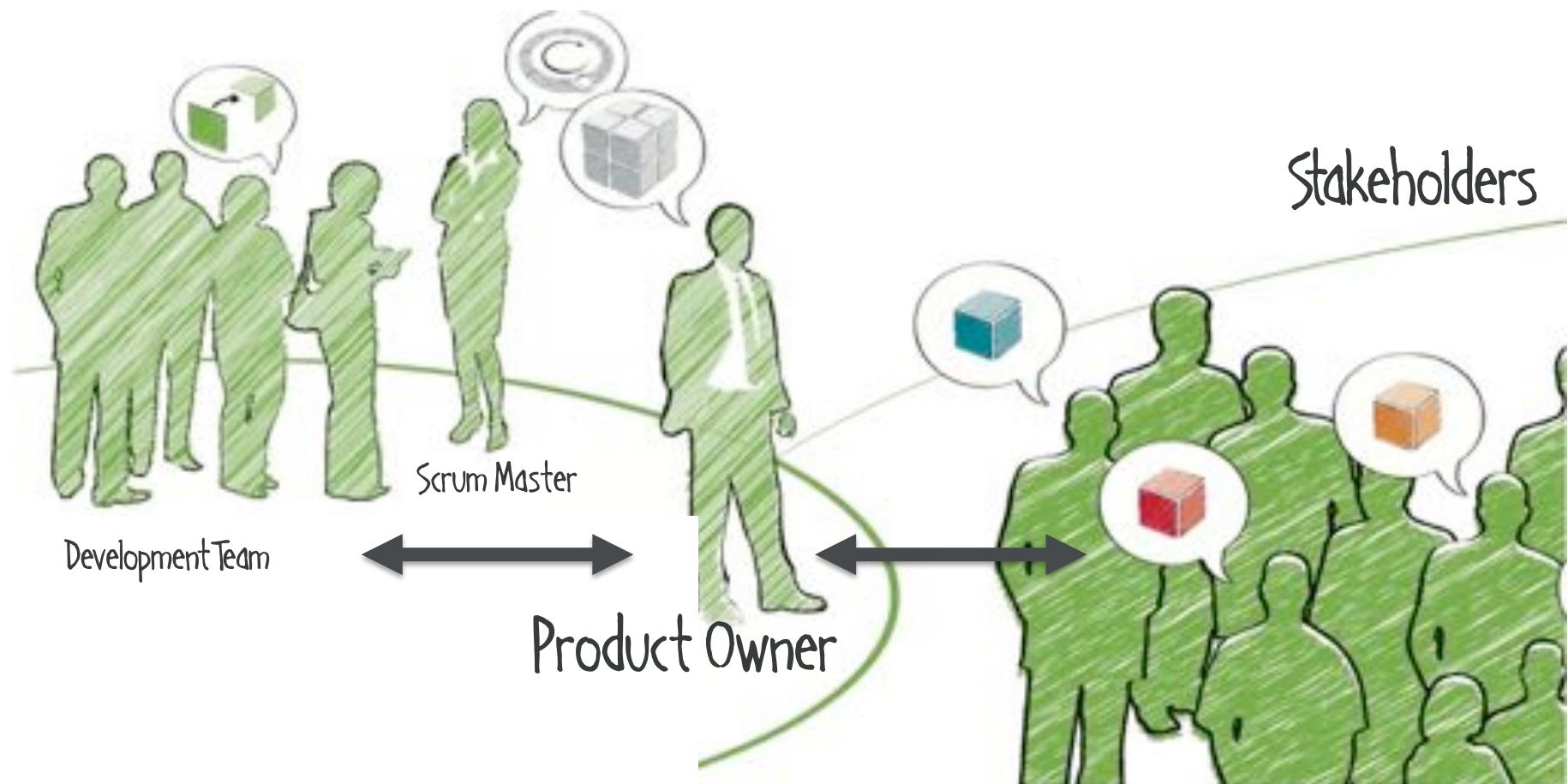
Scrum Team – Roles

Product Owner

- Has or delivers the vision
- Details the vision by means of Product Backlog Items that describe the features of the product
- Maintains the Product Backlog by defining and detailing/breaking down the items
- Orders the Product Backlog items to draw out the most valuable possible product by the desired date.
- By means of ordering, the PO asks the Development Team what it should do next and what to defer. By this he makes the scope versus schedule decisions.
- Ensures that everyone knows what is on the Product Backlog and what the priorities are
- Inspects increment and its features produced at end of Sprint and identifies ways to improve business value
- Monitors the progress of the product and makes it visible
- Is always one person (not a group) but may be supported by other individuals



It is the task of the Product Owner to incorporate the opinions of many diverse stakeholders. The PO elicits the needs, turns them into Product Backlog Items and orders them.



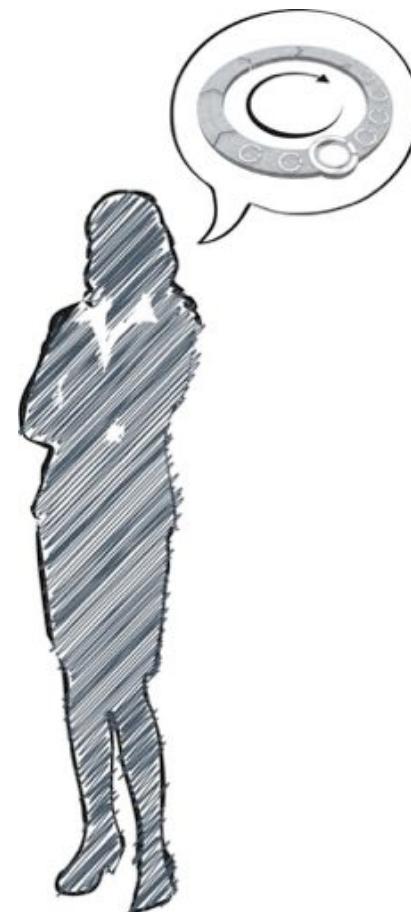
The Development Team is empowered and self-organized.



- Cross functional, 3-9 team members that have all necessary skills to deliver each increment
- Works together with the product owner, to define the results and to optimize ROI
- Forecasts how much they can do in one Sprint, and decides how they are going to do it
- Makes the Sprint Backlog (Sprint Plan)
- Self-organizes to accomplish the Sprint goal and produce the Increment
- Has the authority to do everything inside the framework and Sprint to reach the goal
- Presents results to the Product Owner
- Is available to the project full time

Scrum Master

- Responsible that Scrum is understood and in place, inside the team and outside.
- is a "servant leader", helping the rest of the Scrum Team follow their process
 - » works with the Product Owner to help creating and maintaining the Product Backlog.
 - » works with the Development Team to find and implement the technical practices
 - » Works with whole Scrum Team on the Definition of Done
- Acts as a coach for the Scrum Team
- Protects the Scrum Team from both internal and external distractions.
- Ensures cooperation between roles and stakeholders and tracks impediments till closure
- May facilitate meetings, and helps keep the Scrum Team on track, productive, and growing in ability

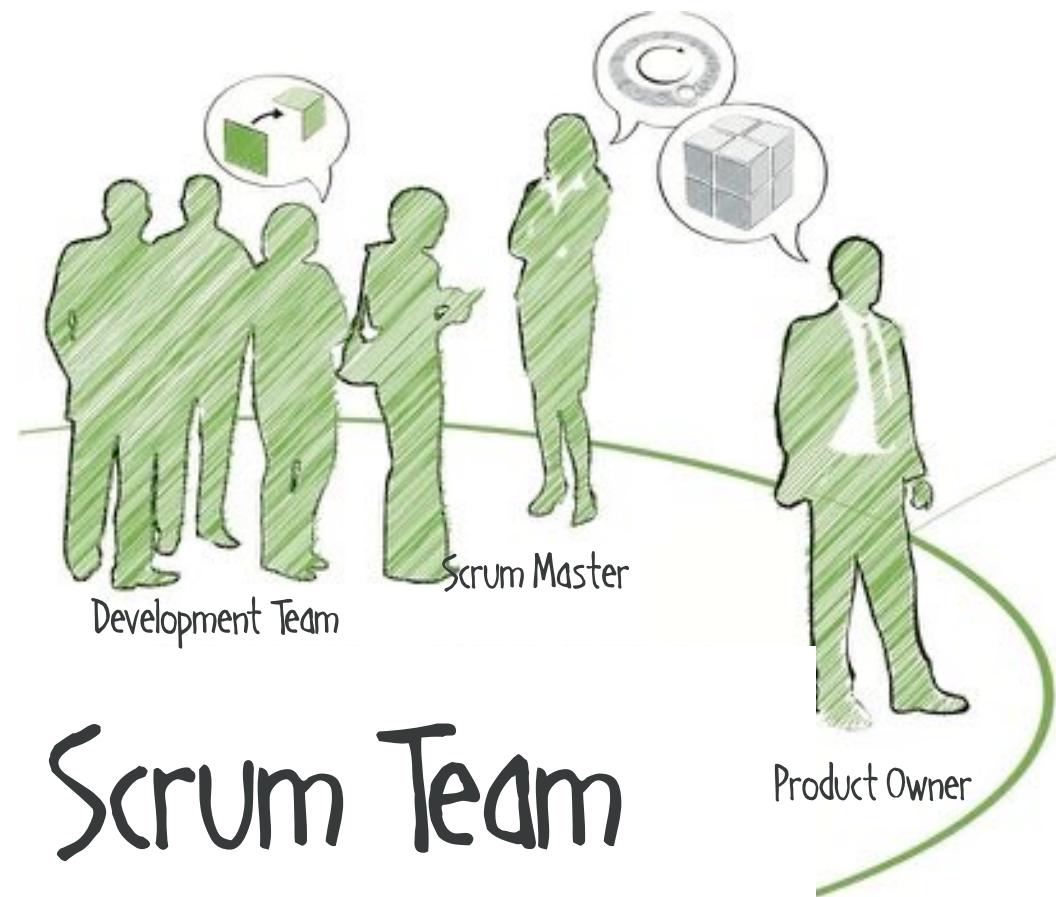


The ScrumMaster is like a shepherd dog for the team.

- Protects the Scrum Team from both internal and external distractions.
- Ensures the usage of Scrum
- Does not assign work: The team is self managed
- Stands for the “How it is done” and not for “what has to be done” (that’s the call for the Product Owner and team)
- Has no decision making power: the team decides
- Challenges the Scrum Team to make them more productive: How are Product Owner and Team working together?



All three roles are the Scrum Team.
They work together to make the product vision a reality.



Collocation – Example Spotify.



Scrum Events and Artifacts

Event:

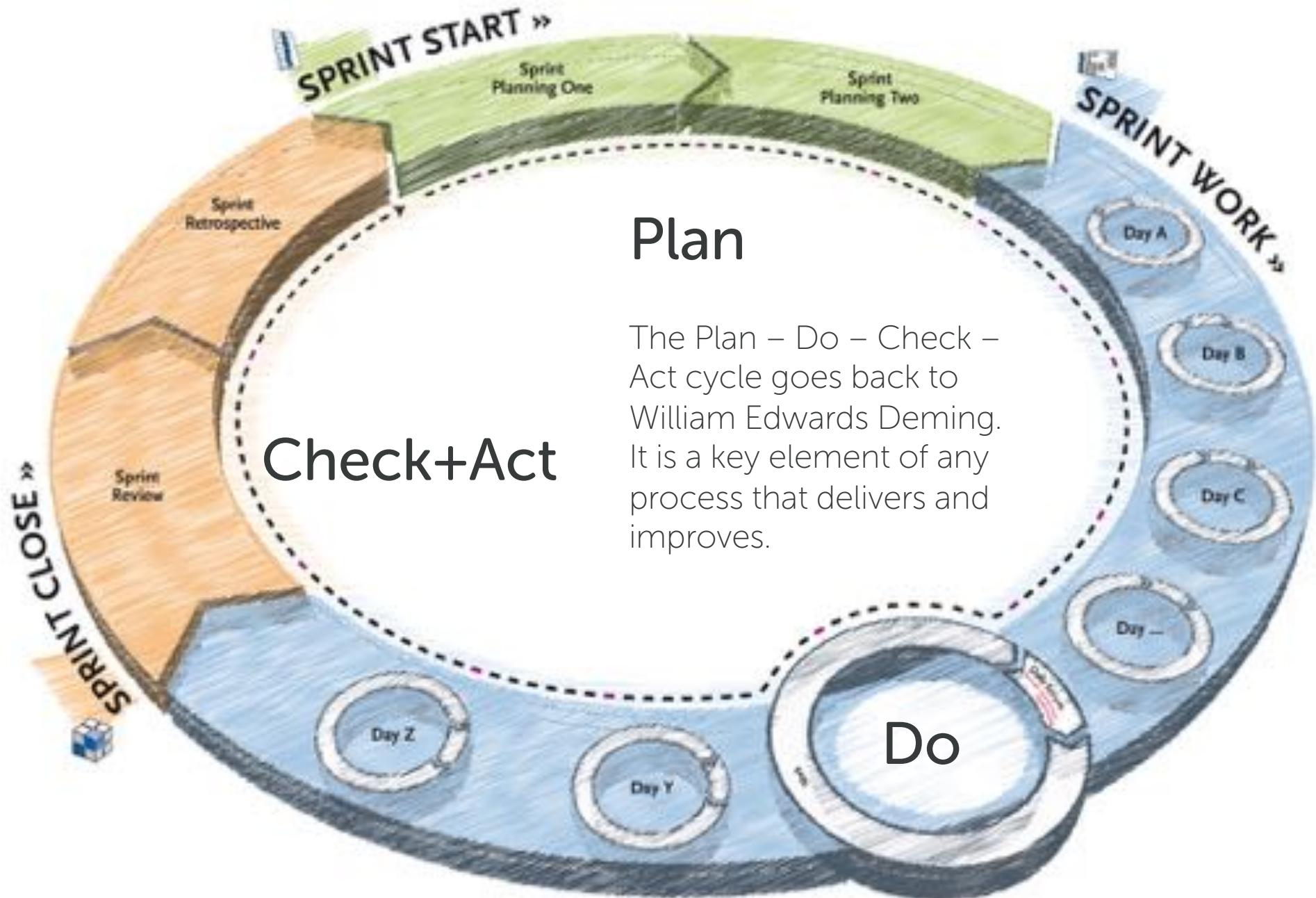
Product Backlog Refinement

Artifacts:

Product Vision

Product Backlog

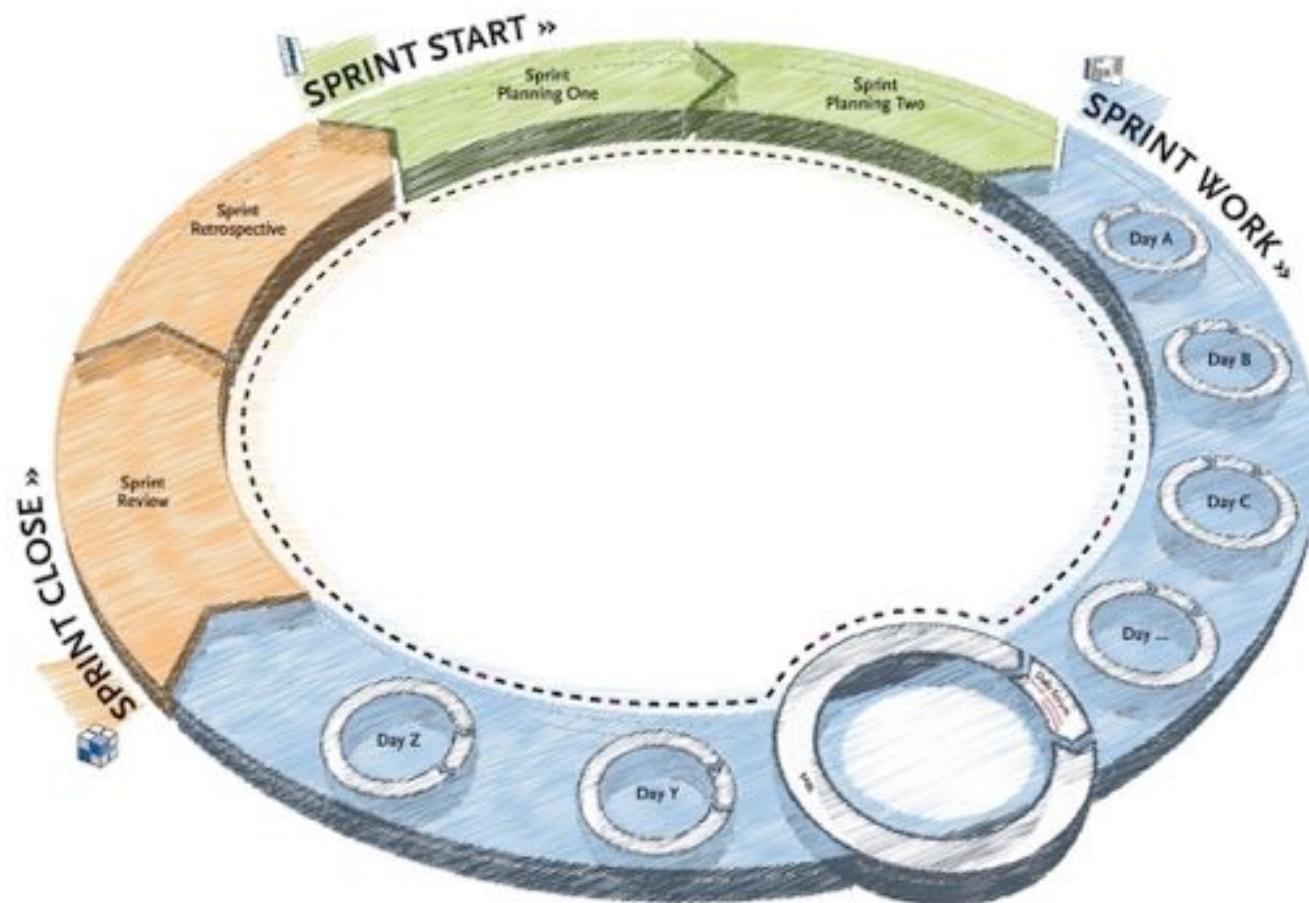
Definition of Done



All meetings in Scrum are time-boxed.



A Sprint is the whole cycle from start to finish. A Sprint is a time box of 2-4 weeks. The length should stay the same, giving the Scrum project its tact.

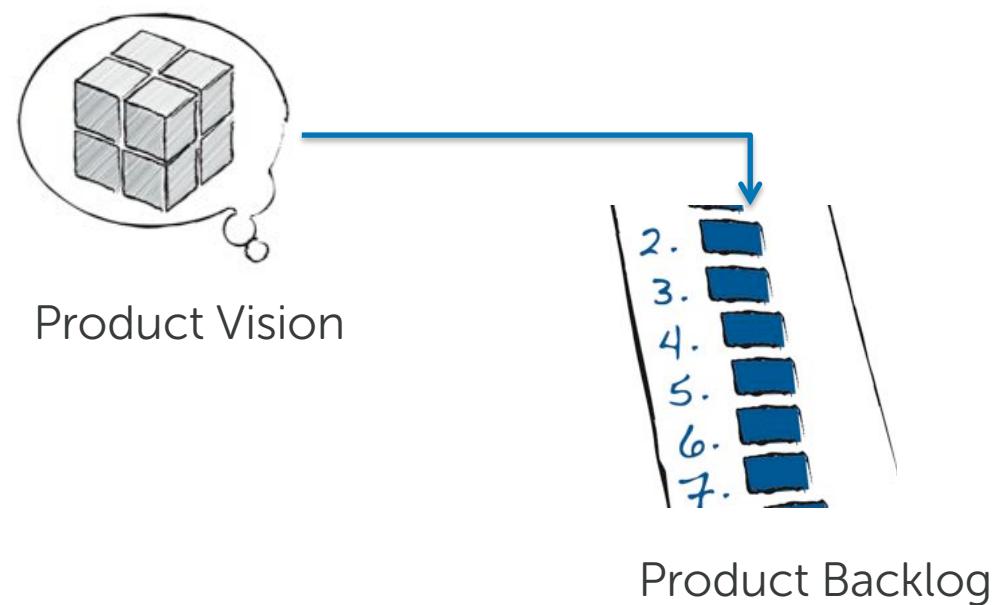


Product Backlog Refinement is the act of adding details, estimates, and order to items in the Product Backlog.

- Includes:
 - » Grooming the Product Backlog (order, add, remove, split & merge items)
 - » Product Roadmap and Release Planning
 - » Estimating
- The Product Owner is responsible. He collaborates with:
 - » Development Team
 - » Stakeholders
- It is an ongoing activity throughout a Scrum project. It includes meetings as well as continuous work.
- Key is to have enough Product Backlog Items ready for the next Sprint.
- Should not take more than 10% of a Sprint's effort.



Output of Product Backlog Refinement are the Product Vision and the Product Backlog.



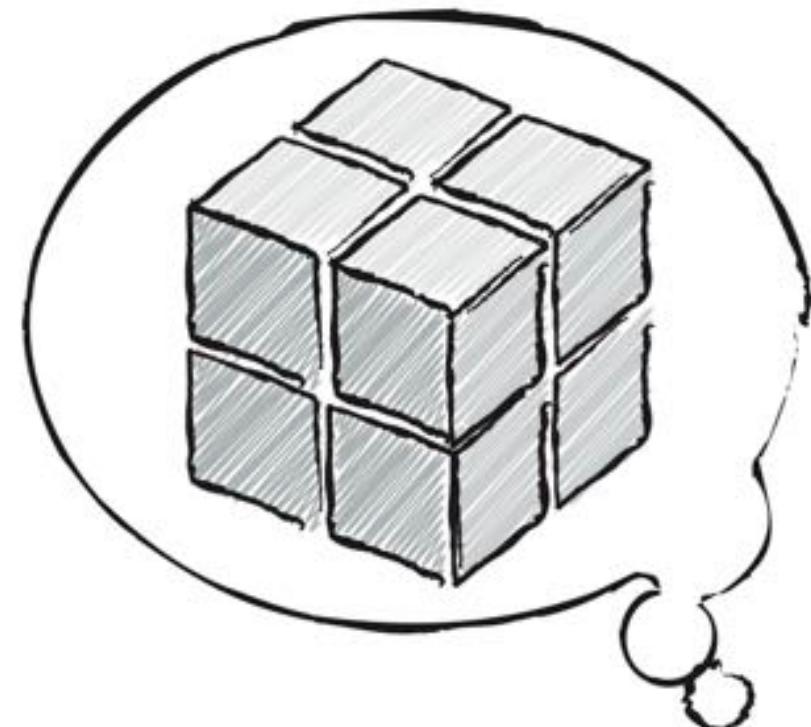
The Product Vision is a technique to define the long-term goal of the project. It is the overarching goal that guides the Scrum Team.

A vision should be

- Shared
- Broad and engaging
- Concise

It should state:

- Customers of the product
- Customers' needs
- Key features
- Uniqueness
- Timeline
- Budget needed



A vision is broad and engaging.

I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the earth.

No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space; and none will be so difficult or expensive to accomplish.

John F. Kennedy

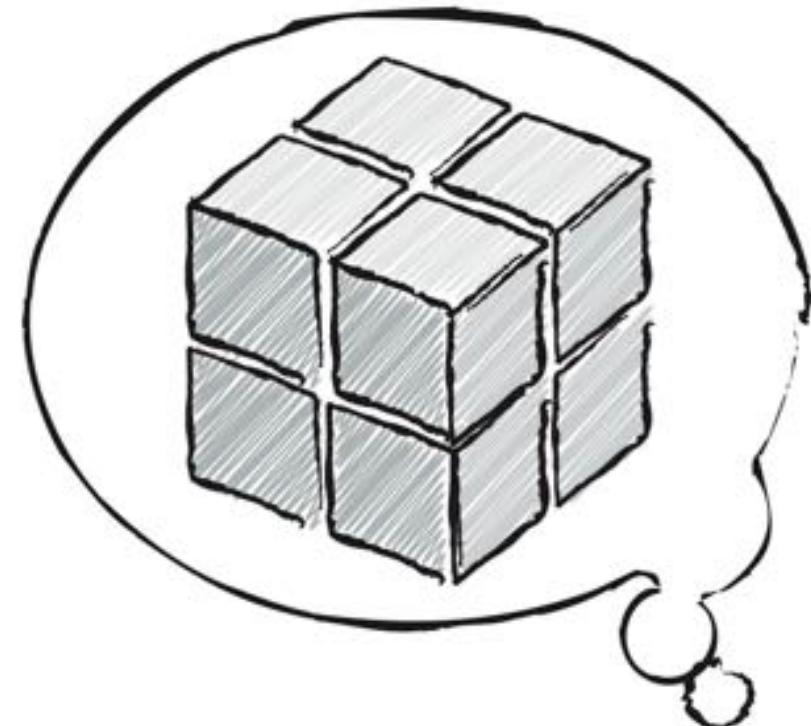


Most people use a typical template for the Product Vision.

For <customers>
with <needs>
we develop the <product name>
that provides <key features>.

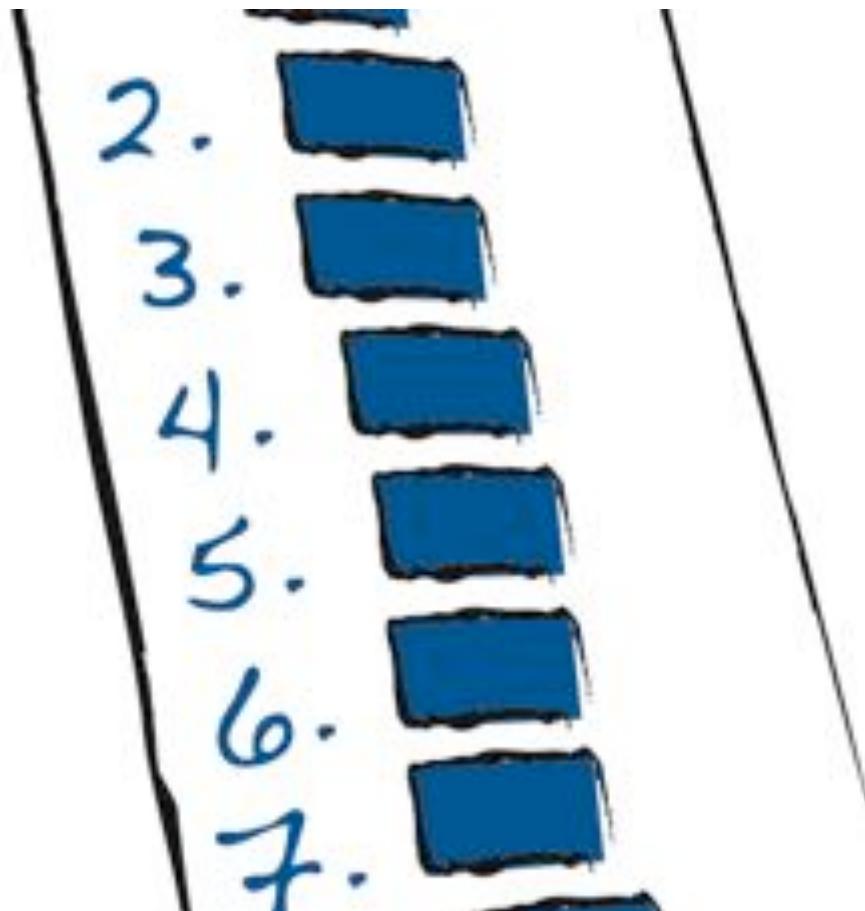
Unlike <competitors>
our product <uniqueness>.

This vision statement format is based on G.A. Moore, „Crossing the Chasm”, Harper, 1999, page 154



For Billers with ambitions
we provide the qdocmetor, website,
which trades all user data and records
videos. In contrast to other qdocmetors
the netbiller is integrated into
social networks.

The Product Backlog is an ordered list of requirements, which have to be achieved.



- The Product Backlog (PBL) contains ideas for the product
 - » Single source of requirements
 - » Often in the form of user stories
 - » Each item has a description and an estimate
- PBL is ordered
 - » By ROI
 - » Risk and other criteria can also be expressed in terms of ROI
- The Product Backlog is kept up to date
 - » Everybody can participate and suggest
 - » Product Owner is responsible and accountable for maintaining and ordering

User stories are a technique to describe requirements from the perspective of a user utilizing everyday language.

- They are
 - » Independent
 - » Negotiable
 - » Valuable
 - » Estimatable
 - » Small
 - » Testable
- Format
 - » As a <user>
 - » I want <feature>
 - » so that <benefit>



For more information on user stories see: M. Cohn, Succeeding with Agile, Addison-Wesley, 2010, page 238 ff.

Example User Story

As a theatre guest
I want a guide
so that I can get info
about the play, actors etc.

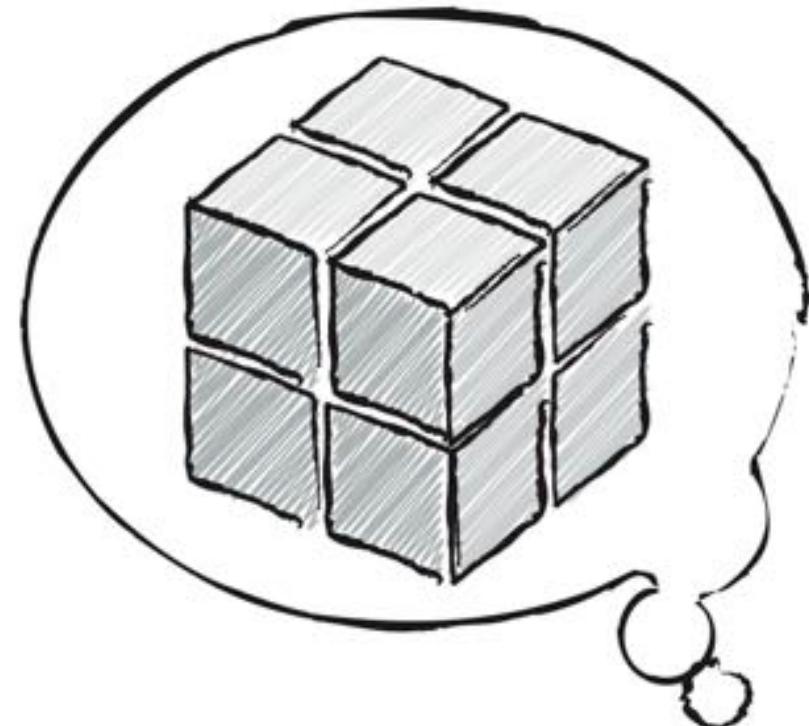
Exercise Step 1: Create Product Vision

1. Brainstorm what part of the city you want to create ("the product").
2. Select one idea
3. Develop the product vision for the selected idea according to the following structure. (The result must fit on an A4 paper, written with a marker.)

Timebox: 15 min

For <customers> with <needs>, we develop the <product name>, that provides <key features>.

Unlike <competitors> our product <uniqueness>.



Exercise Step 2: Create a Product Backlog

1. Brainstorm in your team: Which users/roles use the product?
2. Silent writing of user stories.

Everyone selects a user/role and writes at least 3 user stories for that role.

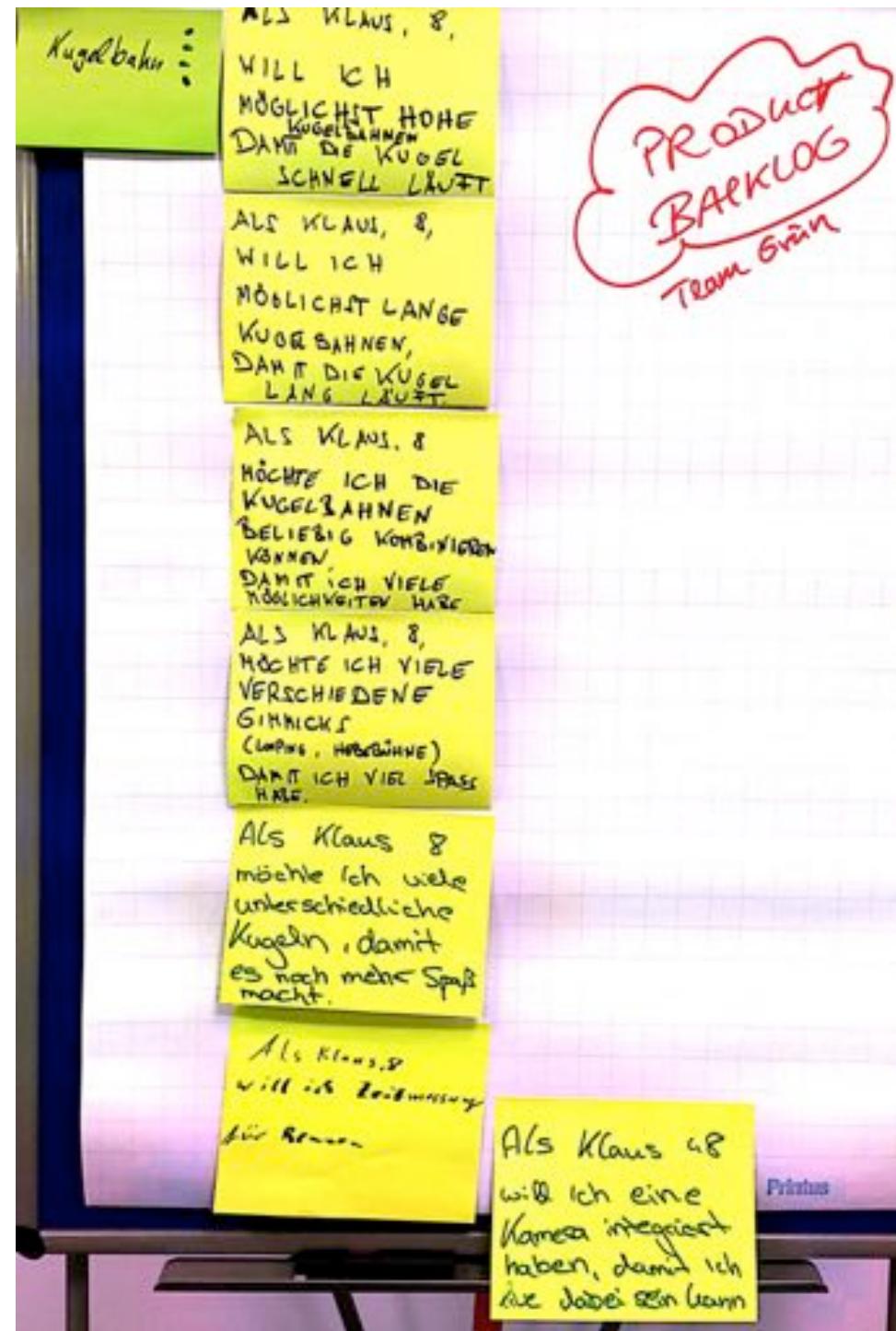
Write on A5 Post-its with a marker.

3. Present the user stories to the other team members.

Discard stories and write better ones.

Timebox: 20 min

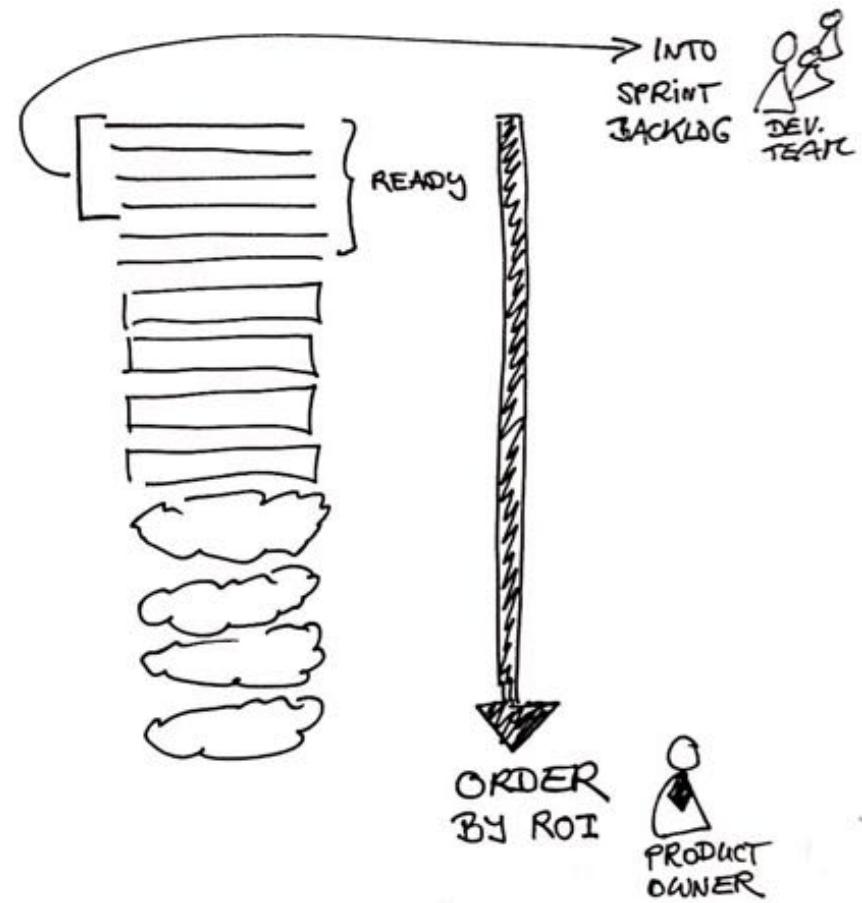




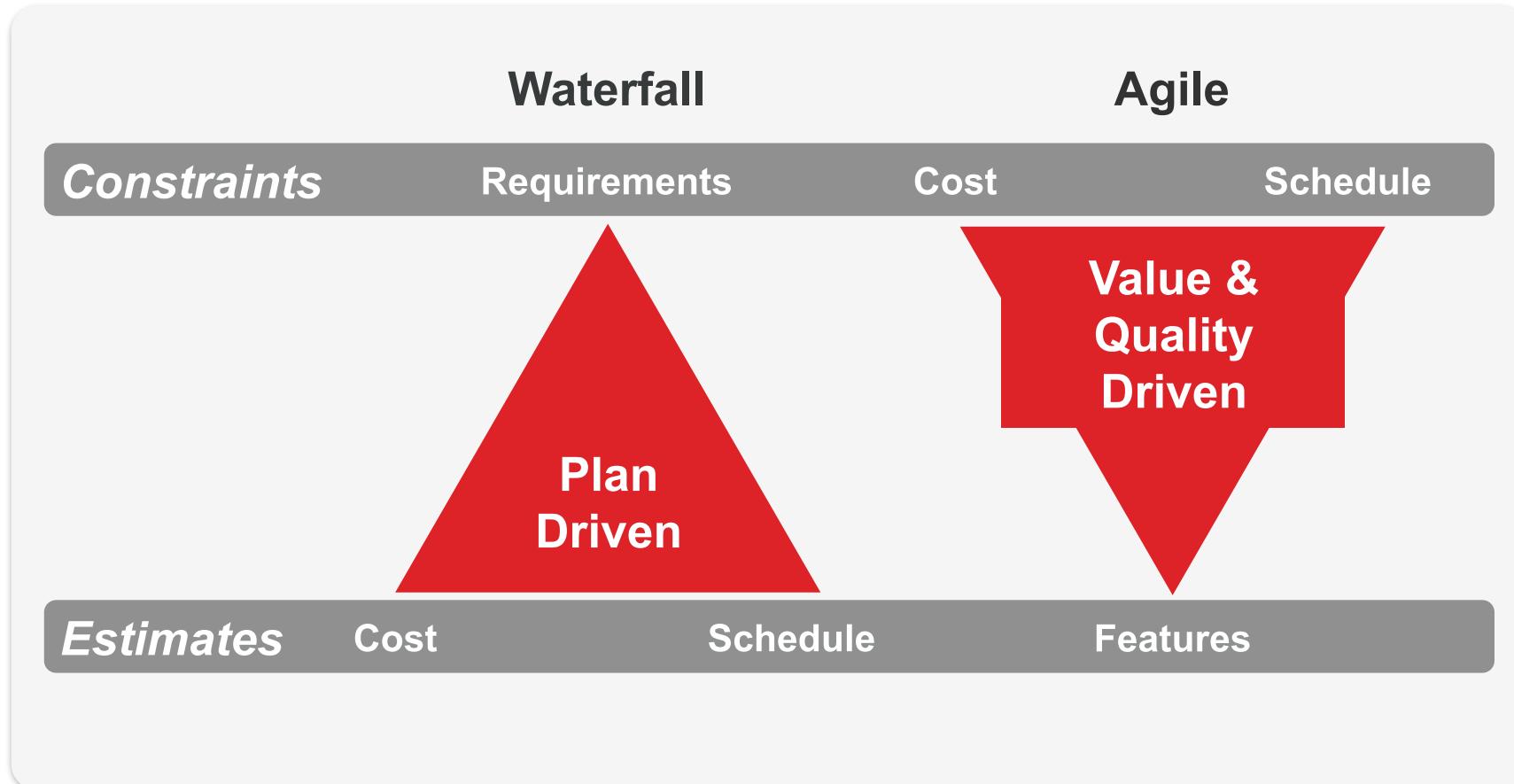
Ordering the Product Backlog

The Product Backlog is always ordered.

- With ordering the PO determines in which order the team delivers the items.
- The prioritization enables the Scrum Team to maximize the business benefit – the ROI – of the product.
- The lower the priority of a user story is, the less detailed the user story needs to be („just-in-time“ detailing).
- The prioritization creates a delivery sequence and helps the team to create a flow.
- Stakeholders and development team provide important input. However, the final decision on ordering is the right of the Product Owner.



In classic projects we fix the requirements and derive the cost and schedule. In Agile it is the other way around: we fix cost and schedule and allow the features to develop.



There are many techniques that help prioritizing a Product Backlog. In the end, ordering is an entrepreneurial decision.

There are many ways to formally order the Product Backlog Items:

- Estimate the effort and the benefit. Order by calculating the return on investment (ROI). Order by highest ROI first.
- A variant of this technique the “weighted shortest job first”: Estimate the effort and the cost of delay. Order by lowest weighted shortest job items first.
- Understand the value the items have – e.g. using the Kano Analysis – and order the items by the value the customer gives the items.
- Use magic prioritization with an interdisciplinary group (stakeholders, customers)

In the end, ordering is an entrepreneurial decision:

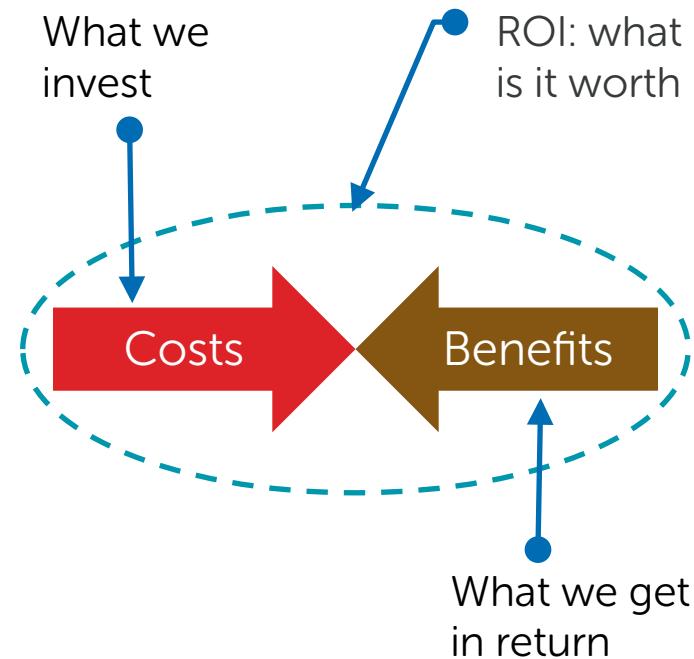
- There is no formal approach that can take into account all possible parameters.
- Formal approaches can provide information on the order, but nothing more.
- In the end, the order is always an entrepreneurial ROI decision with uncertainty, made by the Product Owner.

Ordering the Product Backlog by highest return on investment first is the most common used technique.

Calculation:

- Development team estimates the costs (investment) needed for the Product Backlog Items. This can be done by e.g. relative effort in Story Points.
- Stakeholders estimate the benefit (return) of the Product Backlog Items. This can be done by e.g. relative benefit in Benefit Points.
- For each item, calculate:

$$\text{ROI} = \text{benefit} / \text{costs}$$
- Order the Product Backlog Items by highest ROI first



Acceptance Criteria and Definition of Done

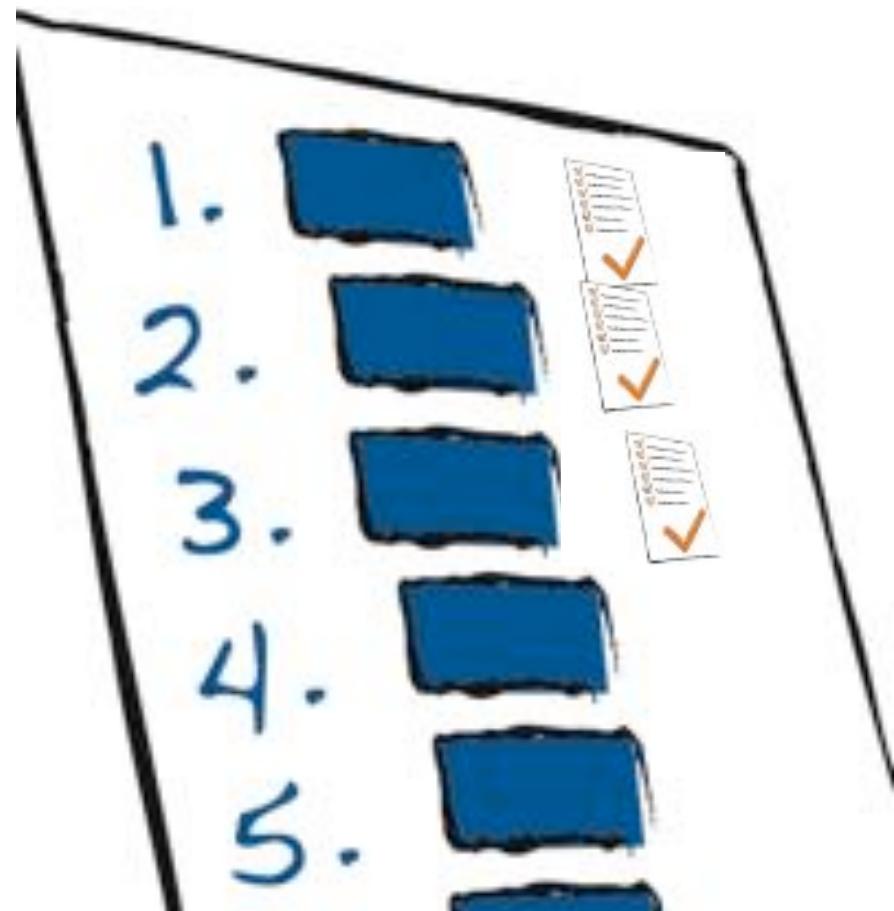
For each Product Backlog Item the Product Owner defines the Acceptance Criteria.

Acceptance Criteria are requirements that have to be met for an item to accepted:

- Measurable and testable

Technique for identifying the acceptance criteria:

- Brainstorm: if you are in the Sprint Review, what do you want to see or test?
Think of features, usability, performance and error handling.
- Consolidate that list into measurable and testable criteria



The Definition of "Done" establishes a shared understanding of what "Done" means.

- The team and the Product Owner define what "Done" means
 - » Includes everything that the Product Increment is of high enough quality to be shippable
 - » Contains all non functional requirements such as external quality (e.g. stability), inner quality (e.g. architecture or code documentation), usability
 - » Also defines e.g. which documents and tests have to be completed
- Backlog entries, which are not "Done", won't be presented in the Sprint Review
- As the team matures, the Definition of Done expands and becomes more stringent.



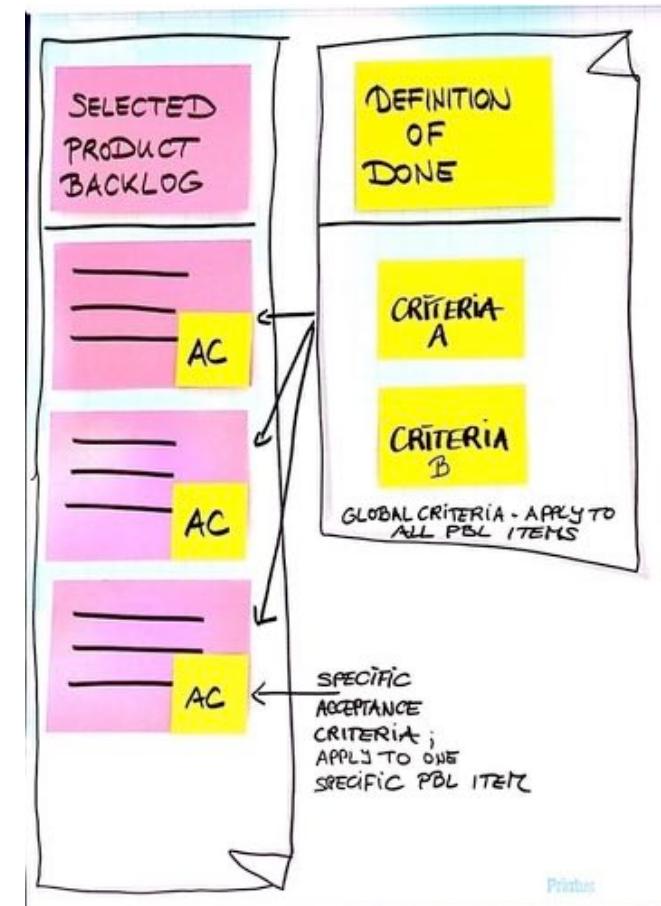
Example Df. Of Done (Software User Story)

- Compiles + runs
- Code is commented
- Modules are documented
- Integrated with rest of software
- License checked
- Tested
- Unit tested
- Deployed so that Accessible from iPhone
- After sales support

The Definition of Done contains all global acceptance criteria.

Every product backlog item can contain acceptance criteria specific to that product backlog item (local acceptance criteria).

The Definition of Done contains the acceptance criteria that apply to all Product Backlog items of a Sprint (global acceptance criteria).



Estimating

Product Backlog Items are estimated.

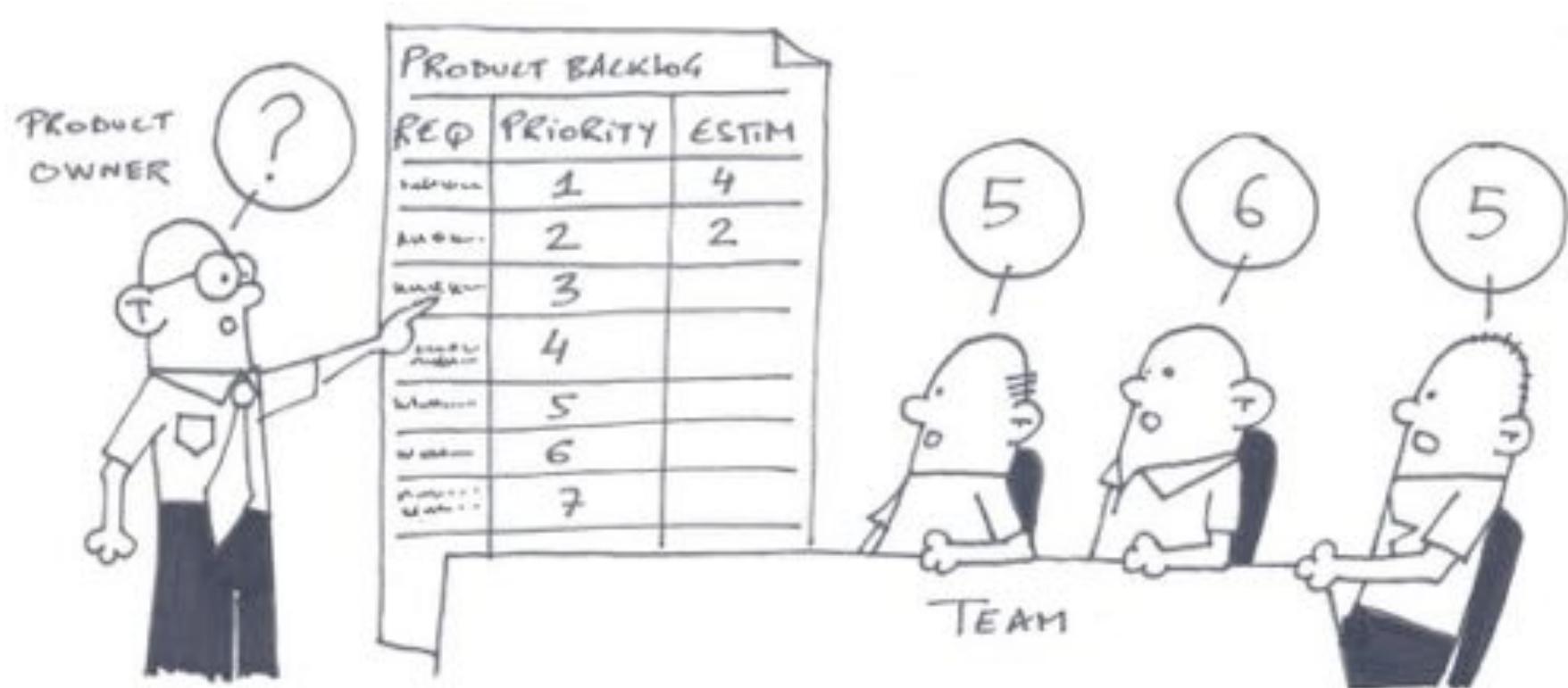
Estimates are important:

- The Product Owner can predict release dates and release scope (see the Release Plan and Release Burndown)
- The Product Owner can make scope versus budget tradeoff decisions
- The Development Team can forecast how much fits in the next Sprint
- The Scrum Team can understand the velocity

Accuracy is more important than precision

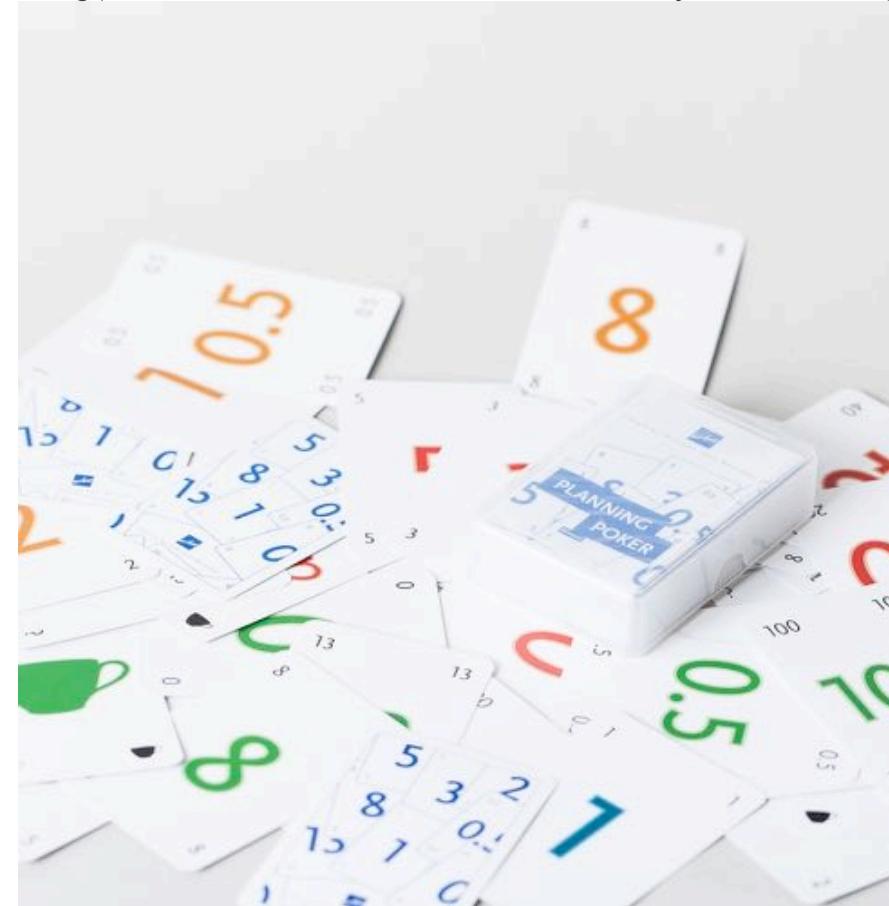
- Key is the accuracy of the estimates. That is the closeness of the estimation to the actual (true) value.
- The precision of the estimates is secondary. We do not insist that estimates show the same results under unchanged conditions.

The Product Owner prioritizes and the Development Team estimates the effort.



Planning Poker is a technique to estimate the effort needed to implement a Product Backlog Item.

The planning poker method was first defined and named by James Genning.

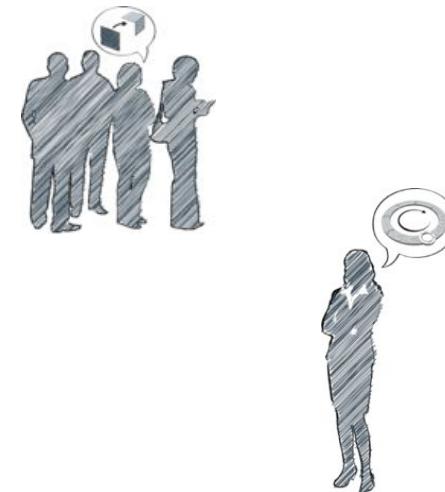


In Planning Poker, the whole team estimates.

Planning Poker is based on a **list of items** to be estimated and a **deck of estimation cards**.



The **whole team** participates. Each person is given one set of the cards.



A **moderator** who will not play chairs the meeting.

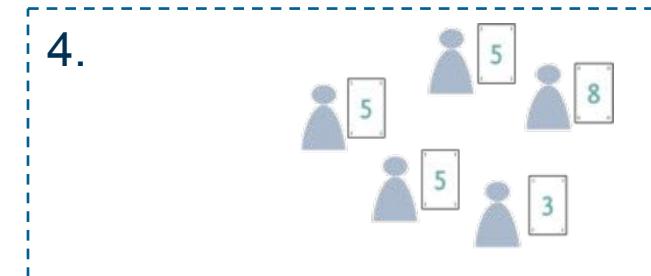
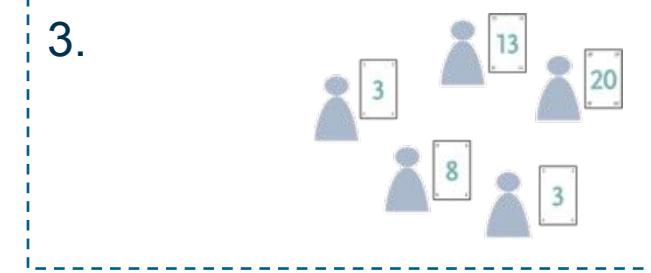
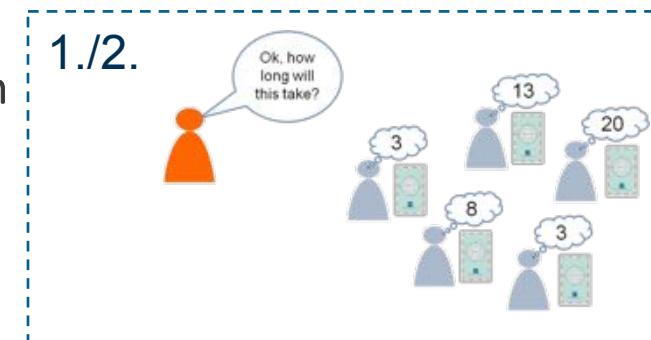
Each item is estimated in 4 steps until consensus is reached.

The steps are:

1. Each **item is presented** for estimation. The team briefly discusses each item.
2. Each **estimator lays a card** face down representing his estimate.
3. Everyone **calls their cards** simultaneously by turning them over.
4. People with high estimates and low estimates explain their estimate. The group continues to discuss and re-estimate the item **until the estimates converge**.

Hints:

- The point is not absolute precision but reasonableness.
- It's a good idea to write down clarification of the discussion for each estimated item.

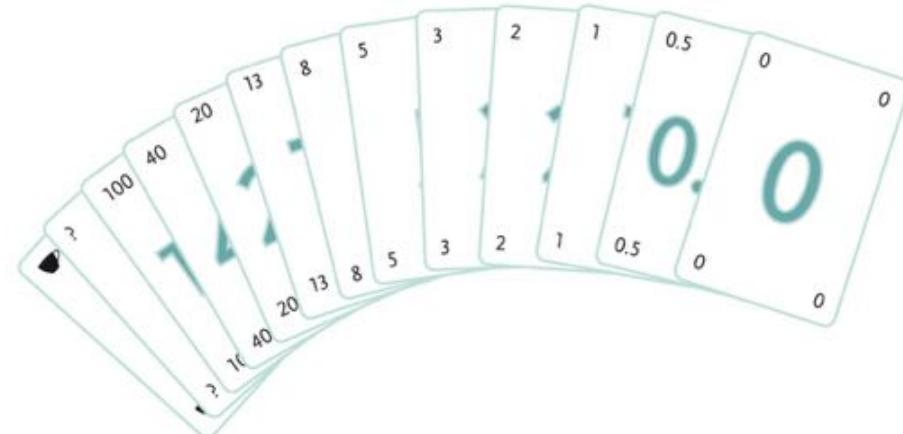


The card deck consists of the numbers 0, 0.5, 1, 2, 3, 5, 8, 13, 20, 40, 100, a question mark and a coffee break card.

The cards are numbered to account for the fact that **the higher an estimate is, the more uncertainty it contains.**

The **defined set of numbers**

- Speeds up the estimation process by limiting the number of choices,
- Avoids a false sense of accuracy for high estimates,
- Encourages the team to split large items into smaller ones.
- Sometimes similar number sequences are used (e.g. 21 instead of 20).



Special cards:

- The question mark is used when an estimator has not enough information to make an estimate.
- The coffee break card is used when an estimator needs a break.
- "0" means that item is already done.

Use relative estimates.

Relative estimates are better than absolute estimates:

- Relative estimates are more accurate.
- Relative estimates are independent from personal skills.
- Relative estimates allow to measure velocity.

The team must avoid relating the estimates to the actual units during the estimation session.

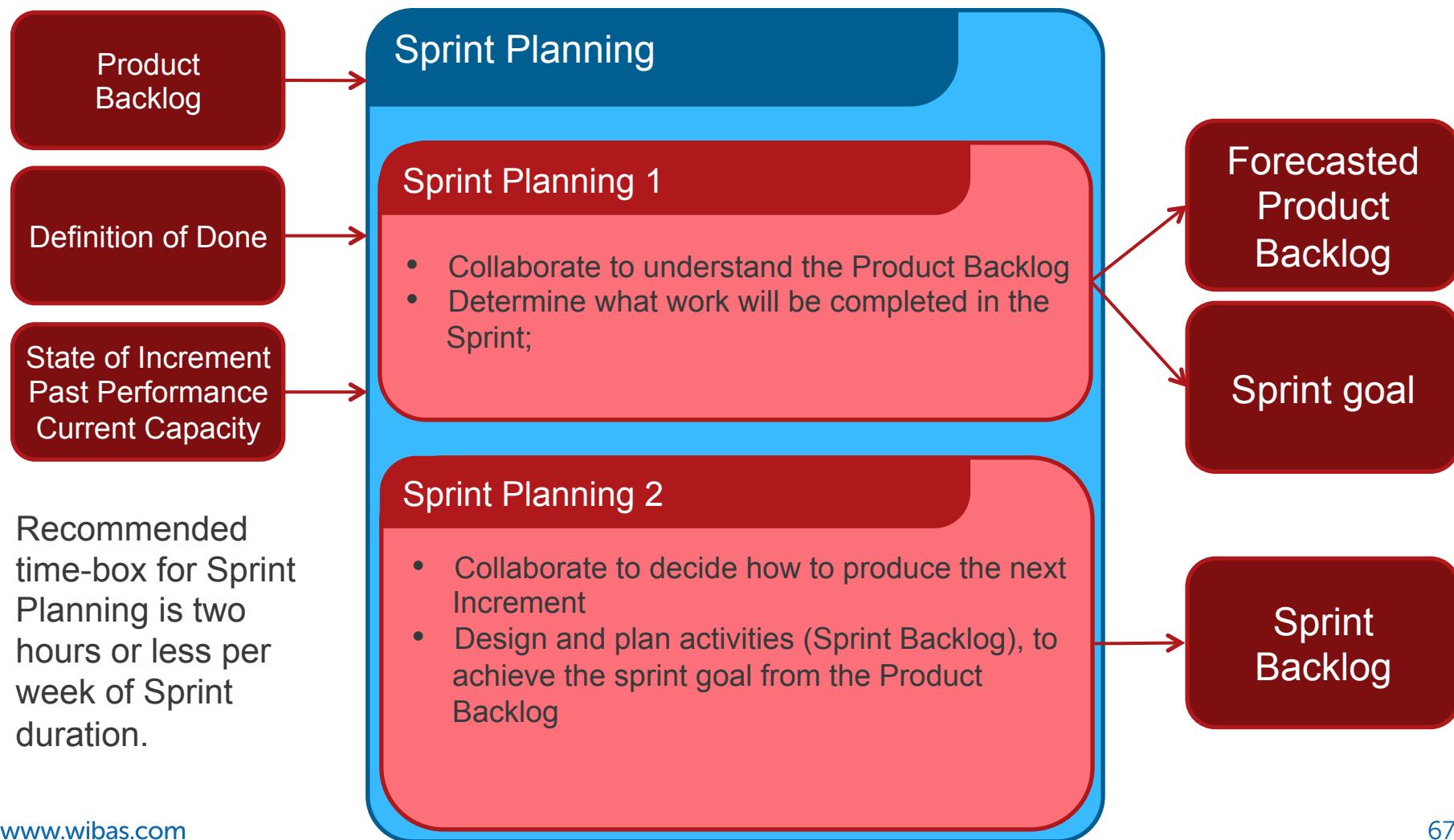
To estimate relatively:

- In the first estimation meeting the Development Team identifies the smallest Product Backlog Item.
- This item is assigned
 - » 1 Story Point.
 - » This item is the „prototype meter“ for our estimations.
- All other items are estimated relative to this Prototype item.



Event:
Sprint Planning 1 + 2
Artifacts:
Sprint Backlog

Each Sprint begins with Sprint Planning. In this meeting the Scrum Team collaborates to understand, select and plan the work to be done in the Sprint.



In Sprint Planning 1 the Scrum Team determines what work will be completed in the Sprint.

- Entire Scrum Team attends
- Product Owner presents ordered Product Backlog items to the Development Team
- Scrum Team collaborates to understand the work
- The number of Product Backlog items to undertake in the Sprint is solely up to the Development Team. Consider:
 - » current state of the Product Increment
 - » past performance of the team
 - » the team's current capacity
- The order of the Product Backlog Items is up to the Product Owner.
- Many teams craft a Sprint Goal



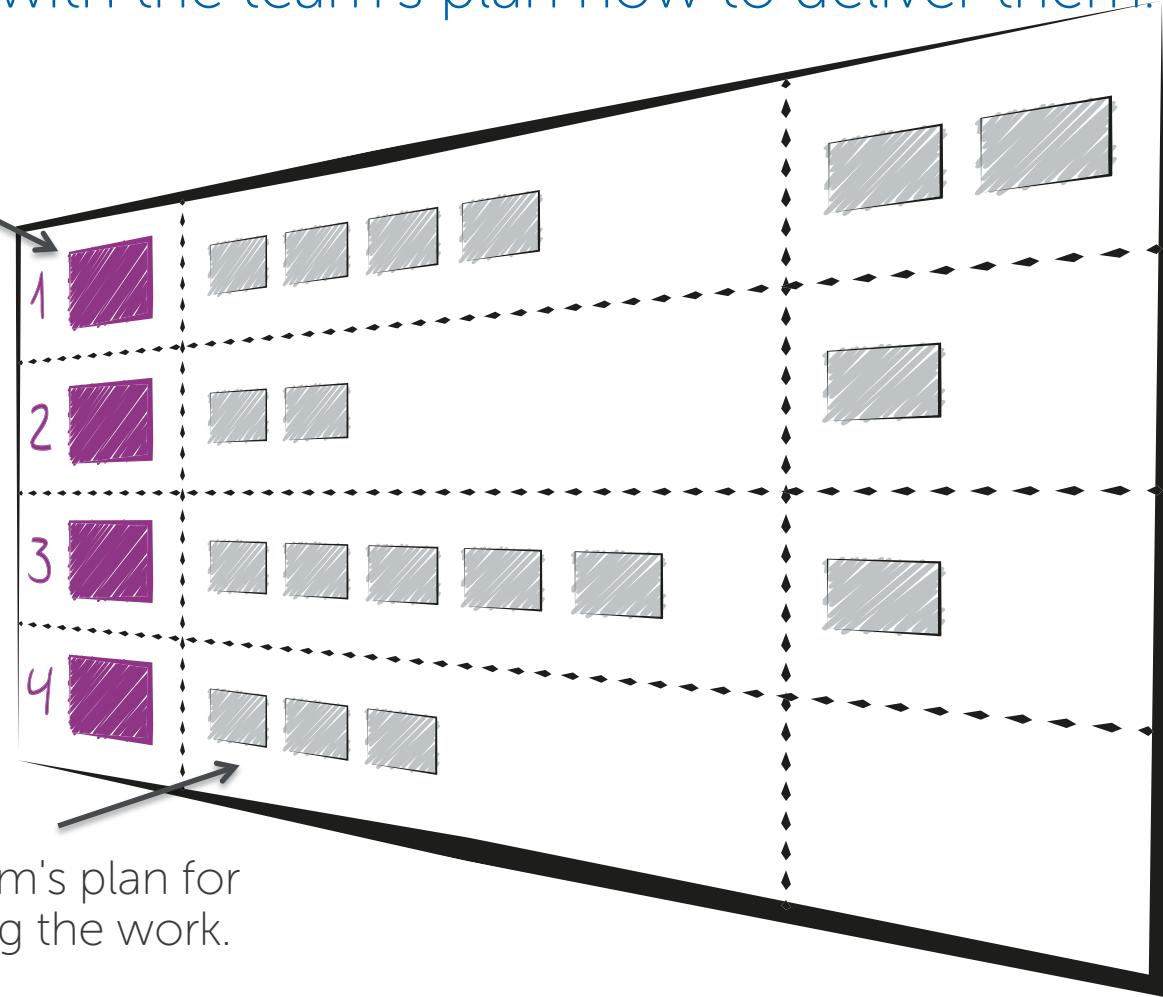
In Sprint Planning 2 the Development Team determines how the work will be accomplished.

- Development Team collaborates to decide how to produce the next Product Increment in accord with the Definition of Done.
- Development Team designs and plans enough to be confident of completing the work during the Sprint
- Work to be done in the early days is broken down into small units of one day or less
- Work to be done later may be left in larger units to be decomposed later.
- Deciding how to do the work is the responsibility of the Development Team, just as deciding what to do is the responsibility of the Product Owner.
- The Product Owner needs to be readily available to answer questions and resolve misunderstandings. (He may stay in the meeting.)



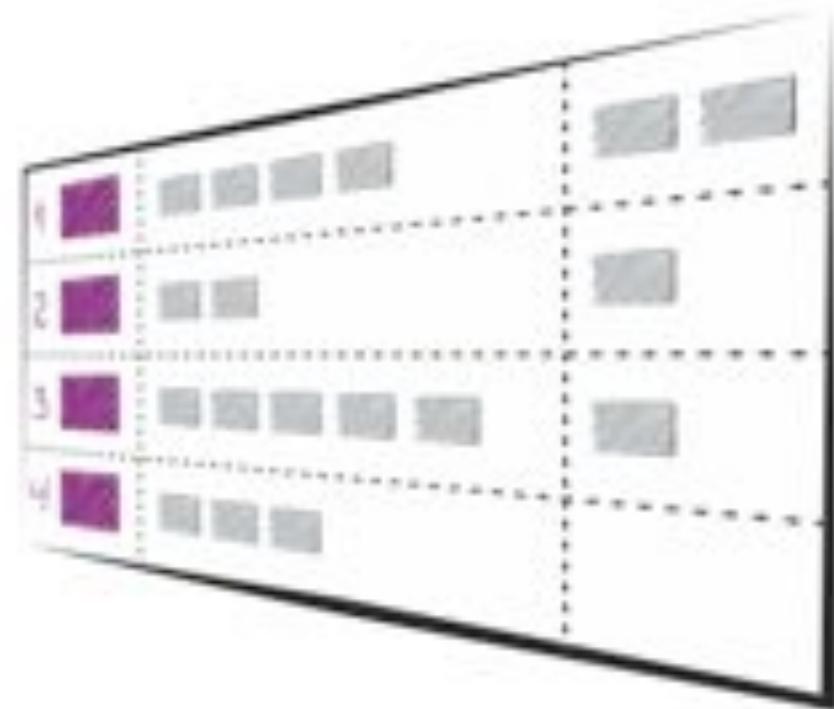
The Sprint Backlog is the list of Product Backlog Items selected for the Sprint together with the team's plan how to deliver them.

Pink: The list of Product Backlog items chosen for development in the current Sprint.

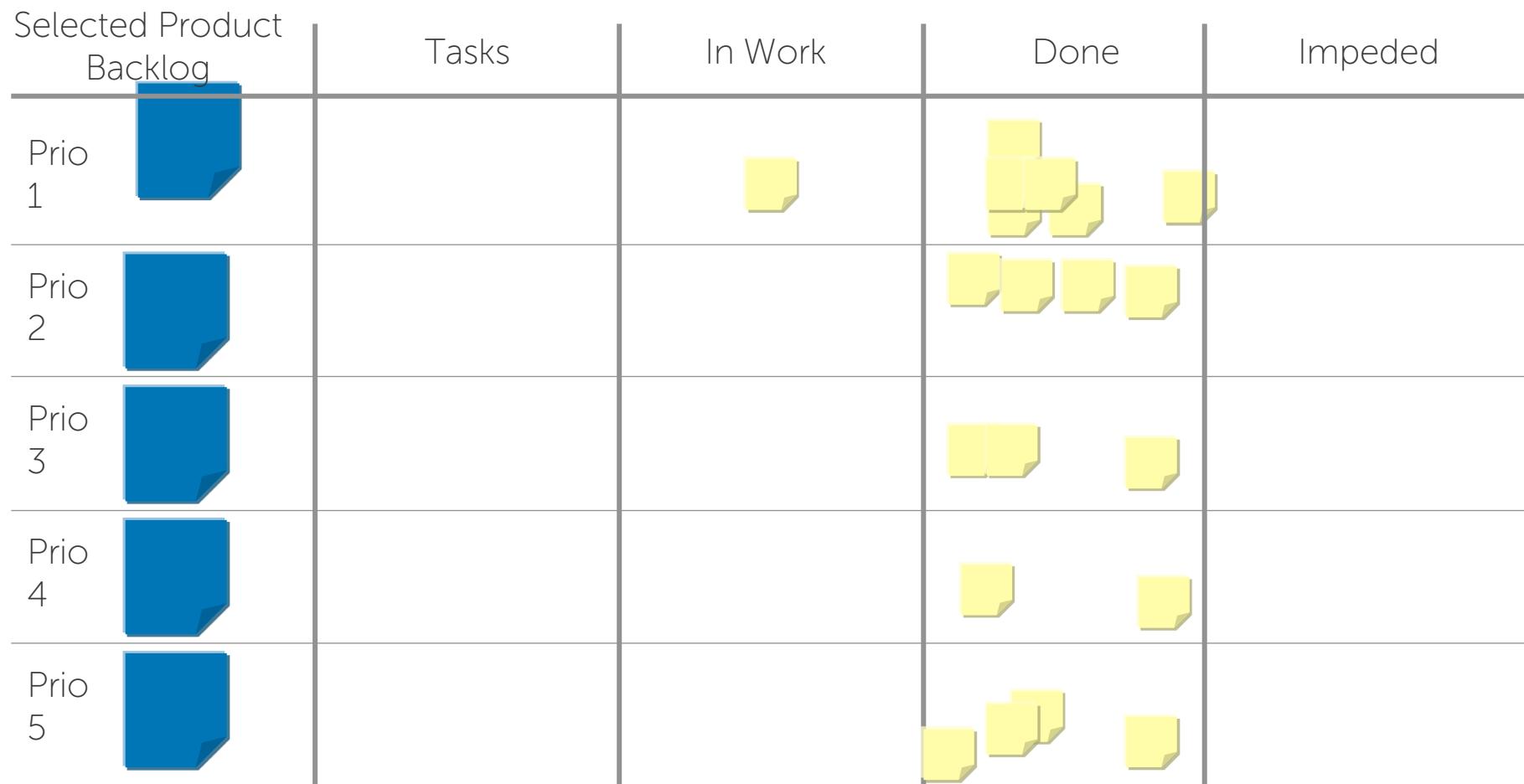


The Development Team owns and maintains the Sprint Backlog.

- Anybody can choose a task of his or her choice.
- Tasks are never assigned.
- Everybody can add new activities, change or delete existing ones in the sprint backlog.
- Activities are continuously updated based on new information.
- If an activity is not clear, it will be discussed and split up into smaller activities in the Sprint Backlog which can be addressed later.
- When a team members starts to work on a task, the task is moved in the "in work" column and marked with the worker's name.



Example for a Sprint Board.

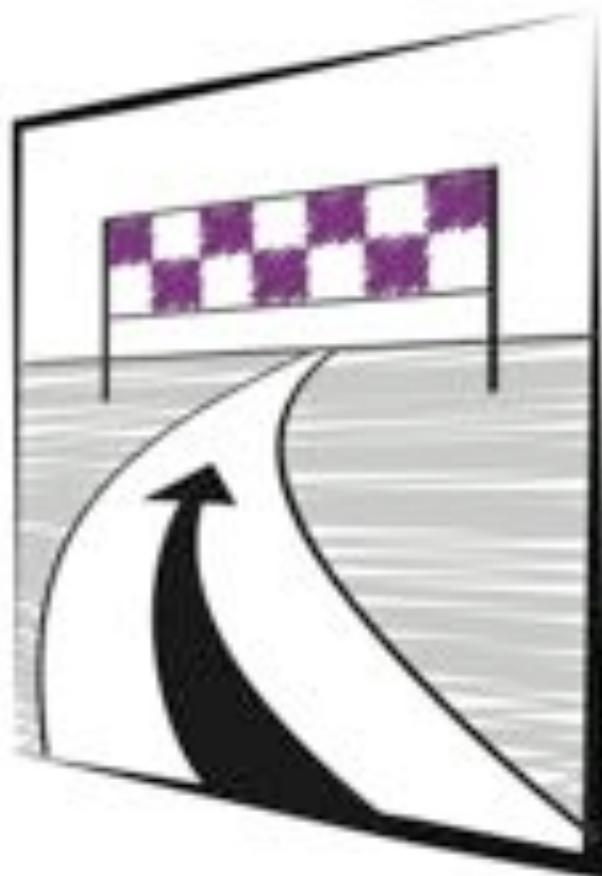




Sample Sprint Backlog in Redmine

Story	New	In Work	Impeded	Done
<p>(11 hours) 13100 Aspektre Screen-Design reviewen und überarbeiten, damit wir keine Lösung implementieren die besser bedienen kann, als der screen auf alle UIs dieses Releases verteilt haben EPic:</p>	<p>13101 ergebnisse zusammen und weiteren Schritte ermitteln done</p>			<p>13102 Screen Review und Nacharbeiten - done</p>
<p>(12 hours) 13131 Bugs aus Validierungen verständlich dokumentieren und priorisieren EPic:</p>	<p>13134 UI 606: Den Sozialen so formulieren, dass sich die done</p>	<p>13135 Tastatz in den Marginalien done</p>		
	<p>13179 UI: Summary in Instanzelementen sollte mit ... done</p>	<p>13180 N: Buttons sind nicht klar, wenn man eine "bullet" done</p>		
	<p>13181 Tastatz Wording und Dialog Wording weiterarbeiten done</p>	<p>13182 plus area plus an einer Farbe färbig machen done</p>		
	<p>13183 attachment tree mit icon im Text darstellen done</p>	<p>13185 relation tree container versch machen und prozessus nach done</p>		
	<p>13186 epicm tree: rechts rechnet doppelt done</p>	<p>13187 Drop auf ganze edit-box präsentieren done</p>		
	<p>13188 proposal-mode wenn ich einen Textabschnitt leer mache und done</p>			

A Sprint Goal summarizes what needs to be done in the Sprint.



- is a very strong practice
- helps everyone focus on the essence of what needs to be done

Event:
The Work
Daily Scrum

Artifact:
Sprint Burndown Graph
Product Increment

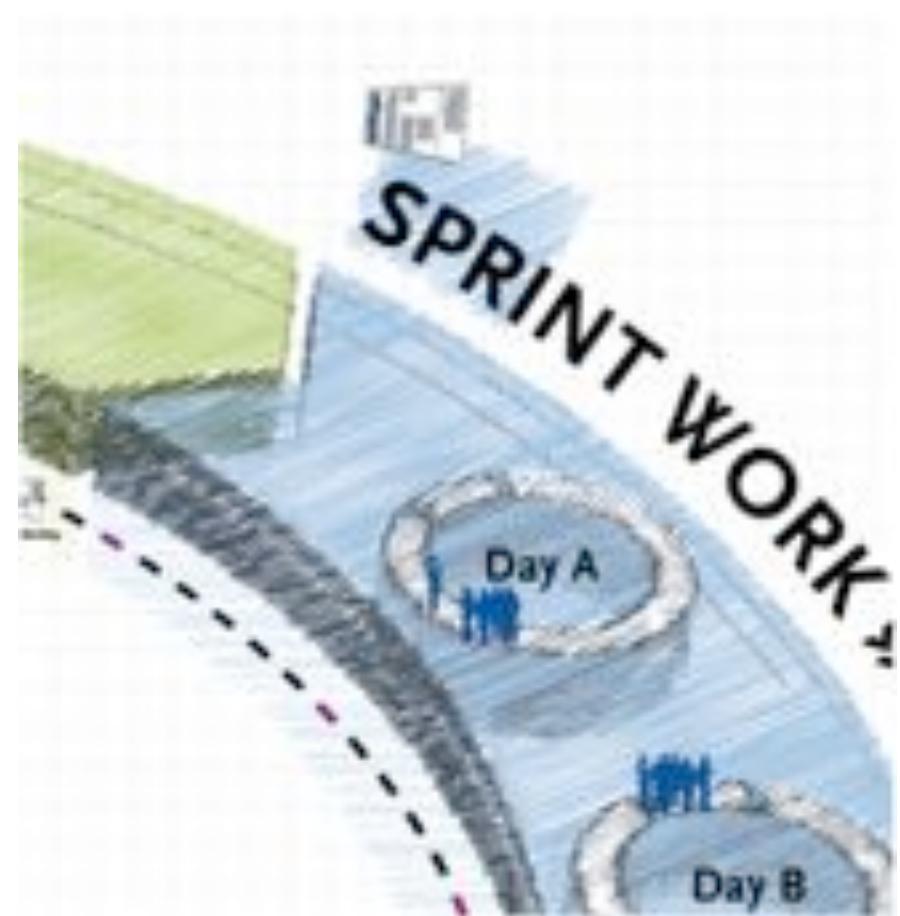
During the Sprint, the Development Team self-organizes to produce a Product Increment.

Development Team

- Works in accord with the Sprint Backlog, as determined during Sprint Planning.
- Produces the Product Increment in accord with all the organization's standards, according to the Definition of Done
- Self-Organizes how to go about that.

Product Owner

- Available to answer questions and clarify details



The Development Team uses the Daily Scrum to create transparency, ensure they are on track to Sprint Goal, and to plan the day.

- Same time and place every day.
Time-box 15 min.
Stand up.
- Reorganize the work on the Sprint Backlog as needed.
- Maintain the Sprint Burndown.
- No problem-solving during the Daily Scrum
 - » Brief clarifying questions and answers are o.k.
 - » Schedule anything else after the Daily Scrum
- Only the Scrum Team members speak during this meeting. Other interested parties can come and listen in.



During the Daily Scrum, every team member gives three bits of information.

1

What I accomplished since our last Daily Scrum ...

2

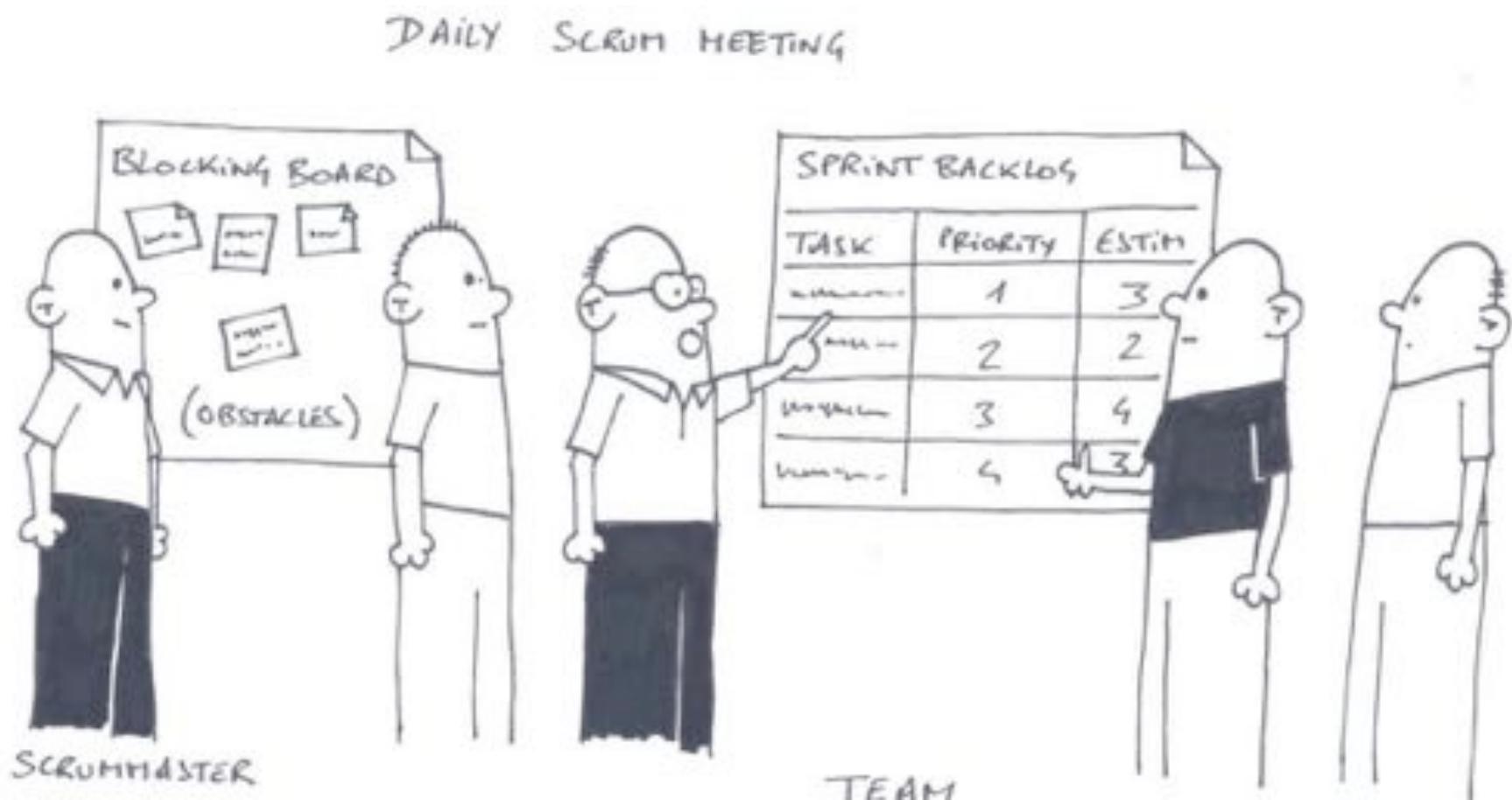
What I will accomplish till our next Daily Scrum ...

3

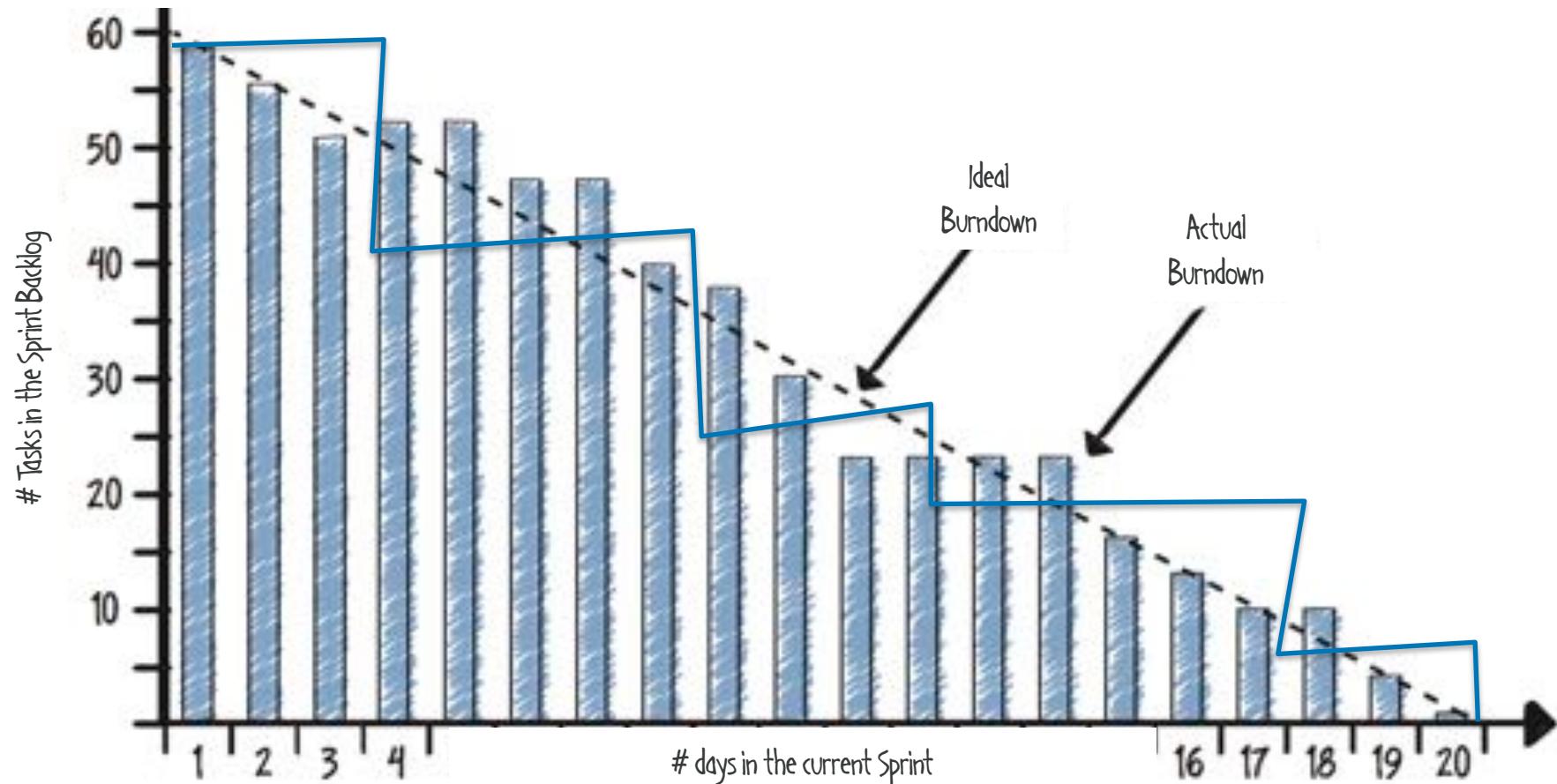
What is impeding my progress ...

No reporting to management, nor to Product Owner, nor to ScrumMaster.
This is a communication meeting within the Team.

The Daily Scrum synchronizes the team.

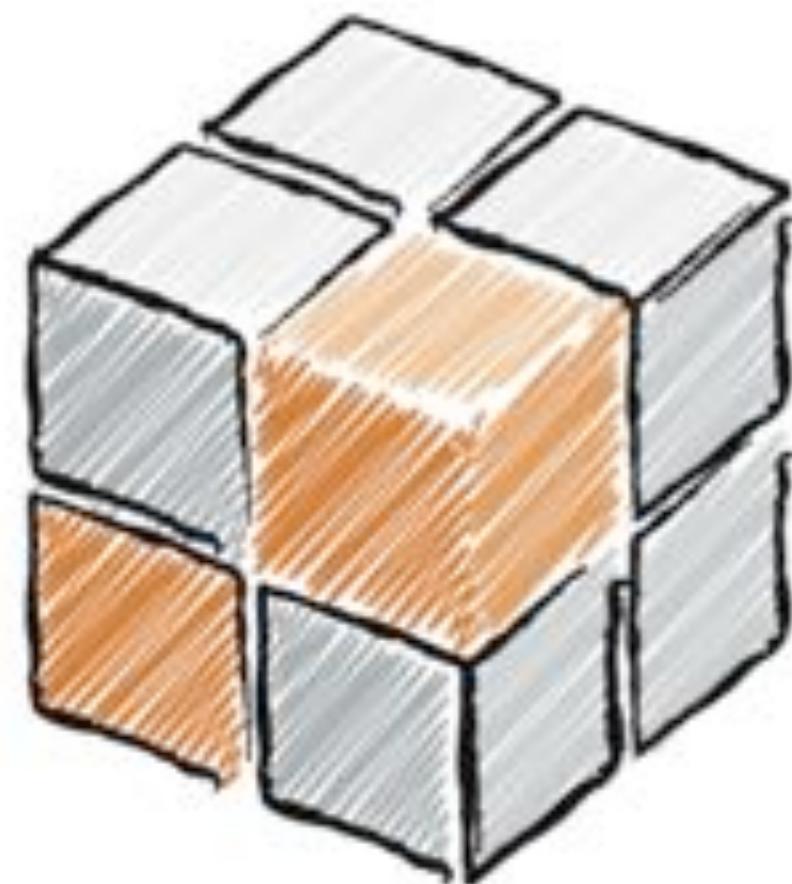


The Sprint Burndown is a technique to make the progress in a Sprint transparent.



Every Sprint produces a Product Increment.

- Most important Scrum artifact
- Product Increment is the sum of all Product backlog Items completed during this Sprint and all previous ones
- Must be of high enough quality to be given to users (potentially shippable).
- Must meet the current Definition of Done



Event:
Sprint Review
Artifact:
New ideas for the Product Backlog

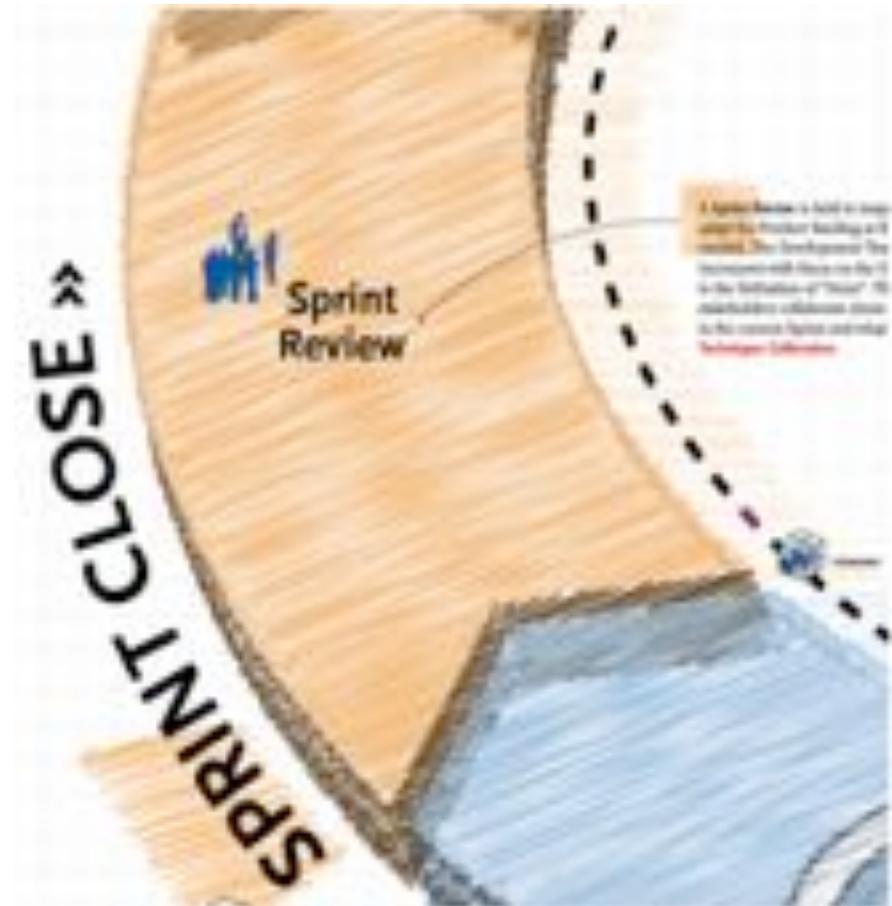
In the Sprint Review the Scrum Team and stakeholders review the output of the Sprint.

Informal meeting to look at where we are and to collaborate on how to go forward:

- Central point of discussion is the Product Increment.
- Product Owner is responsible
- Entire team participates
- Stakeholders and their input is necessary
- Result of the Sprint Review is input to Product Backlog Refinement
- Time-box is one hour per week of Sprint duration.

Hints:

- The Sprint Review focuses on presenting completed results.
- Only present what is "Done"
- The Product Owner should accept or deny the results within the Sprint.



Event:
Sprint Retrospective
Artifact:
Improvement Ideas

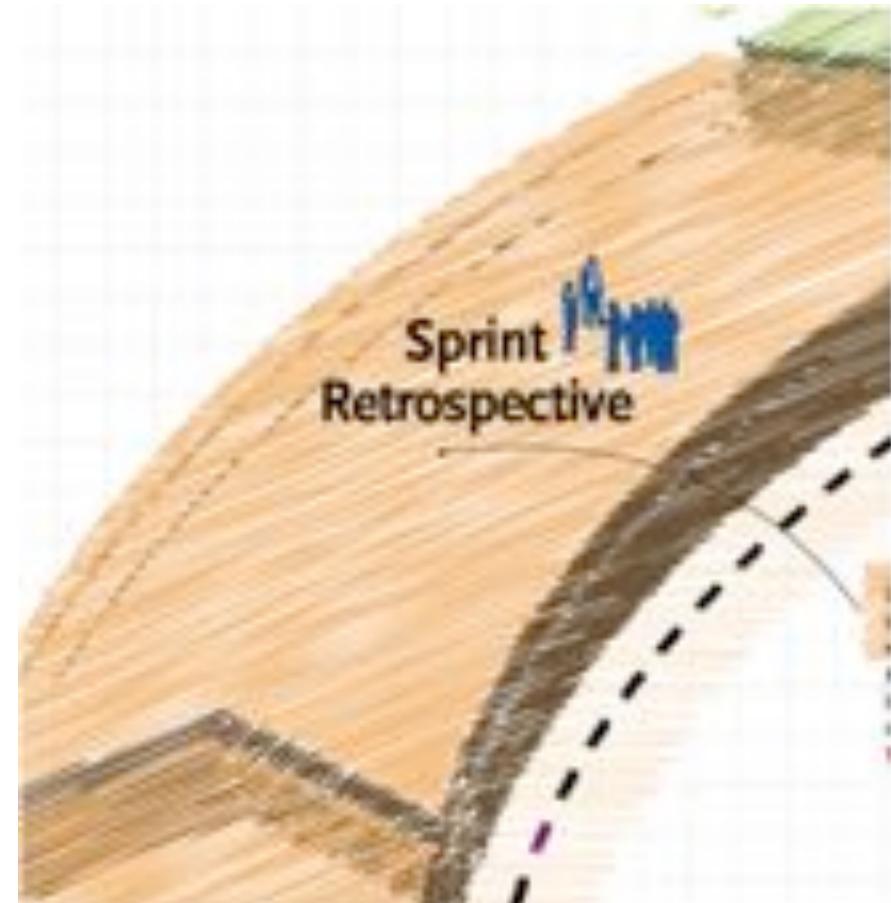
In the Sprint Retrospective the Scrum Team improves its own process.

All Scrum Team members participate.

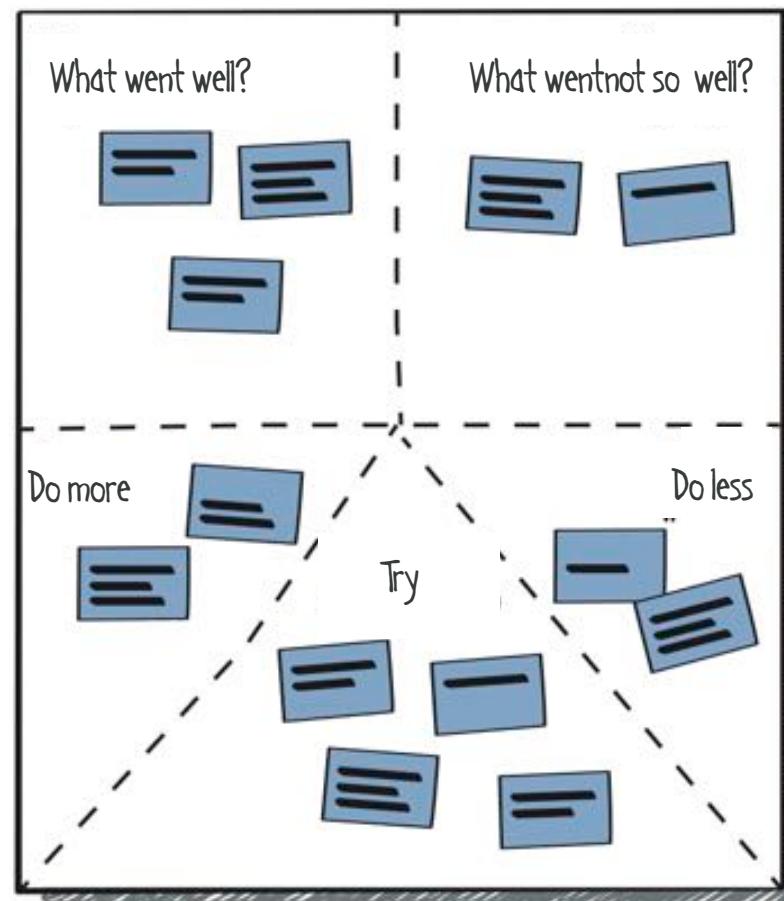
- Review how things went with respect to
 - » process
 - » relationships among people
 - » tools
- Identify what went well and not so well
- Identify potential improvements and come up with actions for improving things.
- The team decides if additional persons are invited to join the meeting

Time-box is one hour per week of Sprint duration.

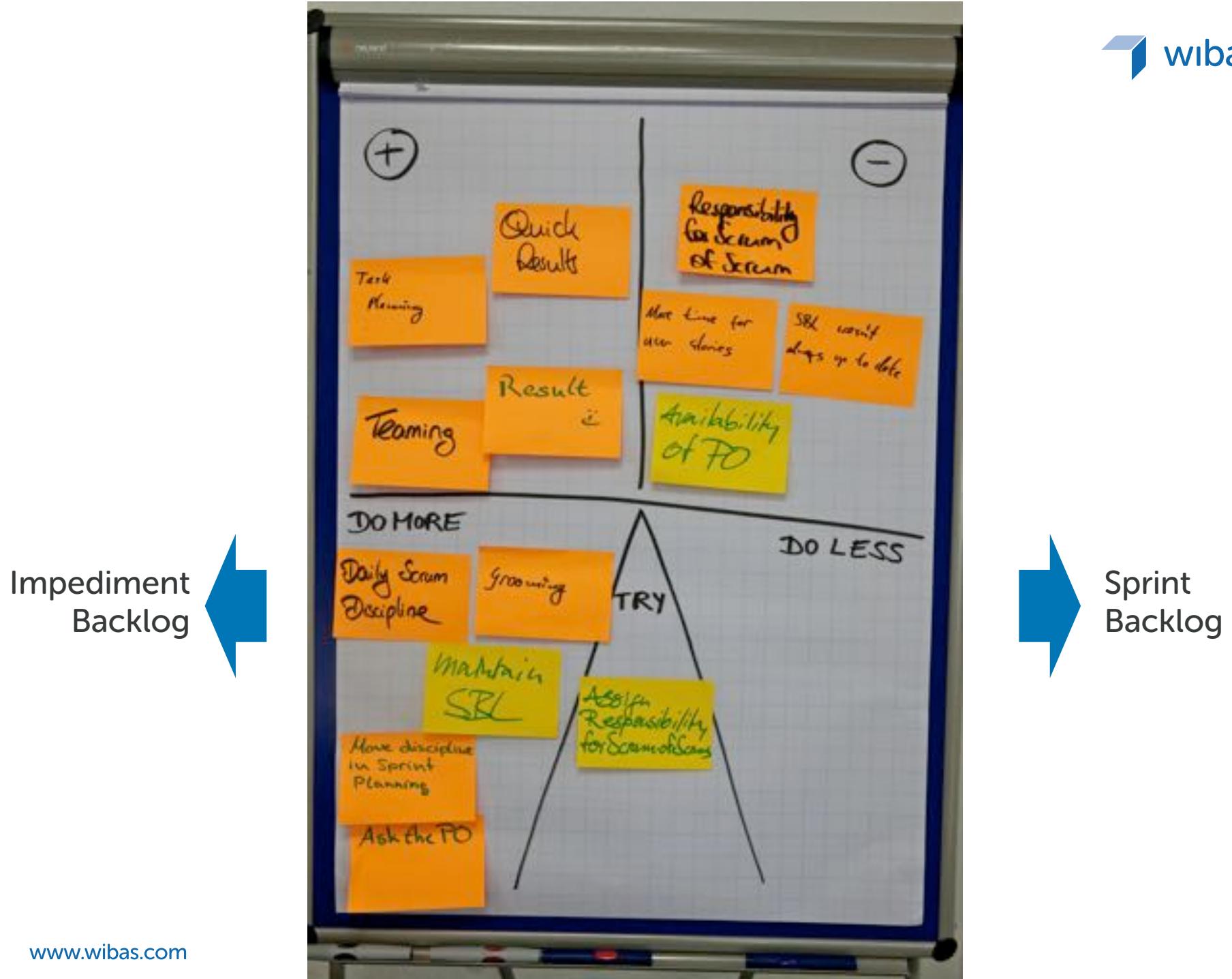
- Never skipped.
- Important is an open atmosphere, which enables participation from everybody



The “starfish board” is an effective technique to gather what happened, analyze it, and decide on actions.



For many more techniques how to do the five steps of a retrospective, see the website:
<http://plans-for-retrospectives.com>



Goal of the next two days:
Create a part of Lego City.

Setup:

- Decide in your team who is Product Owner and Scrum Master.



Exercise Step 4: Write your Definition of Done

Discuss the following questions at your table:

- What is the meaning of "Done" in building your part of the city with Lego?
- What quality criteria should the part of the city fulfil?

Write a Definition of Done for the next Sprint, in which you will build the part of the city with Lego.

Timebox: 10 minutes



Exercise Step 5: Estimate your Product Backlog items and prioritize it

- Everyone creates a set of the Planning Poker card deck
- The ScrumMaster moderate the estimation session.
 - » Follow the instructions slides for planning poker.
 - » Estimate at least 5 items of your Product Backlog
- Prioritize your Product backlog items from top (important) to bottom (less important)

Timebox: 10 min



Exercise Step 6: Do a complete Sprint

Timebox: 50 min

Process:

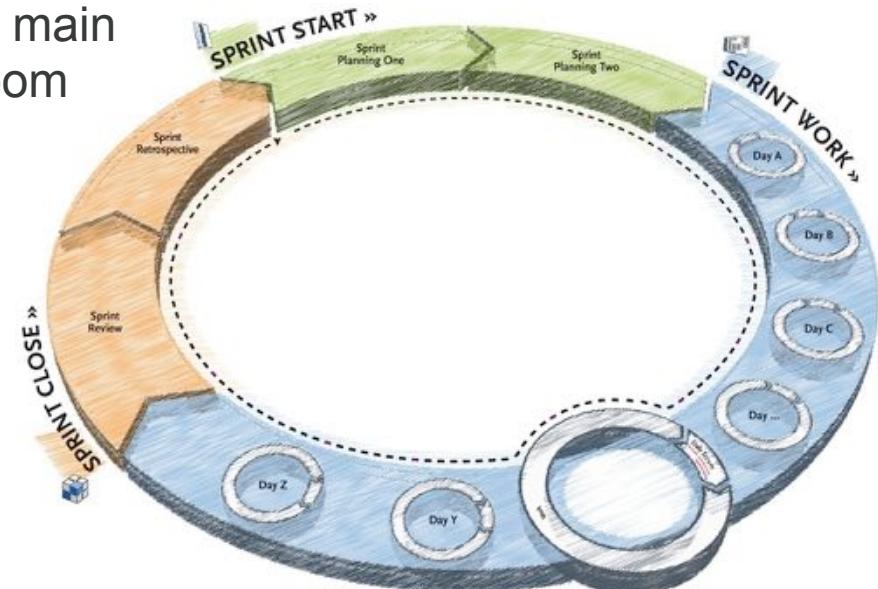
- Prepare your room (10 min)
 - Sprint Planning 1+2 (10 min)
 - Sprint with 3 days and Daily Scrum (3 x 10 min)
-
- Sprint Review (20 min)
 - Sprint Retrospective (10 min)

In your room

In main room

Roles:

- Scrum Master facilitates and ensures time boxes
- Team does the work
- Product Owner provides details for Product Backlog items



Revision History

Rev. #	Status	Date	Description	Responsible
0.1	Unfinished	02.12.2010	Initiale Erstellung	T. Foegen
1.0	Review	02.12.2010	Review, Beispiel Bilder ergänzt	M. Foegen
2.0	Finished	14.12.2010	Version for Equiarte	M. Foegen
2.1	Finished	14.12.2010	Added Retro Example	M. Foegen
2.2	Finished	21.01.2010	Updated for TUD	M. Foegen
3.0	Finished	12.01.2012	Updated with English slides and poster images	M. Foegen
4.0	Finished	8.1.2014	New material used	M. Foegen
4.1	Finished	18.01.2015	Updated and shortened, new exercises	M. Foegen

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