

Scrum

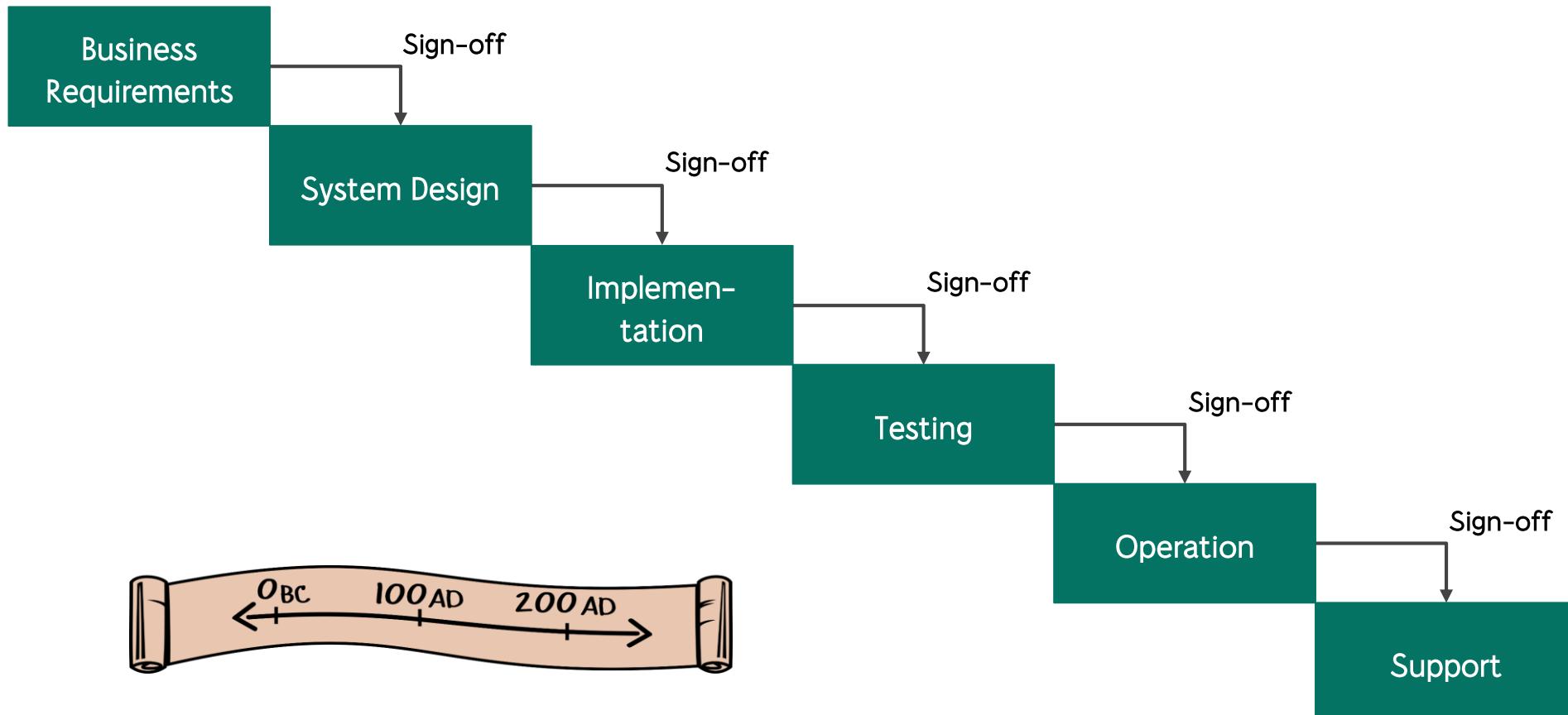
Prestudies

Let's put on a different
hat

Why Scrum?

Why Scrum?

Waterfall Projects vs. Agile Methods



Waterfall Pros and Cons

- **Pros of the waterfall method**

- Potential errors can be found in early phases (e.g. during system design instead of testing phase).
- Projects are well documented, as all artifacts are part of the sign-offs.
- It's a simple method, quickly understandable for newbies, and it can be planned and tracked easily.

- **Cons of this method**

- Knowledge about entire project re. product needs to be available from the very beginning.
- In design phase problems during implementation are unforeseen.
- Requirement changes can hardly be handled and they cost very much.
- This method has no cycle to improve the process.



Agile Methods



Agile Method Pros and Cons

- **Pros of the agile method**

- Working product from the very beginning on.
- Time-to-Market for deliverables is very fast and frequent.
- Close collaboration between business and development.
- Open for business changes at any time.
- Continuous improvement during entire lifecycle

- **Cons of the agile method**

- Often more complex to follow for newbies.
- Documentation is likely to be neglected due to the focus on a working product.
- Probability of badly implemented processes when weakening agile methods.



Definition of Scrum

A Scrum (short for Scrummage) is a method of restarting play in Rugby that involves players packing closely together with their heads down and attempting to gain possession of the ball.



Definition of Scrum

"A framework within which people can address complex **adaptive** problems, while productively and creatively delivering **products** of the highest possible value."



Definition of Scrum

Scrum is not a process or technique.
It is a **framework** that can be used for various
processes and techniques.



Definition of Scrum

Scrum consists of **Teams** and their associated
Roles, Events, Artifacts and Rules



Scrum is...

- Lightweight
- Simple to understand
- Difficult to master



Input from End-Users,
Customers, Team and
Other Stakeholders



Product Owner

1
2
3
4
5
6
7
8
9
10
11
12

FEATURES



Team Selects
How Much To
Commit To Do
By Sprint's End

Sprint Planning
Meeting
(Parts One and Two)



Sprint
Backlog

ScrumMaster

Product
Backlog
Refinement

Sprint
1-4 Weeks

No Changes
in Duration or Goal



Daily Scrum
Meeting and
Artifacts Update



Review



Potentially
Shippable Product
Increment



Retrospective

History of Scrum

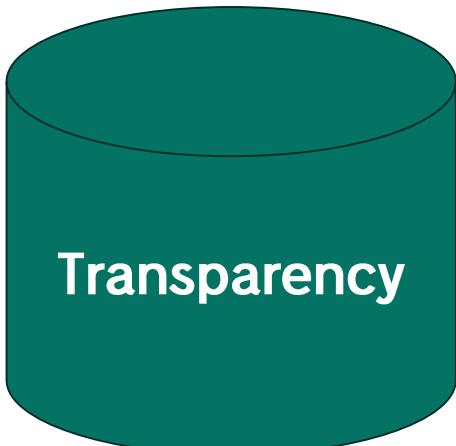
- **1986** – Hirotaka Takeuchi and Ikujiro Nonaka (Honda, Canon, Fuji-Xerox)
 - Co-Author of an article for Harvard Business Edition Review called “The New Product Development Game”.
 - This article was the revolution in changing the discipline of Project Management.
 - Team-based approach to all-at-once product development inspired from a Scrummage (Scrum) in Rugby.
- **1993** – Jeff Sutherland at Easel Corporation
 - Scrum process definition
 - for object-oriented development, empirical process control, and iterative and incremental approach.
- **1995** – Ken Schwabers' first paper on Scrum.
 - Since then, both Jeff and Ken have worked together.
 - First version of "The Scrum Guide" was published in 2011.

Scrum Theory

Scrum Theory

- Scrum is founded on **empirical** process control theory.
- Scrums' knowledge comes from **experience**.
- **Decisions** are based on what is known.

3 Pillars of Scrums' Empiricism



Transparency

- All aspects of the process must be **visible** to those responsible for the outcome **at any time**.
- A **common language** must be shared by all participants.
- Those doing the work must share a common "**Definition of Done**"



Transparency

- A well-defined **goal** is to be communicated (Sprint Goal).
- All Participants must frequently **inspect** the outcome (Scrum Artifacts) and process toward the goal to detect fallbacks.



Adaption

- If an inspector determines that the end product will be unacceptable, the process and development must be **adjusted**.
- It must be possible to **adapt** the end result during the project.



Scrum Events

In Scrum there are events that support **Transparency, Inspection and Adaptation:**

- Sprint Planning
- Daily Scrum
- Sprint Review
- Sprint Retrospective



Scrum Values



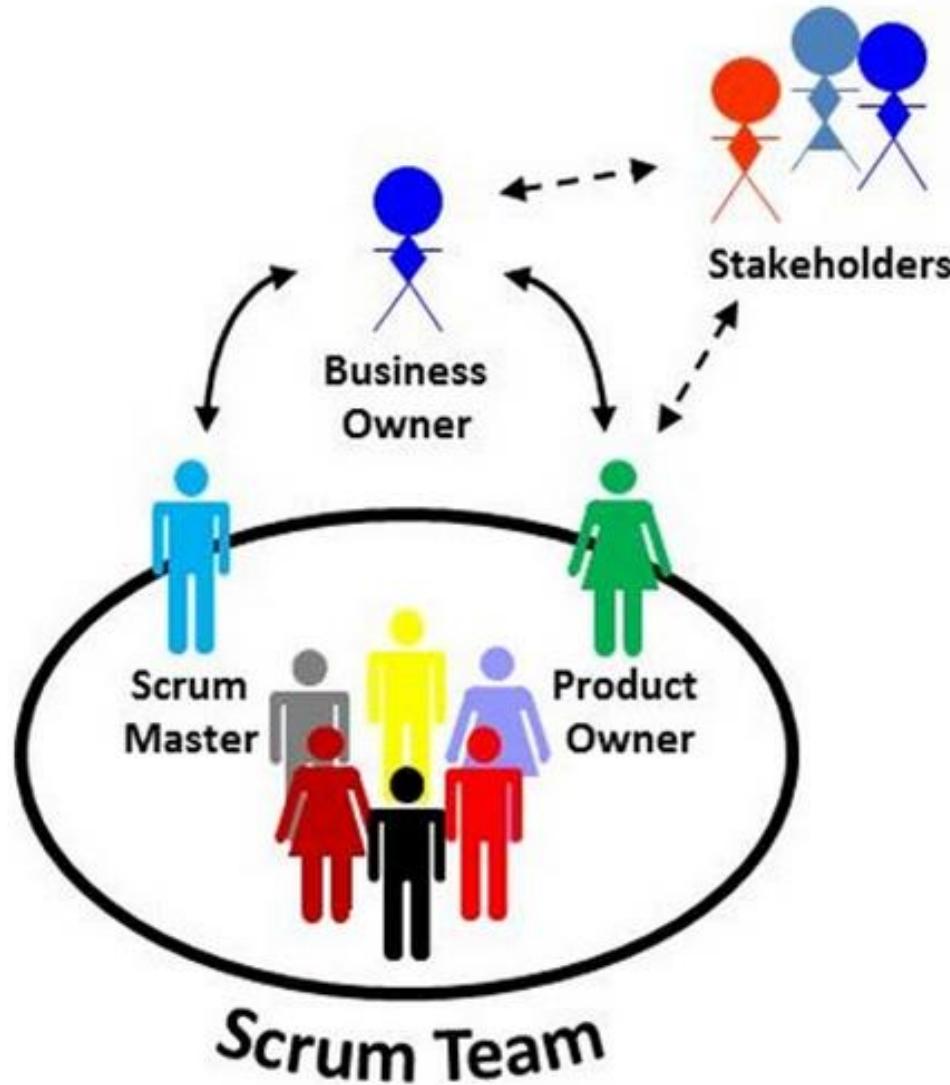
Scrum Brainwash

When Scrum Values are **embodied** and **lived** by the Scrum Team the 3 pillars Transparency, Inspection and Adoption become **alive** and they build up **trust** for everyone.



Scrum Team

Scrum Team



Scrum Team

- The Scrum Team consists of ...
 - Product Owner (1 full- or part-time person)
 - Development Team (3 to 9 full-time people)
 - Scrum Master (1 full- or part-time person)



Product Owner

Product Owner

The **Product Owner** is the sole person in charge for the items to be developed. **Responsibilities** are ...

- **Prioritize** all items to be developed in an **ordered list**.
- Ensure the ordered item list is **visible** and **clear** to everyone

The **Product Owner** is always **one** person.

- The Product Owner might delegate work to the developers, but is still **accountable** for the outcome.
- The developers **act on** the ordered list from the Product Owner – nothing else.



Development Team

Development Team

A Development Team ...

- ... consists of **professionals** who work on **delivering** potentially releasable increments at the end of a time-box.
- ... is **self-organized**: No one (literally no one) tells the Development Team **how to** turn the ordered items into releasable functionality.
- ... is **cross-functional**: Development Team members have all skills **as a team** needed to create the outcome.



Development Team

There is only one role in a Development Team

Developer

Individual team members may have specialized skills, but accountability **belong to the Development Team** as a whole.



Development Team

- Optimal team size is **3 to 9** developers.
- Fewer than 3 **decrease** interaction and result in smaller productivity gains.
- More than 9 members generate too much **complexity**.
- No other **role** is counted in the team.



Scrum Master

Scrum Master

The Scrum Master ...

- ... is responsible for **ensuring** that Scrum is **understood** and **enacted**.
- ... makes sure the team **adheres** to Scrum Theory and its practices and rules.
- ... is the **leading servant** for the Scrum Team.
- ... helps those **outside** the team **understanding** Scrum and its **values**.



Scrum Master

Service to the Product Owner

- Finding techniques for **efficient** Product Backlog (ordered item list) management.
- Helping to understand the need for **concise** and **clear** Product Backlog items.
- Ensuring knowledge of how to **arrange** the Product Backlog to maximize value.



Scrum Master

Service to the Development Team

- Coaching in **self-organization** and **cross-functionality**.
- Removing **impediments** to ensure teams' progress.
- Facilitating **events** as requested or needed.
- Implementing Scrum in organizational **environments** in which the method is rather new and inexperienced.



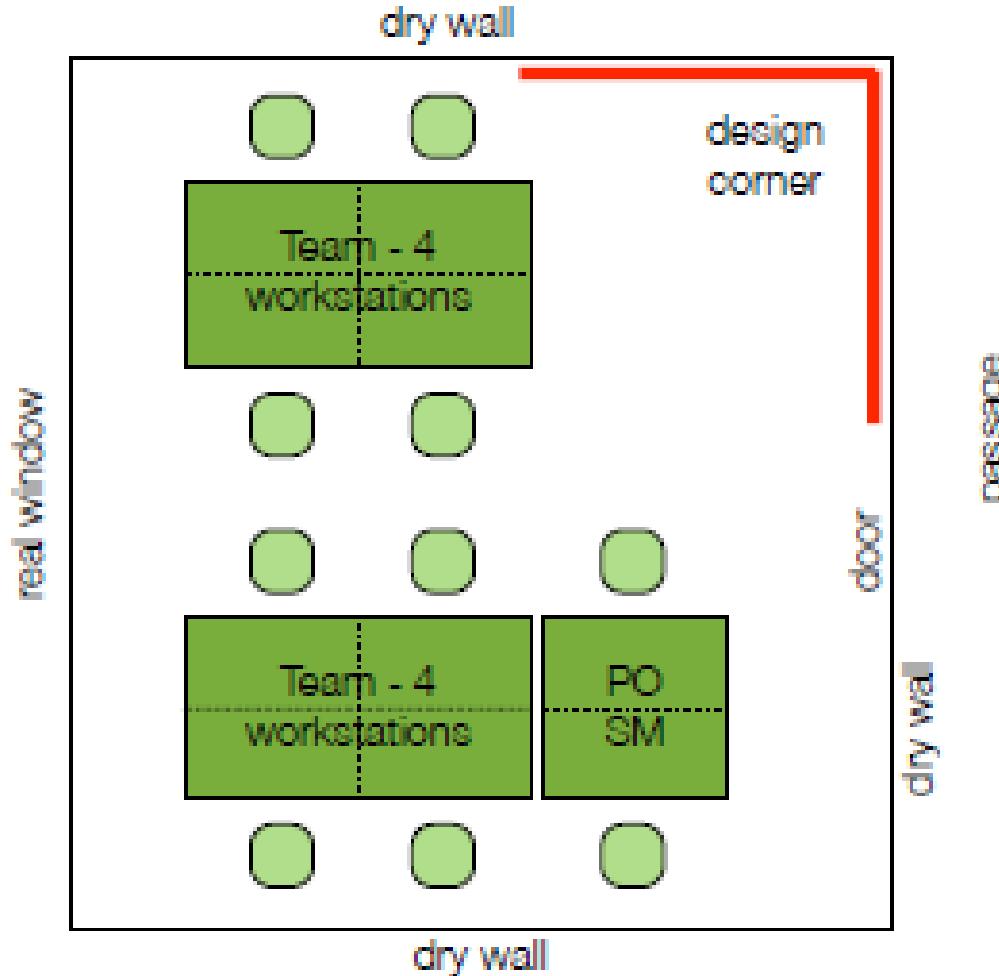
Scrum Master

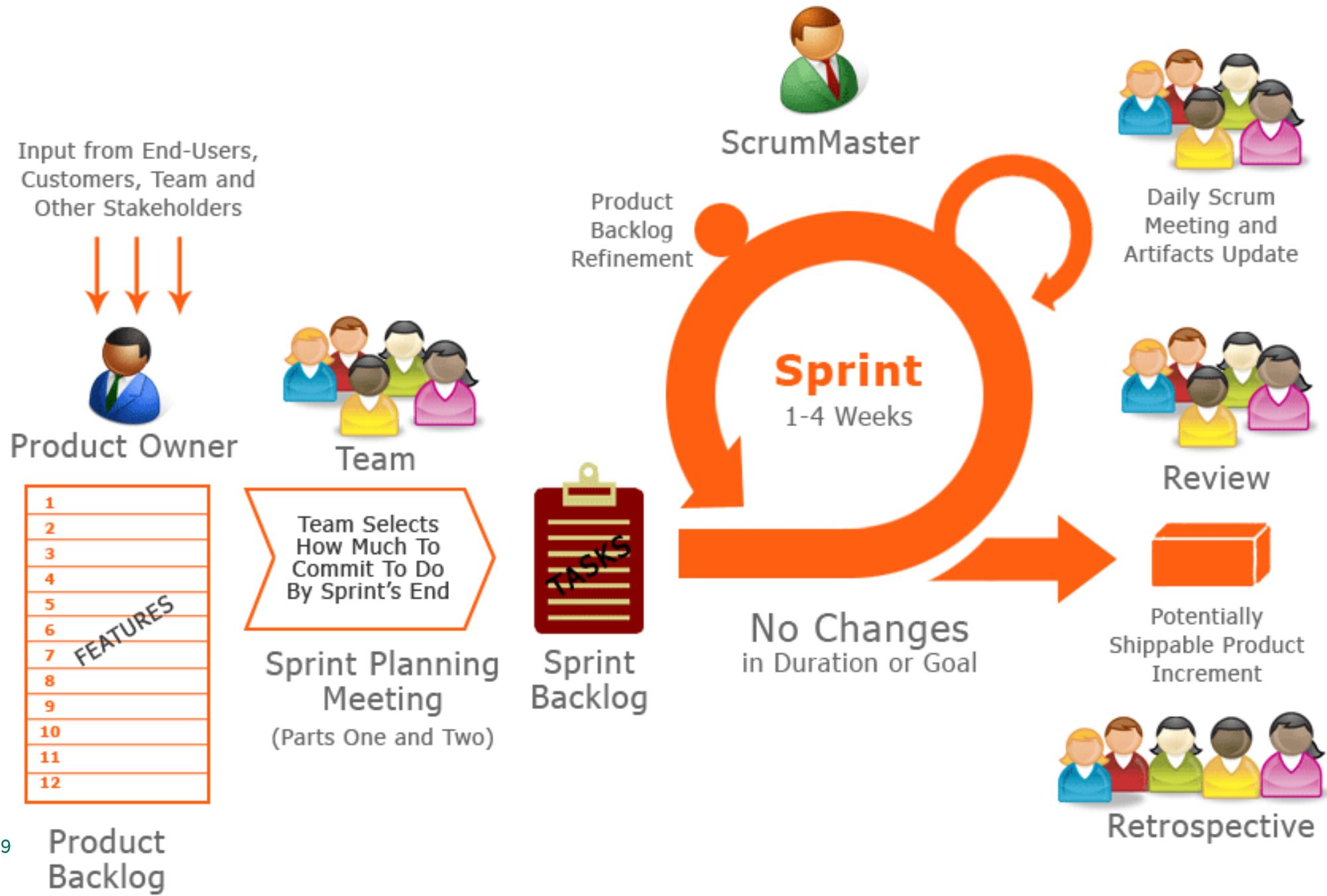
Service to the Organization

- Leading and coaching organizations in implementing or adopting Scrum.
- Planning and preparation Scrum implementations in organizations.
- Working with other Scrum Masters to increase efficiency of Scrum in organizations.



Example of a workplace according to Scrum





Scrum Theory and Team Quiz

- Scrum is founded on _____ theory.
- Which are the three pillars that form the theory?
- What are the roles in a Scrum Team?
- What is recommended size of a Development Team?
- Which artifact is the Product Owner's main responsibility?

Scrum Events

Scrum Events

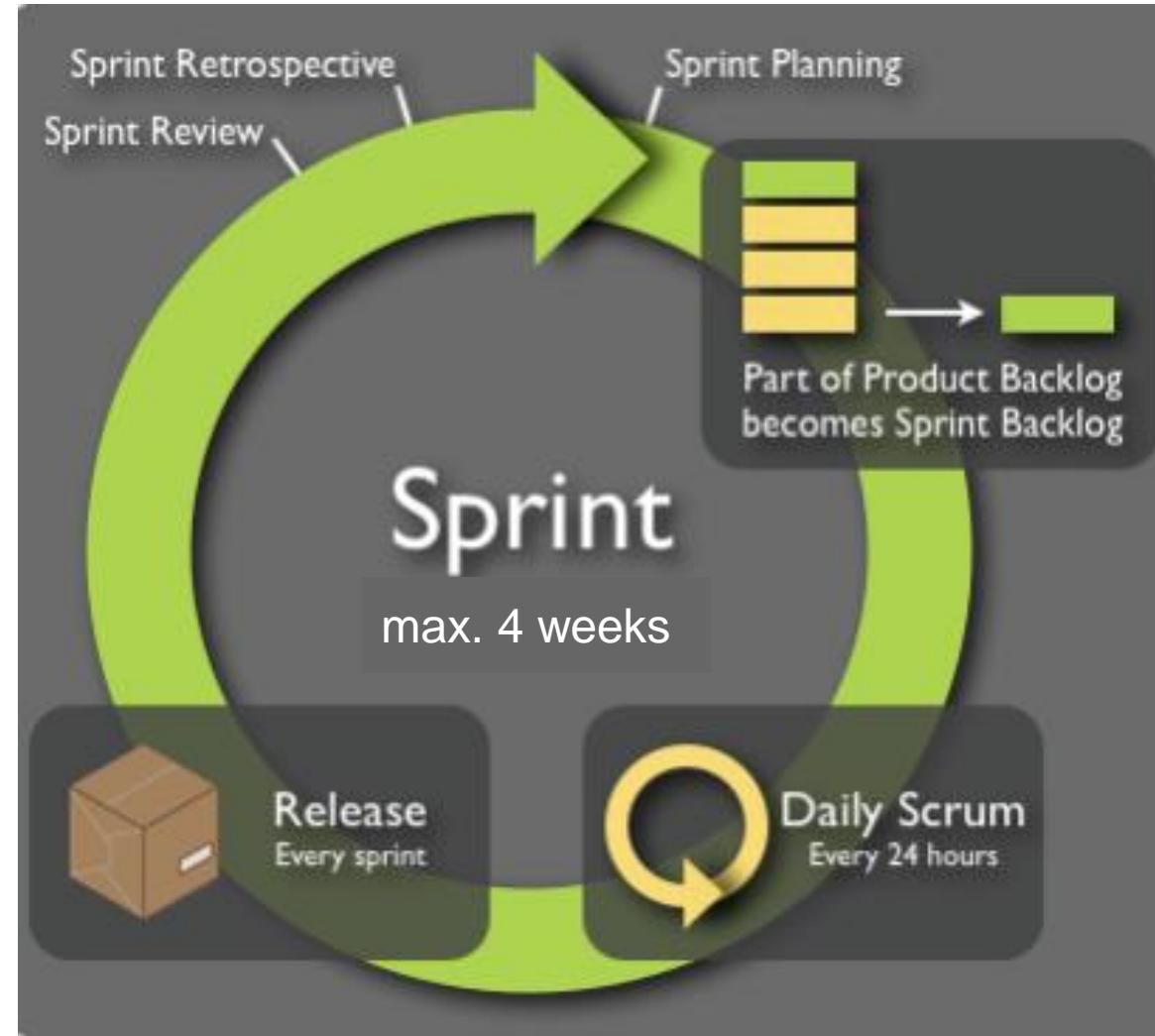
- Prescribed events are used to create **regularity**. ⇒ Avoid unnecessary meetings.
- All events are **time-boxed**. ⇒ Every event has a maximum duration.
- Once development starts, its **duration** is **fixed**. ⇒ It cannot be shortened or lengthened.
- Remaining events **end** when the purposes are **achieved**.
- Each event is a formal **opportunity** to inspect and adapt **improvements**.

The Sprint

The Sprint



The Sprint



The Sprint

- ... is the **heart** of Scrum.
- ... is **time-boxed** for a maximum of **4 weeks**.
- ... creates a “done” **Increment**, which is a usable and potentially releasable product.
- ... starts immediately after the **conclusion** of the previous one.
- ... includes a **Sprint Planning**, **Daily Scrum**, **Development Work** and **Sprint Retrospective**.
- ... is **immutable** to avoid endangering of the **Sprint Goal**.
- ... allows to clarify and **renegotiate** the scope between **Product Owner** and **Development Team**.

The Sprint

- Each **Sprint** may be considered as a **project** with a maximum of a **one-month** horizon.
- Like usual projects, Sprints are used to **accomplish** something.
- Each **Sprint** has a **goal** of what is to be built.

Cancelling a Sprint

- Product Owner only has the authority to **cancel** a Sprint.
- A Sprint can be **cancelled** ...
 - before the time-box is **over**.
 - if the Sprint Goal becomes **obsolete** (e.g. a company changes direction, market/technology change).
- Due to the short time-box of a Sprint, cancellations **rarely** make sense (very uncommon).
- All **completed** (done) items are **reviewed**.
- All **incomplete** Sprint Backlog items are re-estimated and **put back** into the Product Backlog.

Sprint Planning

Sprint Planning

- The work to be **performed** is planned in the **Sprint Planning**.
- It is a **collaboration** by the entire Scrum Team.
- **Time-boxed** to a maximum of **8 hours** for a one-month Sprint.
- For shorter Sprints, the **Sprint Planning** is usually **shorter**.
- The **Scrum Master ensures** that the event **takes place** and all attendees understand its **purpose**.
- The **Scrum Master teaches** the Scrum Team to keep it within the **time-box**.



Sprint Planning Topics

Topic one: *What can be done in this Sprint?*

- Development Team creates a **forecast** of Product Backlog items to **deliver** in the Sprint.
- They can **collaborate** with the Product Owner if needed.
- Only the **Development Team** can **assess** what it can **accomplish** by the upcoming Sprint.
- After the forecast, the Scrum Team **crafts** a Sprint Goal.



Sprint Planning Topics

Topic two: *How will the chosen work get done?*

- It's **up to** the Development Team how items are developed.
- At the end of the Sprint Planning the Development Team is able to **explain** how it
 - intends to work as a self-organized team.
 - accomplishes the Sprint Goal to create the Increment.
- Chosen items are **divided** into smaller **tasks** which helps tackling the work.
- The **plan** which items (tasks) to **deliver** is the Sprint Backlog.



Sprint Planning Input and Output

Sprint Planning Inputs are ...

- **Product Backlog** (ordered by Product Owner).
- The latest product **Increment** (if existing).
- Projected **capacity** of the Development Team available for the Sprint.
- Past **performance** of the Development Team (e.g. completed tasks per Sprint).



Sprint Planning Input and Output

Sprint Planning Outputs are ...

- the **Sprint Goal**.
- the **Sprint Backlog** which is
 - a complete (or incomplete) plan of **what** a Sprint will deliver.
 - a detailed plan of **how** to turn items into a “done” product **Increment**.
 - a description of how to **realize** the Sprint Goal.



Sprint Goal

The Sprint Goal ...

- ... is an **objective** set for a Sprint that can be **met** by the implementation of items from **Sprint Backlog**.
- ... provides the **Development Team** with guidance of **why** it is building the **Increments**.
- ... is an **outcome** of the **Sprint Planning**.



Daily Scrum

Daily Scrum



Daily Scrum

A Daily Scrum ...

- ... is a **15 Minute time-boxed** event for the Development Team for the next 24 hours to
 - **sync** activities amongst team members.
 - create a plan how to **proceed**.
- ... is a developer **explains** meeting:
 - “What **have I done** last 24 hours that helps the Development Team meeting the Sprint Goal?”
 - “What **will I do** next 24 hours to help Development Team to meet the Sprint Goal?”
 - “What **impediments do I face** that prevent me from meeting the Sprint Goals?”



Daily Scrum

Daily Scrum **rules** are:

- **Development Team** members often meet afterwards for detailed discussions, adoption or re-planning the Sprint.
- The **Scrum Master** ensures the meeting takes place.
- The **Development Team** is conducting the **Daily Scrum**.
- The **Scrum Master** enforces that only Development Team members participate the Daily Scrum.



Scaled Scrum

Scaled Scrum

Scaled Scrum ...

- ... is a project consisting of **multiple** Scrum teams.
- ... usually has an extra meeting **after** the Daily Scrum called "**Scrum of Scrums**".
A representative of each Development Team attends the Scrum of Scrums and synchronizes team activities.
- The 3 Daily Scrum questions plus "**What dependencies do the teams face?**" are answered.



Sprint Review

Sprint Review

A **Sprint Review** takes place at the end of a Sprint and ...

- ... it is a **4 hour time-boxed meeting for one month** Sprints. For shorter Sprints it's usually shorter.
- ... it is an **informal meeting between all (!)** stakeholders.

A **Sprint Review** is ...

- ... for **collaborating** what was done in the Sprint (all stakeholders).
- ... about **inspecting** the Increment and **adopting** the Product Backlog (if needed).

→ Result is a **revised** Product Backlog for next Sprints.



Sprint Retrospective

Sprint Retrospective

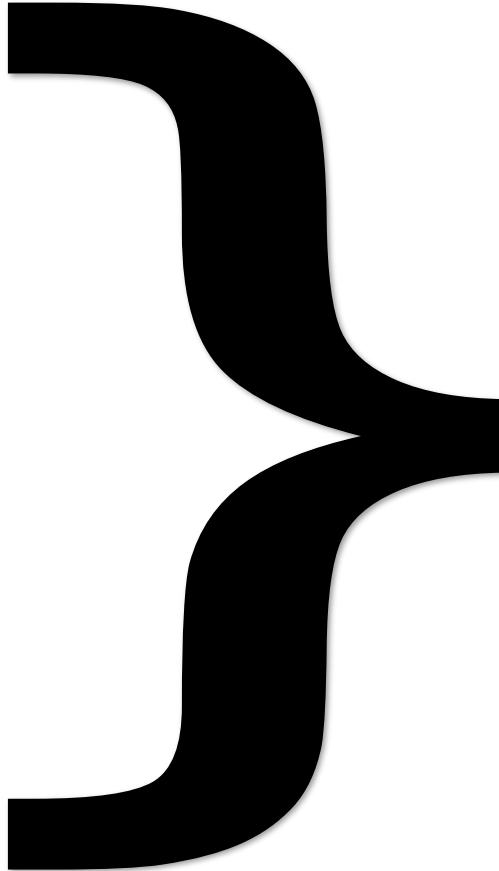
Take a look **back** at the work
that **has** taken place.

Sprint Retrospective

What went well?

**What could have
been better?**

**Improve next
Sprint**



Sprint Retrospective

The internal Sprint Retrospective ...

- ... is an opportunity for the Scrum Team to **inspect** the work and **adopt** improvements for the next Sprint.
 - ... occurs **after** Sprint Review and **prior** to the next Sprint Planning event.
 - ... is a **3** hour **time-boxed** meeting for **one-month** Sprints (usually shorter for shorter Sprints).
- The Scrum Master participates as a peer team member for **accountability** over the Scrum **process**.

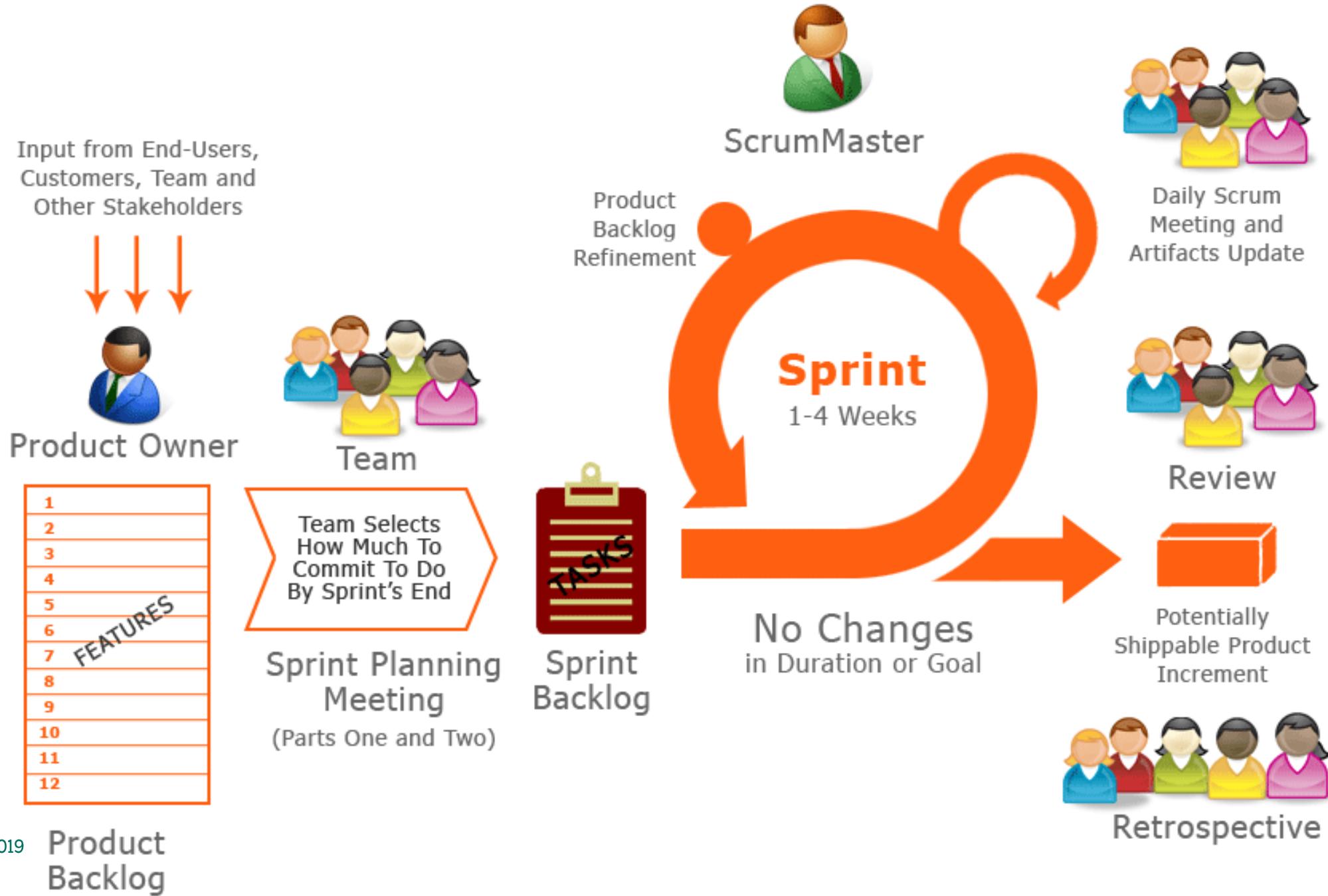


Sprint Retrospective

The **purpose** of the Sprint Retrospective is to ...

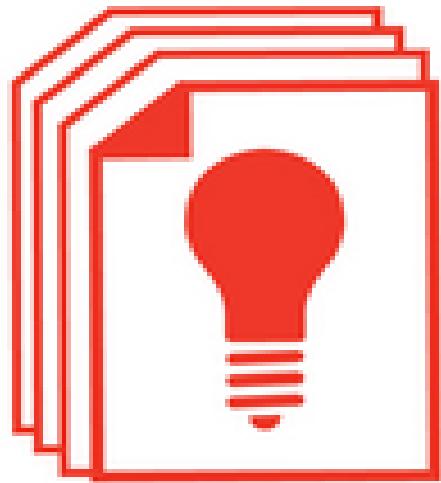
- ... **inspect** how the last Sprint went with regards to people, relationships, processes and tools.
- ... **identify** and order the major items that went well and that are for potential improvement.
- ... **create** a plan for implementing improvements to the way the Scrum Team does its work.



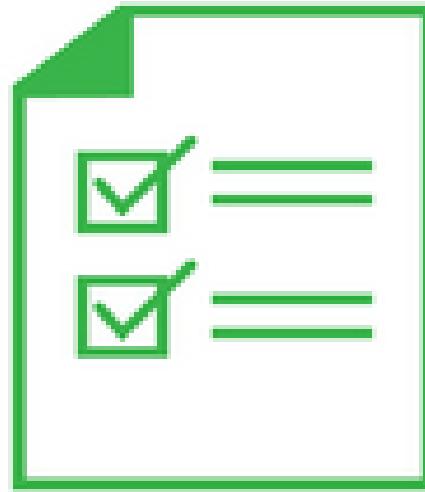


Scrum Artifacts

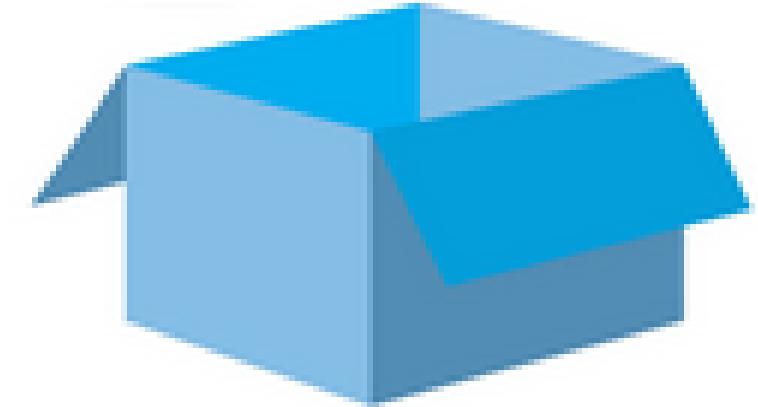
Scrum Artifacts



PRODUCT BACKLOG



SPRINT BACKLOG



POTENTIALLY SHIPABLE
PRODUCT INCREMENT

Product Backlog

Product Backlog

A Product Backlog ...

- ... is the **single source of requirements**.
- ... is an ordered list of **everything** that **might** be needed in the product.
- ... contains **features, functions, requirements, enhancements** and many more from which future releases are consist of.
- ... has items with attributes like **description, order, estimate** and **value**.

The Product Backlog ...

- ... has the **Product Owner** as the single **responsible** person for its content, availability and order.
- ... 's earliest version only lays out initially known and **best-understood** requirements.

A Product Backlog is
never complete.

Structure of a Product Backlog



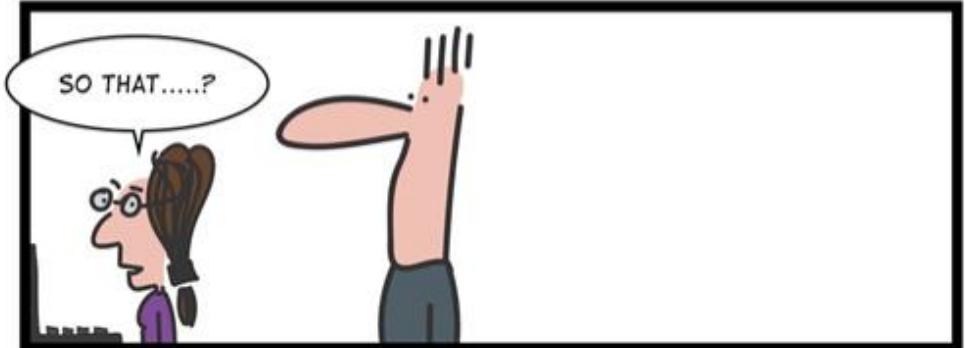
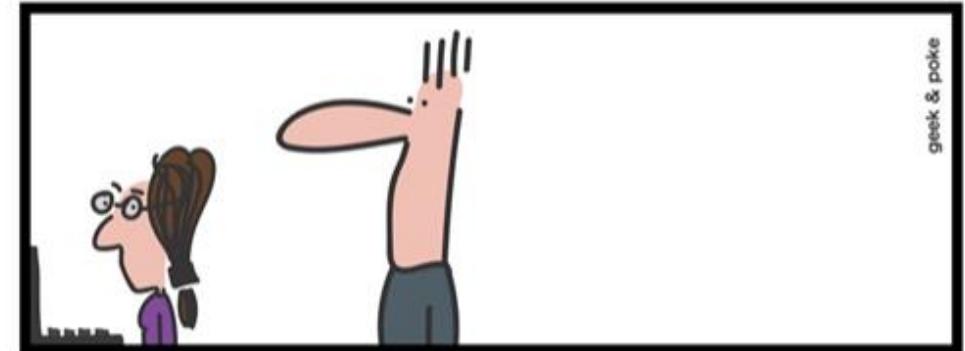
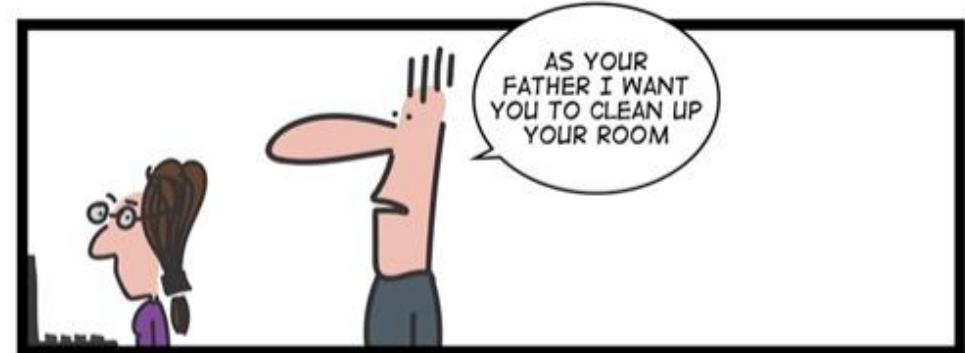
Item → User Story

Task → To Do

Product Backlog

Make sure your **User Story** is **correctly phrased**.

AGILE FAMILIES



Userstory Phrase

As a < type of user >, I want < some goal > so that < some reason >.

Als <Rolle> möchte ich <Ziel/Wunsch>, um <Nutzen>.

Sprint Backlog

The Sprint Backlog ...

- ... is a **subset** of Product Backlog items **selected** for the current Sprint.
- ... is the **forecast** by Development Team of what functionality will be delivered in **next** Increment.
- ... is the detailed **plan** of what work needed to deliver the functionality into a “**Done**” Increment



Sprint Backlog

The Sprint Backlog makes all of the work **visible** that the Development Team identifies as necessary to **meet** the Sprint Goal.

It is highly **visible** to everyone.

Sprint Backlog

The Sprint Backlog ...

- ... is **modified** by **Development Team** throughout the Sprint, and the Sprint Backlog emerges during the Sprint.
- If **new work** is required, the **Development Team** adds it to the Sprint Backlog.
- When work is performed or **completed**, the estimated remaining work is **updated**.



Sprint Backlog

**Only the Development Team can
change its Sprint Backlog during a Sprint**

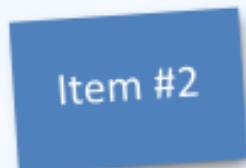
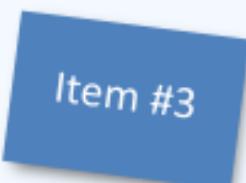
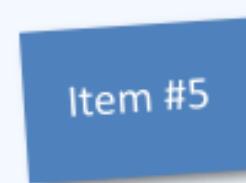
Monitoring Sprint Progress

To monitor the Sprint progress, ...

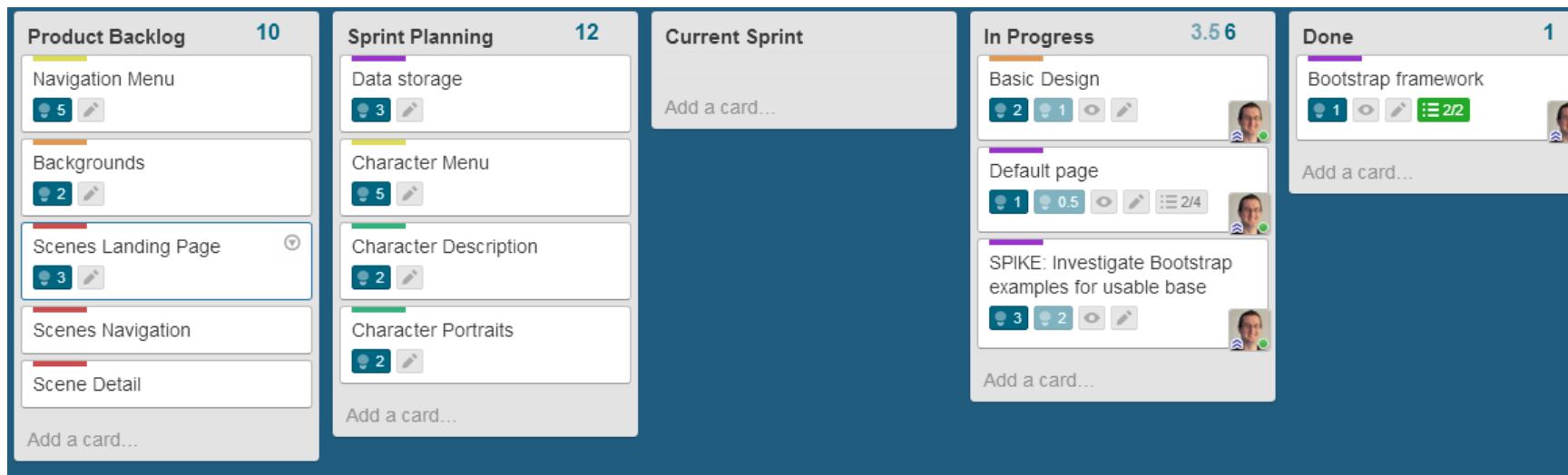
- ... **remaining** work of the **Sprint Backlog** can be summed up at any time.
- ... the **Development Team** can **manage** its own **progress** at any time.



Scrum Board

Sprint Goal	To Do	Doing	Done
The goal of this sprint is To make the purchasing part of the website mature enough to be able to handle the whole process and users can experience a full purchasing process, through which other functionalities of the website will be more meaningful.			
	 	 	
	 		
	 		
	 		

Monitoring Sprint Progress



Monitoring Sprint Progress

The screenshot shows a Kanban board interface for the "meistertask" project, specifically for the "Produkt Launch" sprint. The board is divided into four main columns: "Offen" (5 tasks), "In Bearbeitung" (6 tasks), "Abnahme" (5 tasks), and "Abgeschlossen" (4 tasks). A fifth column, "Ideen" (Ideas), is shown on the right but contains no visible tasks.

Offen (5 tasks):

- Tablet Verbesserungen
- Datumsformatierung
- App-Einstellungen verbessern
- Projekt-teilen-Link
- Administrations Oberfläche

In Bearbeitung (6 tasks):

- Viewer für Dateianhänge
- Integrationen auf Homepage
- *Projekt duplizieren* Option
- Archivlayout
- Benutzerdefinierte Scrollbars für Windows-Benutzer
- Homepage Optimierung

Abnahme (5 tasks):

- Dashboard 2.0
- Willkommen-E-Mails
- Angepasste UI Optionen
- Task-Beziehungen
- Homepage Optimierung

Abgeschlossen (4 tasks):

- Push-Benachrichtigungen
- Automatische Updates von MindMeister
- Tasks verschieben
- *Projekt-löschen*-Option

Ideen (0 tasks):

No tasks to display. Click + to add new.

On the right side, there is a sidebar with user profiles and counts: Raphaela (9), Unassigned (7), Laura (2), Silviu (1), and Oliver H. (1). The "Unassigned" category has a question mark icon above it.

Monitoring Sprint Progress



The screenshot shows the Atlassian JIRA Board view for the "Teams in Space" project. The board is divided into four columns representing different stages of development: TO DO, IN PROGRESS, CODE REVIEW, and DONE. Each column contains several tasks, each with a brief description, assignee, and status indicators (checkmarks, arrows, and numbers).

Column	Task Description	Assignee	Status
TO DO	Engage Jupiter Express for outer solar system travel	SPACE TRAVEL PARTNERS	5
	Create 90 day plans for all departments in the Mars Office	LOCAL MARS OFFICE	9
	Engage Saturn's Rings Resort as a preferred provider	SPACE TRAVEL PARTNERS	3
	Enable Speedy SpaceCraft as the preferred	LOCAL MARS OFFICE	1
IN PROGRESS	Requesting available flights is now taking > 5 seconds	SEESPACEZ PLUS	3
	Engage Saturn Shuttle Lines for group tours	SPACE TRAVEL PARTNERS	4
	Establish a catering vendor to provide meal service	LOCAL MARS OFFICE	4
	Engage Saturn Shuttle Lines for group tours	SPACE TRAVEL PARTNERS	1
CODE REVIEW	Register with the Mars Ministry of Revenue	LOCAL MARS OFFICE	3
	Draft network plan for Mars Office	LOCAL MARS OFFICE	3
	Engage JetShuttle SpaceWays for travel	SPACE TRAVEL PARTNERS	5
	Establish a catering vendor to provide meal service	LOCAL MARS OFFICE	1
DONE	Homepage footer uses an inline style - should use a class	LARGE TEAM SUPPORT	68
	Engage JetShuttle SpaceWays for travel	SPACE TRAVEL PARTNERS	23
	Establish a catering vendor to provide meal service	LOCAL MARS OFFICE	15
	Engage Saturn Shuttle Lines for group tours	SPACE TRAVEL PARTNERS	1

Burn Down

Burn Down Graph



Velocity

- Velocity is a measure of the amount of work a Team can tackle during a single Sprint and is the key metric in Scrum. Velocity is calculated at the end of the Sprint by totaling the Points for all fully completed User Stories.



Monitoring Sprint Progress

Burndown for "Test Sprint 15.8.2008"

Please define the duration of Sprint

Start Date: 2008-07-28 00:00:00

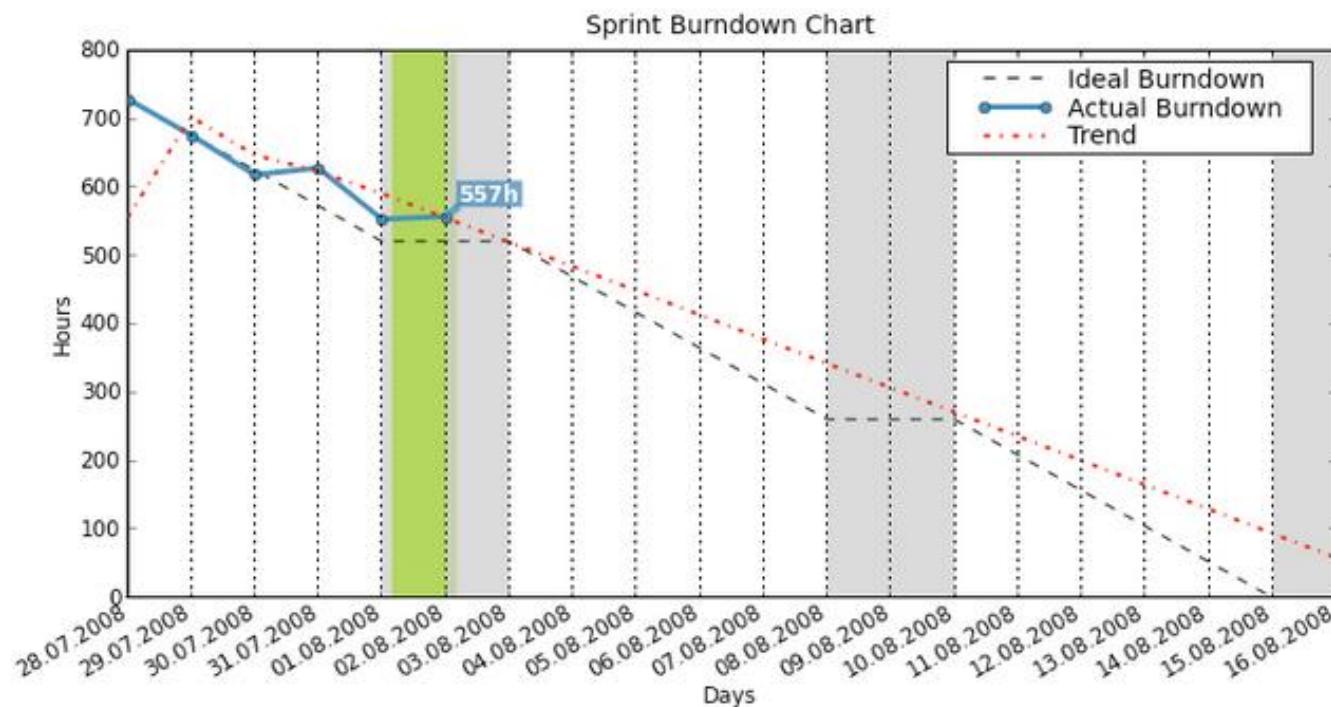
End Date: 2008-08-16 16:04:20

Duration: calendar days , 15 working days

[Change](#)

The **Burndown Chart** in Agilo gives you the actual status of the Sprint.

The team has a real time perception on what is going on, and it can react fast.



Increment

Increment

The Increment ...

- ... is the **sum** of all the **Product Backlog** items completed during all Sprints so far.
- ... must **contain only “Done” items**, which means it is in **usable condition** and meets “**Definition of Done**”.
- ... must be in **useable condition regardless if the Product Owner decides to actually release it or not.**



Definition of Done

Definition Of Done

- It is tremendously important to agree on a “**Definition of Done**” at the beginning of the project.
- Items that **miss** this definition are **excluded** from the **Increment** and will never be demonstrated to the customer at the Sprint Review.
- “**Not done**” items are **returned** to the Product Backlog and are **re-estimated** and **re-prioritised**.

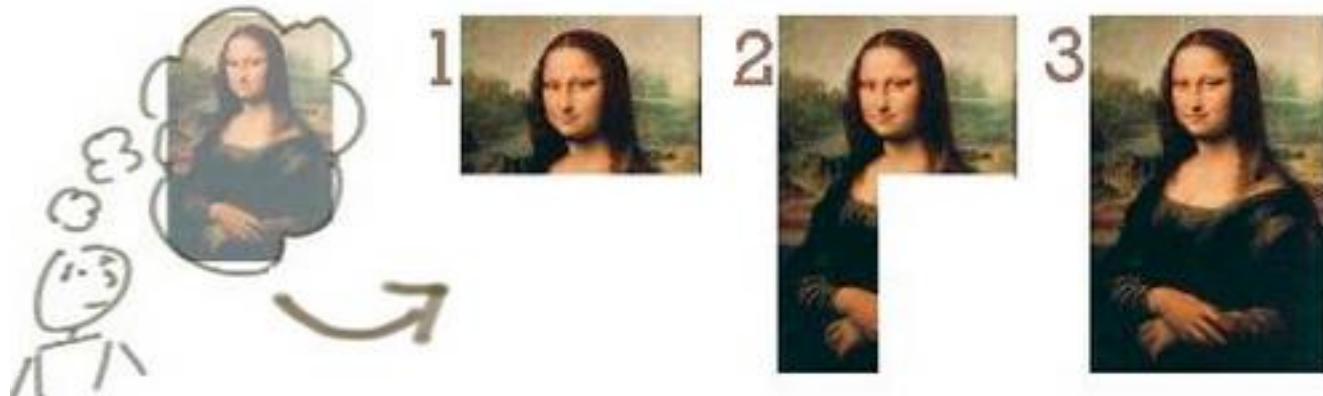


Definition Of Done

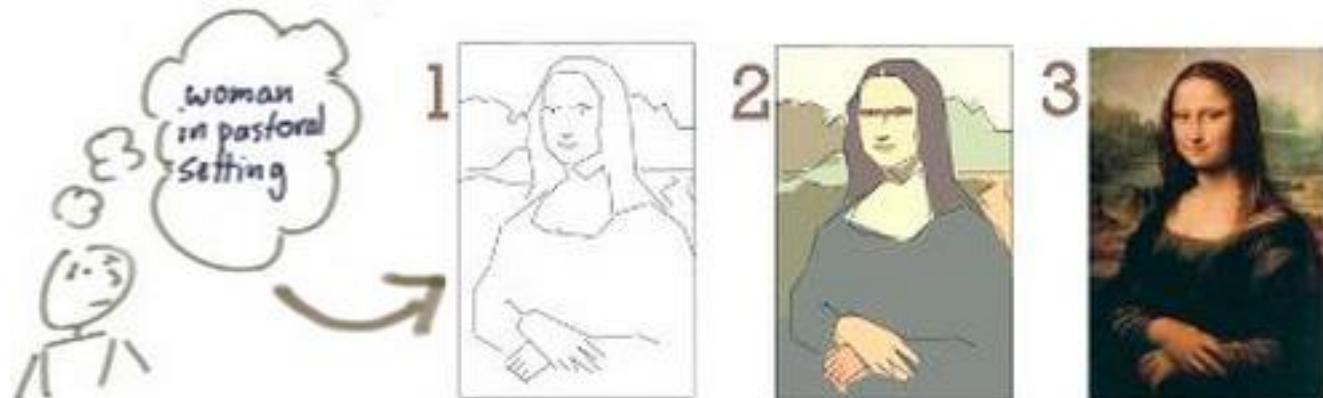
99,9% does **not** (!) meet
“**Definition of Done**”.

Increment vs. Iterative

Incremental



Iterative



Scrum

Input from End-Users,
Customers, Team and
Other Stakeholders



Product Owner

1	
2	
3	
4	
5	
6	
7	FEATURES
8	
9	
10	
11	
12	

Product
Backlog



Team

Sprint Planning
Meeting
(Parts One and Two)



Sprint
Backlog



Sprint
Backlog



Sprint
Backlog



Sprint
Backlog



Sprint
Backlog



Sprint
Backlog



Sprint
Backlog

ScrumMaster

Product
Backlog
Refinement



Daily Scrum
Meeting and
Artifacts Update



Review



Potentially
Shippable Product
Increment



Retrospective

Planning Poker

Planning Poker



Planning Poker

Rules of Planning Poker to estimate efforts **per time unit or relative to a referenced goal.**

- Development Team members estimate items by putting chosen number card face down on the table.
- All members reveal cards at a time.
- Results are questioned and discussed.

⇒ Why cards? Speaking effort out aloud sets a precedent for following estimates.

Planning Poker

1, 2, 5, ..., 100	Aufwand für die zu schätzenden Aufgaben.
0	Minimaler bis kein Aufwand für eine Aufgabe.
?	Schätzer ist sich unsicher oder hat keine Ahnung.
Kaffeetasse	Eine Pause, bitte.

Scrum

Input from End-Users,
Customers, Team and
Other Stakeholders



Product Owner

1	
2	
3	
4	
5	
6	
7	FEATURES
8	
9	
10	
11	
12	

Product
Backlog



Team



Team Selects
How Much To
Commit To Do
By Sprint's End

Sprint Planning
Meeting
(Parts One and Two)



Sprint
Backlog

No Changes
in Duration or Goal

Daily Scrum
Meeting and
Artifacts Update

Review

Potentially
Shippable Product
Increment

Retrospective

Learning Outcomes Review

- Scrum
 - Basics
 - Details
- Glossar Test

