



Advanced Project Management

4

Agile

José Magano

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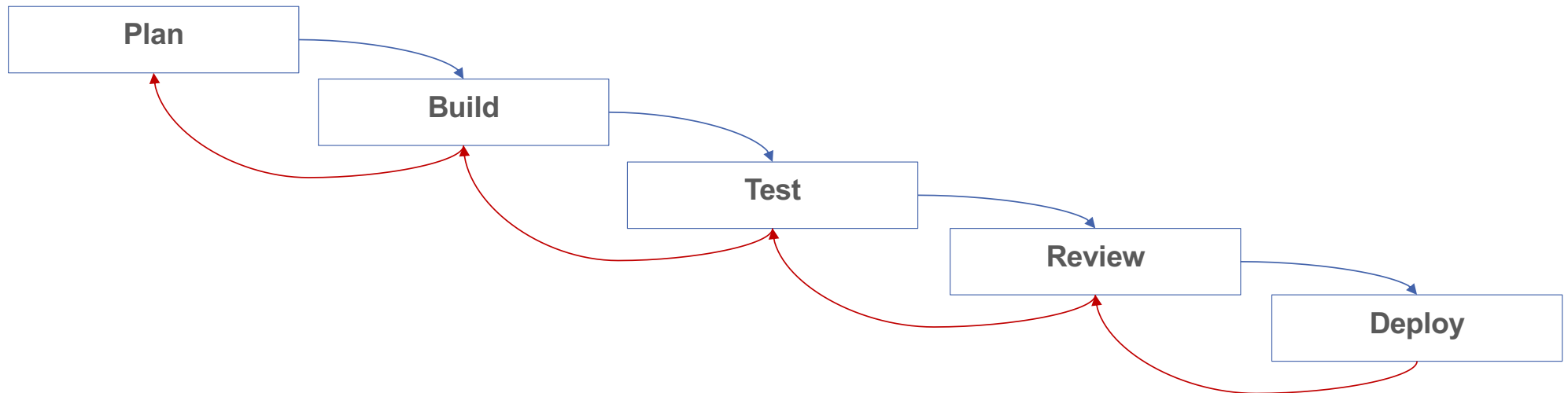


Agile models



Waterfall model

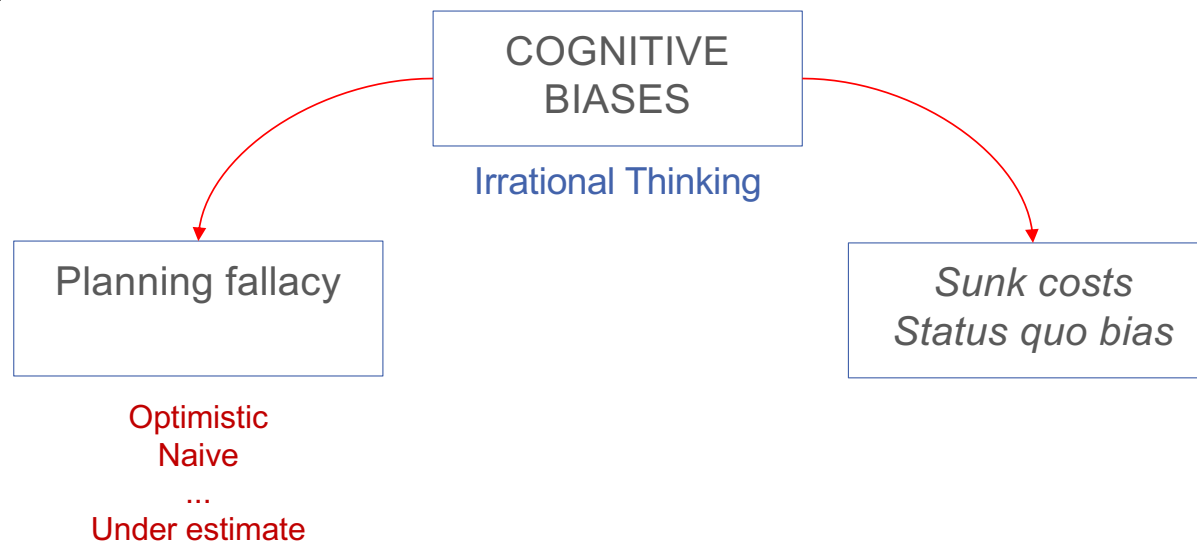
- “Traditional”



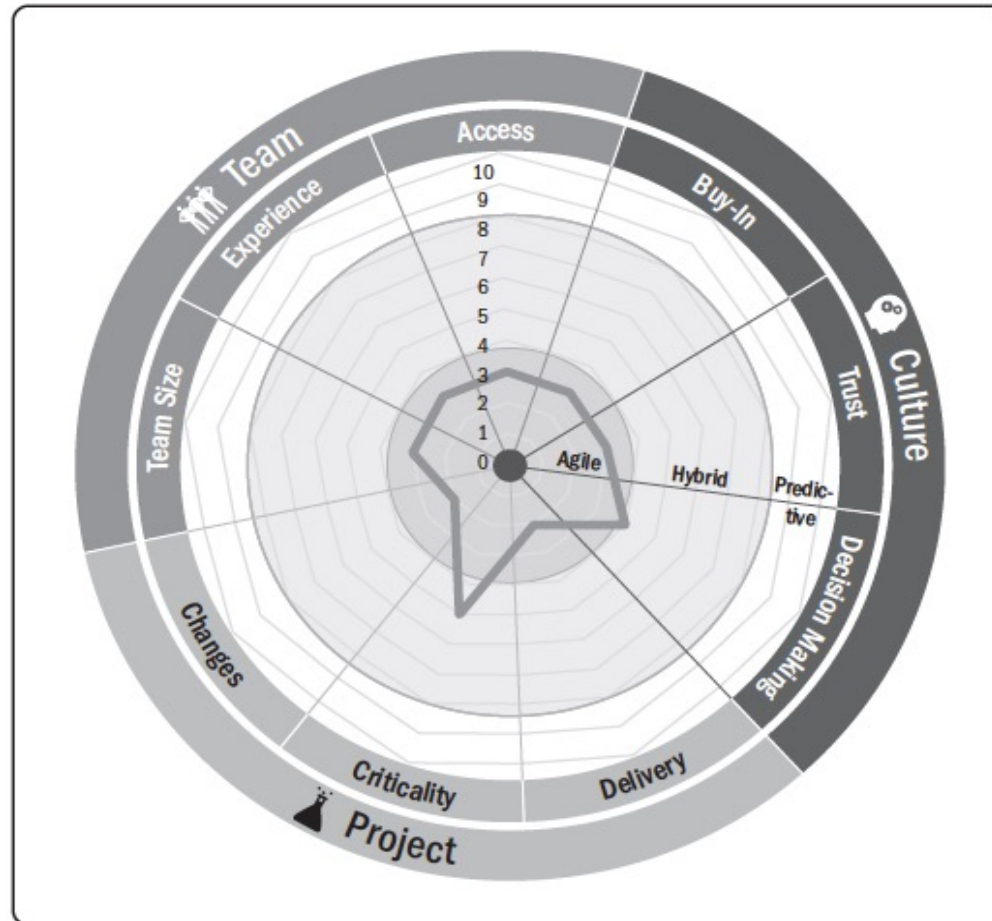


Waterfall model

- “Traditional”

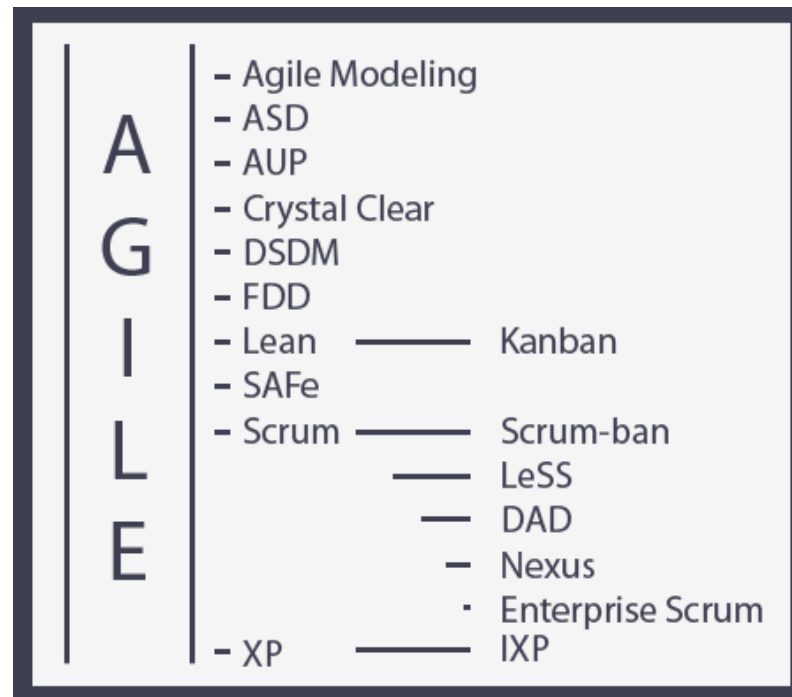


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Source: PMI (2017). *Agile Practice Guide*, Project Management Institute

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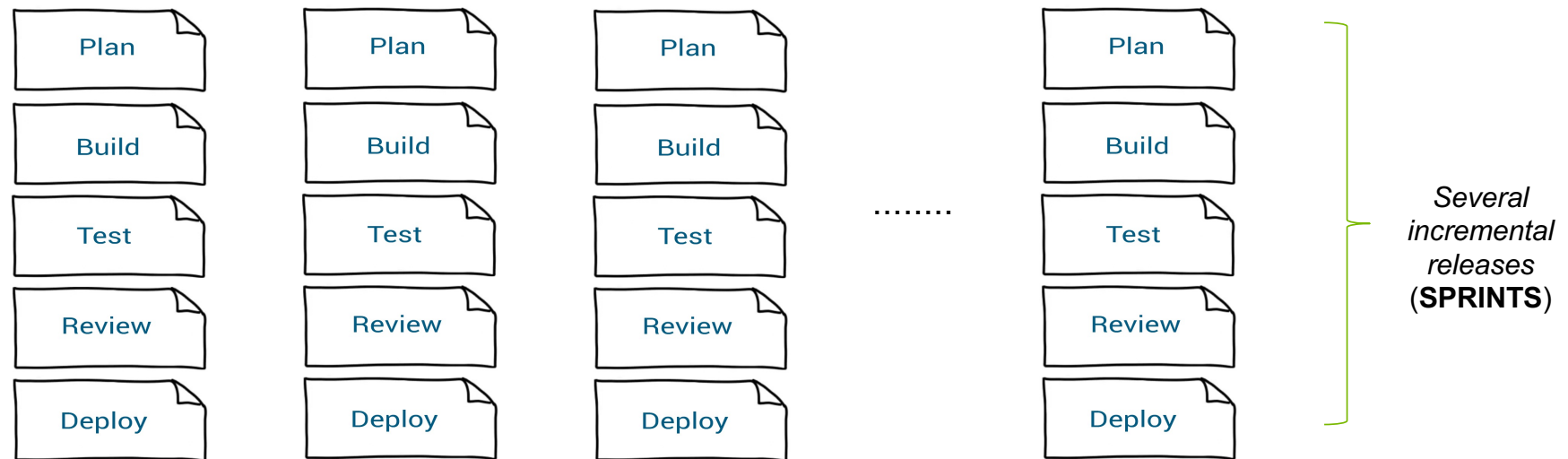
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- SCRUM

Do detailed plans in small chunks

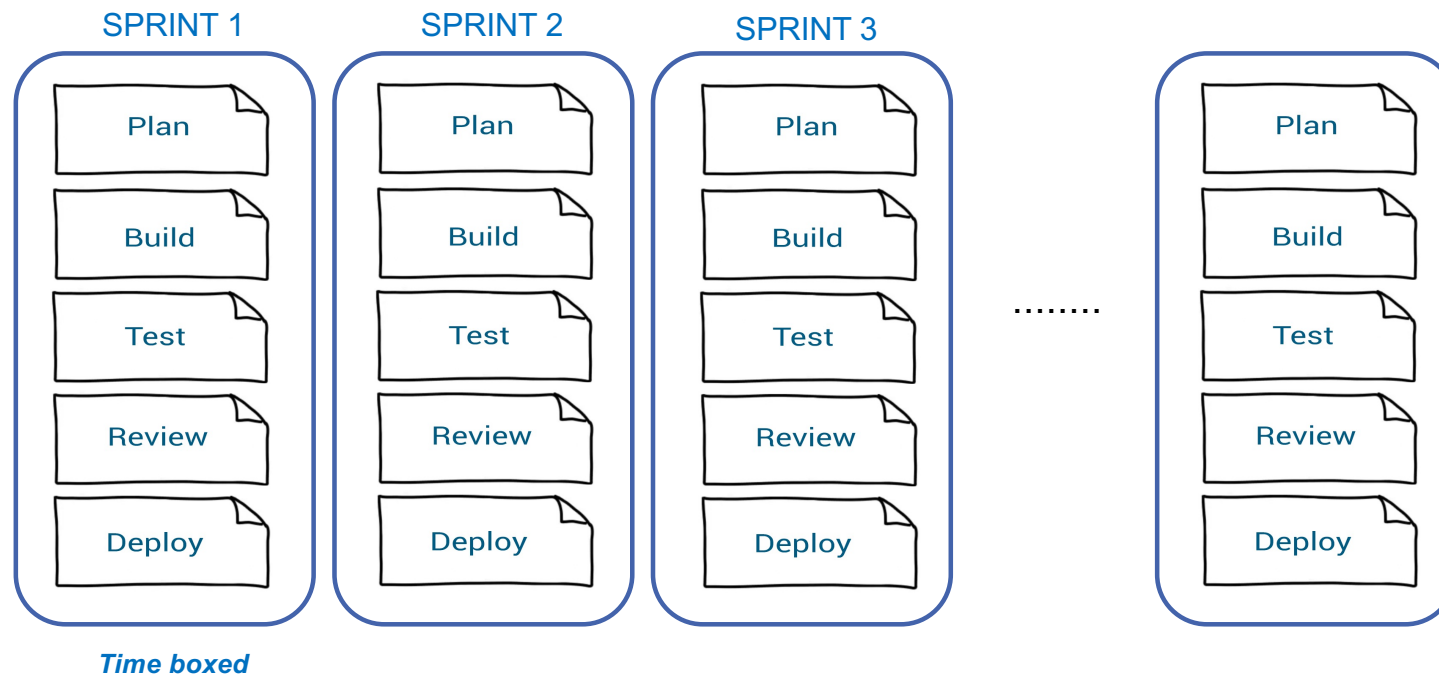
Plan throughout the project and actively seek to improve the plan



Minimum viable product

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- SCRUM

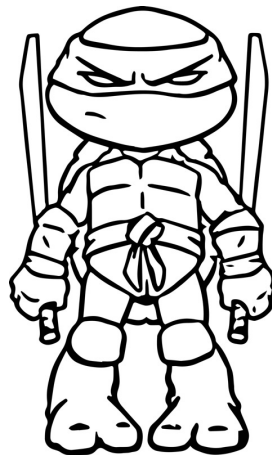




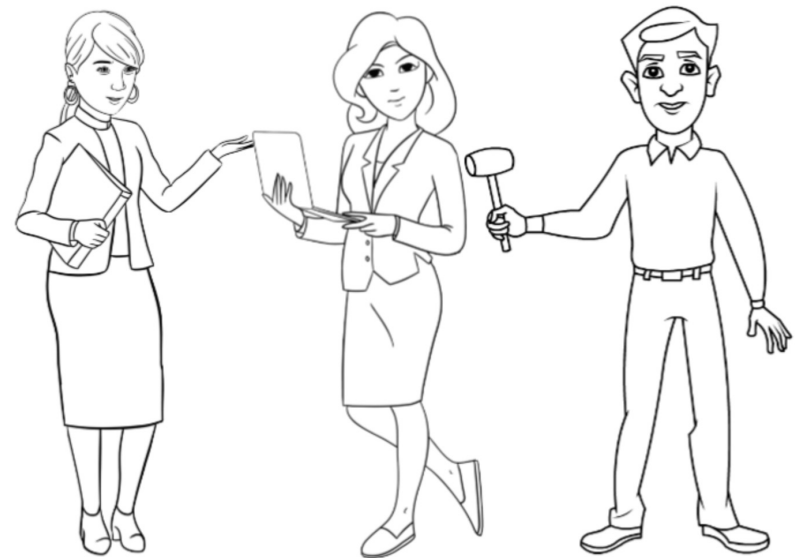
SCRUM: Roles to play



**PO: PRODUCT
OWNER**
Product Vision



**SM: SCRUM
MASTER**
Facilitator



TEAM
Build, Test



SCRUM: Key elements (Artifacts)

1. **PRODUCT BACKLOG**

PO defines priorities in a list of features (*wish list*), described as stories - *USER STORIES* (US).



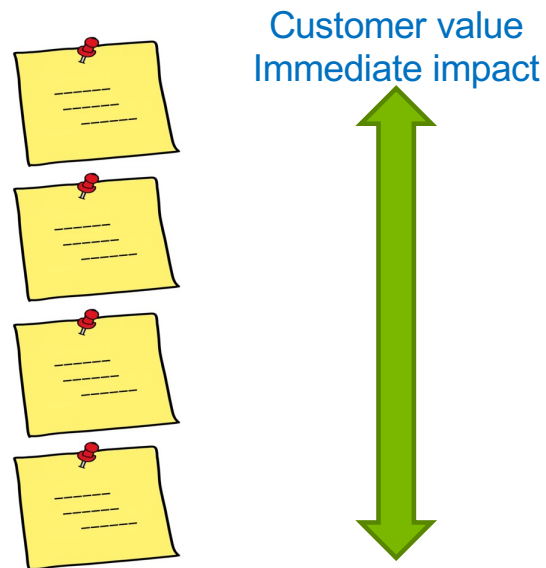
A **US** should be: Independent, **N**egociable, **V**aluable, **E**stimable, Small (**S**mall) e Testável [INVEST]



SCRUM: Key elements

1. **PRODUCT BACKLOG**

The PO prioritizes User Stories, taking into consideration the **VALUE** and immediate impact for the client

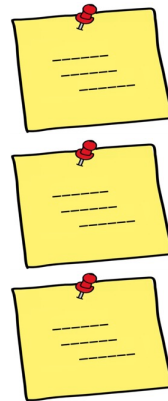




SCRUM: Key elements

2. SPRINT BACKLOG

The US with higher priorities will form the SPRINT BACKLOG, and should be estimated for the next Sprint



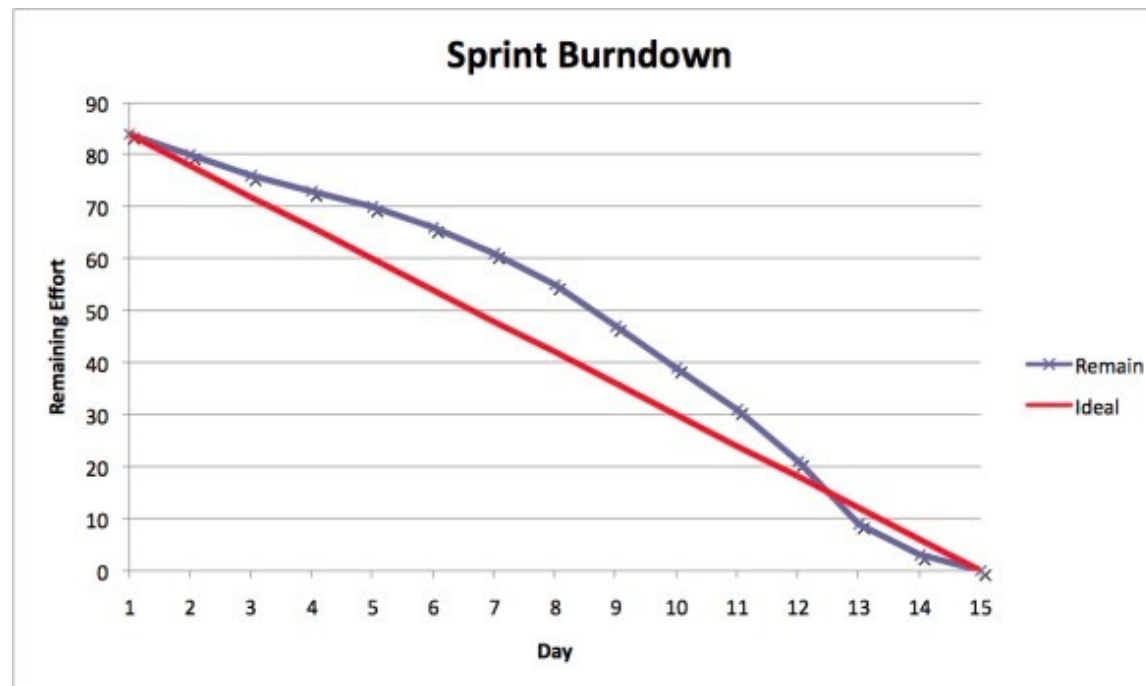
The Team and the PO know exactly what each US requires, as result of Sprint planning meetings



SCRUM: Key elements

3. BURNDOWN CHARTS

Shows the progress throughout the Sprint





SCRUM: processes (ceremonies)

1. SPRINT PLANNING

Meeting w/ PO, SM and the Team, to discuss and estimate User Stories
Define tasks for the next Sprint – Estimate VELOCITY



Each US can have one or more tasks. A set of US can define an Epic.

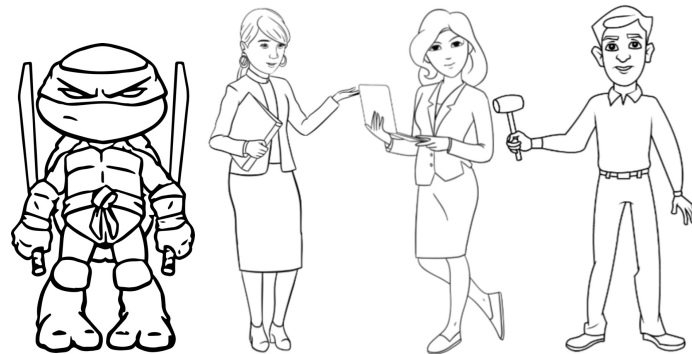
US estimate: use Fibonacci sequence (1, 2, 3, 5, 8, 13, 21, 34, 55...).



SCRUM: processes

2. DAILY SCRUM

Quick meeting w/ SM + Team to discuss what has been done since the previous meeting, anticipate obstacles and seek for help



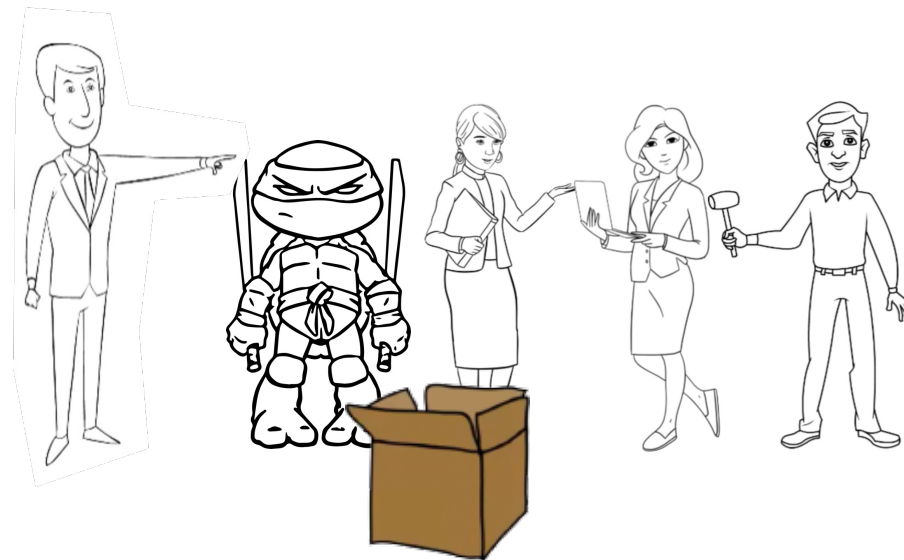


SCRUM: processes

3. SPRINT REVIEW AND SPRINT RETROSPECTIVE

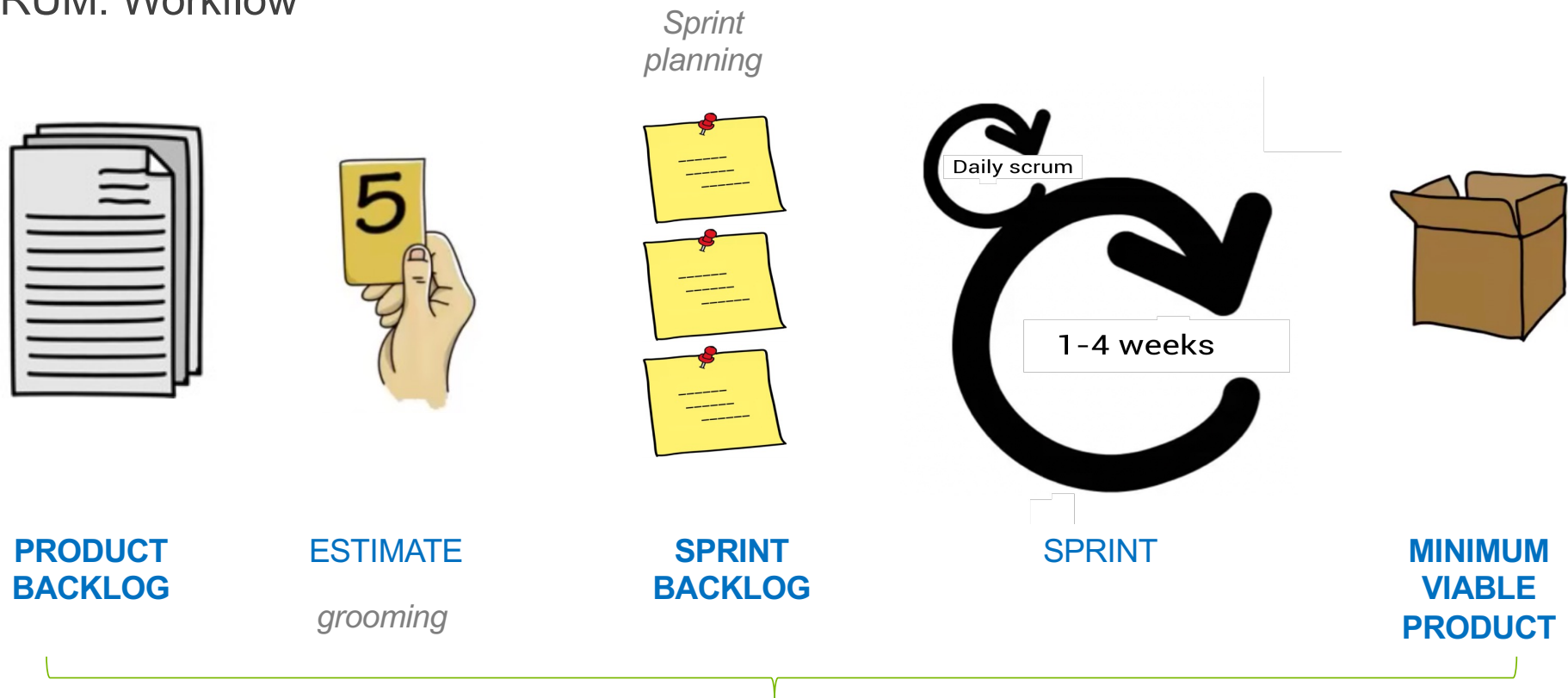
REVIEW: At the end of the Sprint, the Team demonstrates the work that has been completed to the PO (+ Client)

RETROSPECTIVE: Discuss what can be improved in subsequent Sprints



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SCRUM: Workflow





SCRUM: User stories estimation

Firstly, User Stories are described and eventually broken down into smaller independent US (each US can then be divided into tasks)

Estimate using **Fibonacci sequence** (1, 2, 3, 5, 8, 13, 21, 34, 55...) to estimate **STORY POINTS**

A Story Point is an abstract time unit.

For different people and teams, 1 *Story Point* can be 1 hour, 1 day, or 2 weeks...

The benefit of using SP is to avoid duration estimates in absolute time units.



SCRUM: User stories estimation

Criteria to rank User Stories:

Complexity

Business value

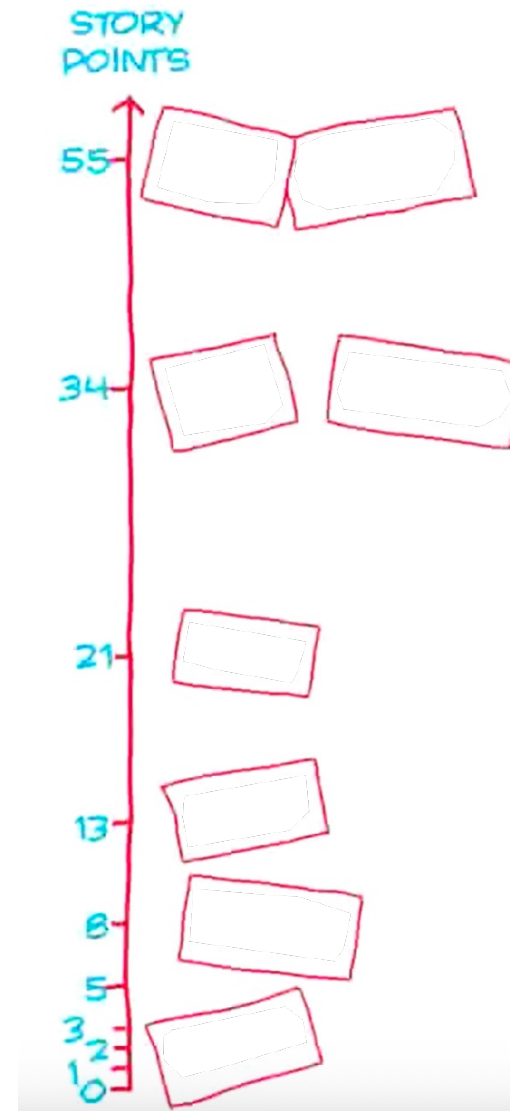
Volume of work

Dependencies

Risk

Process: the Team estimates each US

Several methods... Ex.: **Planning Poker**





SCRUM: Sprint planning

Usually, a Sprint lasts 1 to 4 weeks

The goal is to build and deliver certain features at demo date (end of Sprint)

So, the Team has to estimate how many Story Points they can build within the Sprint time box

Ex.: let's say we plan to build 108 SP in the 1st Sprint. At demo date we have just completed 96 SP. Now we have a baseline (reference) to estimate the next Sprint VELOCITY.

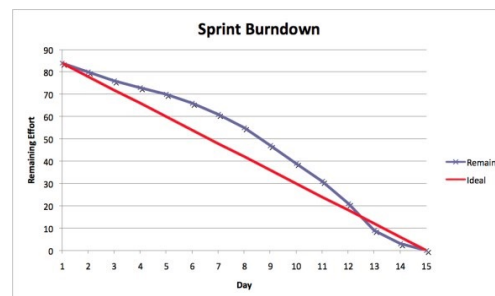
We could add 10% to the next Sprint velocity

VELOCITY: the number of Story Points planned/completed in the Sprint



SCRUM: Sprints

- Usually, we use a STORY BOARD, with (at least) 3 columns: To DIO, Doing (WIP – Work in Progress), Done
- Place Post Its in the columns
- Update the burndown chart every day

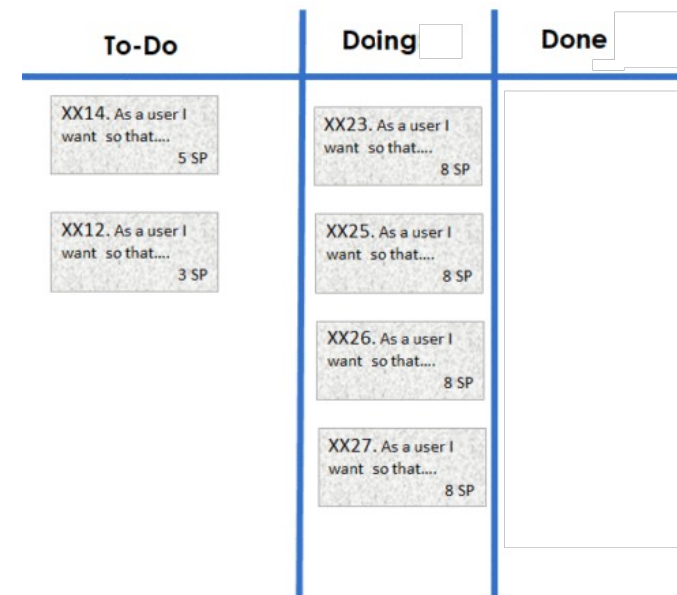


Daily Scrum:

What have we done yesterday?

What are we doing now?

What obstacles are there and how can we improve our work?



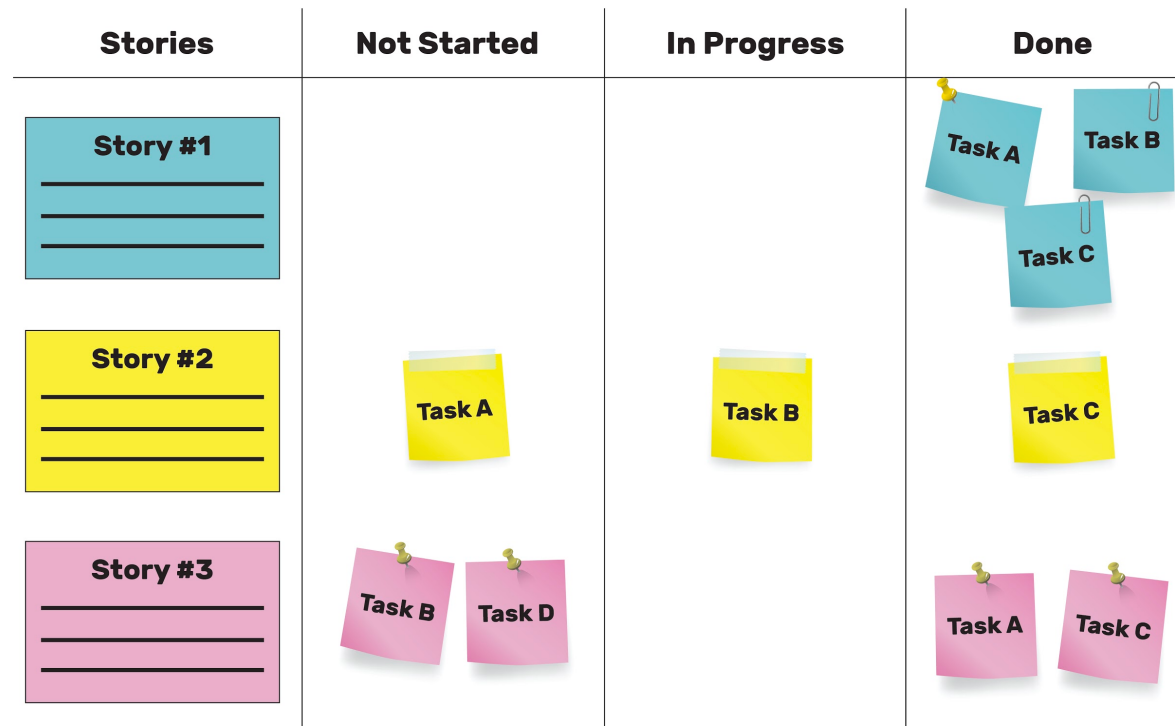
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SCRUM: Sprints



To-Do	Analysis	Dev- In-Progress	Test In-Progress	Completed	Verification In- Progress	Done
<div>XX14. As a user I want so that.... 5 SP</div>		<div>XX23. As a user I want so that.... 8 SP</div>	<div>XX24. As a user I want so that.... 8 SP</div>			
<div>XX12. As a user I want so that.... 3 SP</div>	<div>XX22. As a user I want so that.... 8 SP</div>	<div>XX25. As a user I want so that.... 8 SP</div>				
	<div>XX24. As a user I want so that.... 8 SP</div>	<div>XX26. As a user I want so that.... 8 SP</div>				
		<div>XX27. As a user I want so that.... 8 SP</div>				

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SCRUM: Sprints





SCRUM: Reviews

At demo date the Team shows the work that has been done, hopefully delivering a feature or more (MVP)

During the Review process, the PO and the customer provide feedback, accepting the deliver or suggesting further improvements





SCRUM: Retrospective

At the end of the Sprint, the Team + SM discuss what they did well and what they did poorly, and agree on improvements for the next Sprint





SCRUM: Next sprint

- When the Sprint is over, restart the workflow (first step), and so forth.
- Usually, an agile project can have up to 12 Sprints.