NET Engineering

Scrum in Engineering and Construction

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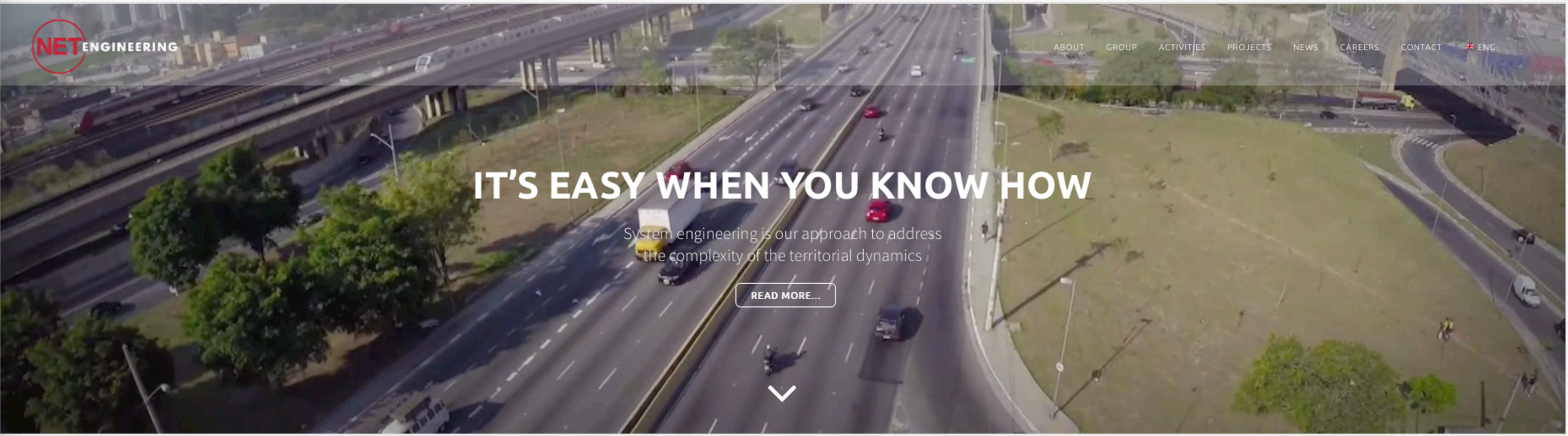

SYSTEM ENGINEERING FOR INFRASTRUCTURES

NET Engineering designs infrastructures, services, solutions and systems in the fields of mobility, territory and environment.

RAILWAYS & ROLLING STOCK

From the operational model to the infrastructure installations, the technological systems and rolling stock: excellent skills in the rail engineering.

PUBLIC TRANSPORT

Buses, trolley buses, trams, subways: proven experience in the design and integration of the different public transport systems

LOGISTICS & FREIGHT

An optimal integration between different freight transport modes, in an increasingly global world.

ROADS & MOTORWAYS

Innovative solutions to address road mobility needs, ensuring safety, efficiency and respect for the environment.

ENVIRONMENT & WATER

Management of water resources and environmental protection: infrastructure projects in a sustainable development perspective.

BUILDINGS

Urban development and specialistic buildings, according to the canons of Vitruvius "firmitas, utilitas et venustas".

NET Engineering identity

We are engineering artists,

because we want every project to be a work of art.

We have in-depth knowledge and consolidated experience in the

various disciplines through which

we interpret the entirety of projects:

from the understanding of the needs to be met
to the implementation of specific project activities, we make

each project unique, consistent and effective

thanks to our systemic approach.

Our communication style enhances our projects

selecting the most suitable language for each stakeholder.

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NET Engineering mission

Engineering excellence

for mobility, urban regeneration and industry.

We safeguard the legacy of future generations by designing

smart, shared and sustainable infrastructures.

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The Scrum Framework

Theory Recap

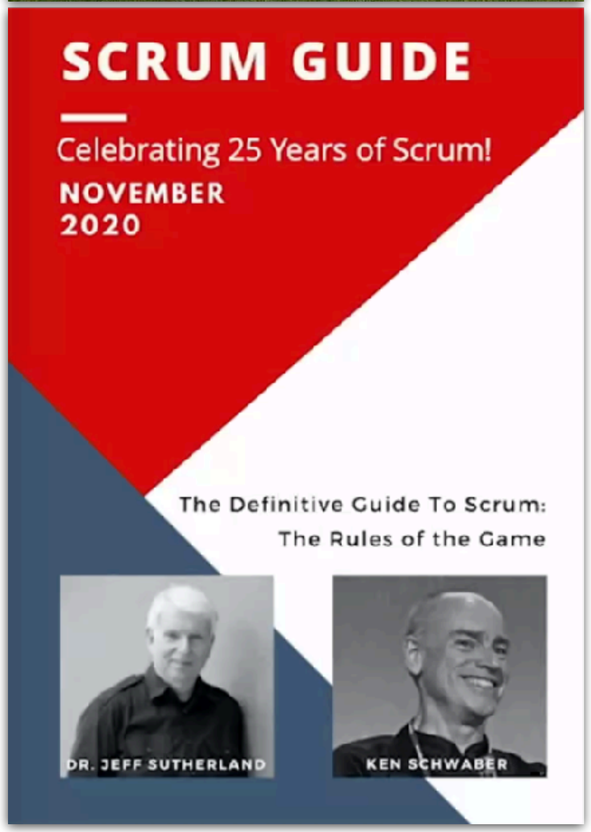
Scrum Inc.® 1993 – 2020

scruminc.

9
9
8

What is SCRUM?

- Scrum is a process framework, co-authored by Jeff Sutherland and Ken Schwaber and presented the first time in 1995.
- Scrum is a lightweight framework that helps people, teams and organizations generate value through adaptive solutions for complex problems.
- The Scrum Guide contains the rules of the game, just 14 pages: lightweight, simple to understand, difficult to master.
- Organize the work in cross-functional self managing Scrum Teams. They deliver increments every iteration (Sprint) and inspect/adapt daily.



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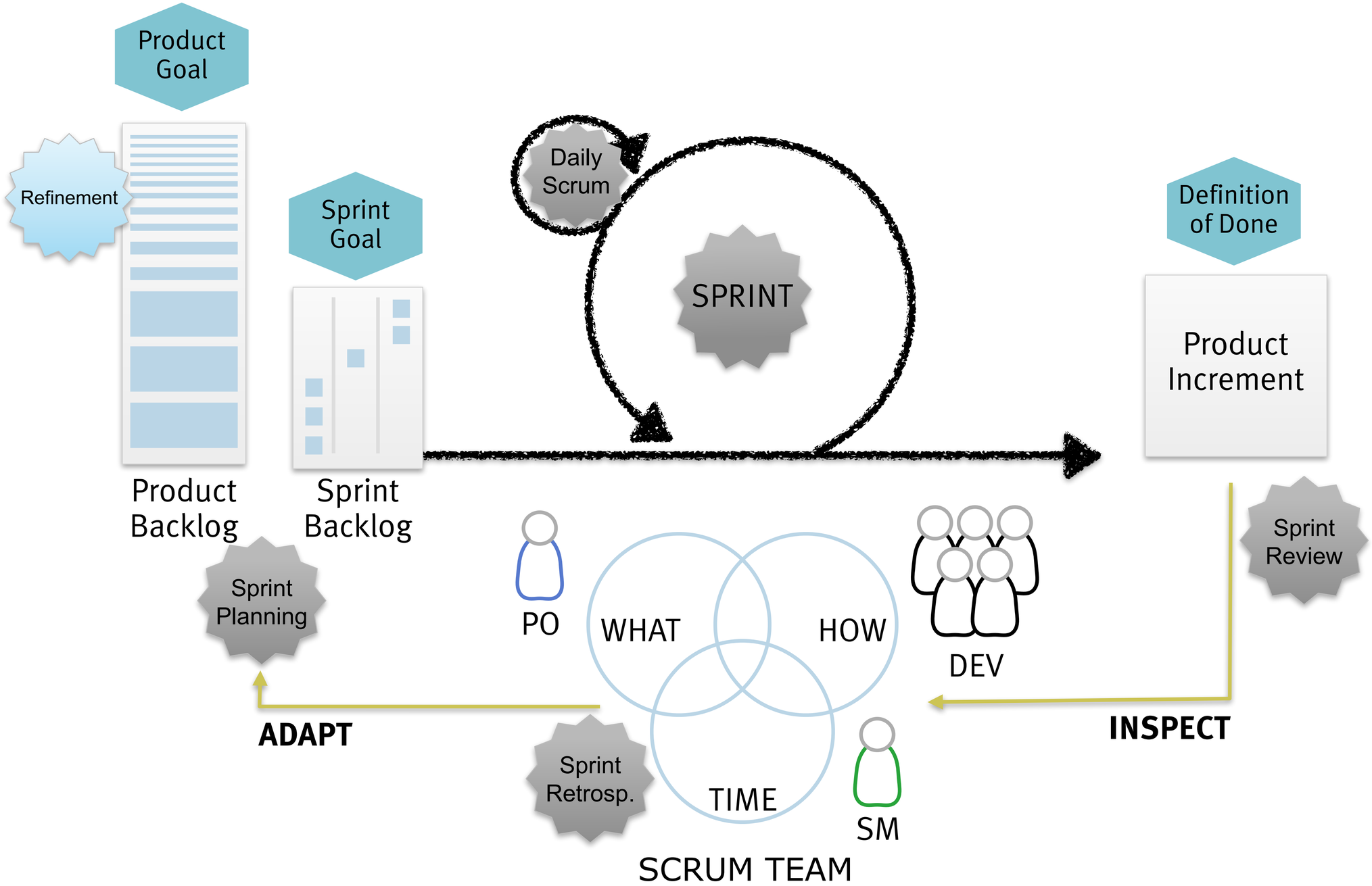

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ROLES EVENTS ARTIFACTS

The Scrum framework, as outlined in the Scrum Guide, is immutable. While implementing only parts of Scrum is possible, the result is not Scrum. Scrum exists only in its entirety and functions well as a container for other techniques, methodologies, and practices.
(from Scrum Guide 2020 end note)

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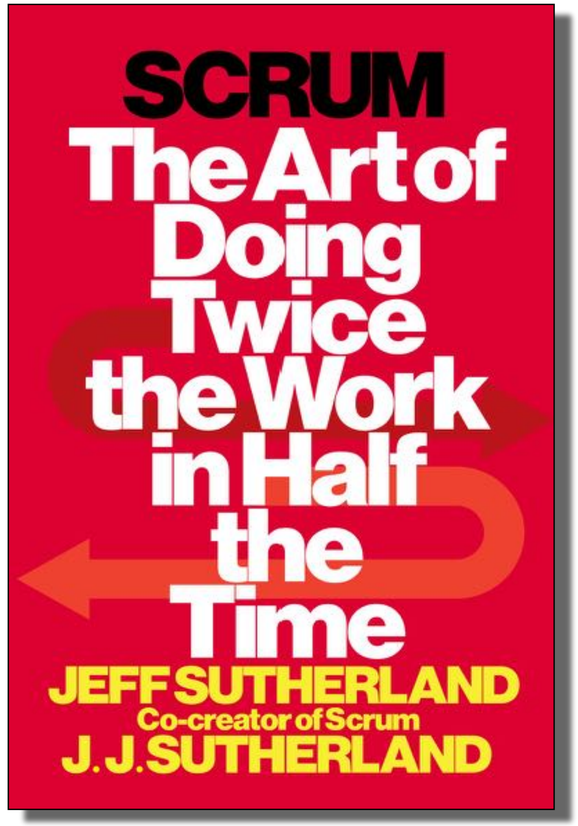
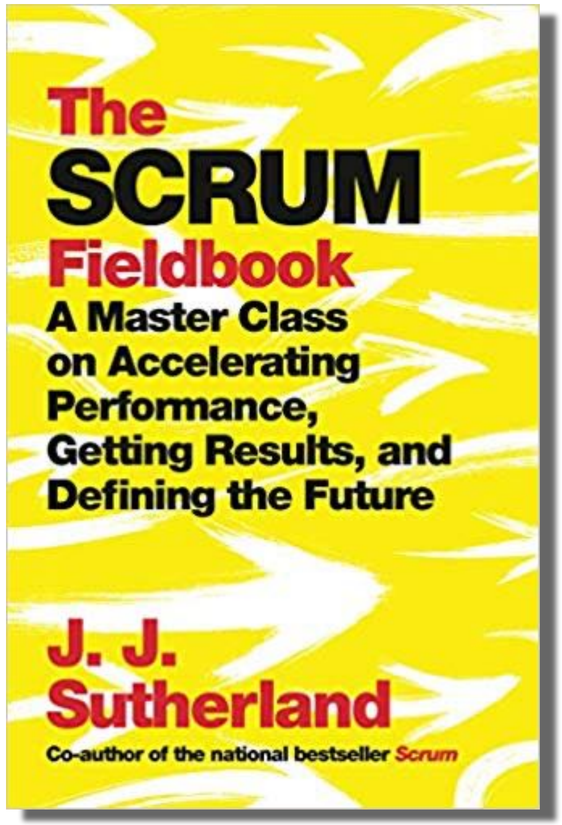
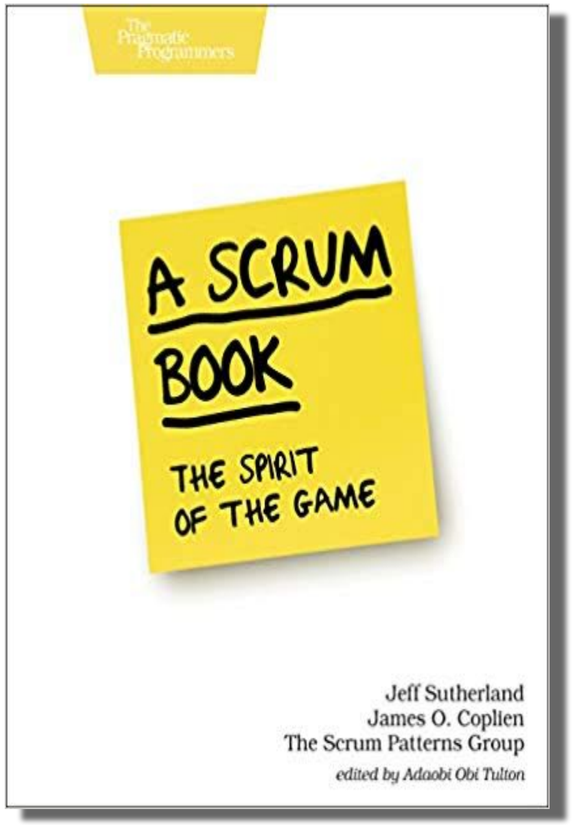
Scrum and Patterns







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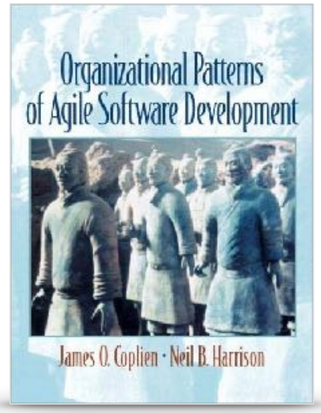
Pattern Definition

- an original object used to make copies, or a set of repeating objects in a decorative design and in other disciplines

➧ a general, reusable solution to a commonly occurring problem within a given context

http://www.orgpatterns.com



https://www.goodreads.com/book/show/756250.Organizational_Patterns_of_Agile_Software_Development

https://www.scrumplop.org

https://www.goodreads.com/book/show/45029885-a-scrum-book

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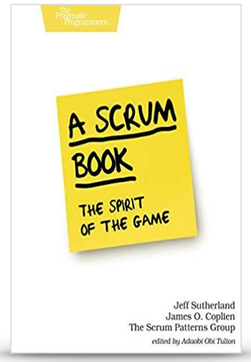
Scaling Multiple Teams

Scrum Pattern: Scrum of Scrums



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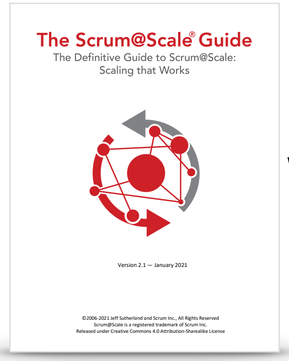

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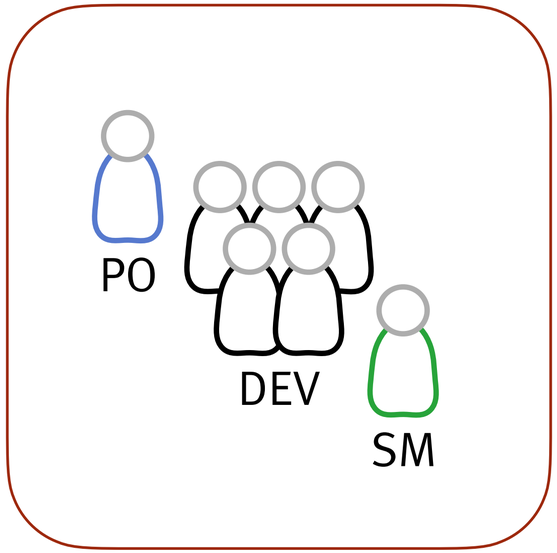
SCRUM @SCALE

Product
Backlog



Scrum Team

Product
Increment

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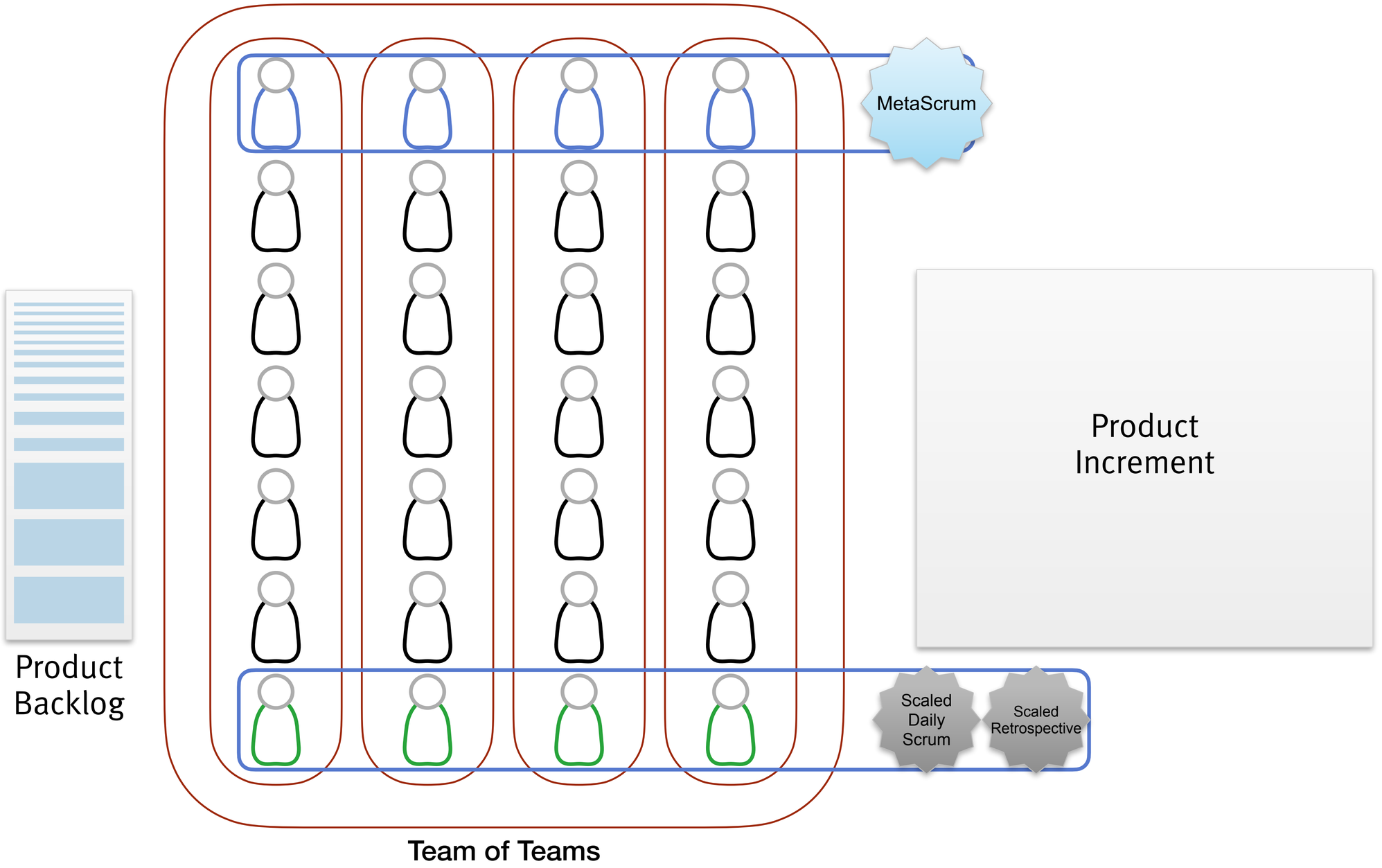
SCRUM @SCALE



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Implementation

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Why Agile and Scrum

Scrum helps us to solve some criticalities:

To manage complexity

To empower people on decision making

To put people at the center

To foster the team spirit

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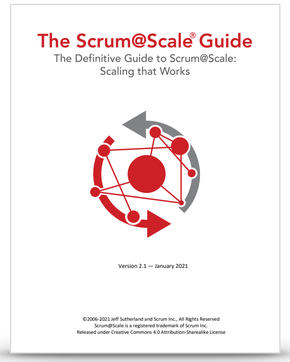
Company Structure

Scrum@Scale Structure



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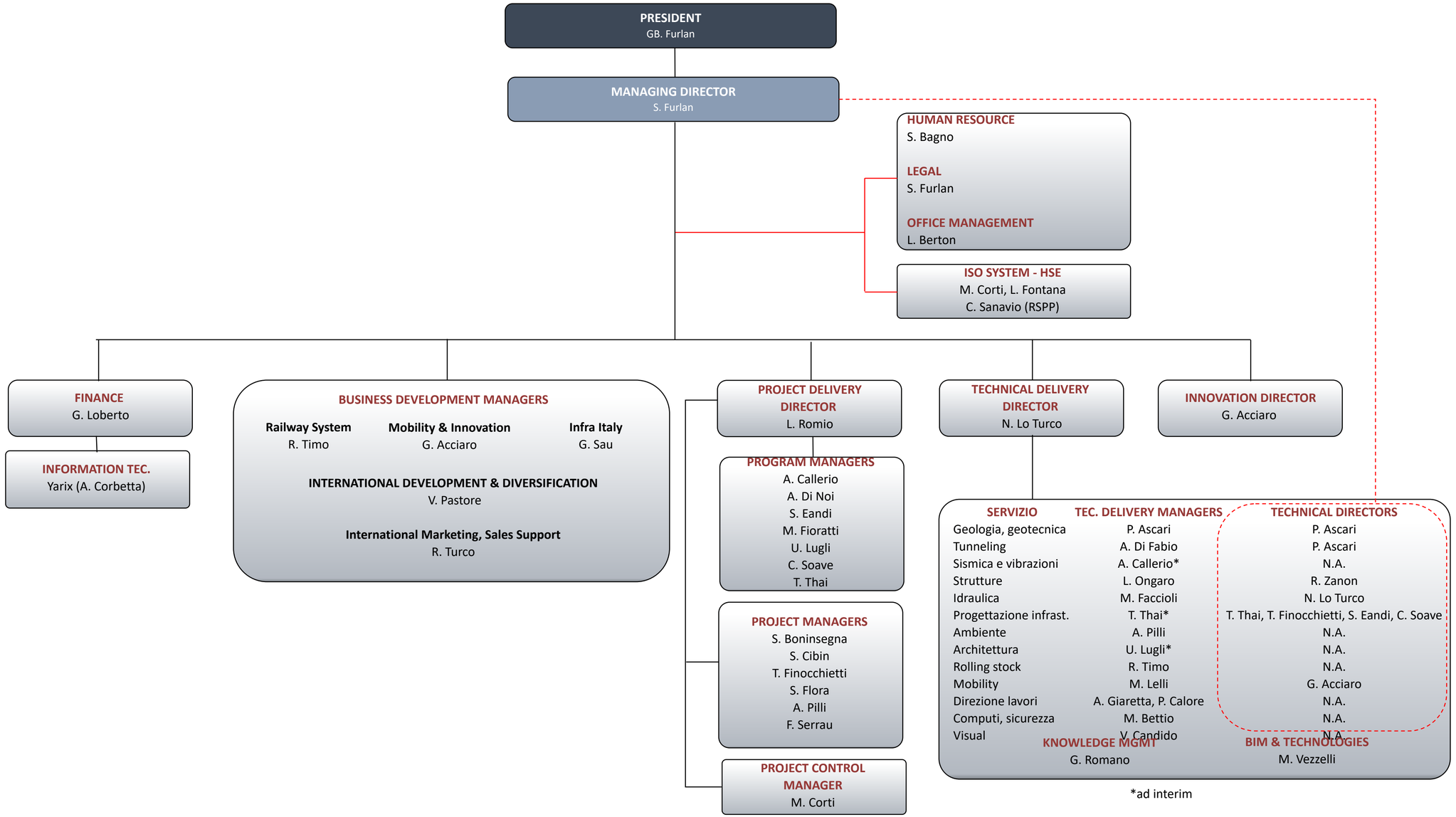

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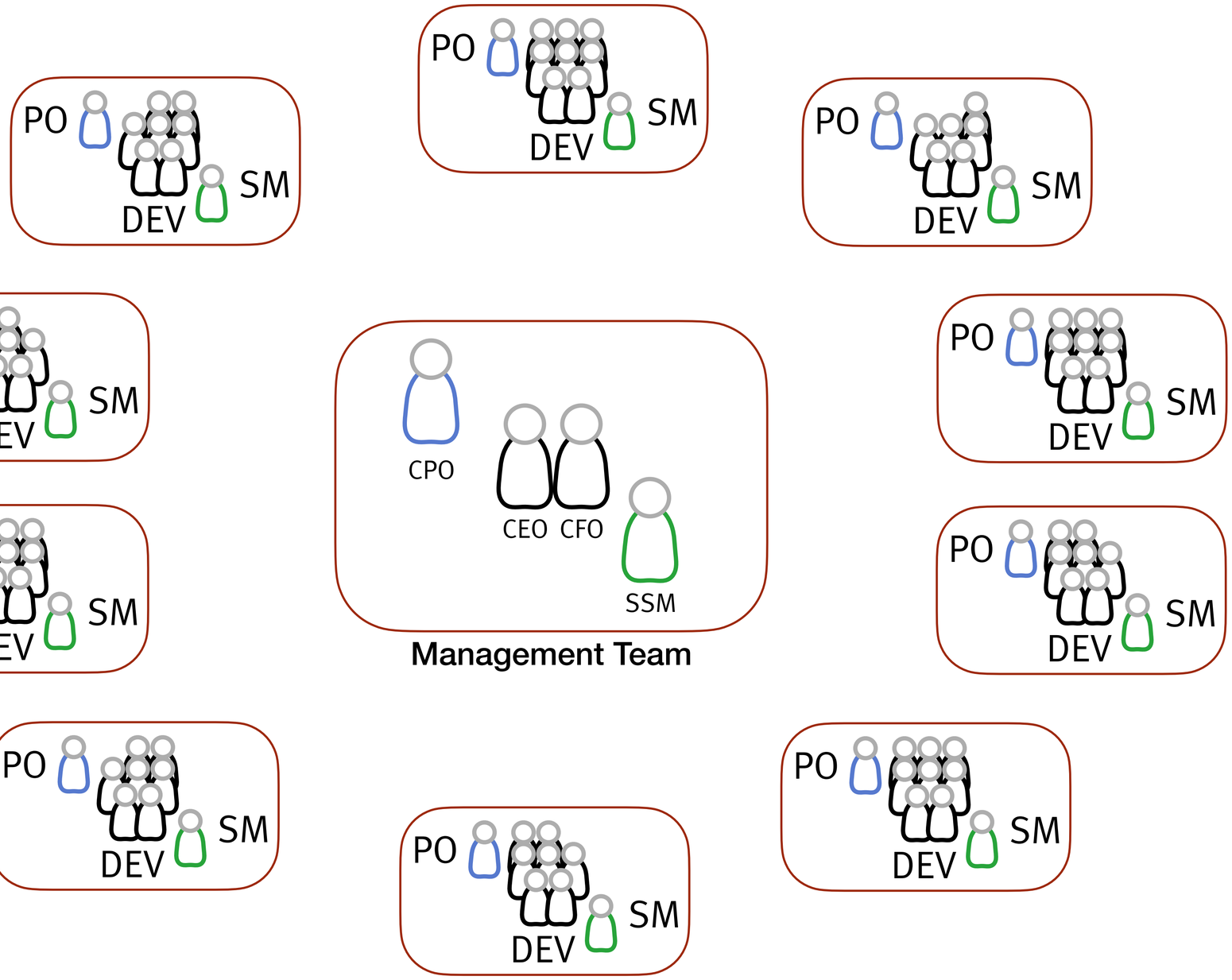

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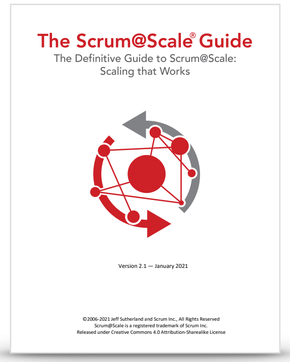
New Projects

Scrum@Scale: Executive MetaScrum



https://www.scrumatscale.com/scrum-at-scale-guide-online/#the-hub-of-the-po-cycle

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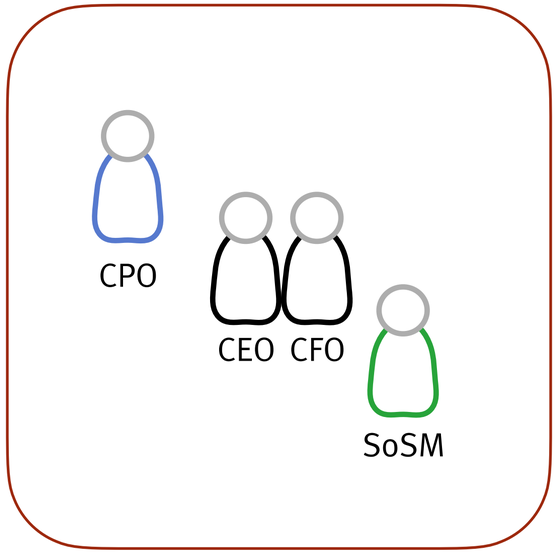
Prioritization of new Projects



Executive MetaScrum

Enterprise
Backlog

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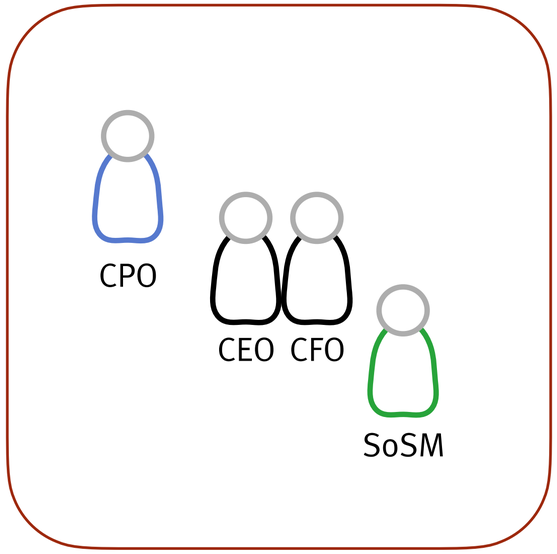
Prioritization of new Projects



Executive MetaScrum

Enterprise Backlog

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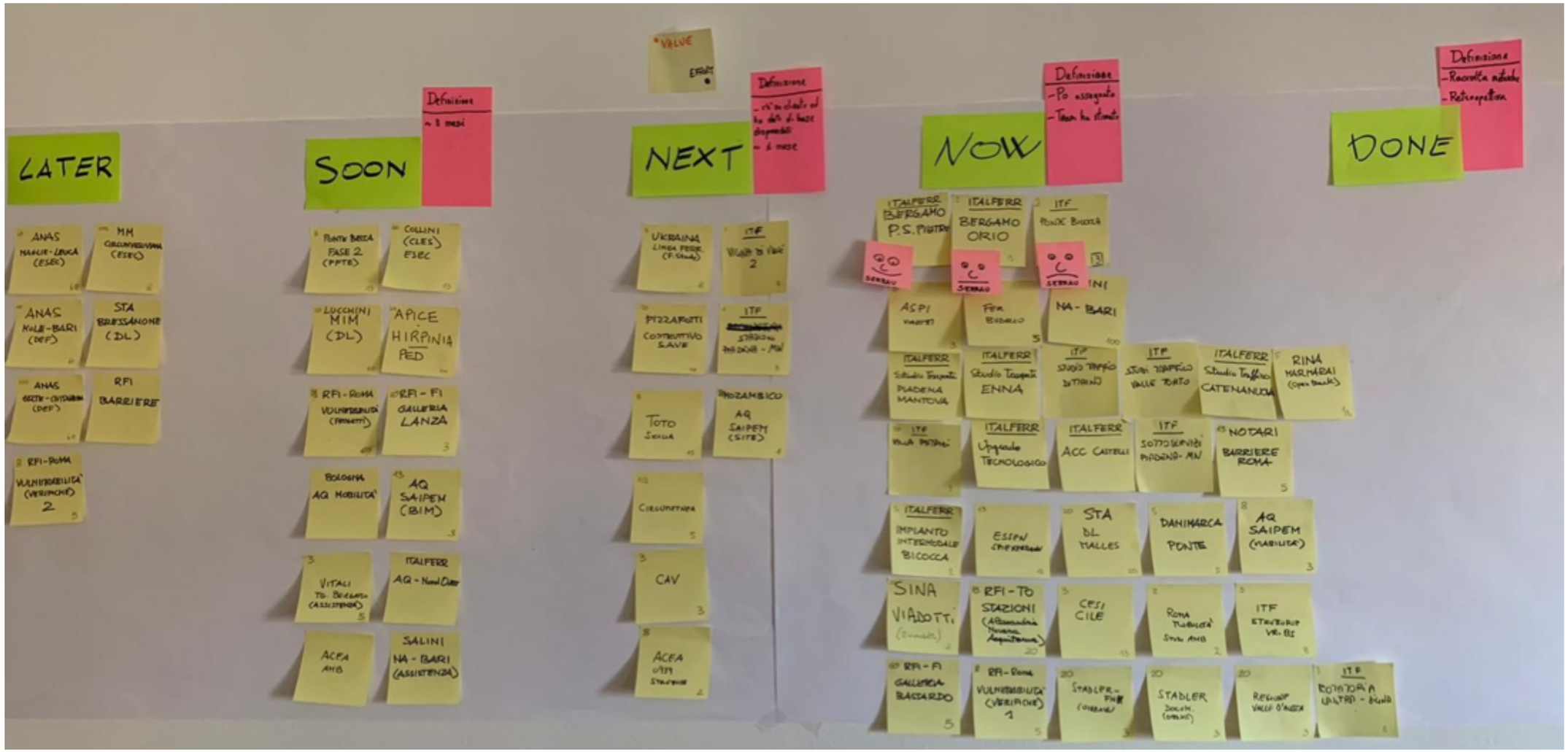
Enterprise Backlog



Monselice, 25 February 2020

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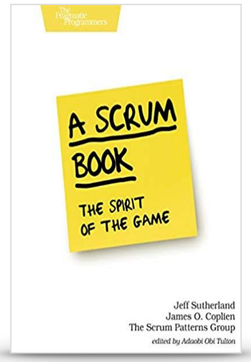
MetaScrum

Scrum Pattern: MetaScrum



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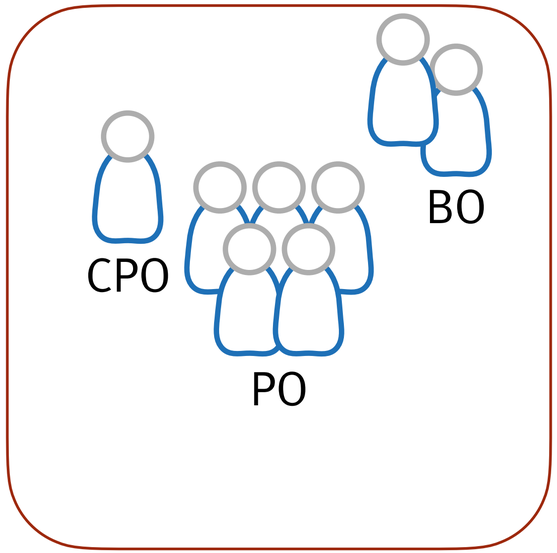
MetaScrum Meeting

Enterprise Backlog



MetaScrum Team

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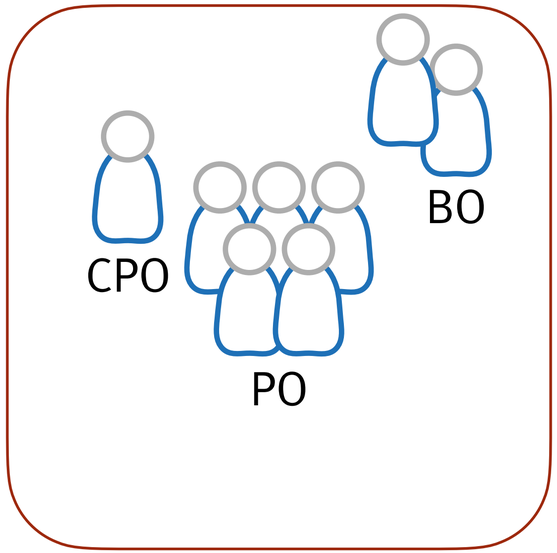
MetaScrum Meeting

Enterprise Backlog



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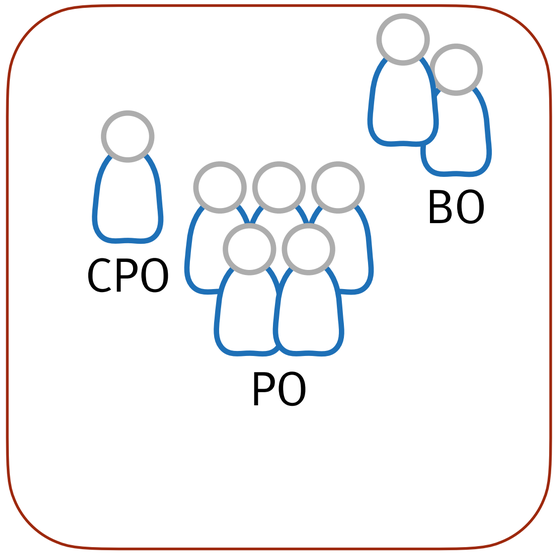
MetaScrum Meeting

Enterprise Backlog



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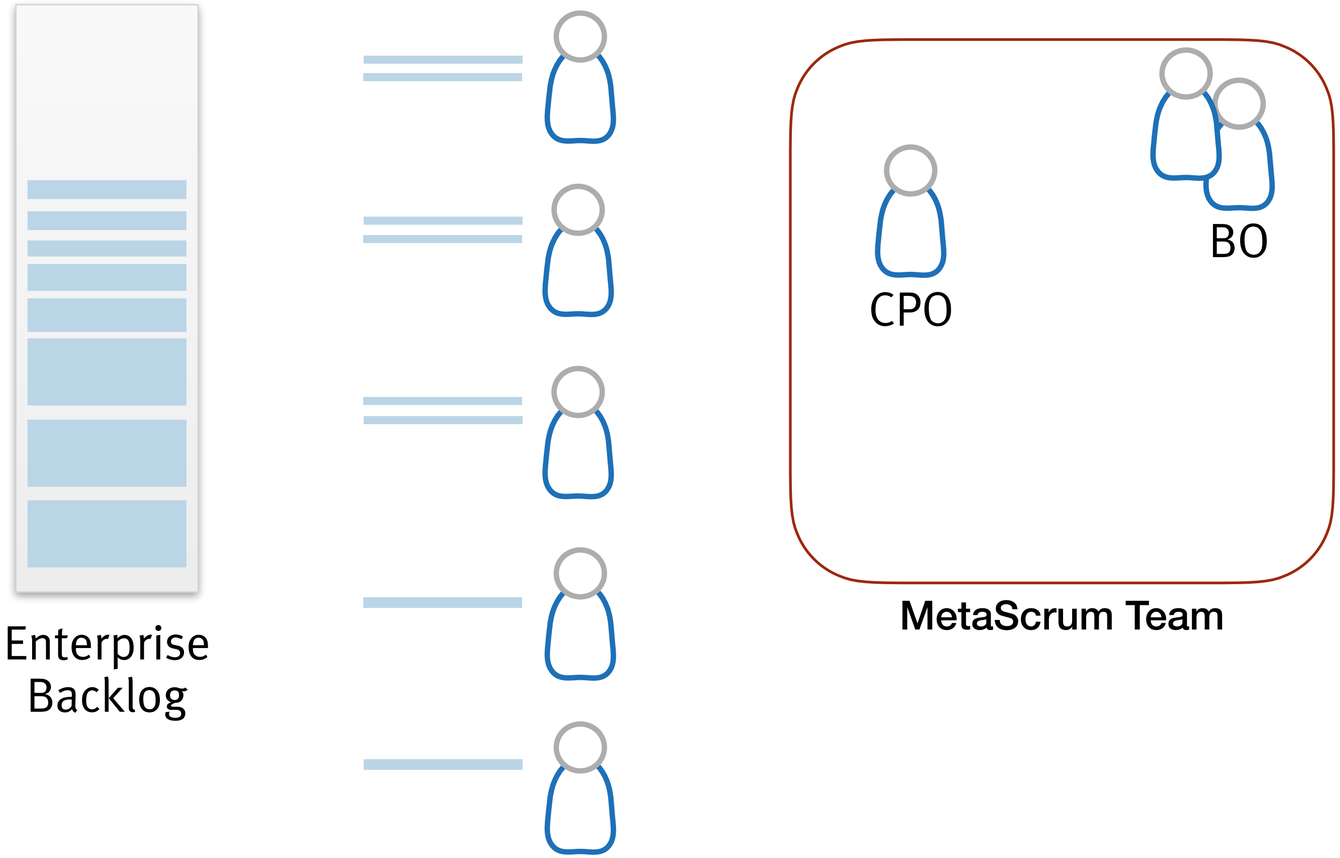
MetaScrum Meeting



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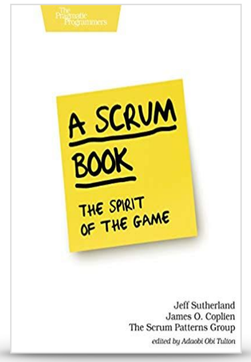
Sprint execution

Scrum Pattern: Swarming, One-Piece Continuous Flow



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Scrum Board

Monselice, 14 February 2020

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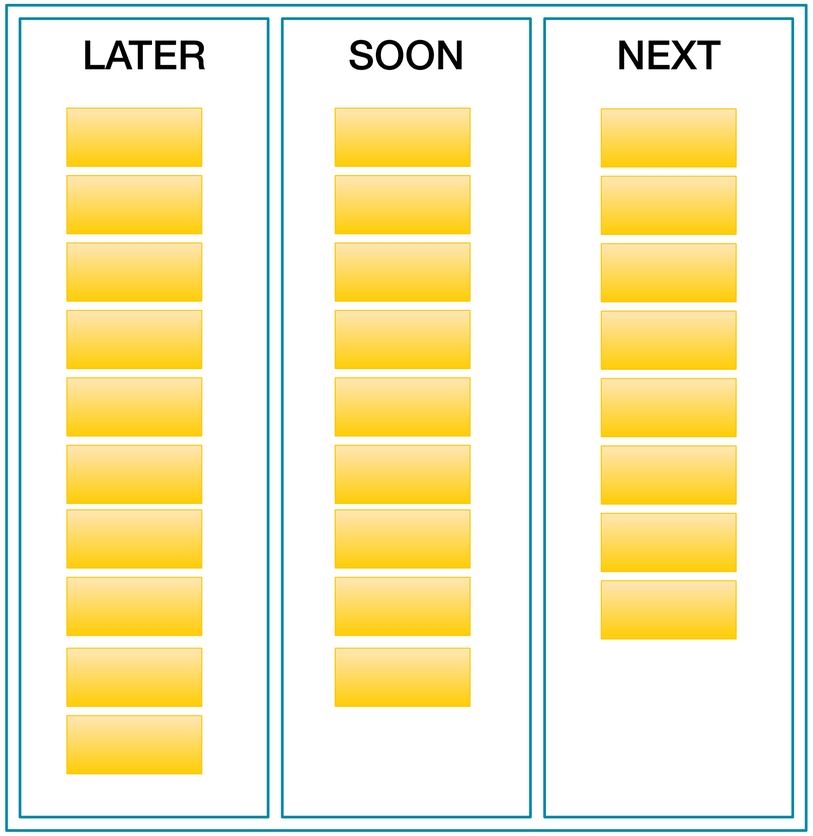

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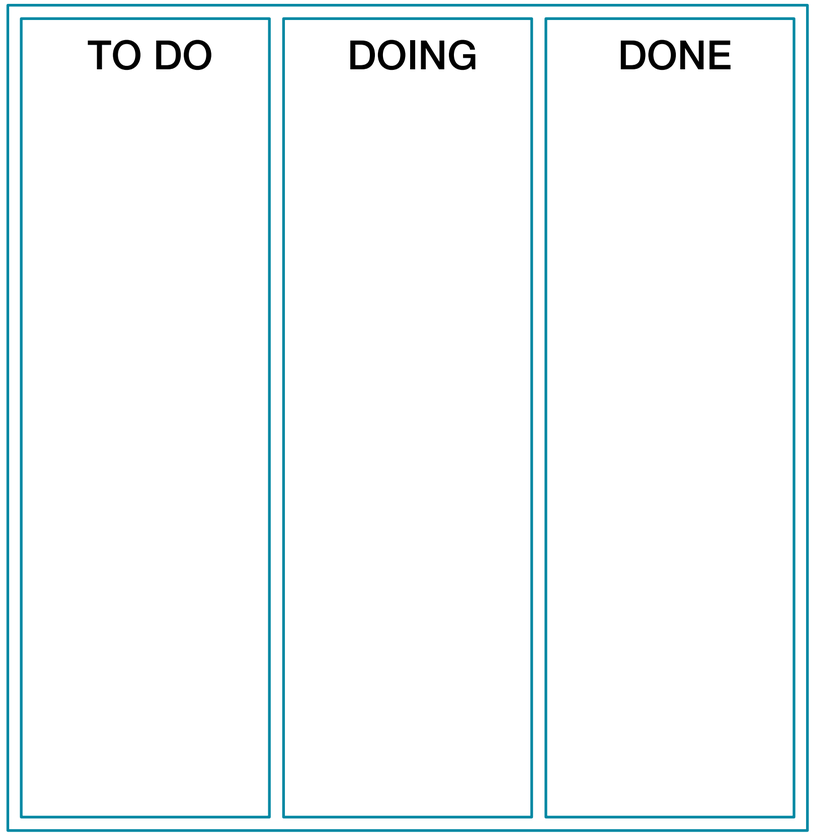

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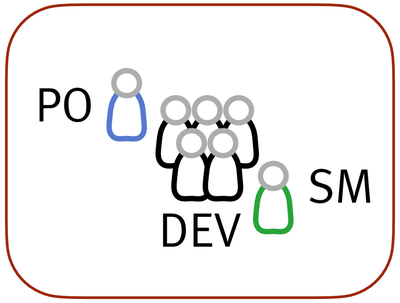

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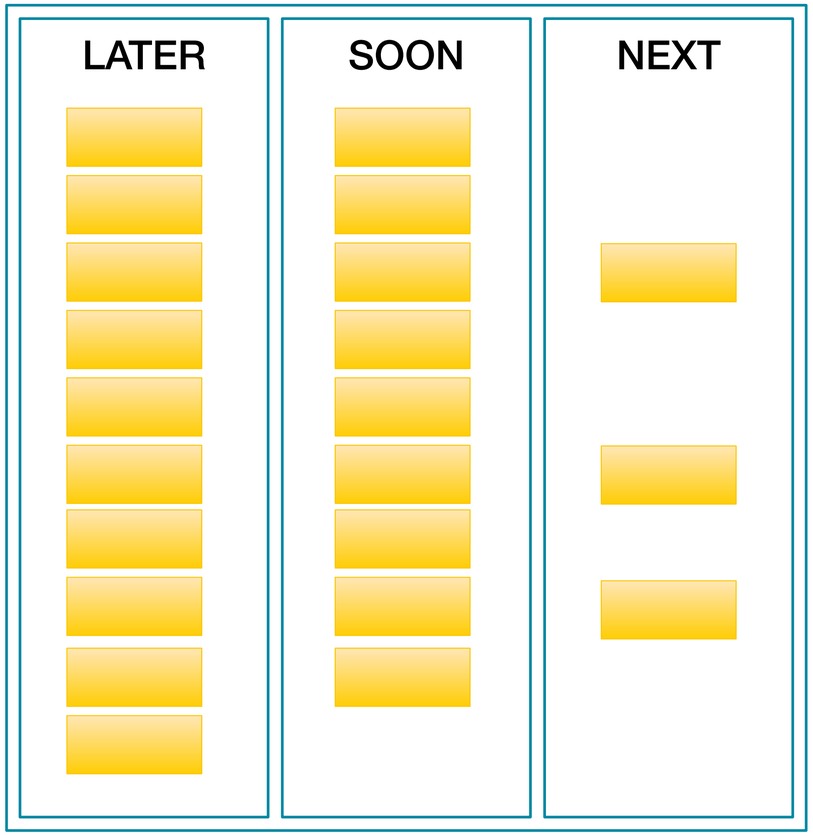

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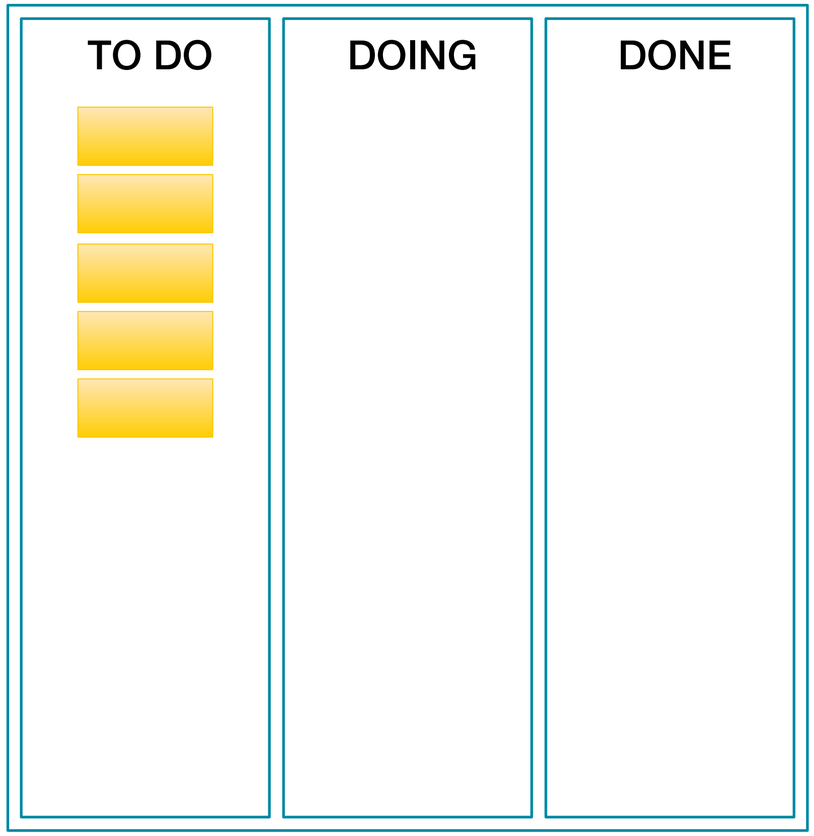

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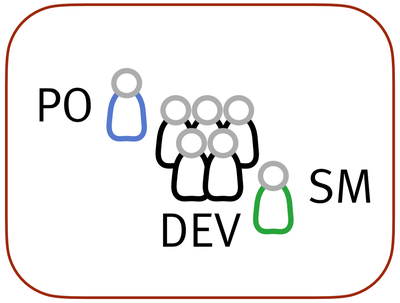

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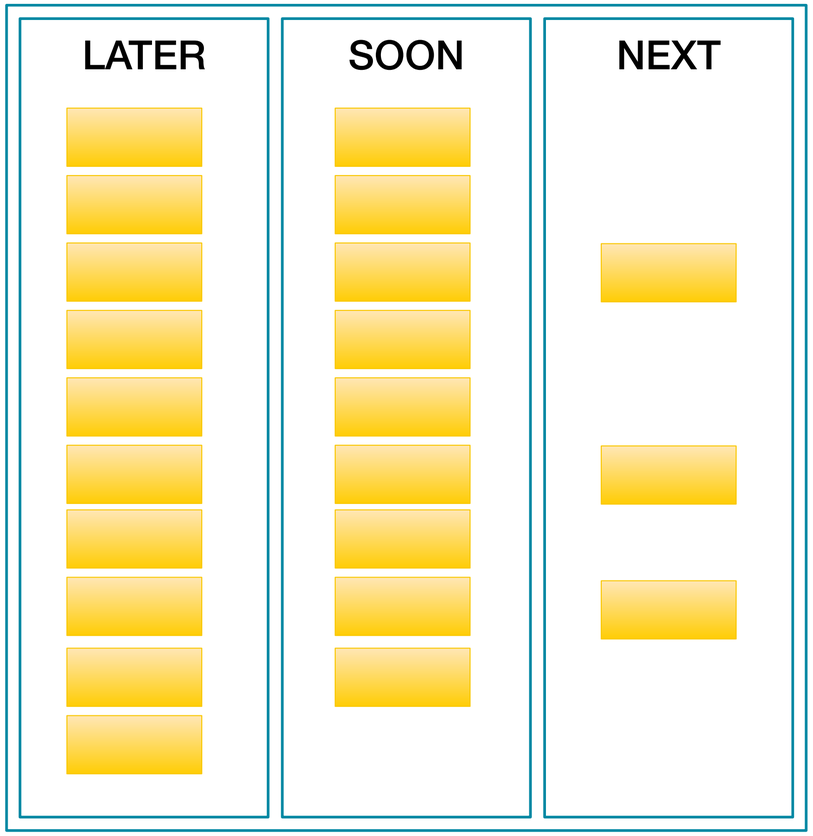

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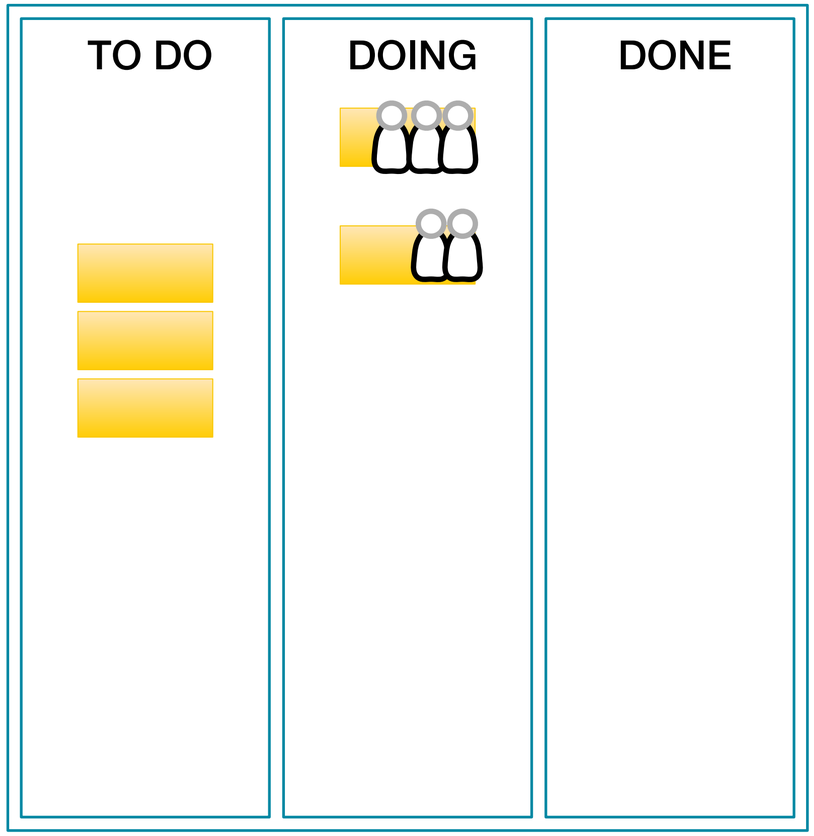

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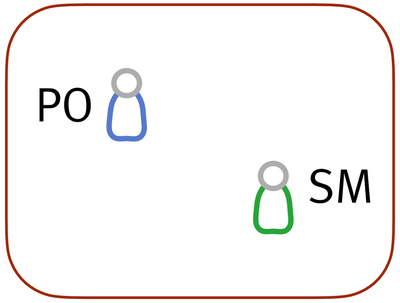

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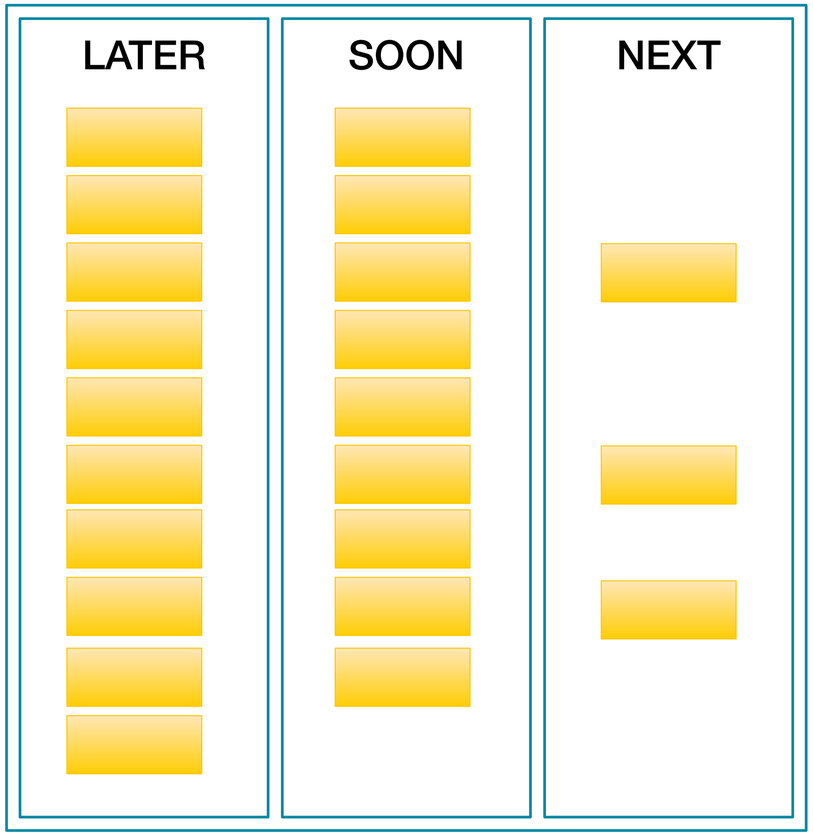

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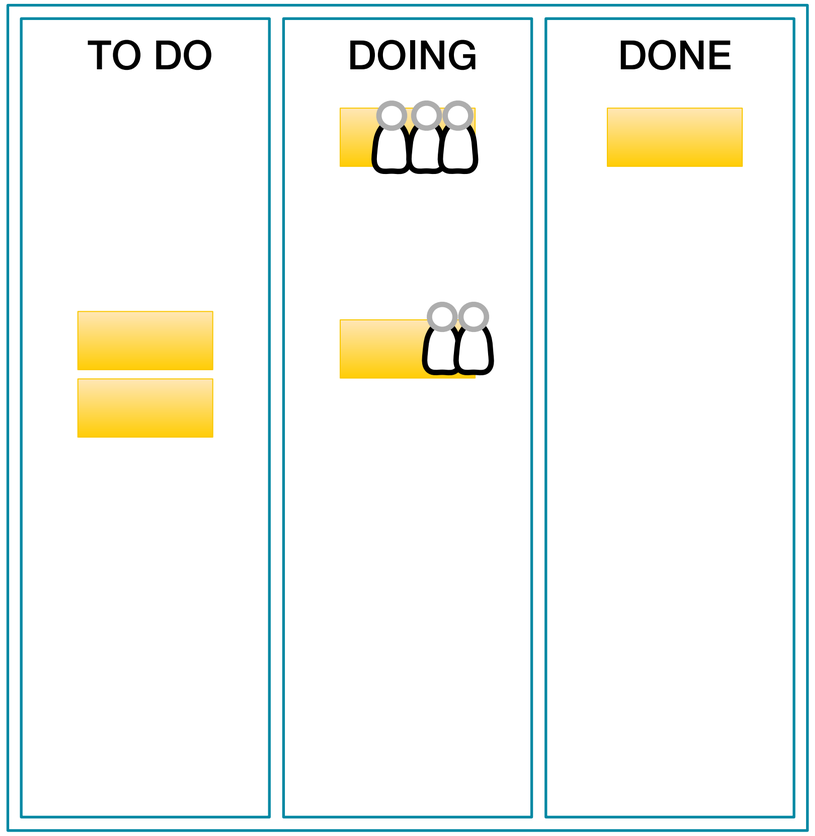

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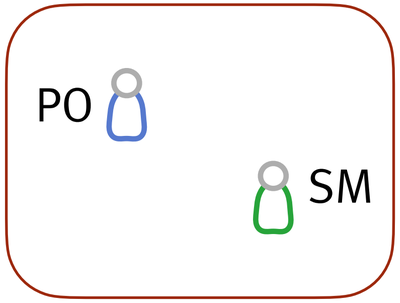

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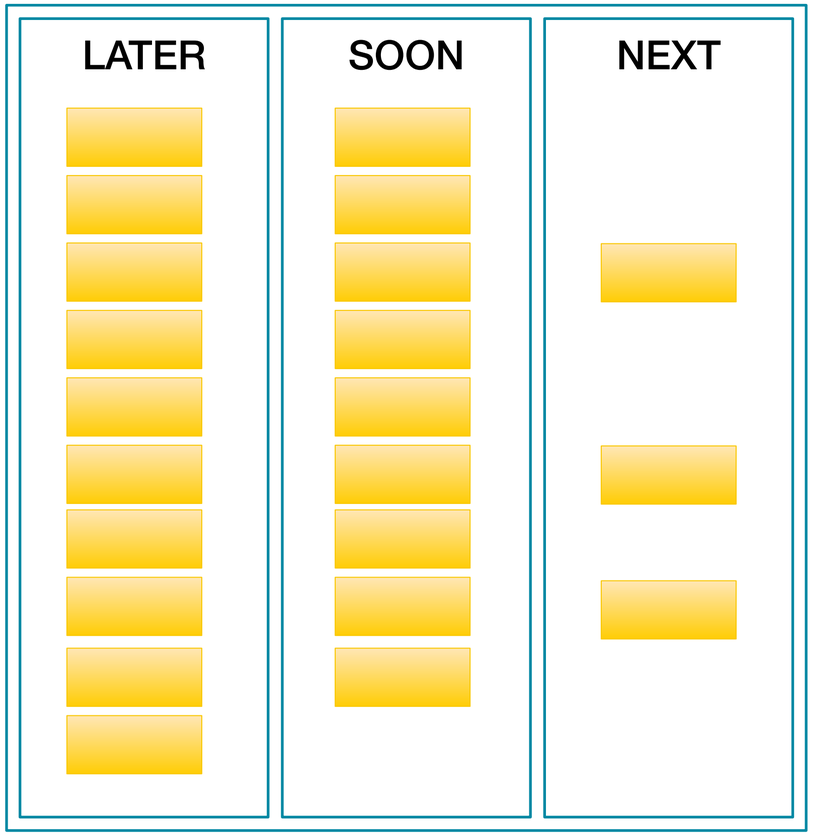

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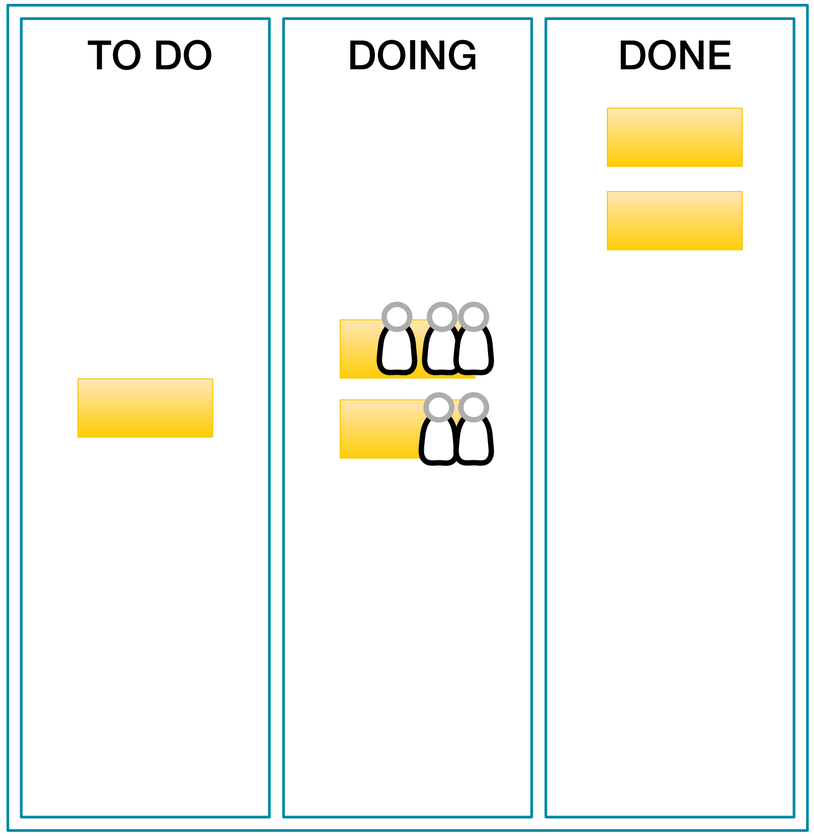

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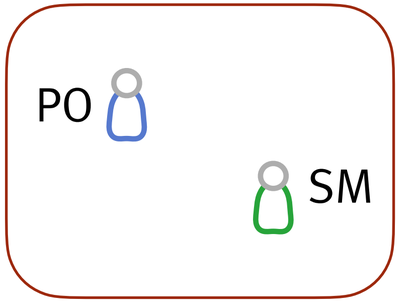

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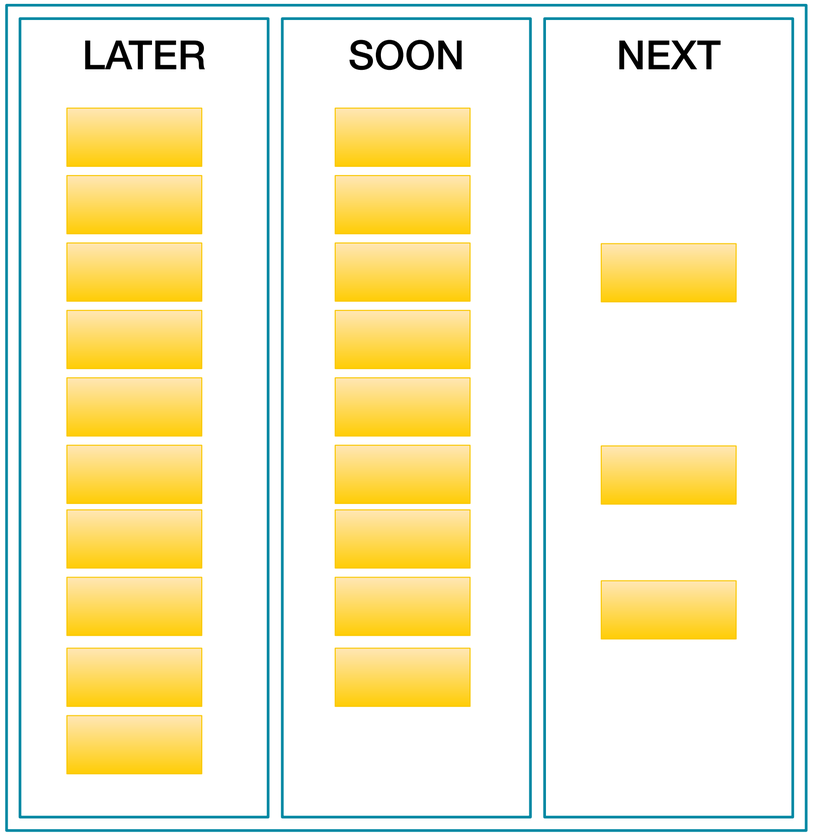
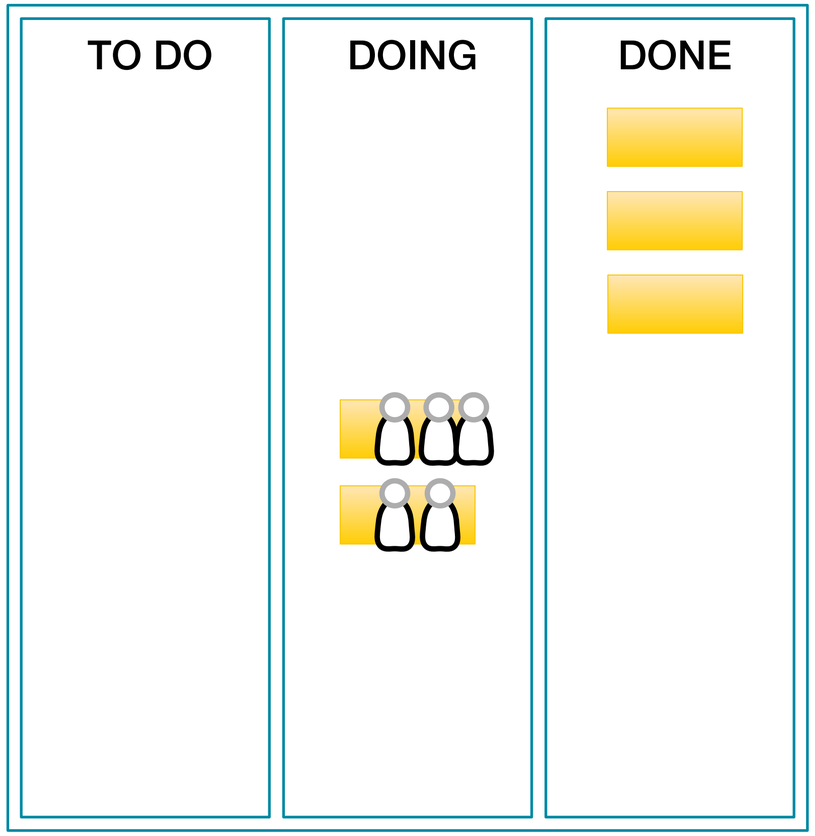


PRODUCT BACKLOG



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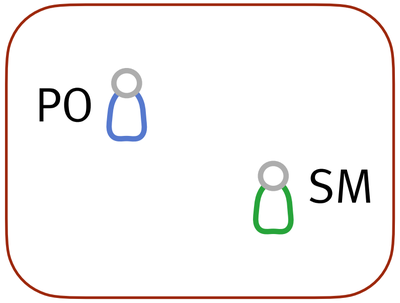

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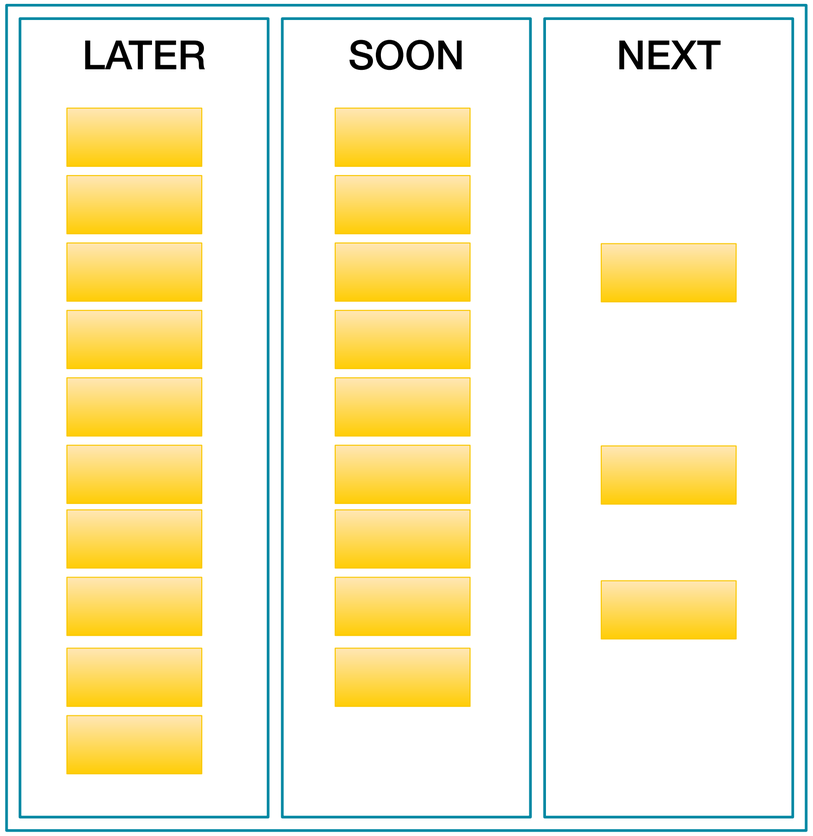

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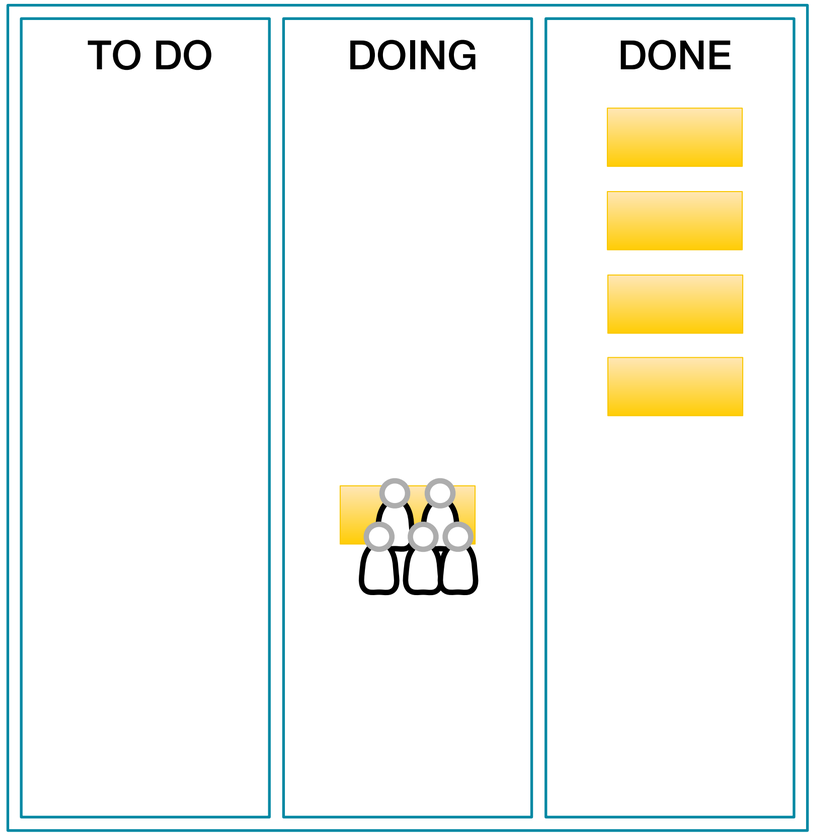

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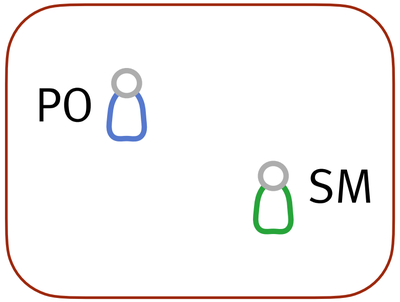

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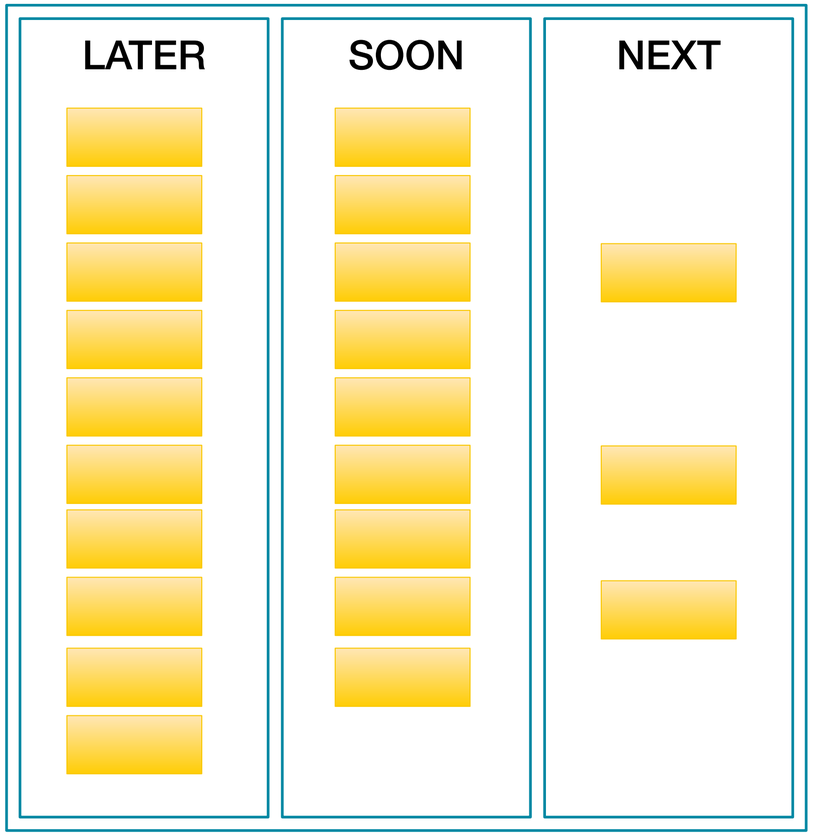

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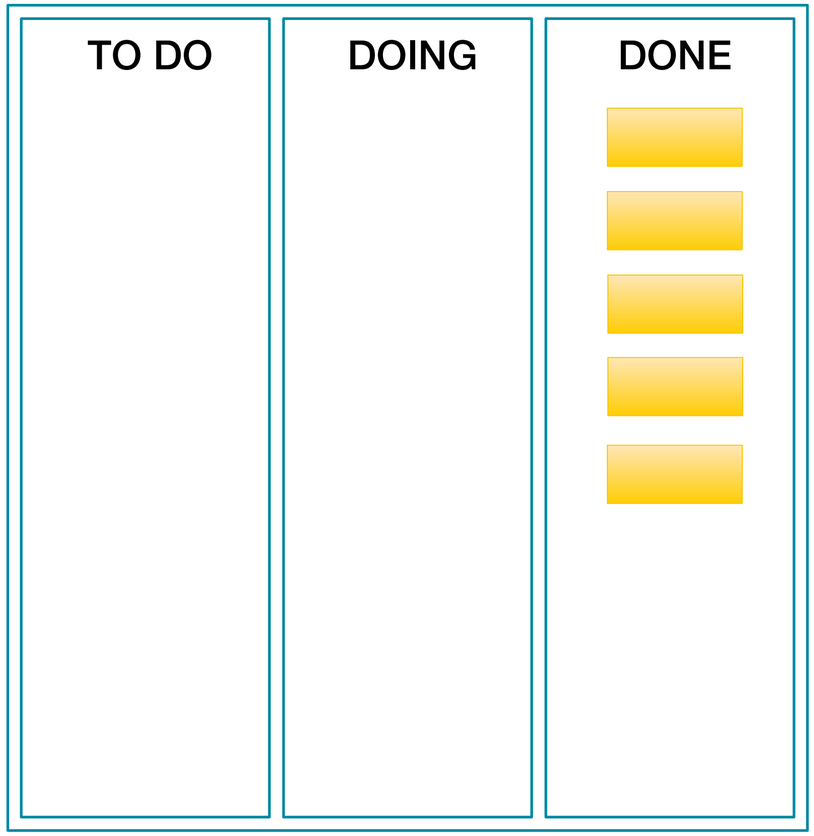

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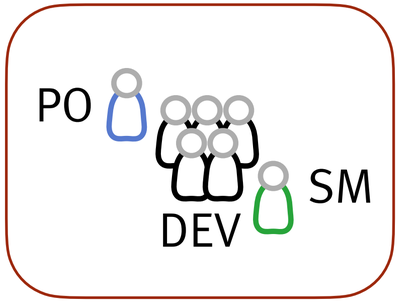

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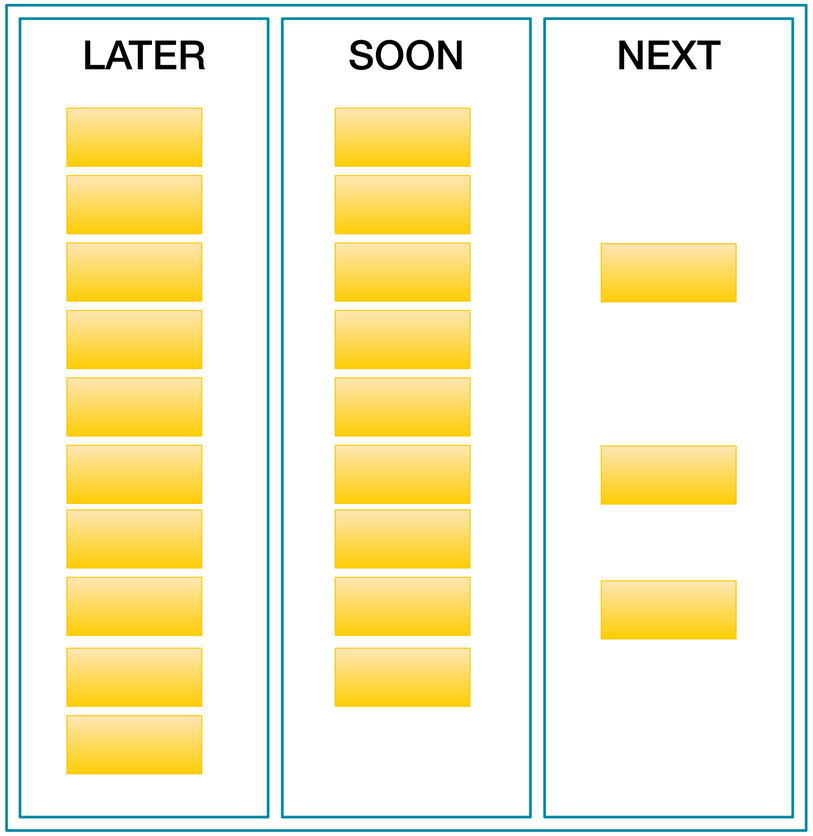

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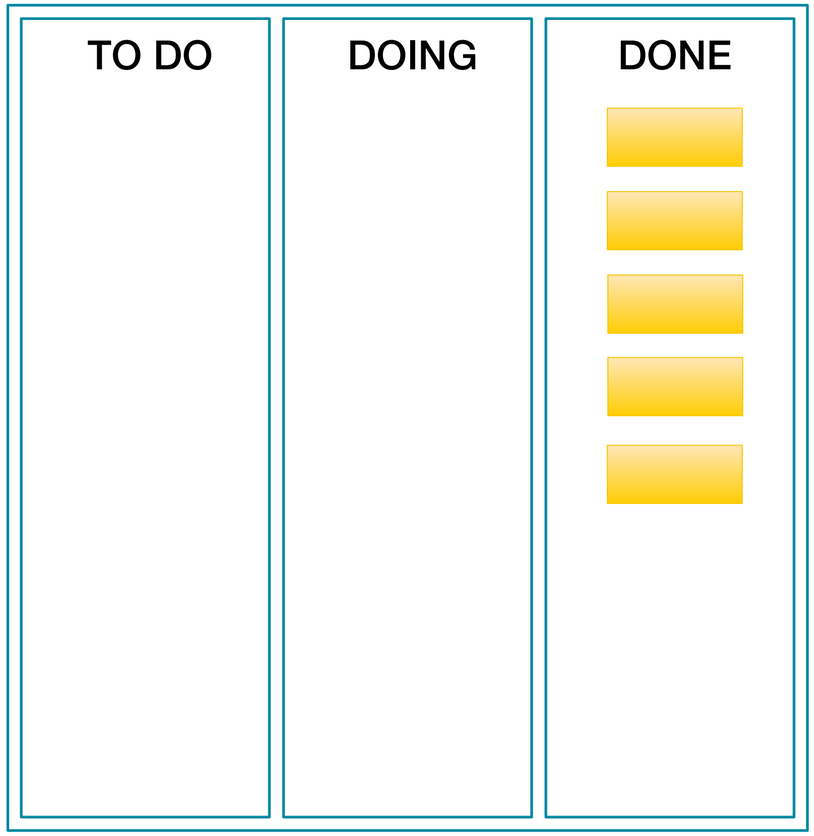

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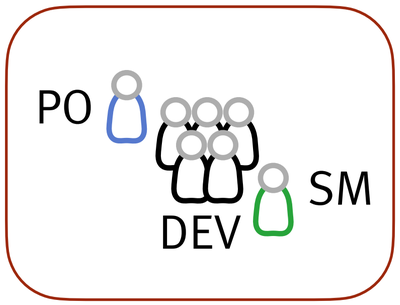

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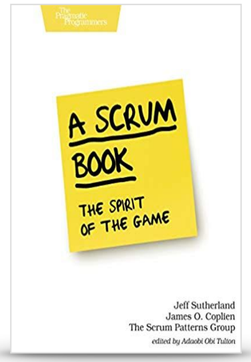
Managing not plannable work

Scrum Pattern: Illegitimus Non Interruptus



https://sites.google.com/a/scrumplop.org/published-patterns/product-organization-pattern-language/illegitimus-non-interruptus

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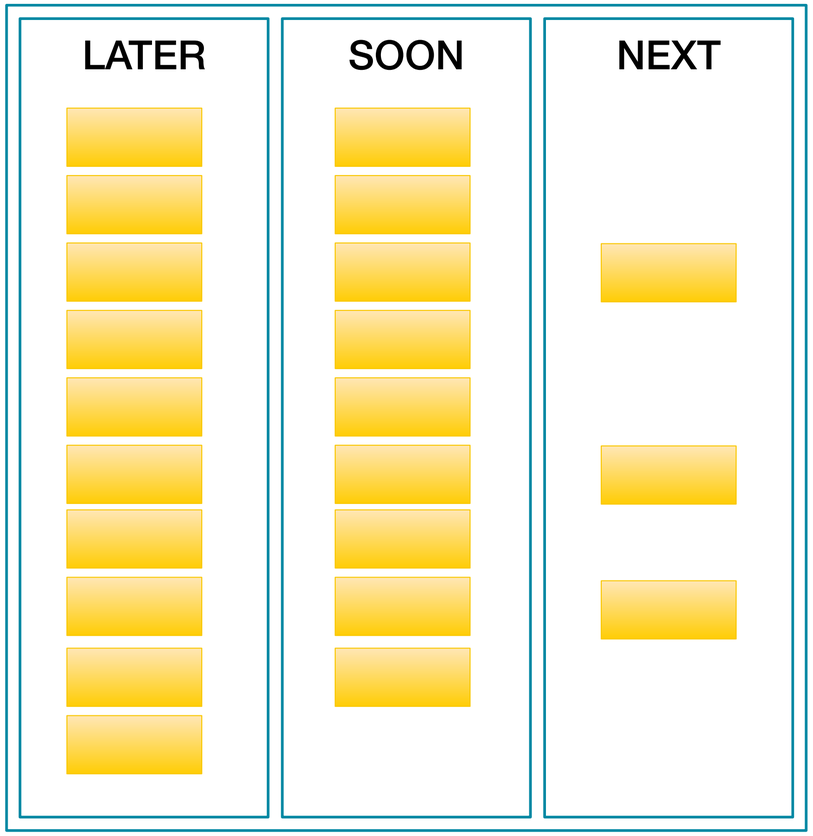
SPRINT PLANNING



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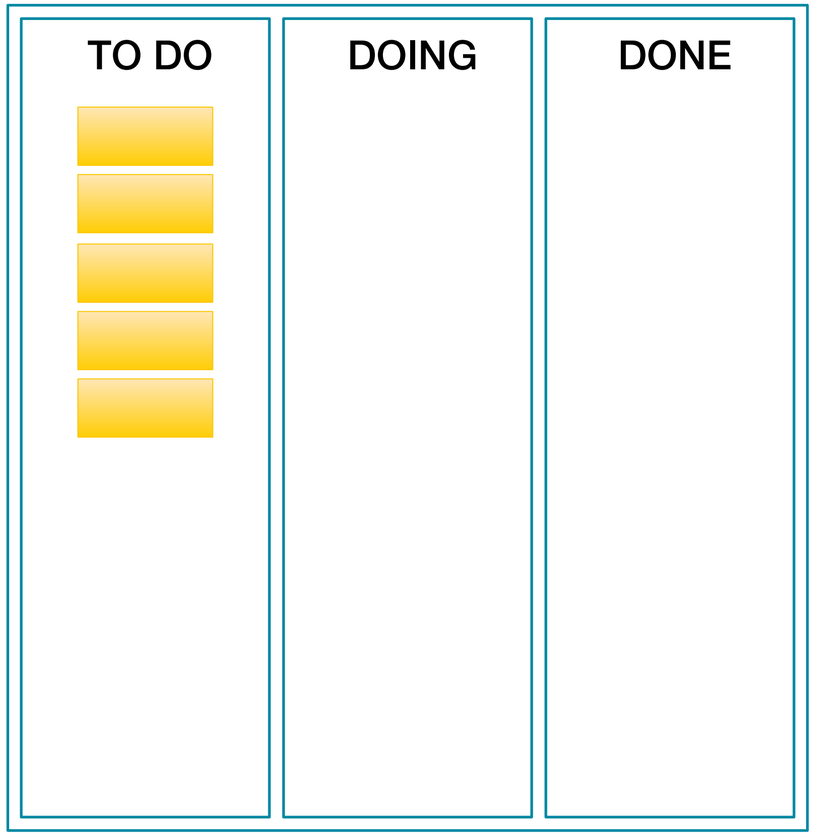

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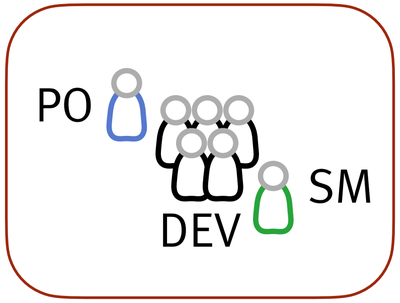

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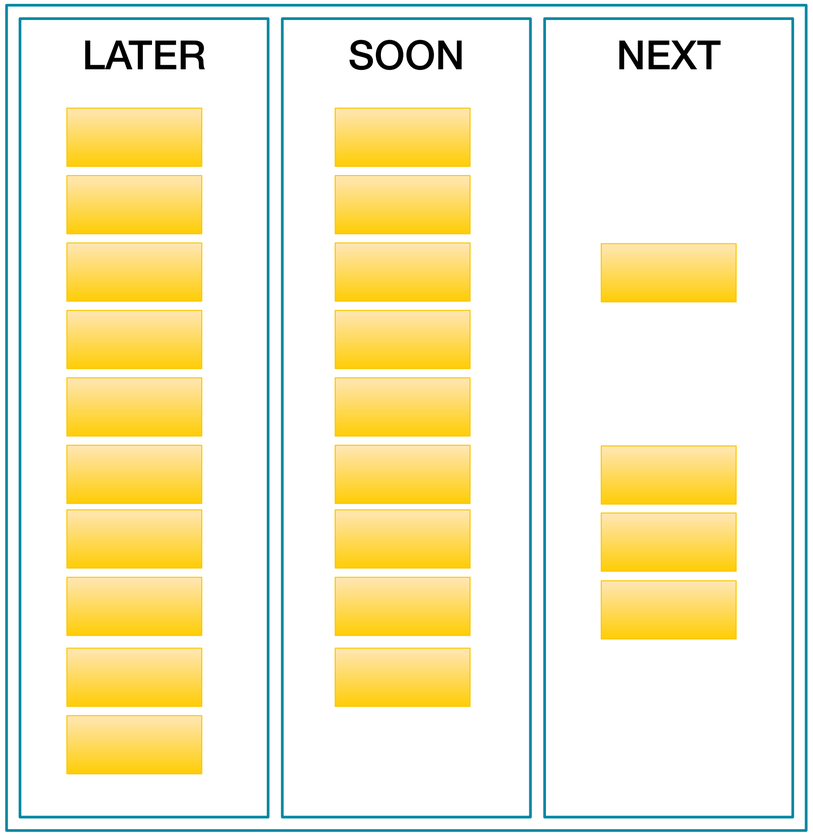

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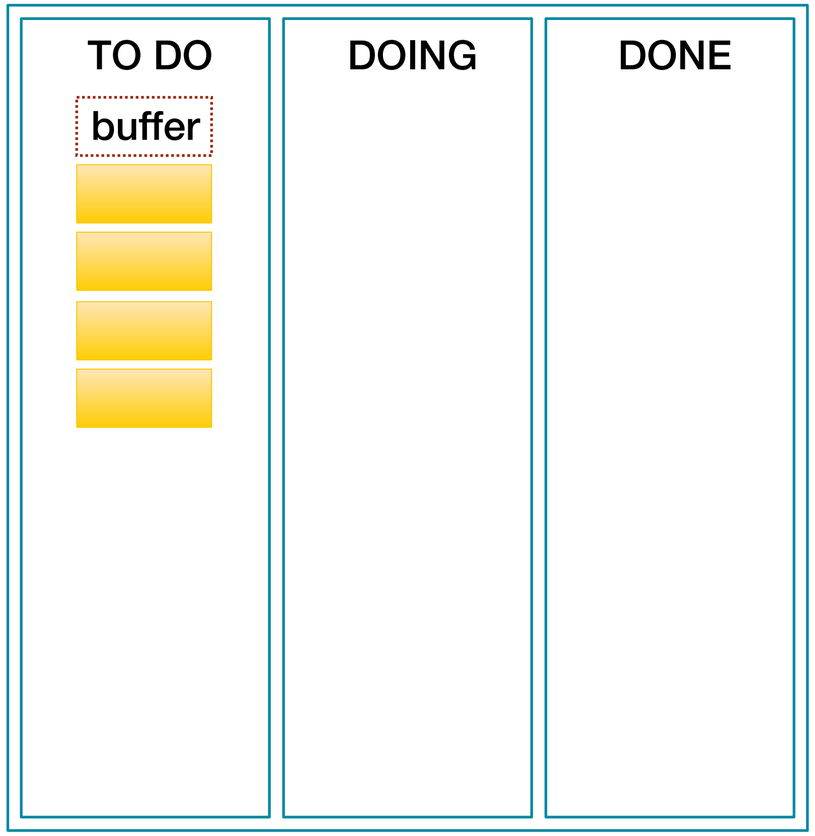

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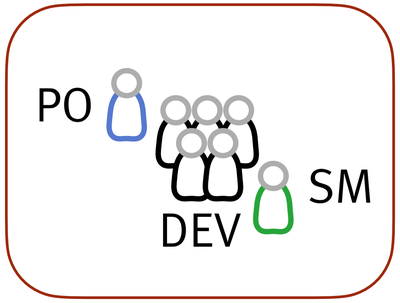

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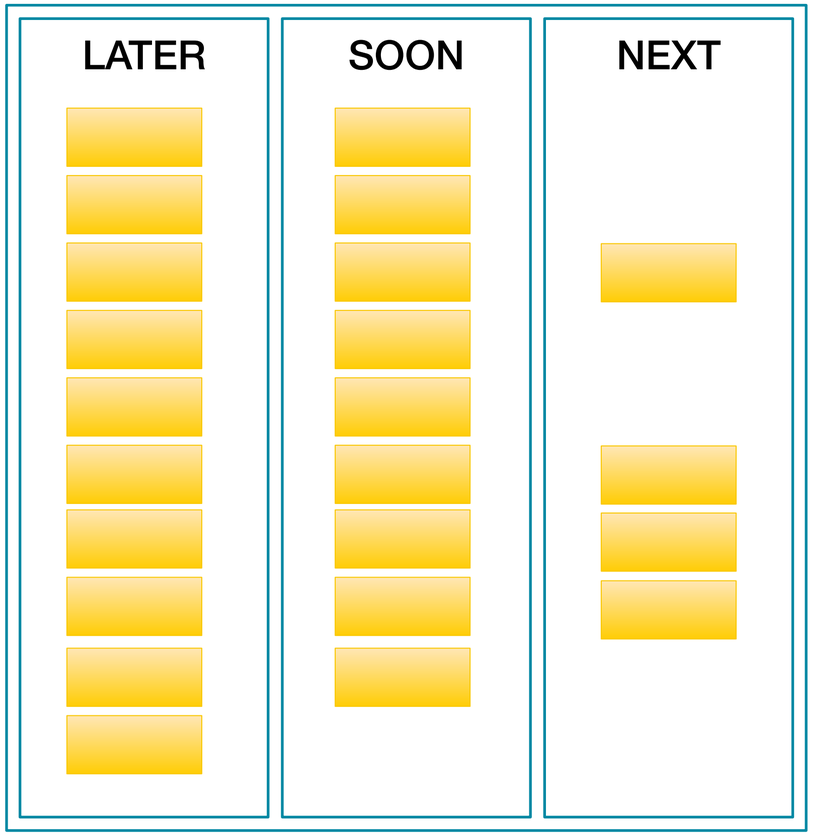

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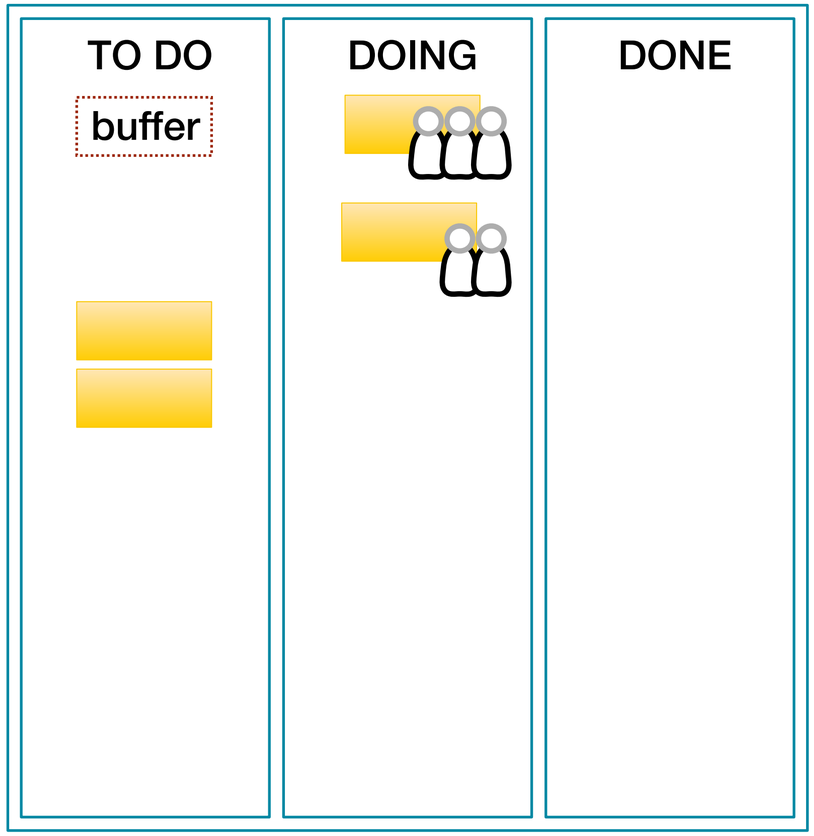

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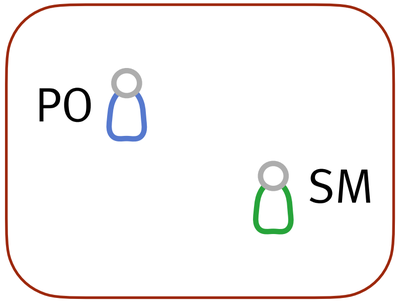

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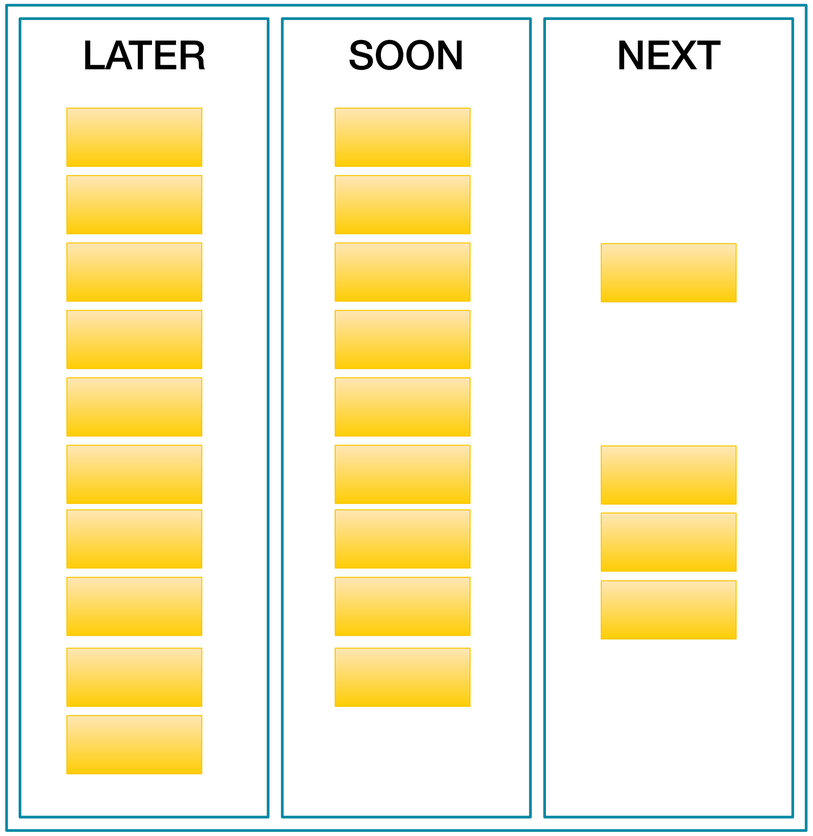

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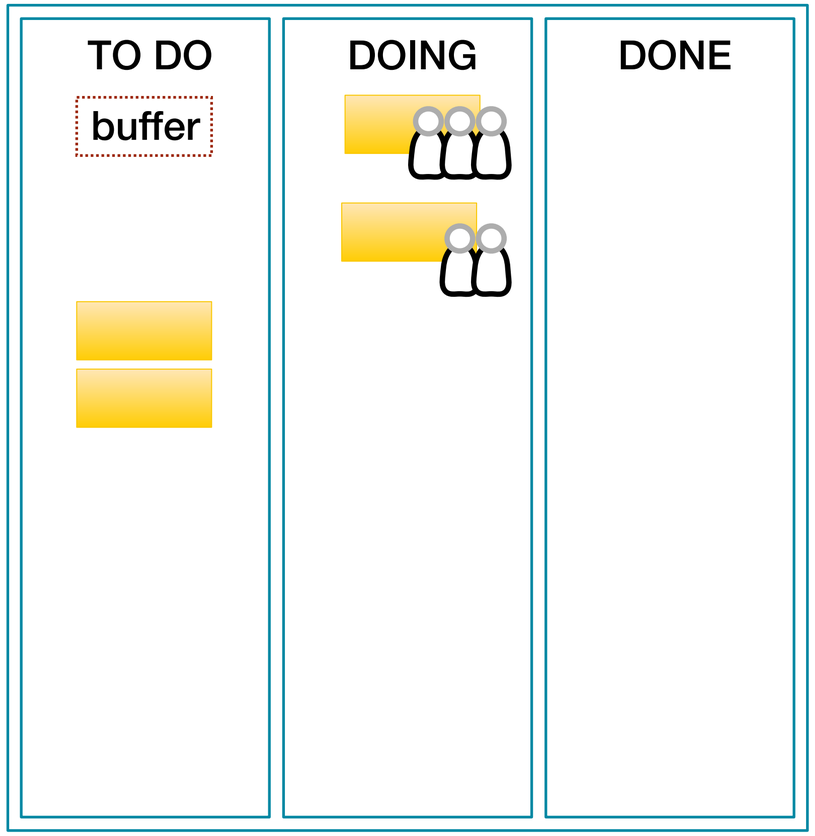

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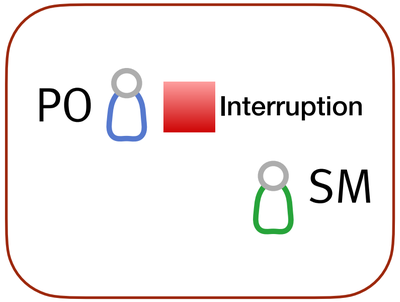

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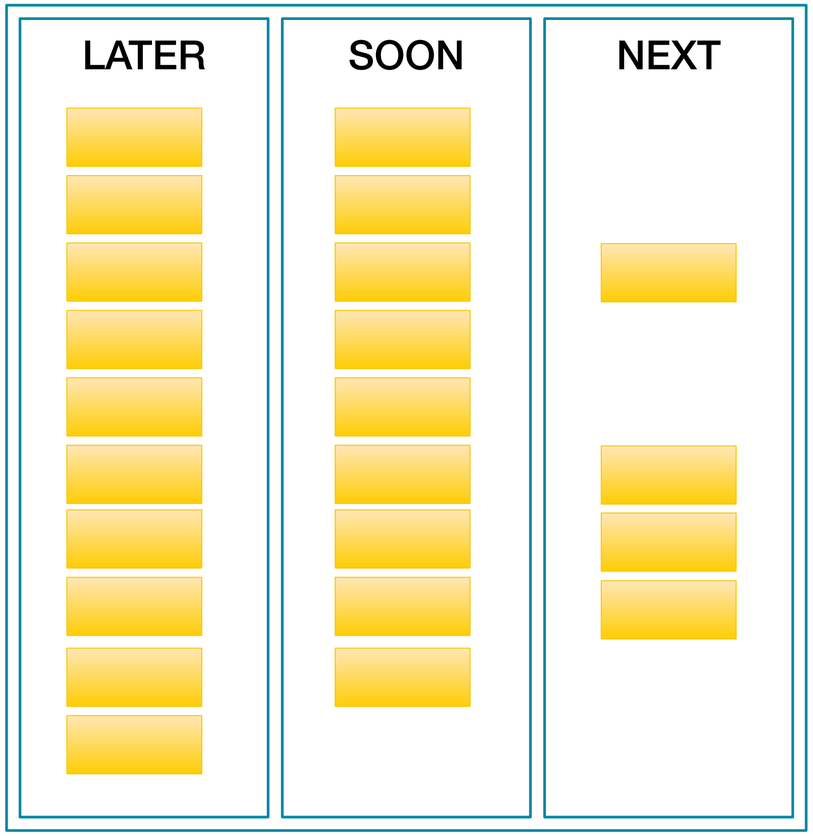

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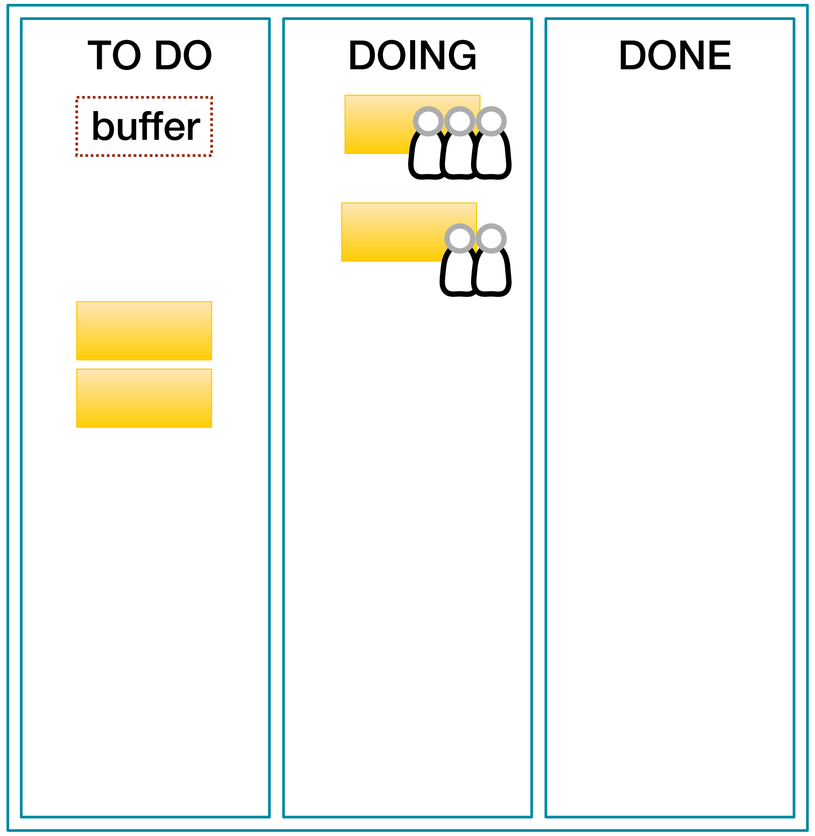

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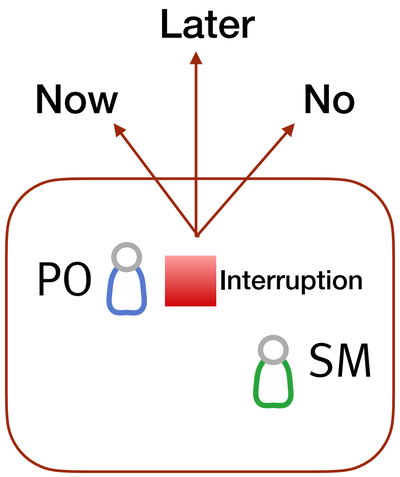

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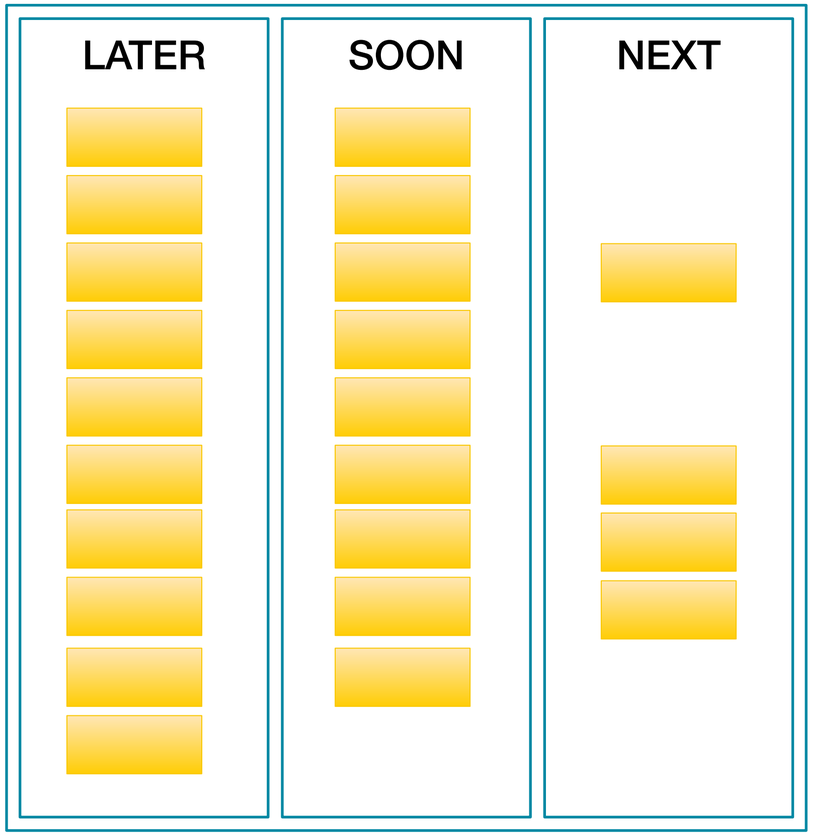

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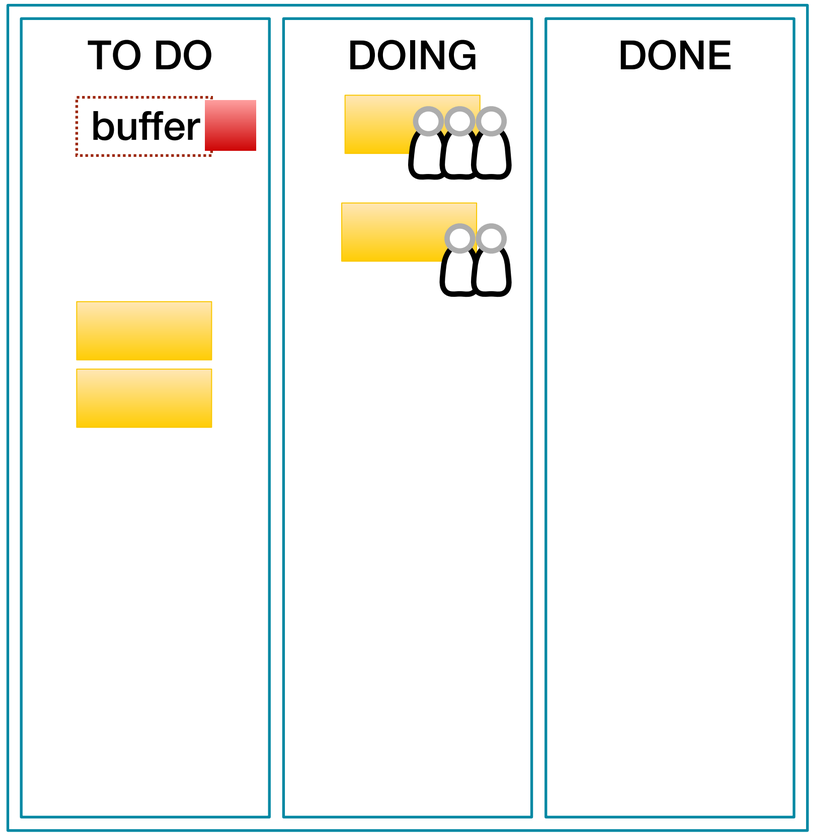

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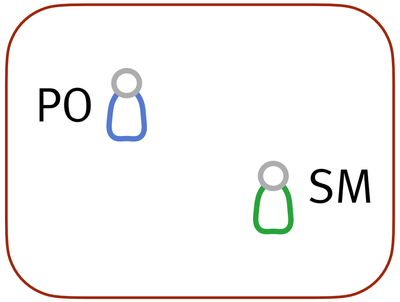

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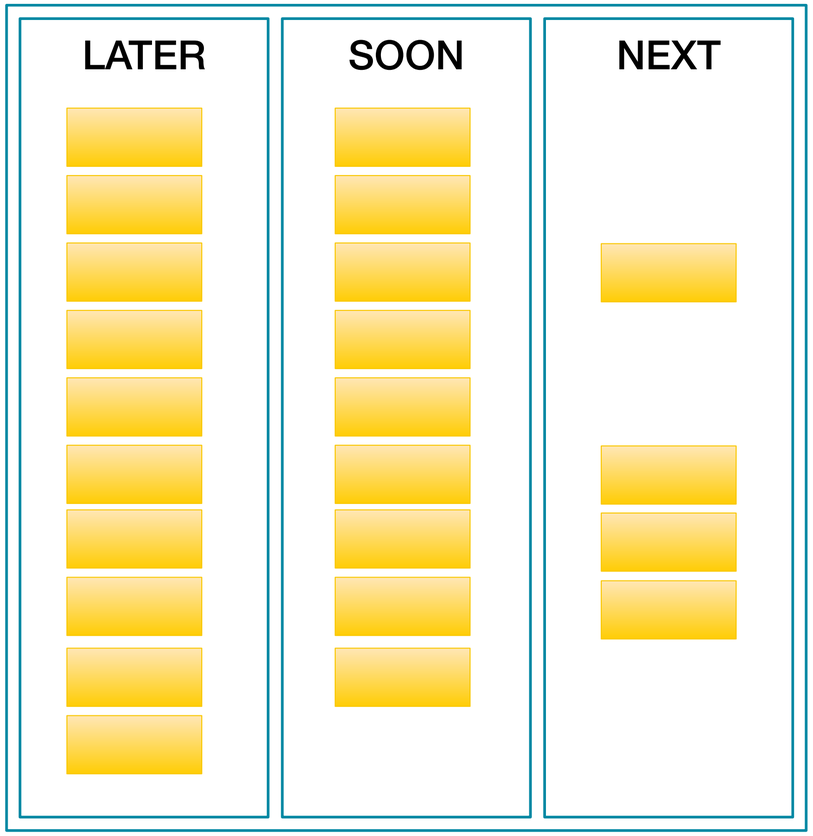

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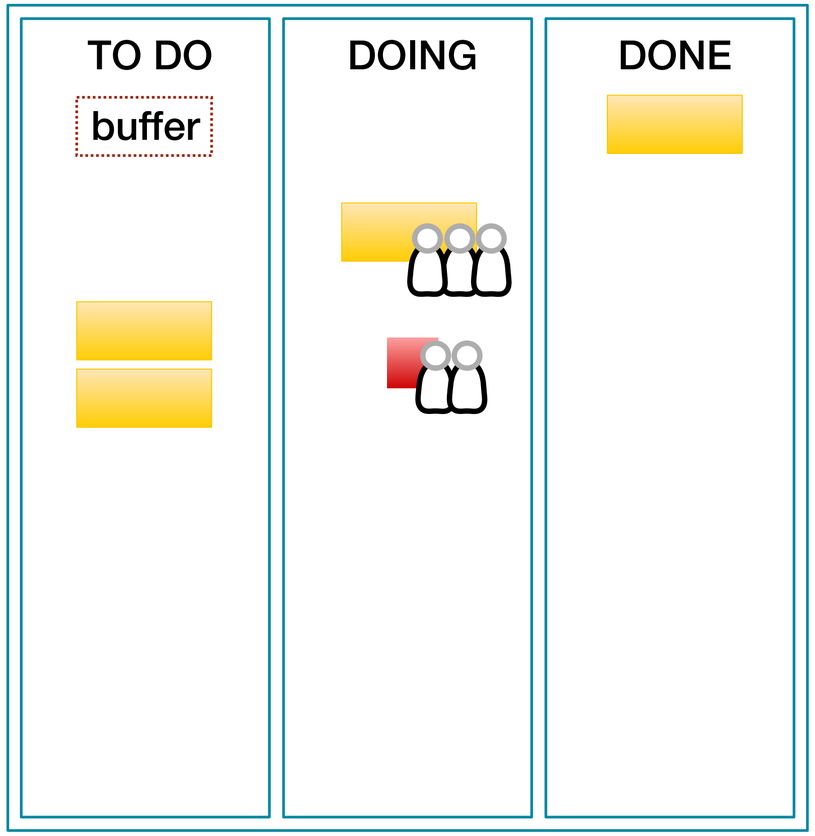

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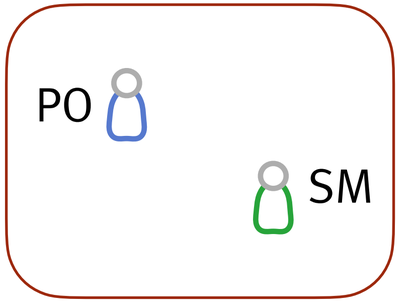

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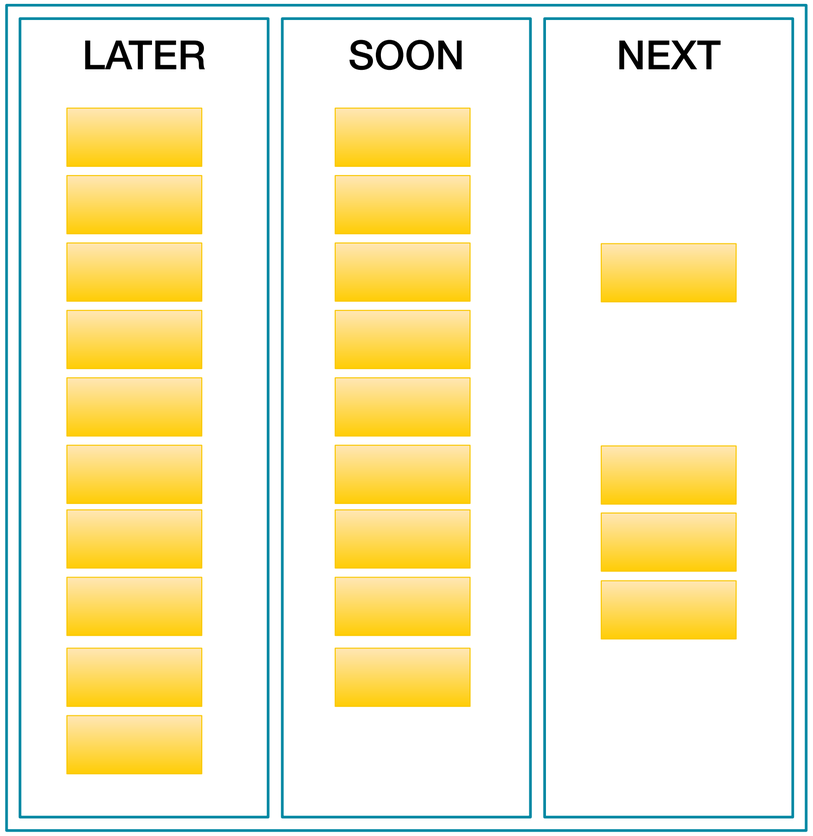

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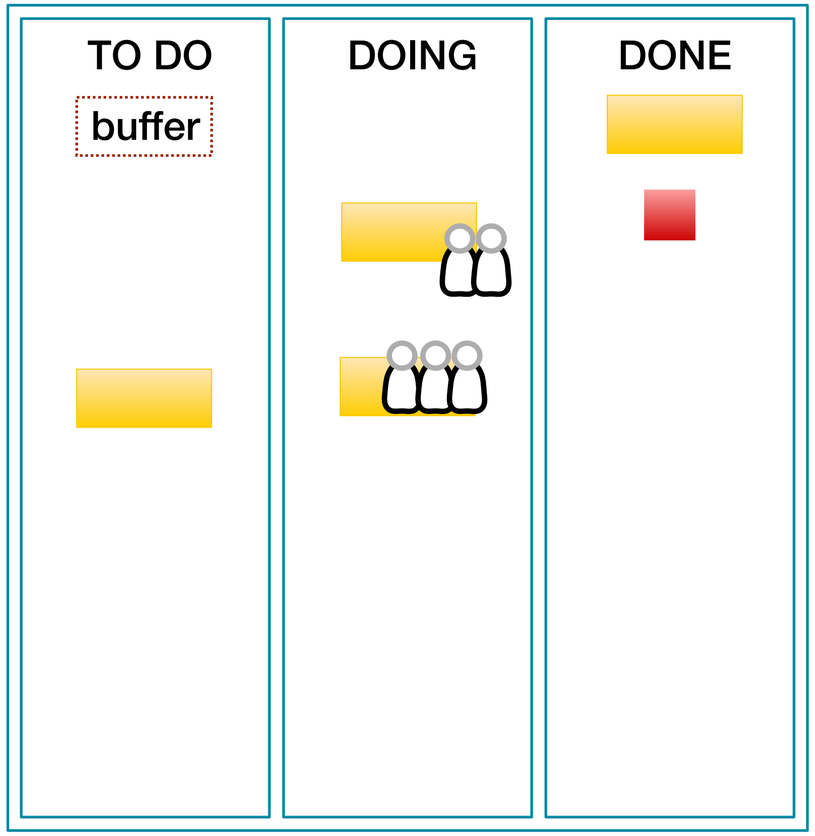

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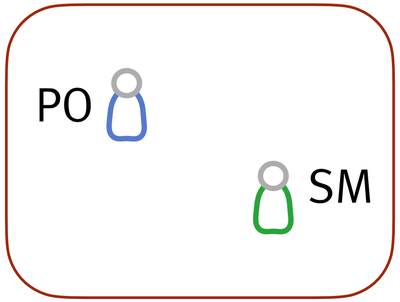

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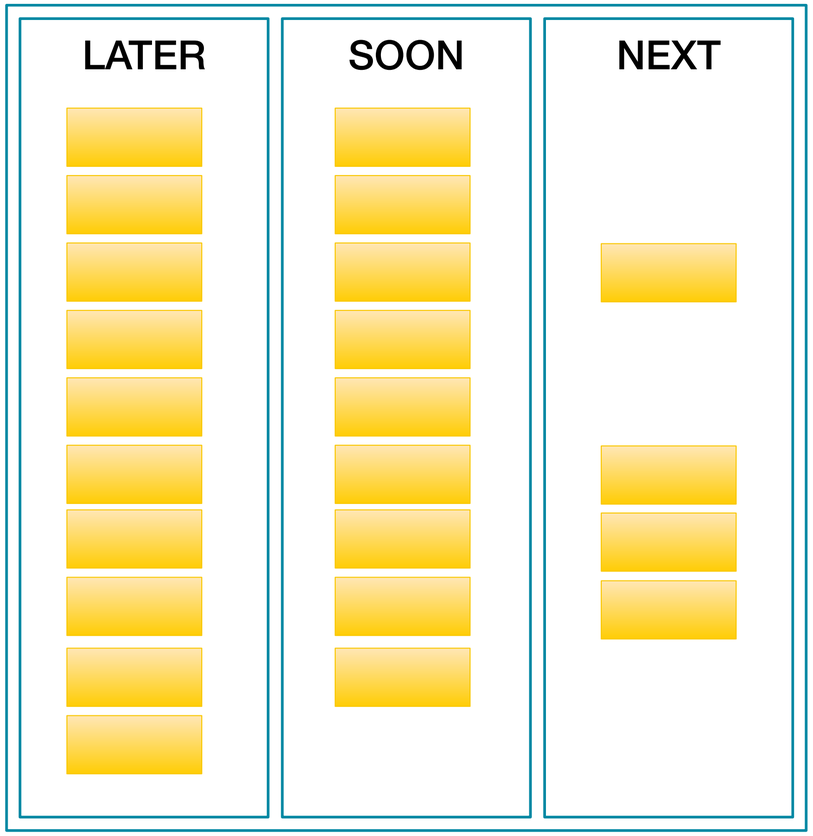

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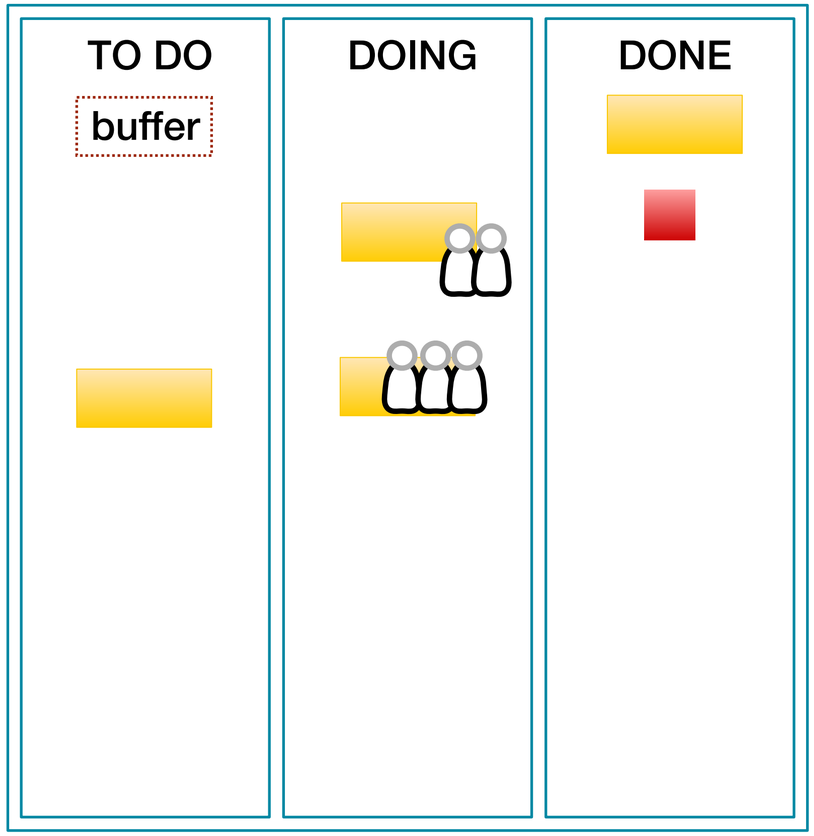

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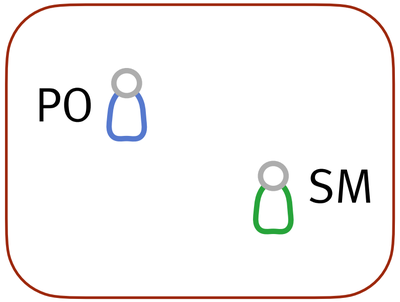

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On Buffer Overflow:
Sprint Abort, Replan and Notification to Management

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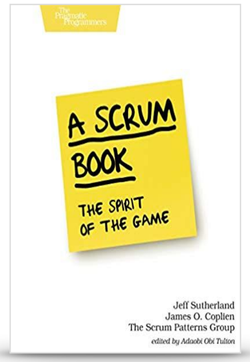
Offloading work items

Scrum Pattern: Emergency Procedure



https://sites.google.com/a/scrumplop.org/published-patterns/product-organization-pattern-language/emergency-procedure

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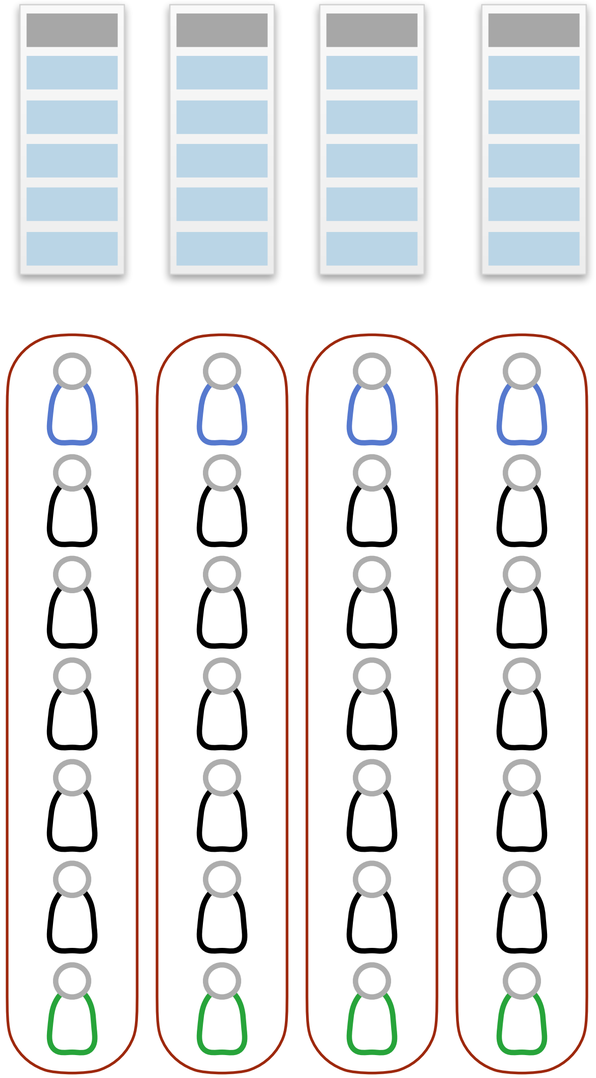
Team of Teams

Sprint
Backlog



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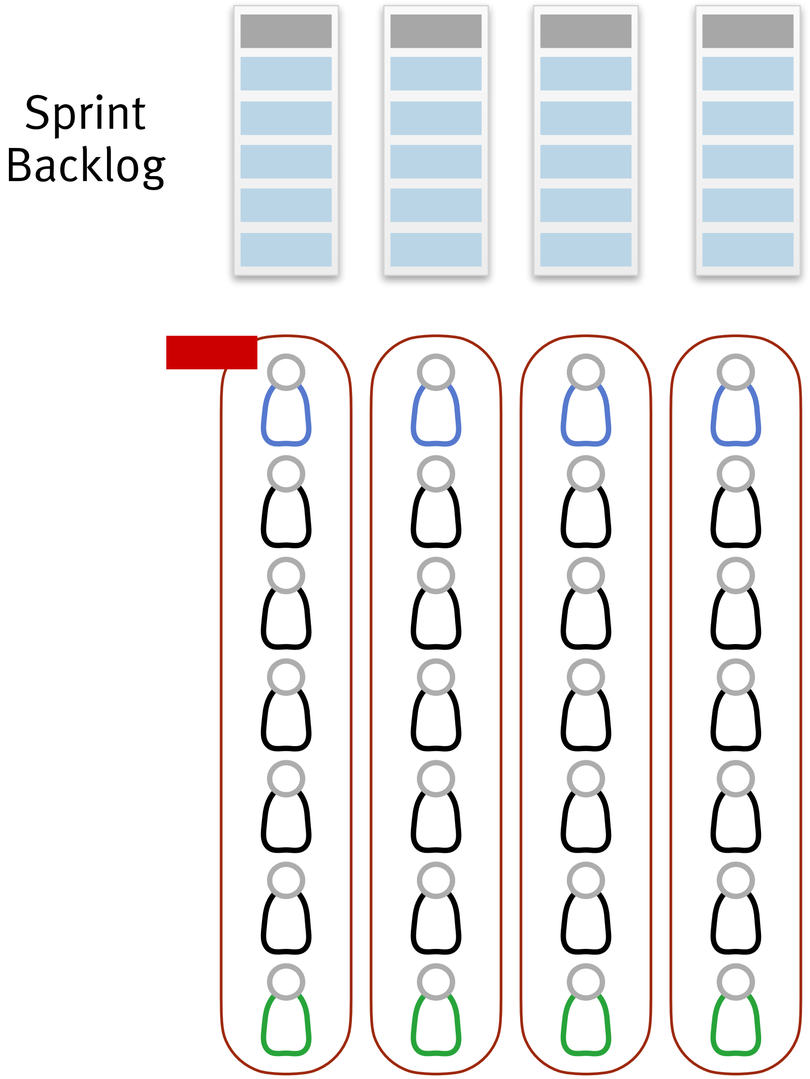
Team of Teams



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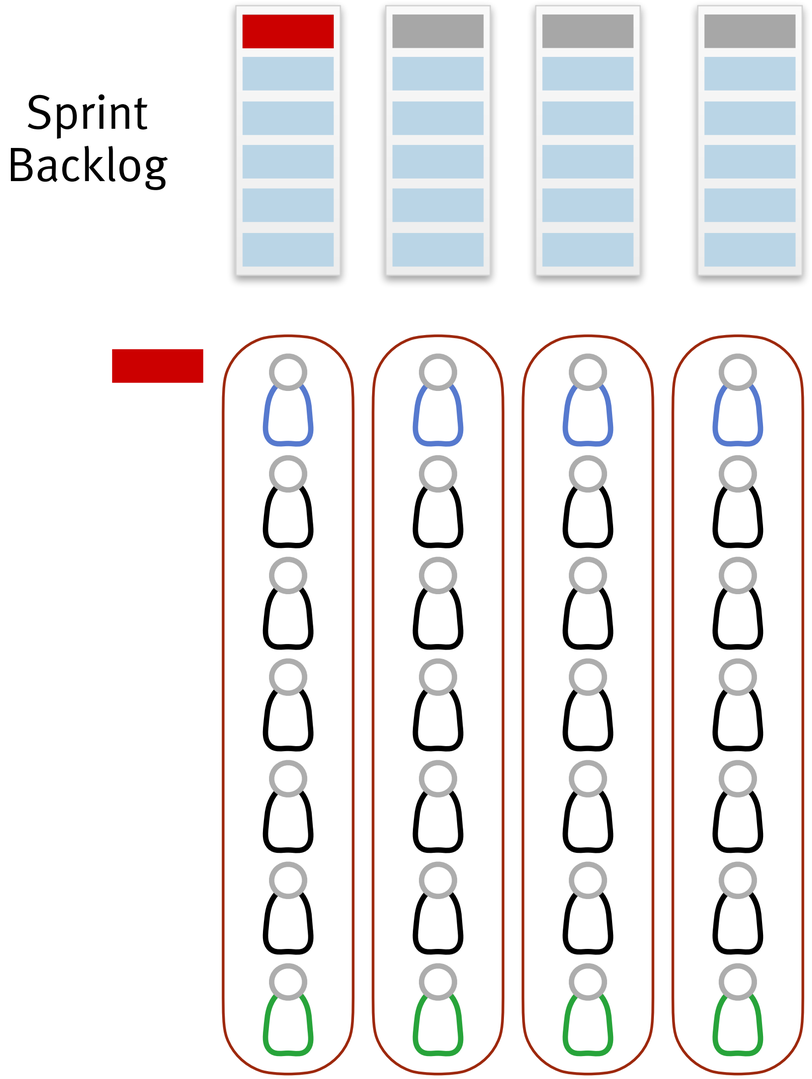
Team of Teams



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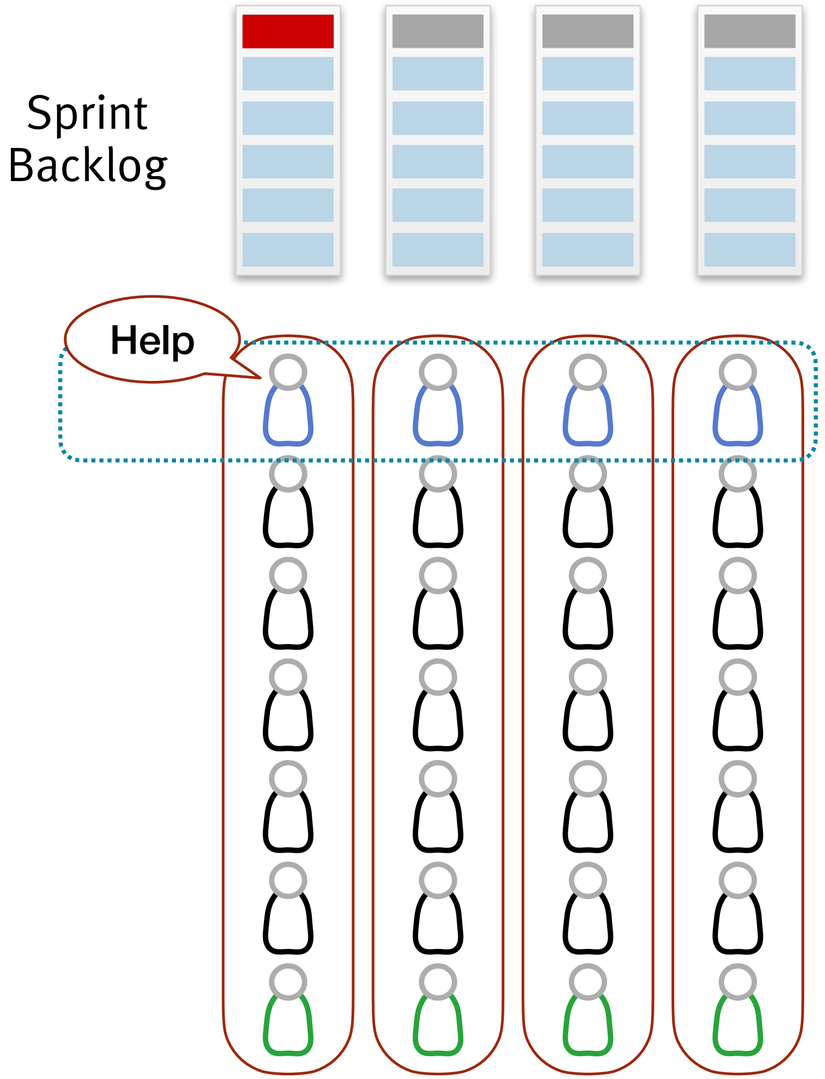
Team of Teams



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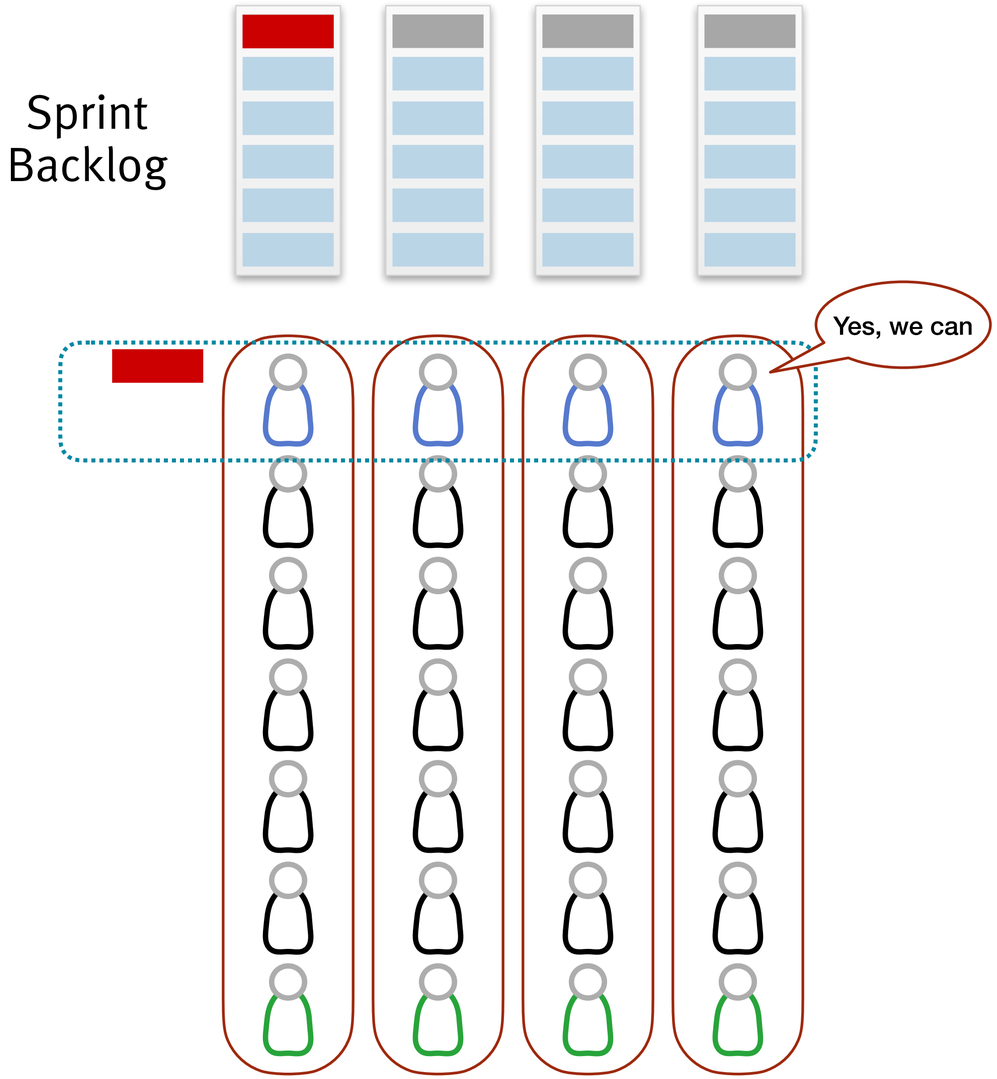
Team of Teams



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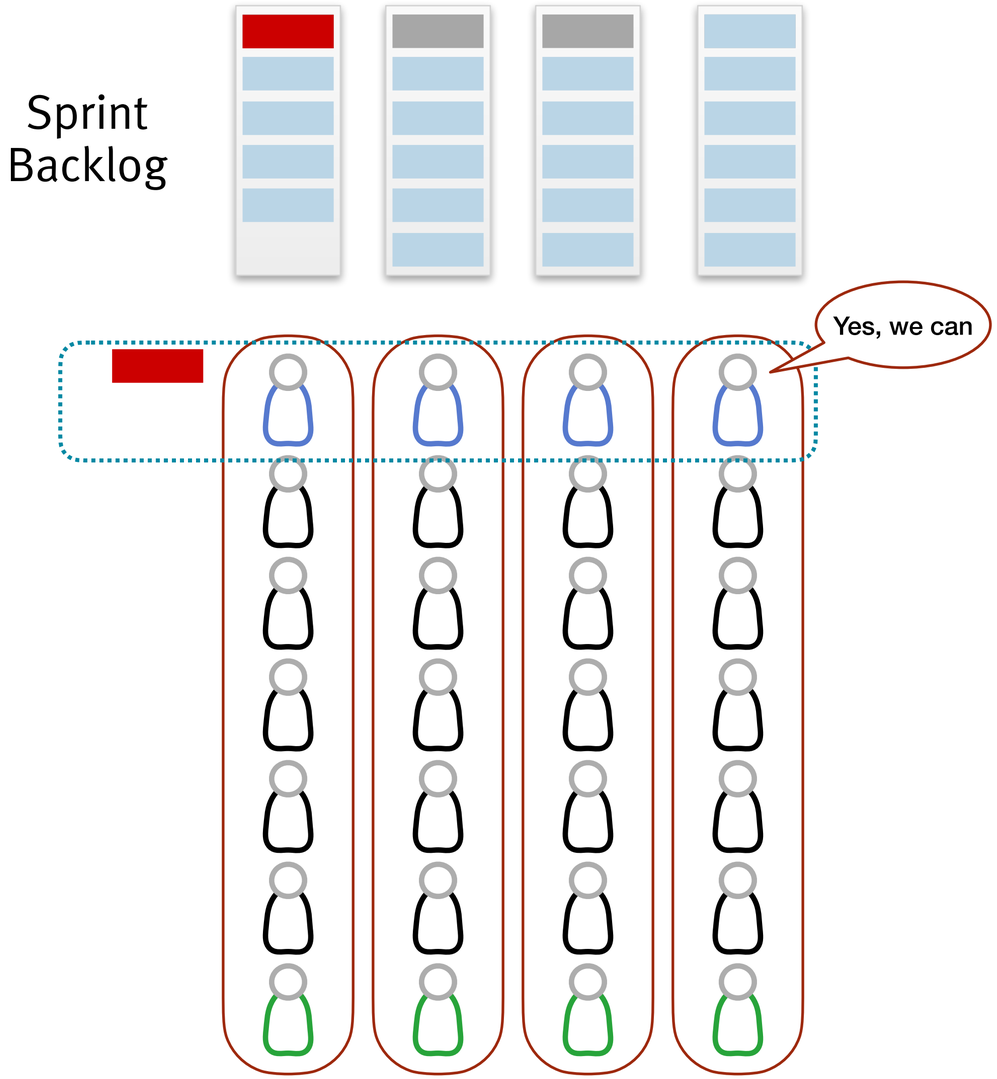
Team of Teams



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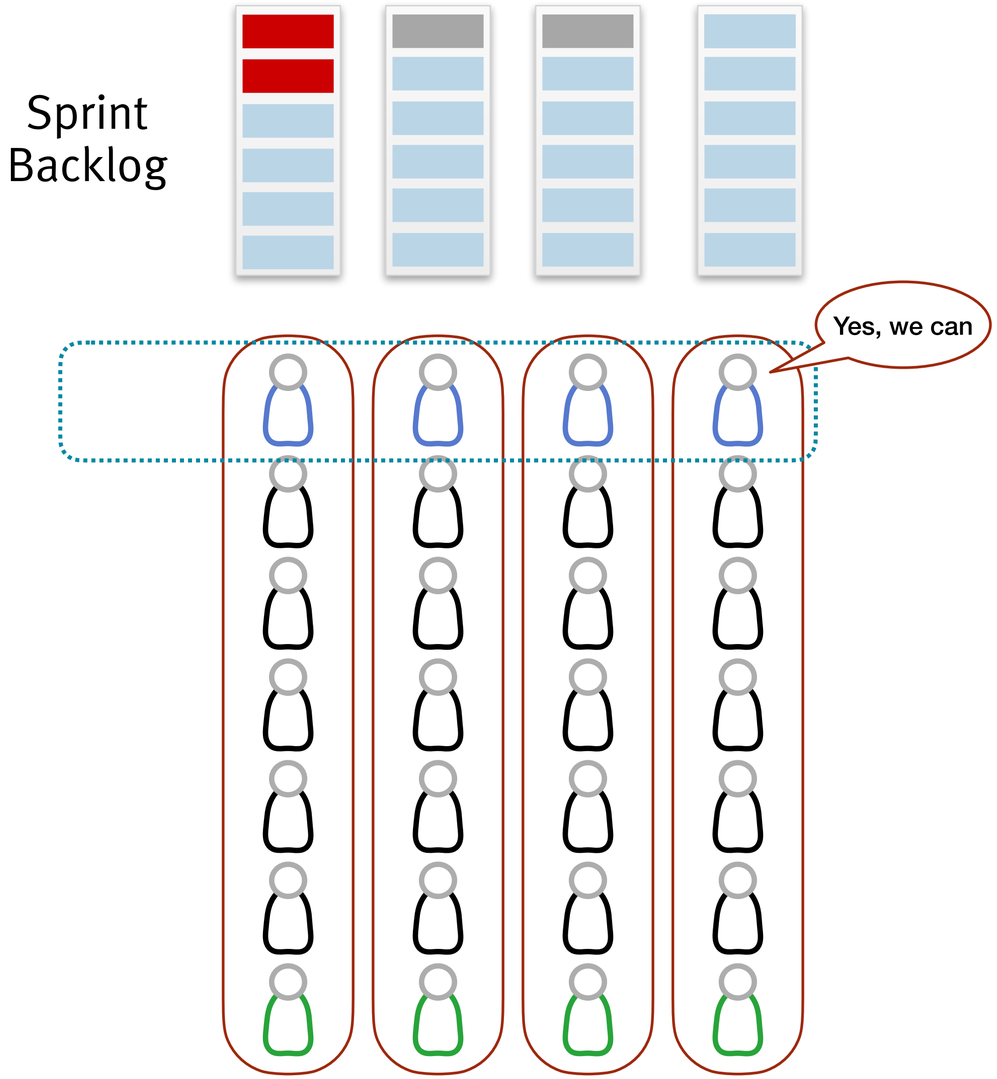
Team of Teams



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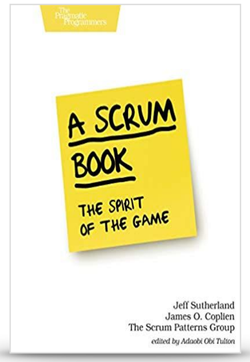
Continuous Improvement and Impediment Removal

Scrum Pattern: Scrum of Scrums



https://sites.google.com/a/scrumplop.org/published-patterns/product-organization-pattern-language/scrum-of-scrums

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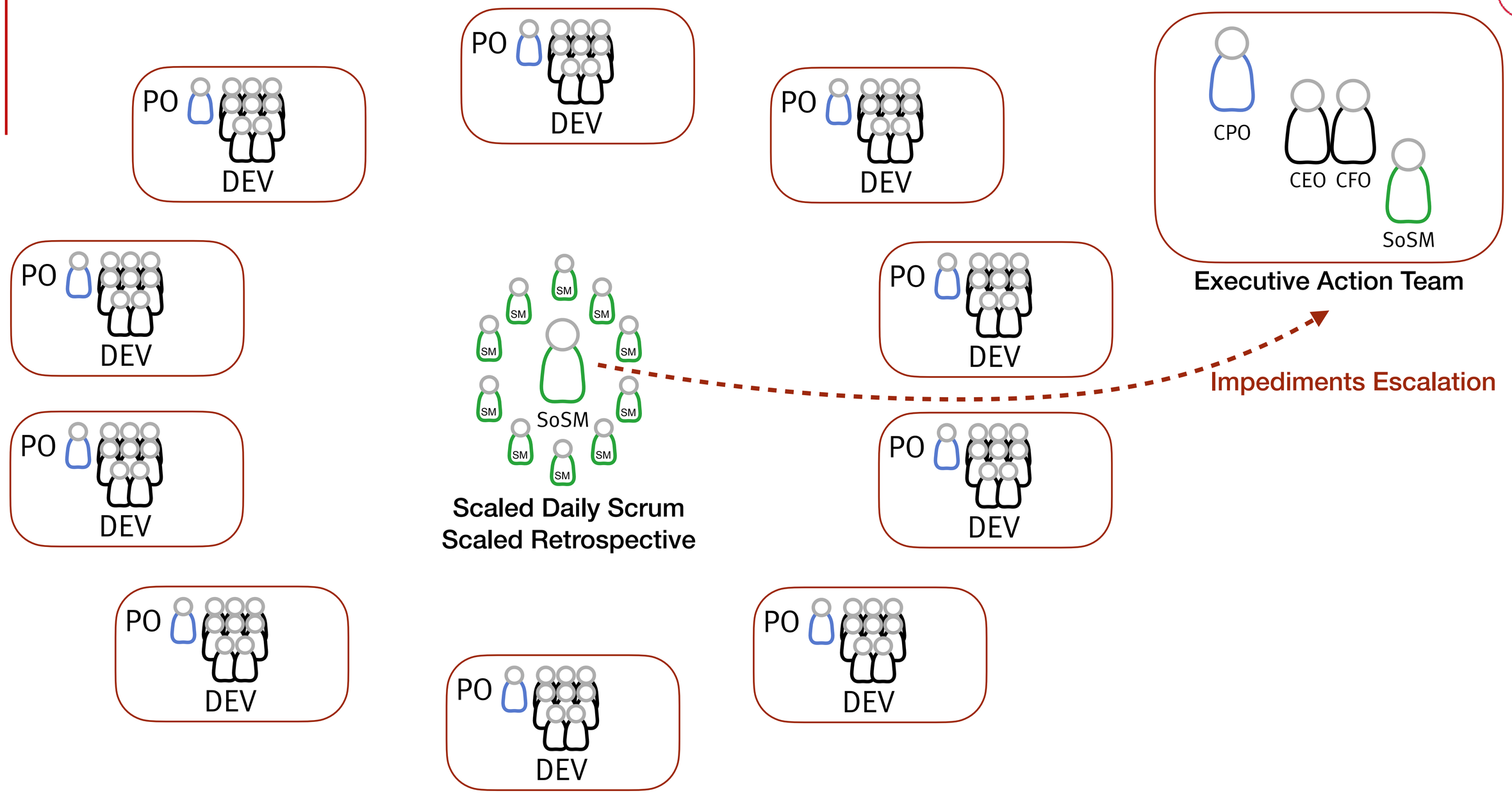

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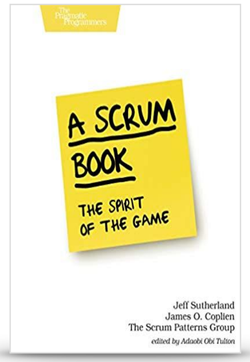
Cross-Team Coordination

Scrum Pattern: Birds of a Feather



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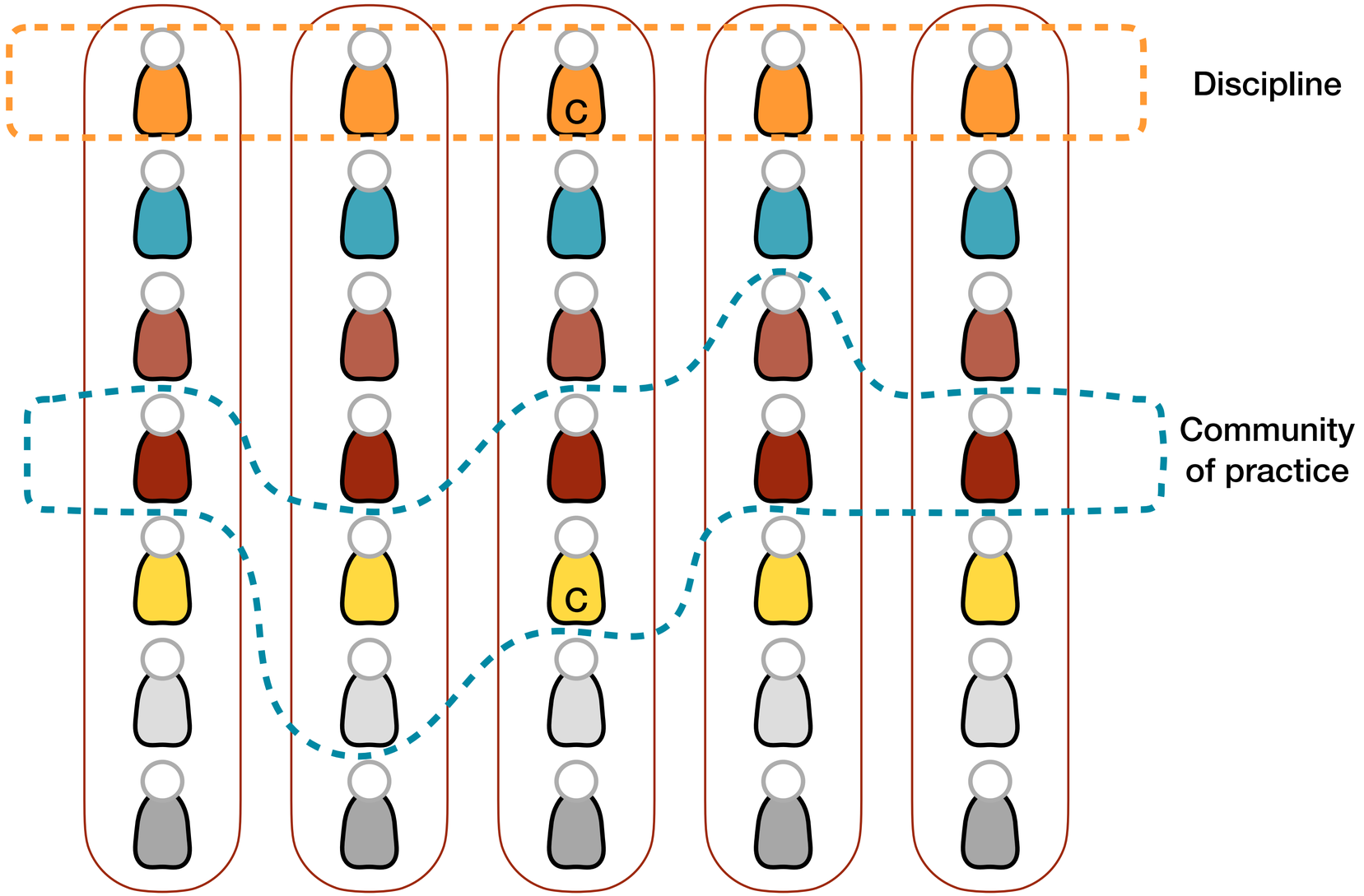

Leaders are member of One Team and serve one or multiple Teams for specific topics

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Sprint Review

Scrum Pattern: Sprint Review

https://sites.google.com/a/scrumplop.org/published-patterns/value-stream/sprint-review

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Sprint Review

- At the moment, the Sprint Reviews are performed remotely only due to the Pandemic. Soon it will start to be in-person or hybrid.
- Time slots and Agenda are known in advance. Each team invites stakeholders to their time slot.
- Multiple techniques to anticipate the increment and gather feedback (Render, Designs, Videos, etc.)

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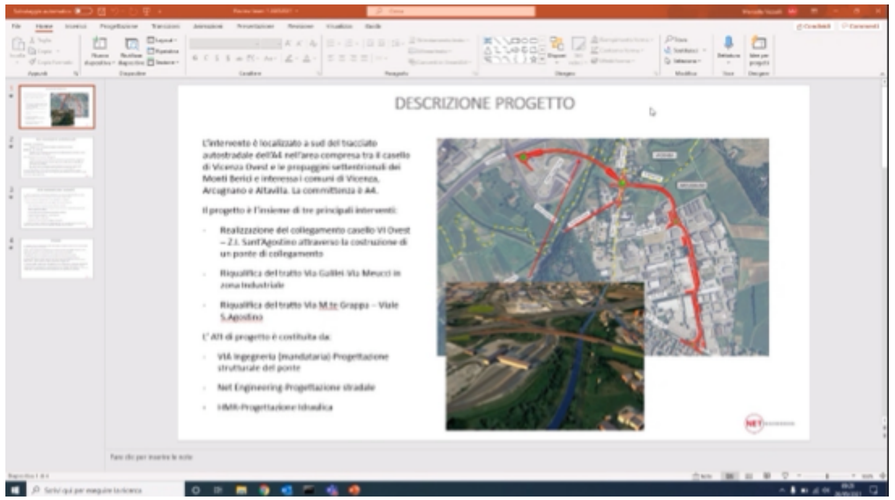
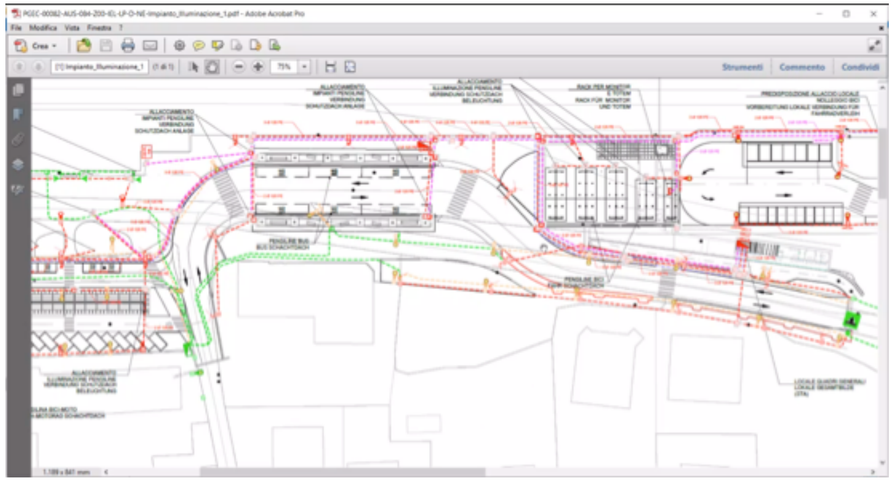
Remote Sprint Reviews





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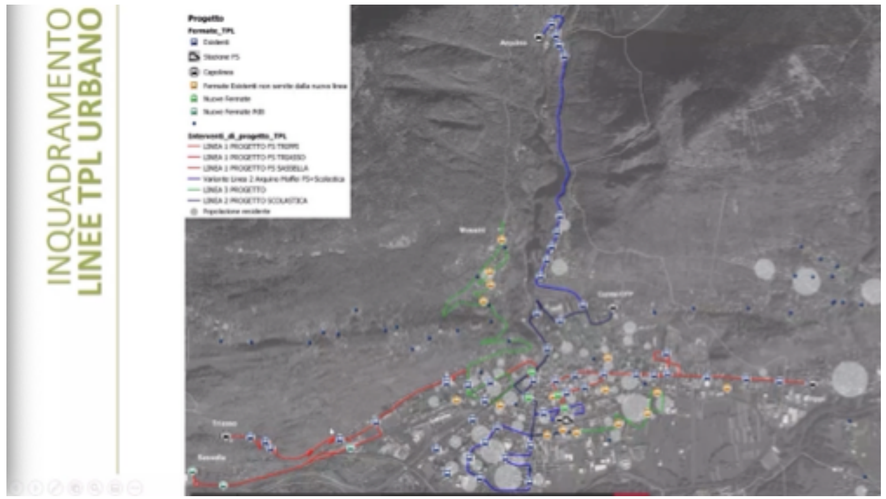
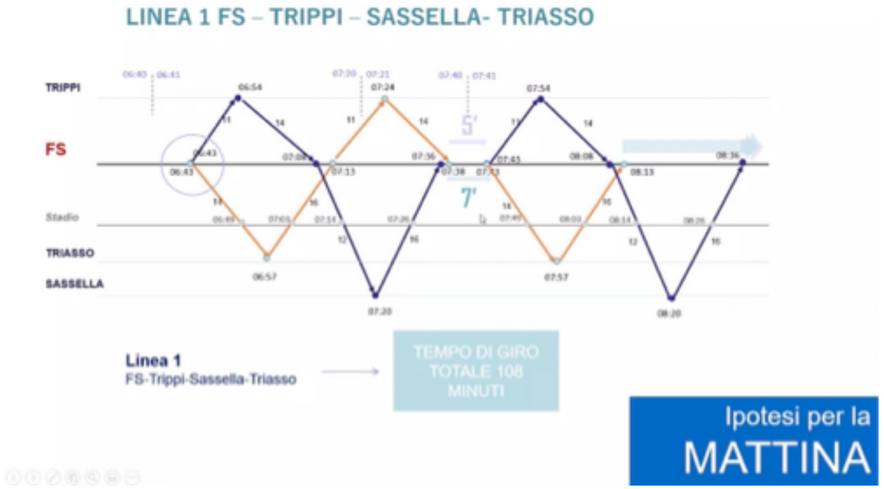
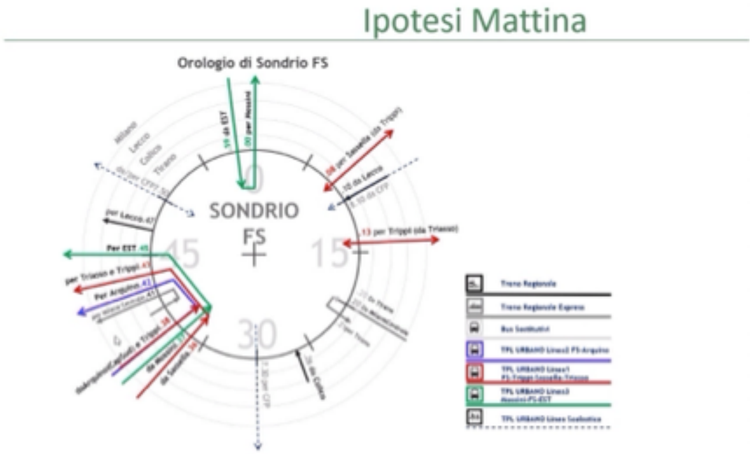
Remote Sprint Reviews







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Results

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Scrum + BIM benefits

We had the chance to implement Scrum in our organization while our BIM process was improving and spreading.
These two frameworks have a lot to share and they foster each other, as both:

are based on knowledge-sharing

let the members of the teams see the big picture and not just their own speciality contributions, and to go out of their comfort zone.

BIM helps also to reduce Scrum risk of some teams isolation.

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Scrum results | 01

Identifying and removing impediments and their causes quickly

Simplifying new employees onboarding process

Breaking down the distance/isolation during lockdown and smart working

Scrum helps to see problems earlier and to make prompt decisions. We work on our backlog refinement accurately to plan future activities in a more perspective way

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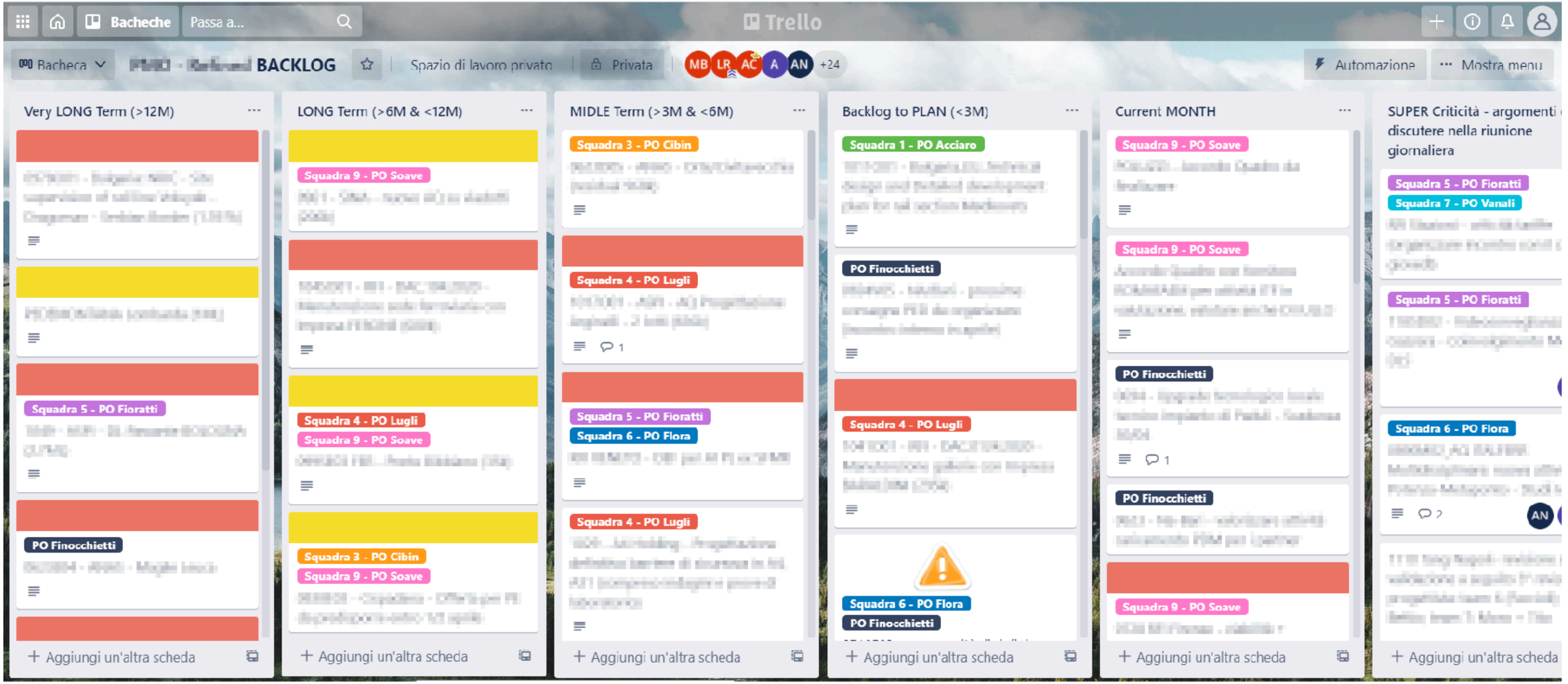
Enterprise Backlog



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Scrum results | 02

Reducing complexity:
. it is easier to manage 10 teams than 100 people;
. the continuity of people on projects makes the project more effective and people more satisfied

Every team is pushing its own members to be focused on the team goal and to go out their own standard activities.

We are fostering the feedback culture

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Points of attention

Scrum few and clear roles and their defined responsibilities improve both technical and team management:
. To help our POs to change their approach to projects: they need to be more focused on the return of investment and on identifying development and growing opportunities for their team
. Double role (Scrum Master and PO + technical delivery)

To solve criticalities when projects are developed by more than a team > BIM helps

To enhance every Scrum event: our people still report the need to share, discuss and ask for advice. It is still not clear that Scrum helps this kind of activities. As Management team we are working to make every team independent and self-sufficient to make Scrum more effective

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Next steps

Solve Points of Attention

Extend the Scrum adoption internationally

Keep improving

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THANK YOU!