# Agile Development and Scrum

*TDT4290 Customer Driven Project*

Trondheim, 11 September, 2017

Kahoot game pin: 941815

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# Overview

1. What do you know about Agile Development and Scrum? Quiz
2. Scrum
3. The Customer Role
4. Teamwork in Agile Development

# 1. Agile Development and Scrum - Quiz
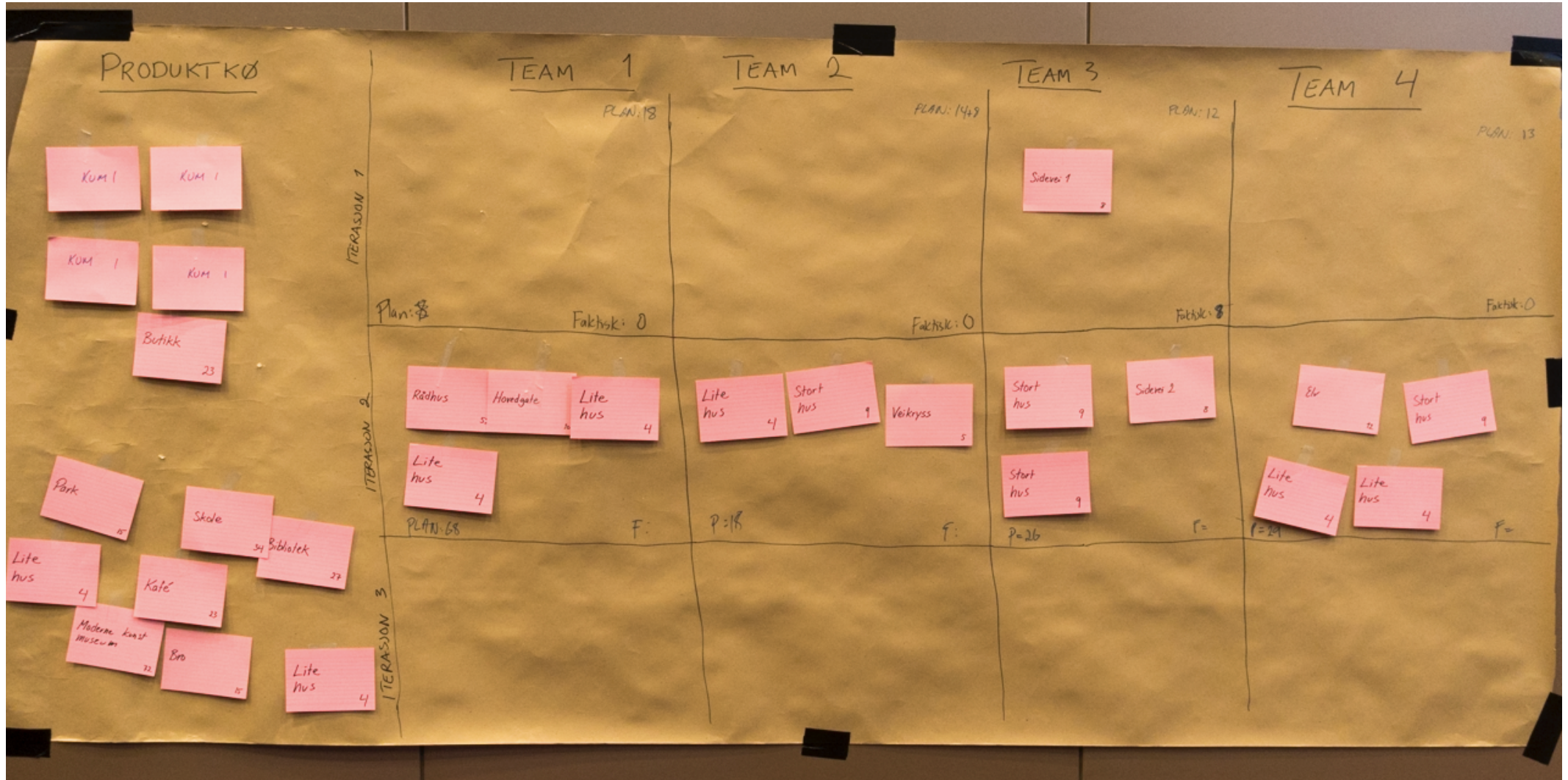
# Discussion in small groups

*Discuss in groups of 2-3:*

- In what ways will this project be different than previous projects?

- What consequences will that have for the development method?
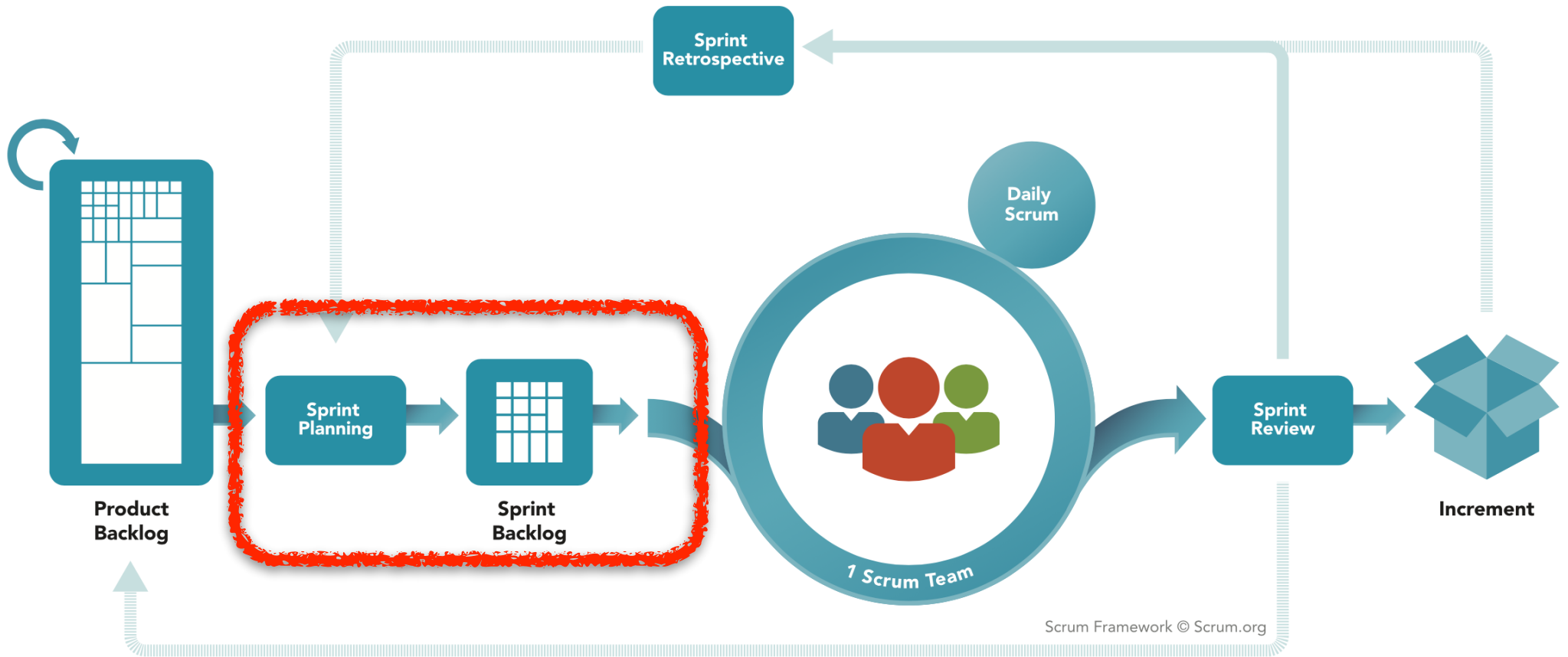- What do you see as the main challenges with respect to development method?
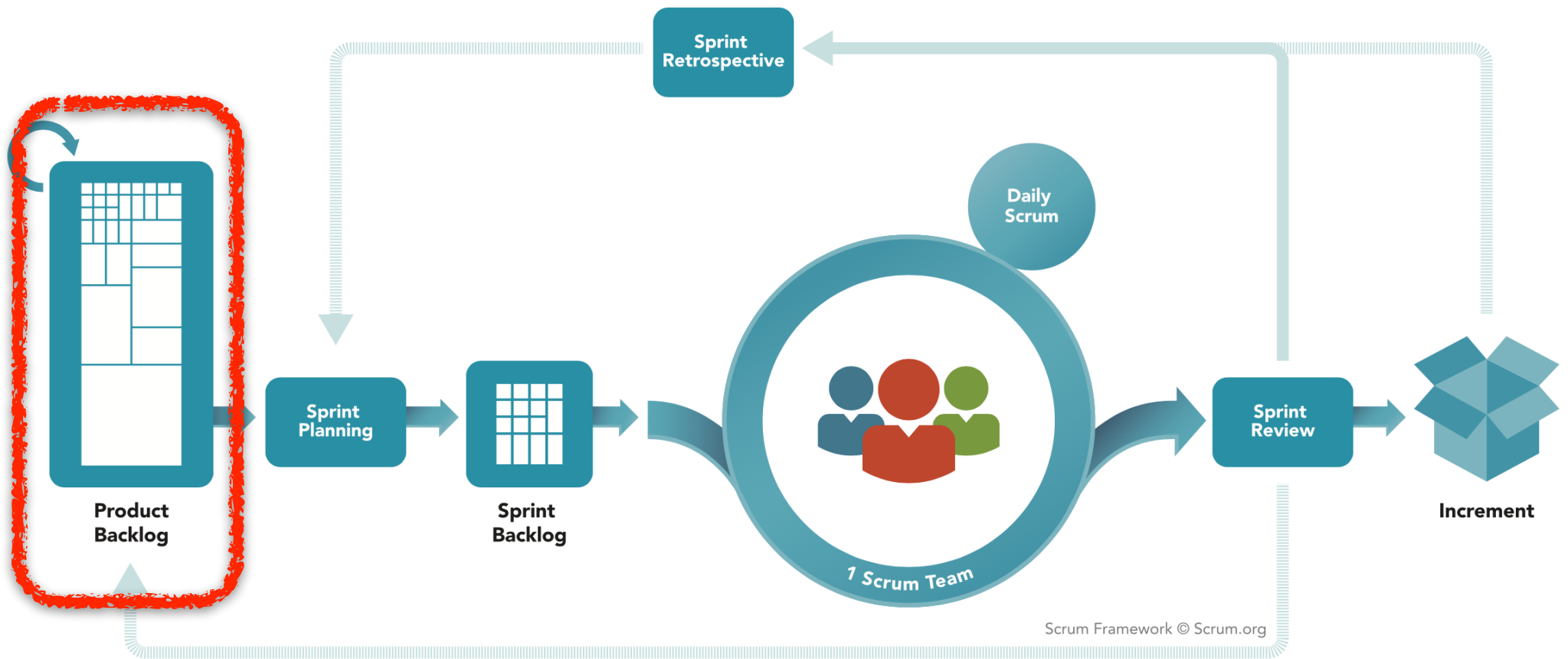
# 2. Scrum

# Scrum

# Product backlog

# User story

# Scrum



Source: www.scrum.org
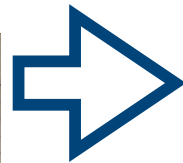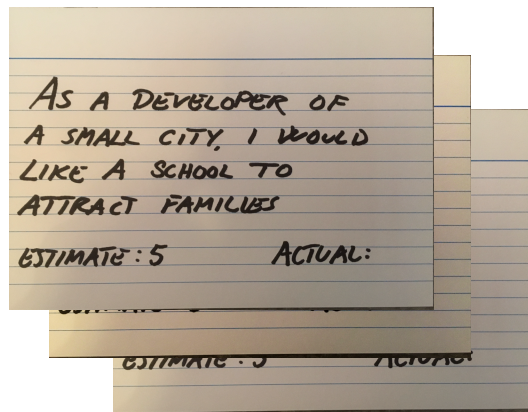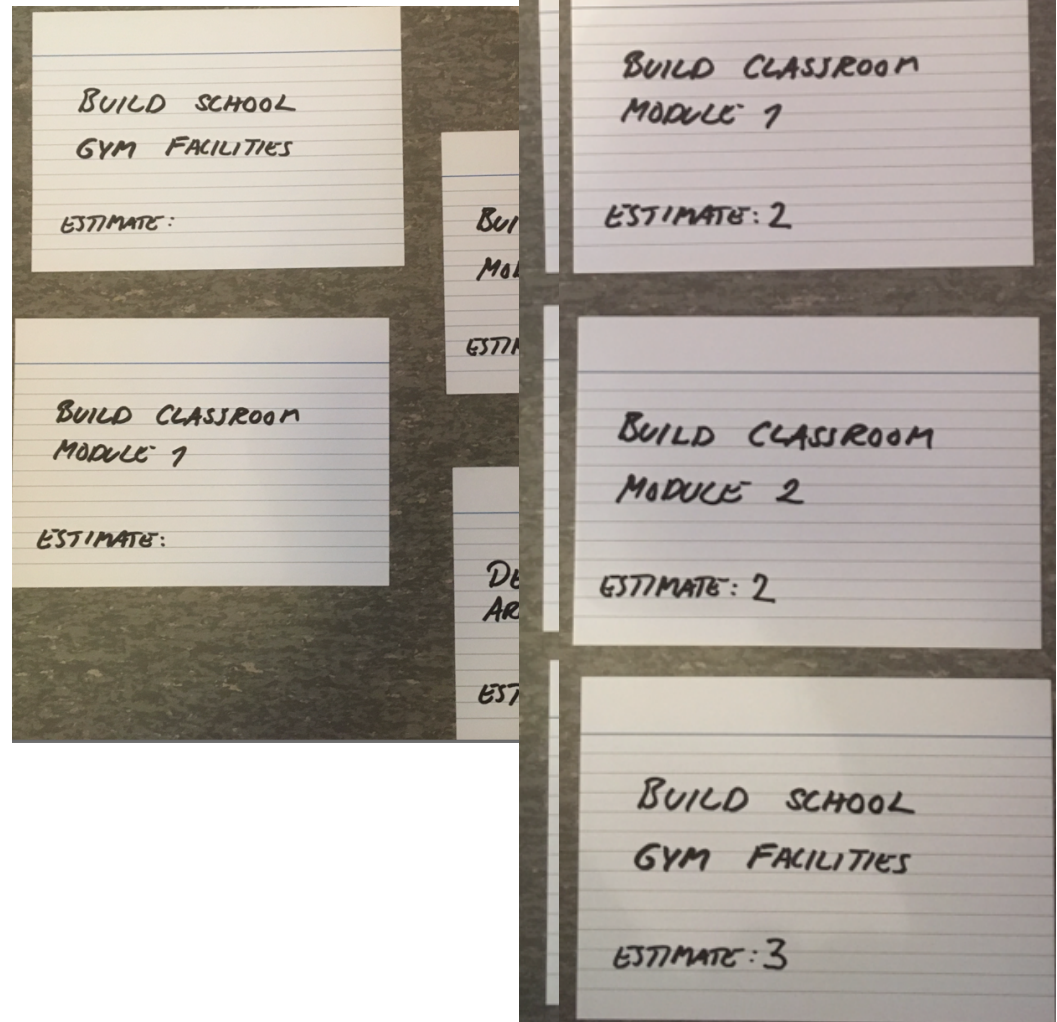
# Sprint planning

Product backlog



Iteration backlog ("sprint")

# Exercise; Effort estimation

*Form groups of three to four persons.*

*Raise your hands when you have formed a group.*

# Estimation; Planning poker
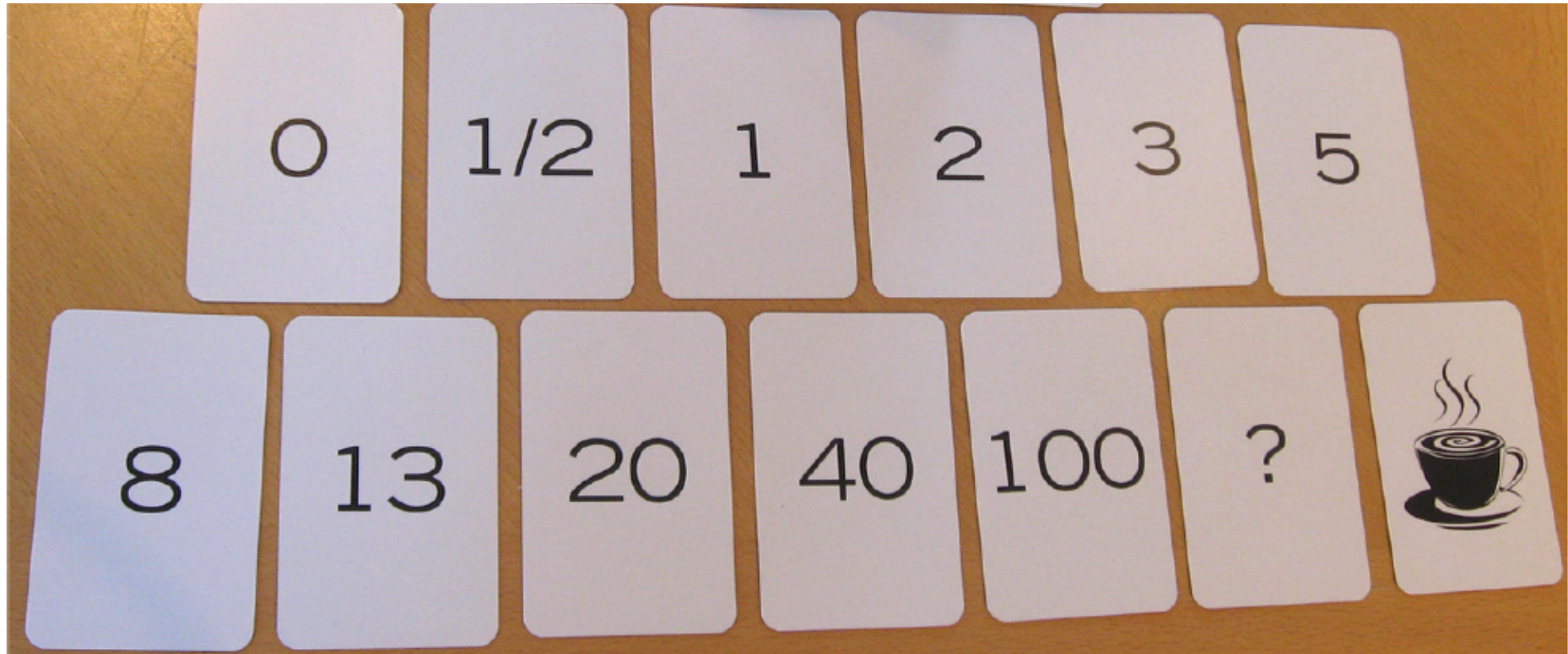
# Exercise; Effort estimation

*Assume that "noodles" has a value of "2", estimate the work involved making the following dishes using planning poker:*

- Pizza
- Spaghetti Bolognese
- Fish soup

**Planning poker:**

1. Distribute a deck of cards to each group member.
2. Make an **individual** estimate; identify the closest card.
3. Everyone shows their cards.
4. If you agree, record estimate, if not:
5. Ask for arguments for the *highest* and *lowest* estimate.
6. Goto 2

# Scrum



Source: www.scrum.org
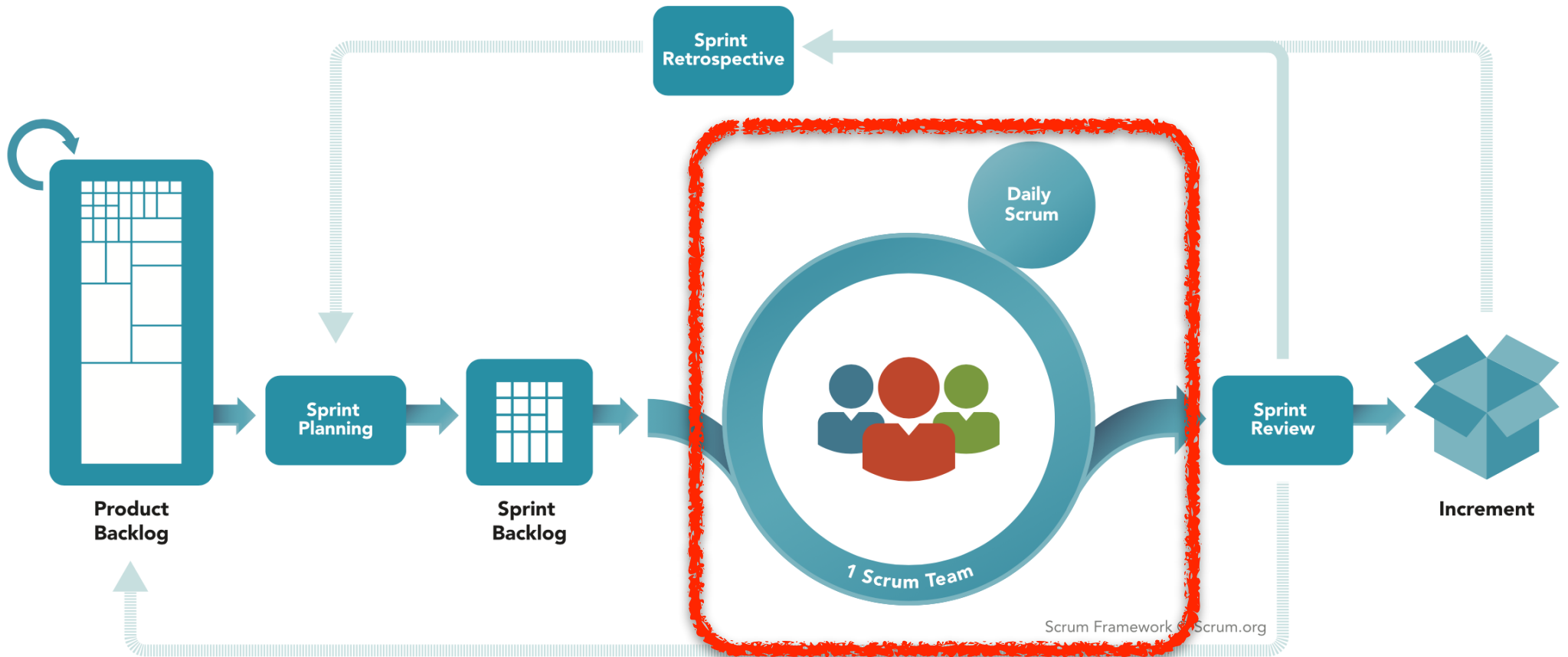
# Daily meetings

1. What did I do yesterday that helped the development team meet the sprint goal?

2. What will I do today to help the development team meet the sprint goal?

3. Do I see any impediment that prevents me or the development team from meeting the sprint goal?

# Team board

# Sprint burndown

# Scrum



Scrum Framework © Scrum.org
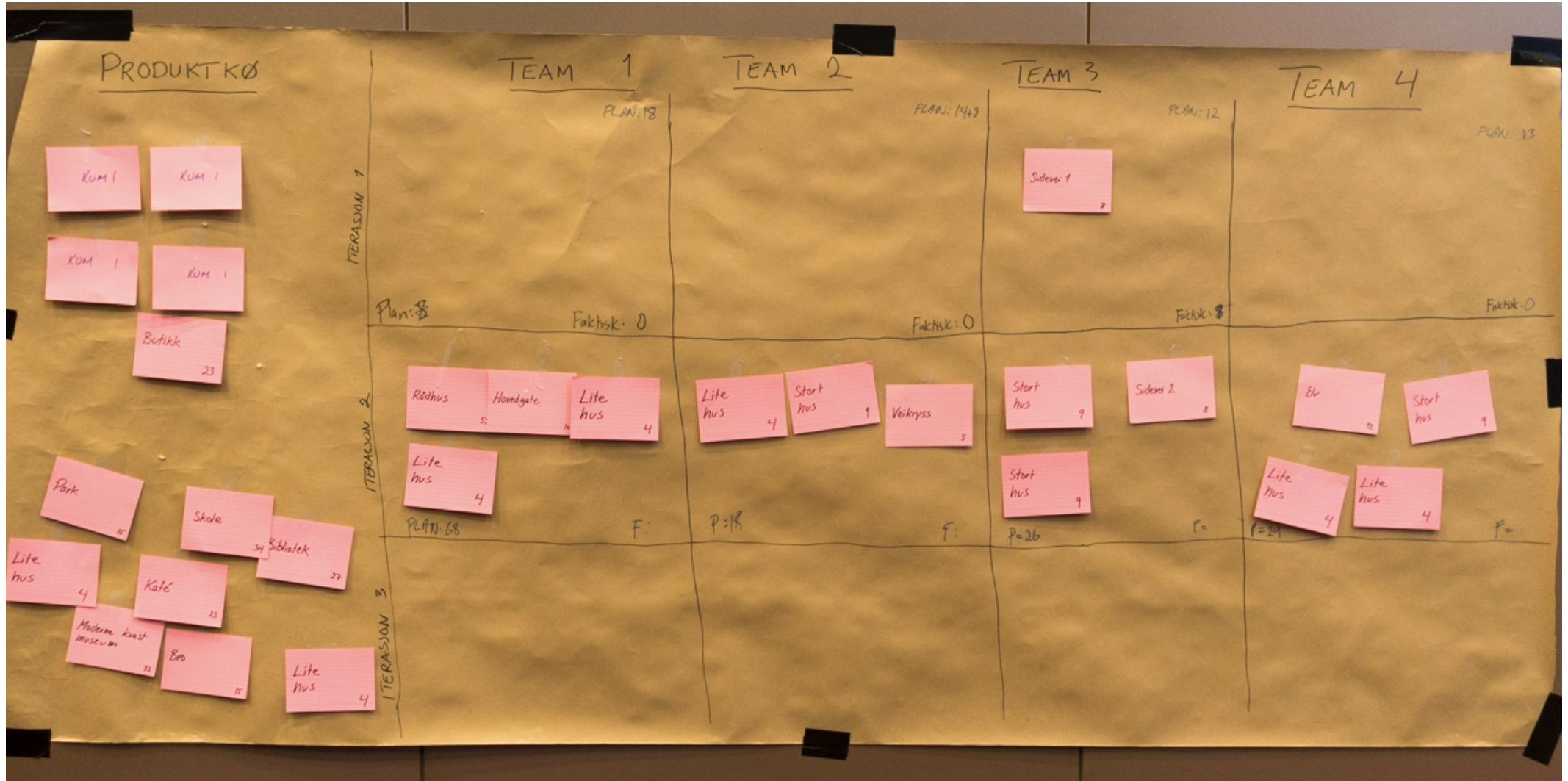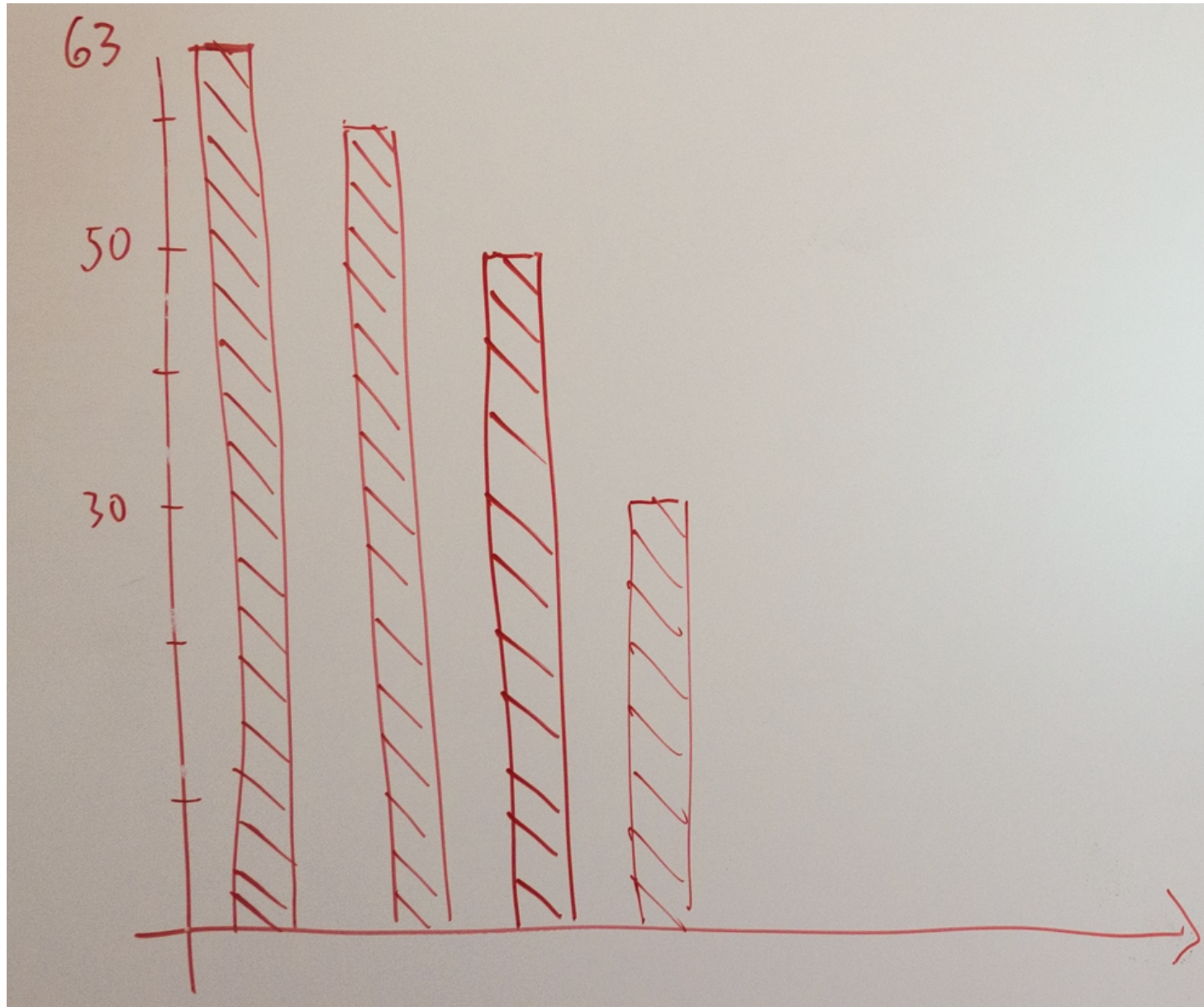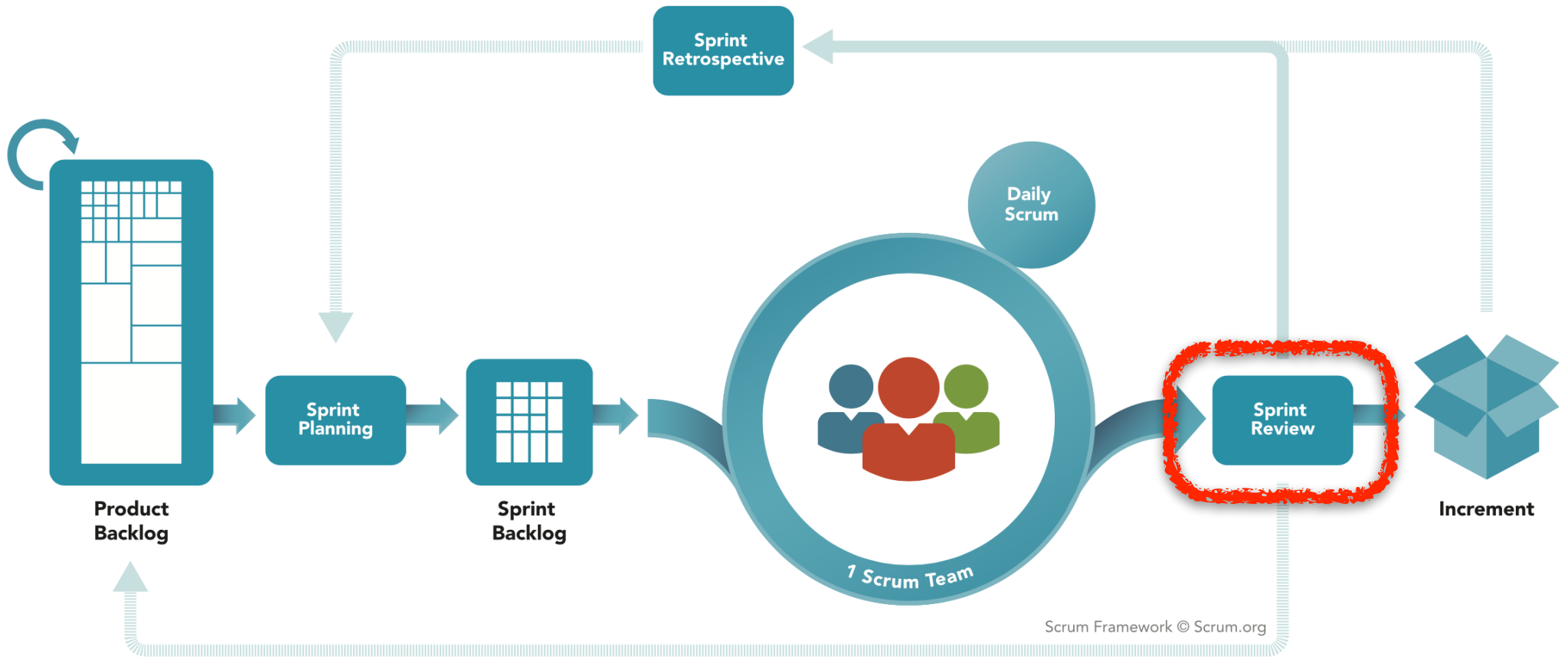
# Sprint review: Demonstrating product

# Scrum



Source: www.scrum.org

Dybå, T., Dingsøyr, T., and Moe, N. B., *Process Improvement in Practice - A Handbook for IT Companies*. Boston: Kluwer, 2004.

# *3. The Customer Role*
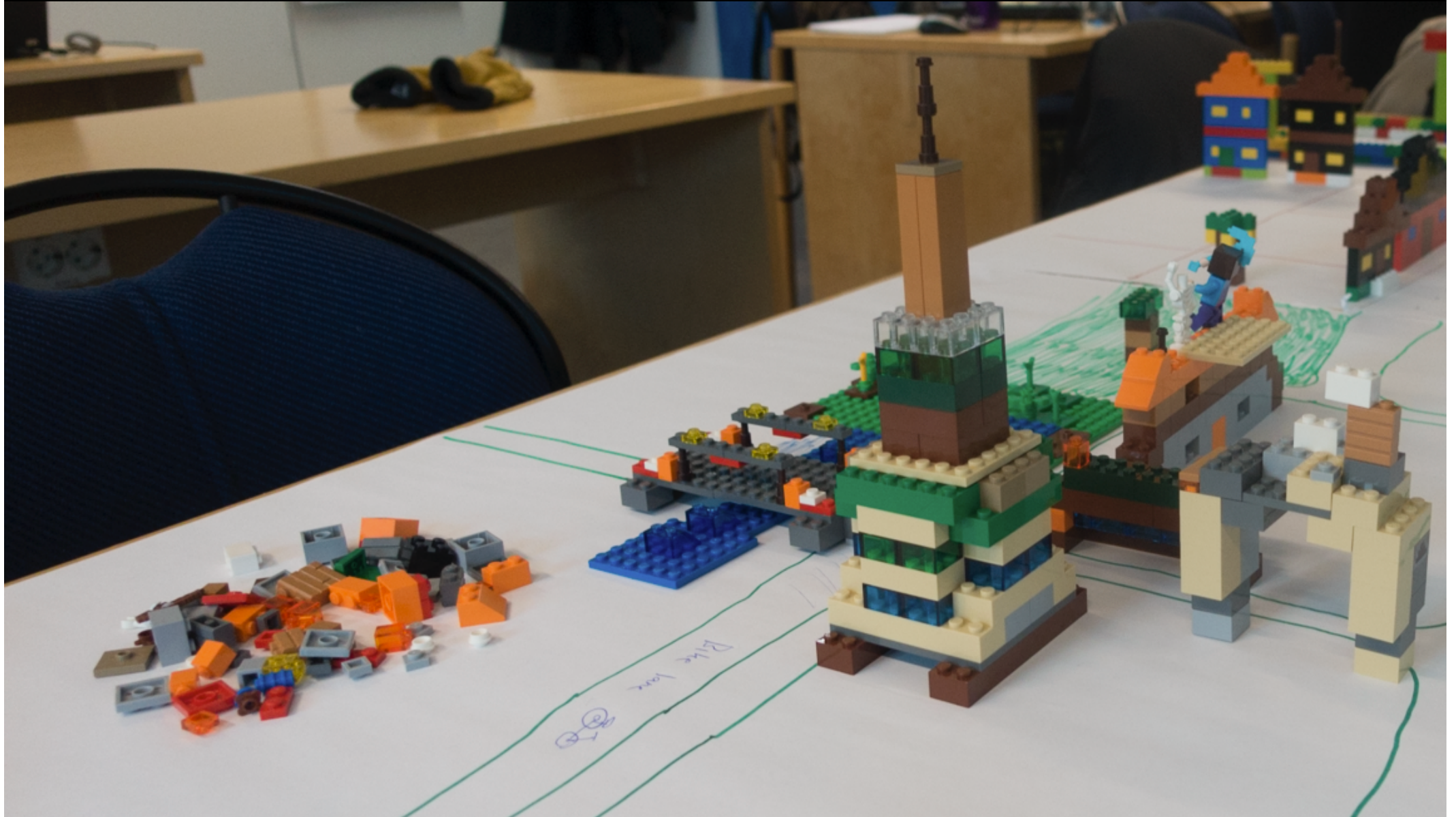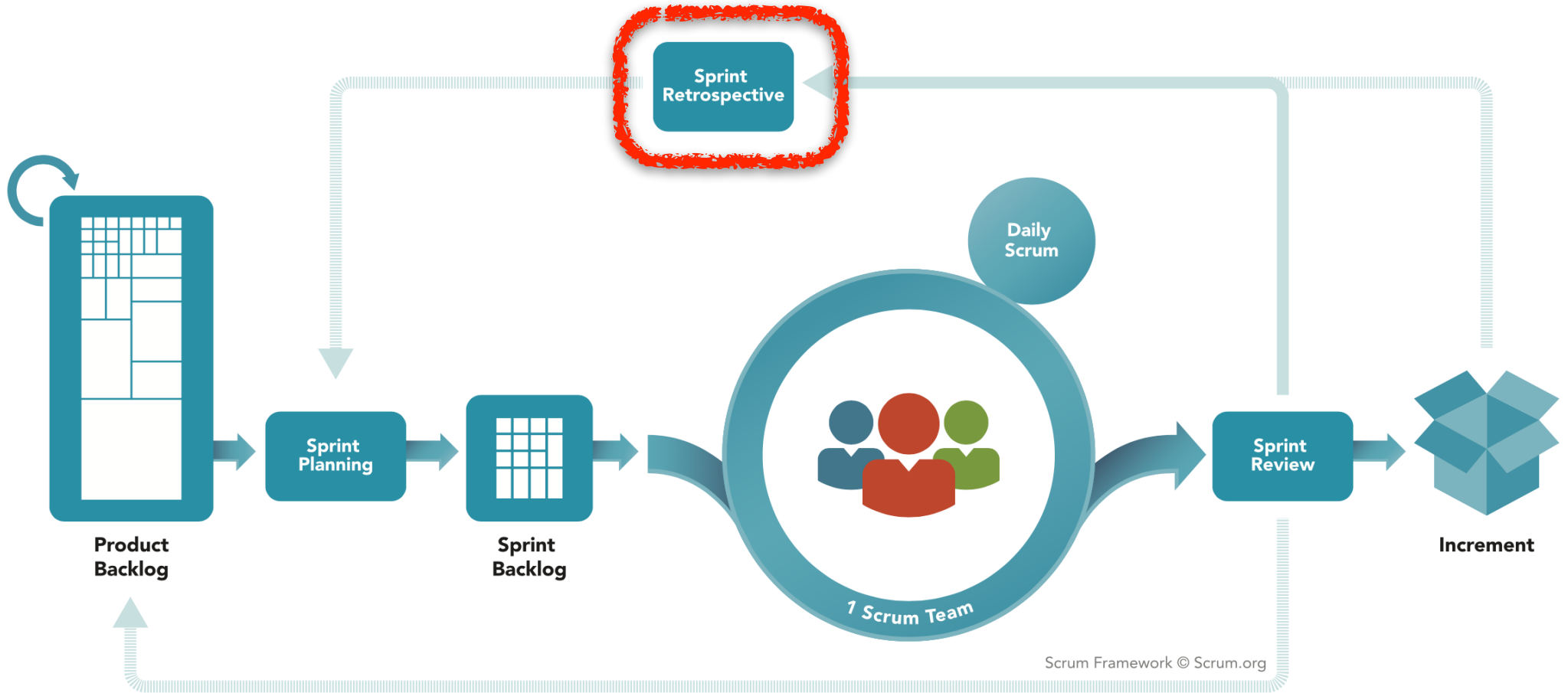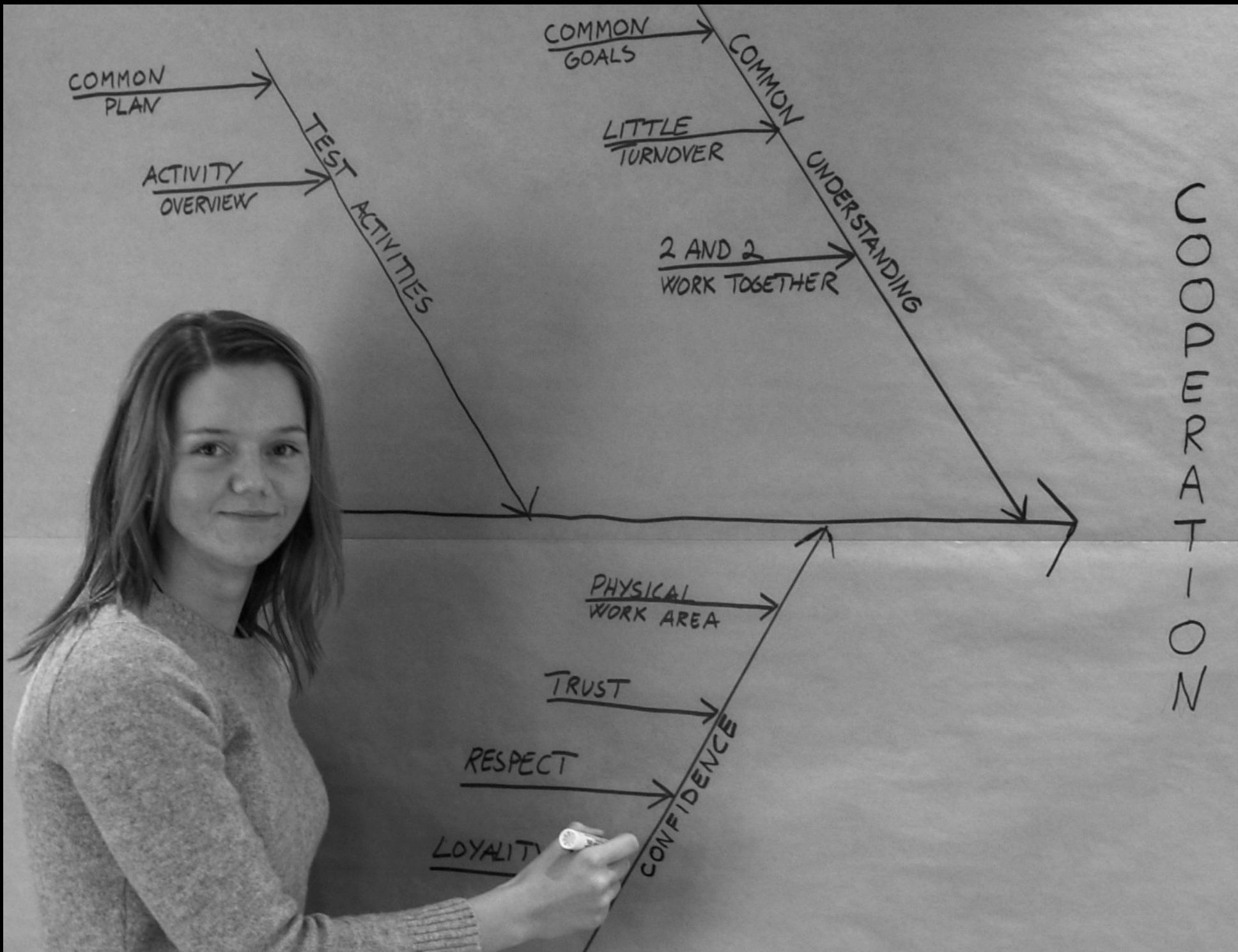
# Exercise

*Watch the video "The expert". Form groups of 2-3 and discuss:*

Which roles are present in this meeting?

What kind of project is this?

What are the main problems in this meeting?

How would you have mitigated these problems?

# 4. Teamwork in Agile Development

# Agenda: Focus group

- Exercise1:
  - Brainstorm:
    - *What fosters effective teamwork (green stickers)?*
    - *What hinders effective teamwork (yellow stickers)?*
- Lightning talk: A team performance model
- Exercise 2:
  - Presentation of topics from exercise 1
  - Group the stickers on flip-over in categories

GRUPPE 1

HUMOR :)

VARM KOMMUNIKASJON

IKKE - SAMLOKALISERT

HEM MELIGHOD

FÅR IKKE SNAKKET SAMMEN

PERSON KRITIKK

ENTUSIASME

LUKKET-HET

TØRR IKKE SI HVA JEG MENER

"KJEFT"

DIKTATOR

ULIKHET

FORSKJELLIG KULTUR og VERDI

MØTER UTEN KONTEKST

**1** FELLES MENTALE MODELLER

VERDIER

FELLES MÅL

FORSTÅ MÅL (ENIGHET)

FELLES FORSTÅELSE → HVA og HVOR

FORSTÅ HVORFOR

HA FELLES REGELSETT (TEAM RULES)

GJENSIDIG TILLIT RESPEKT TRYGGHET TILLIT

ENGASJEMENT OMSORG RESPEKT ÆRLIGHET ÅPENHET

LIKER VI HVERANDRE

FORSTÅ HVERANDRE "TIL BØYELIGHETER"

UKLARE MÅL

ULIKE AGENDAER (SUB-TEAMS)

ULIKT SYN PÅ HVOR MAN SKAL (MÅL)

MANGLENDE FORSTÅELSE FOR KULTURFORSKJ.

MISTENKSOMHET

LIKEGYLDIGHET

DÅRLIG KJEMI

MANGEL PÅ RESPEKT

**2** GOD KOMMUNIKASJON

(GOD) KOMMUNIKASJON

ÅPENHET

KOMMUNIKASJON

KUNNE TA OPP KONFLIKTER (TILLØ FOR Å-)

TEAM-LEDELSE

TA DEL I UTFORMING AV MÅL

FOKUS PÅ RESULTAT

RULLERE ROLLER EKS. TEAMLEDER

GOD OPPOSISJON

KONSTRUKTIV KONFRONTASJ

KOMME FRAM M/ SYNSPUNKT

LYTTE

REDUSERE UNØDVENDIG FORSTYRRELSE

STÅ-OPP

ANALOG OPPBEVARING

FÅ LØSNING UT I PROD. !

NÅ MÅL SAMMEN

DÅRLIG PLANLEGGING

FEIL RESSURSER

UMYNDIG-GJØRING

INDIVIDUELL BELØNNING /VURDERING

**5** TEAM TER

ULIKHET STATUS PAR-X

NYTTIG KONTROLL PÅ EGEN SITUASJON

BALANSE FØLELSE AV Å MESTRE

ANSVARS- AUTONOMI FØLELSE

HUMOR-LØSHET

TILBAKE-TREKNING

EGENRÅD-IGHET

UNNA- SLUNTRERE

GJEMMER SEG TAR IKKE ANSVAR ANSVARS-FRASKRIVELSE

Gjensidig presentasjons vurdering

FELLES BELØNNING

RETRO

PRESS OPPNÅ RESULTAT

RESULTAT-ORIENTERING

**7** REDUNDANS

MEDBESTEMMELSE MESTRING

HAR NOCO PÅVIRKNINGS-MULIGHET

TILPASNINGS EVNE

KONTEKST-SWITS

JEG HOLDER PÅ MITT

ENDRING AV RAMMEBETINGELSER

LIKEVERD

KOMPETANSE

"EKSPERTER" JEG KAN BEDRE (ENN ANDRE)

SPESIALISERING

TILPASSE ARB-FORM TIL ULIK-HETER

PÅLAGT BRUK AV VERKTØY !

BEHOV FOR ANDRES KUNNSKAP

UKJENT DOMENE

MANGEL PÅ KOMPETANSE

JOBBER IKKE SAMMEN/STRINGER

STRESS OVER TID

KONFLIKTER SOM IKKE LØSES

FOR VANSKELIGE ARB. OPPGAVER

MISTRIVSEL

KREATIVITET

# Salas et al. Team Performance Model

**Team leadership**

**Mutual performance monitoring**

**Team orientation**

**Shared mental models**

**Back-up behaviour**

**Mutual trust**

**Adaptability**

**Closed-loop communication**

Salas, E., Sims, D. E., and Burke, S. C., "Is there a "Big five" in teamwork?," *Small Group Research,* vol. 36, pp. 555-599, 2005.
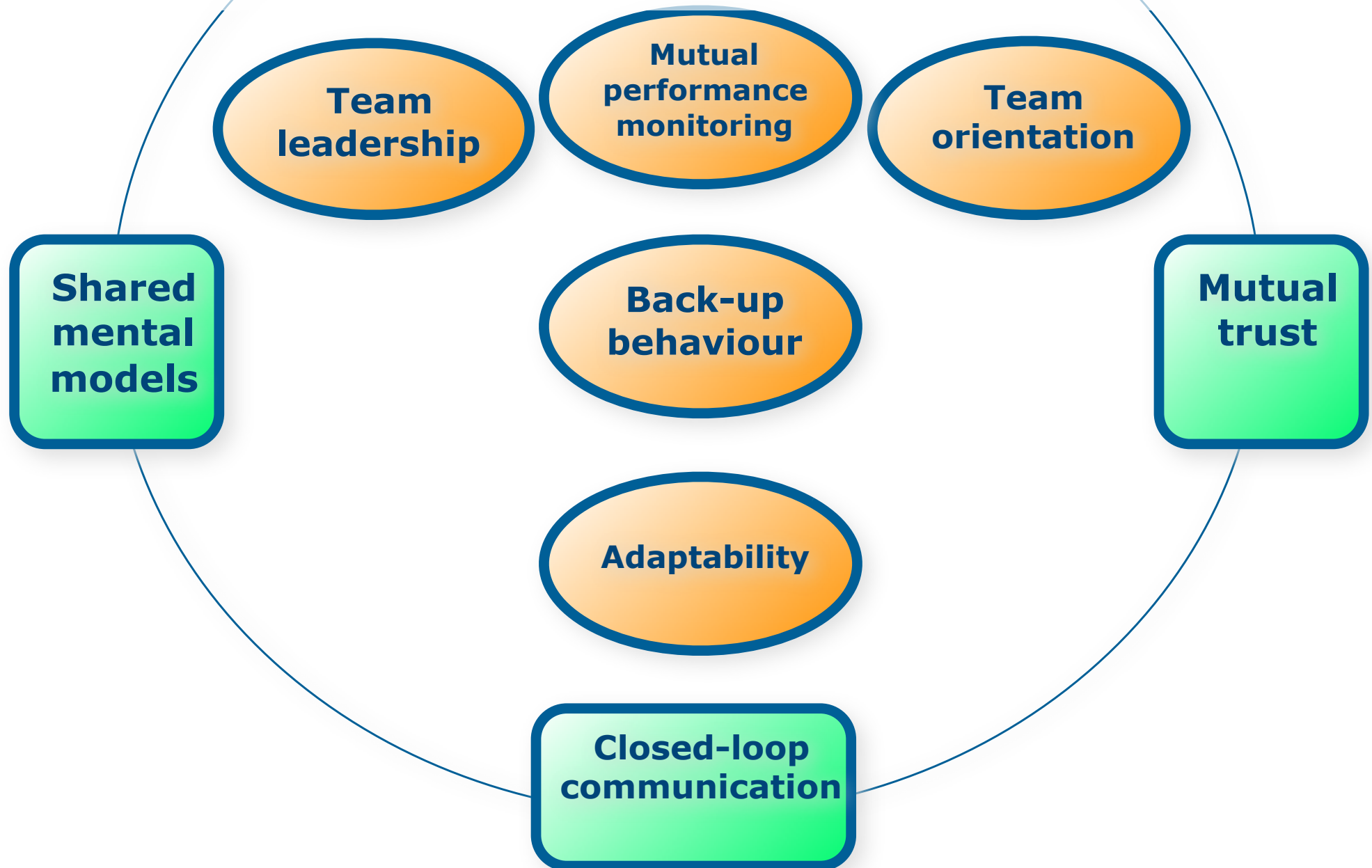
# What fosters or hinders team performance?

| Teamwork component | Foster | Hinder | Total |
|---|---|---|---|
| Team leadership | 90 | 139 | 229 |
| Mutual performance monitoring | 49 | 22 | 71 |
| Backup behaviour | 44 | 57 | 101 |
| Adaptability | 46 | 50 | 96 |
| Team orientation | 91 | 65 | 156 |
| Shared mental models | 104 | 59 | 163 |
| Mutual trust | 97 | 58 | 155 |
| Closed-loop communication | 122 | 90 | 212 |
| *Sum* | *643* | *540* | *1183* |
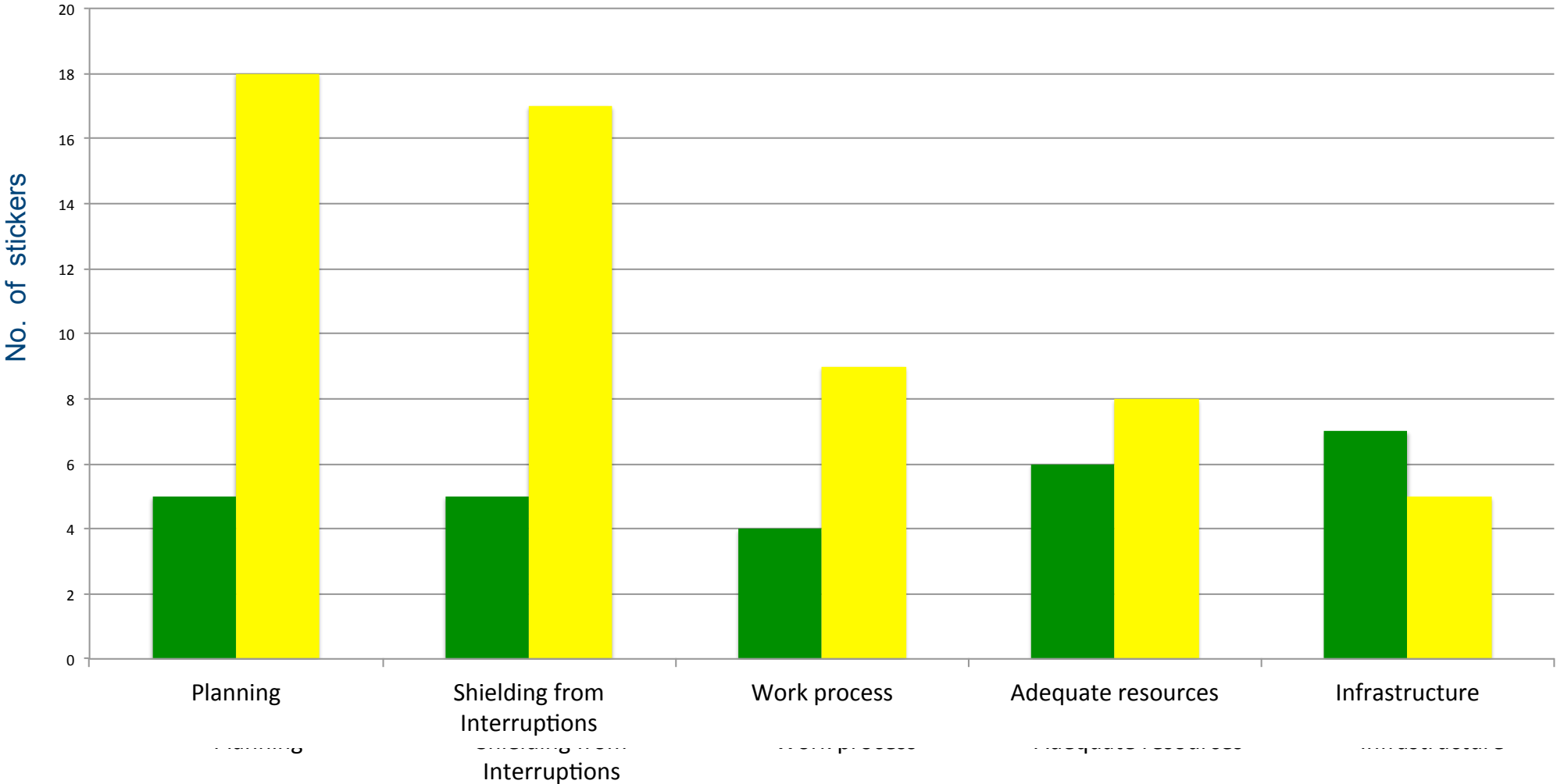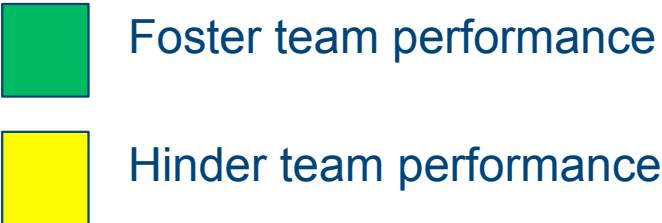
Dingsøyr, T. and Lindsjørn, Y., "Team Performance in Agile Development Teams: Findings from 18 Focus Groups," in Agile Processes in Software Engineering and Extreme Programming. vol. 149, H. Baumeister and B. Weber, Eds., ed: Springer Berlin Heidelberg, 2013, pp. 46-60.

# Team leadership



Legend:
- Foster team performance (green)
- Hinder team performance (yellow)

No. of stickers

| Category | Foster team performance | Hinder team performance |
|---|---|---|
| Planning | 5 | 18 |
| Shielding from Interruptions | 5 | 17 |
| Work process | 4 | 9 |
| Adequate resources | 6 | 8 |
| Infrastructure | 7 | 5 |

Dingsøyr, T. and Lindsjørn, Y., "Team Performance in Agile Development Teams: Findings from 18 Focus Groups," in Agile Processes in Software Engineering and Extreme Programming. vol. 149, H. Baumeister and B. Weber, Eds., ed: Springer Berlin Heidelberg, 2013, pp. 46-60.
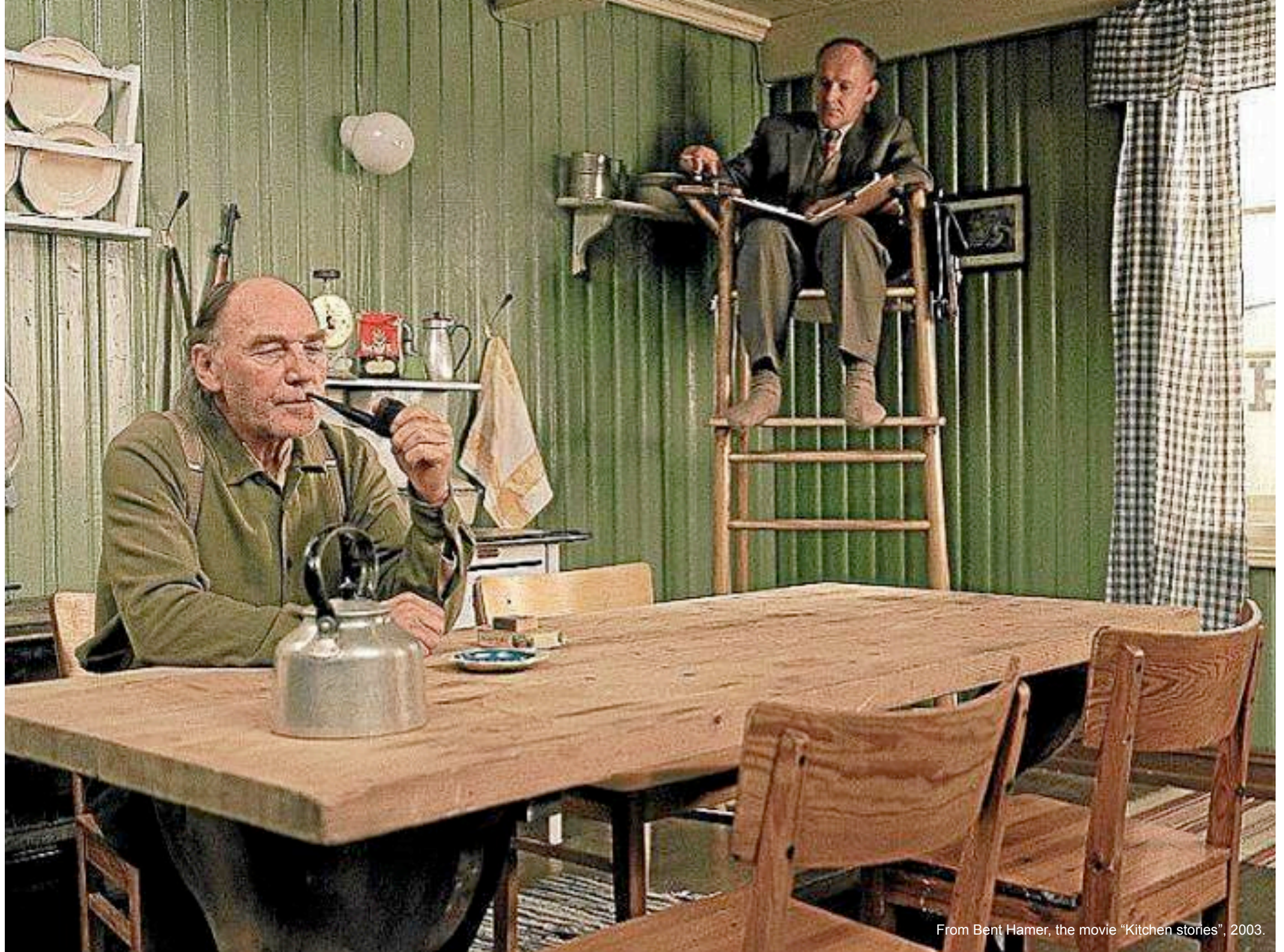
From Bent Hamer, the movie "Kitchen stories", 2003.

# Project Overview

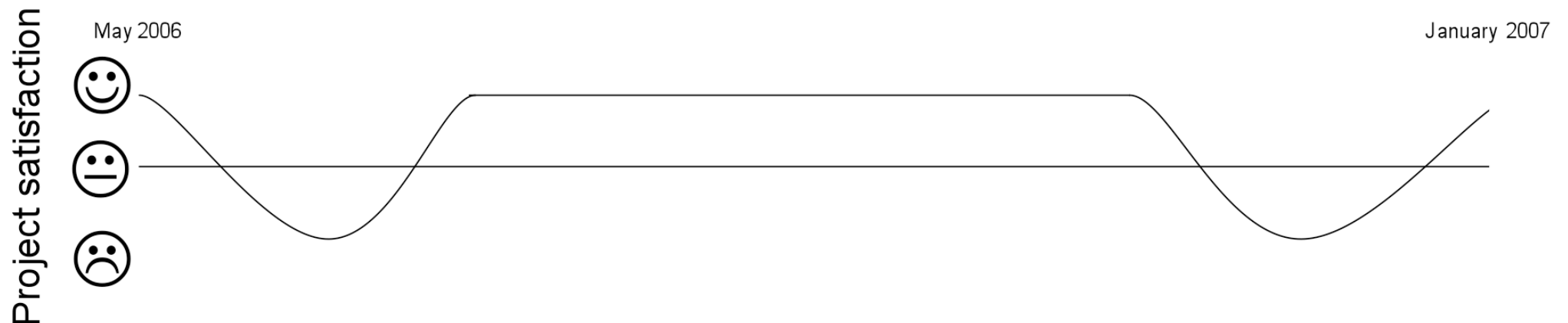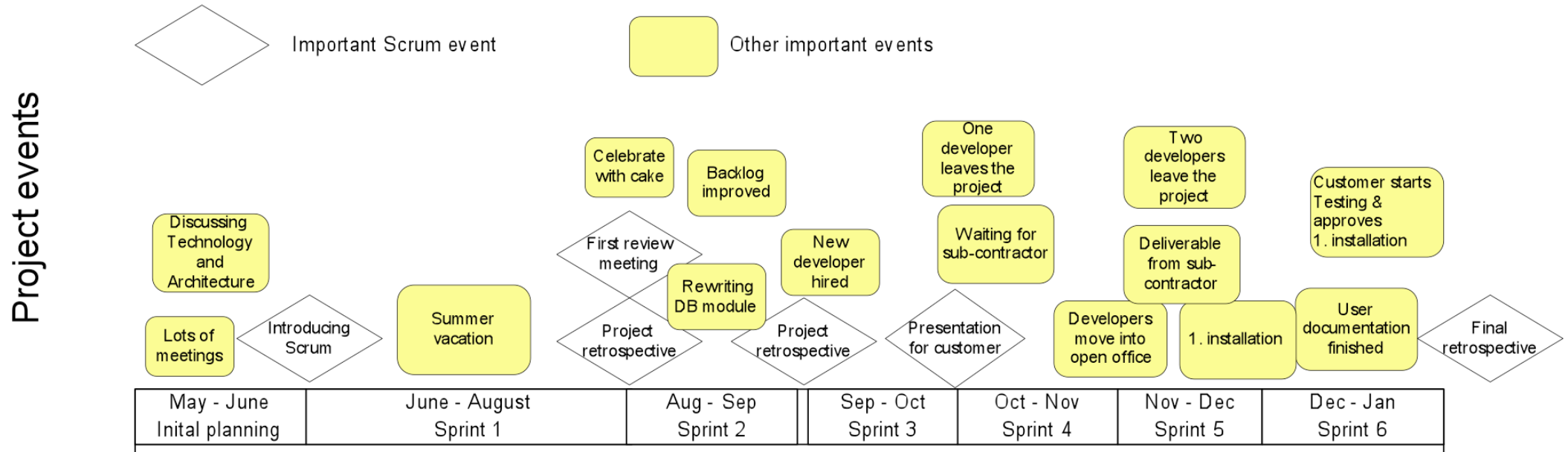# In Theory: Team Leadership

- **Definition:**
  - Direct and coordinate the activities of other team members
  - Assess team performance
  - Assign tasks
  - Develop team knowledge, skills, and abilities
  - Motivate team members
  - Plan, organize, and establish a positive atmosphere

- **The Scrum team:**
  - Planning
  - Scheduling
  - Assigning tasks to members
  - Making decisions

- **The Scrum master:**
  - Removes impediments of the process
  - Facilitates meetings

Salas, E., Sims, D. E., and Burke, S. C., "Is there a "Big five" in teamwork?," *Small Group Research,* vol. 36, pp. 555-599, 2005.
Moe, N.B., Dingsøyr, T., and Dybå, T., A teamwork model for understanding an agile team: A case study of a Scrum project, *Information and Software Technology* 52 (2010) 480–491.

# In Practice: Team Leadership

*«We classified tasks as finished before they were completed, and we knew there was still work to be done. It seems that the scrum master wants to show progress and make us look a little better than we really are»*

*– developer*

*«The daily meetings are mostly about reporting to the Scrum master. When he is not there, the meetings are better because then we communicate with each other»*

*– developer*

Moe, N.B., Dingsøyr, T., and Dybå, T., A teamwork model for understanding an agile team: A case study of a Scrum project, *Information and Software Technology* 52 (2010) 480–491.

# Development Department

# Sales

# Sales & Management

# Internal ICT Support

Moe, N.B., Dingsøyr, T., and Dybå, T., A teamwork model for understanding an agile team: A case study of a Scrum project, *Information and Software Technology* 52 (2010) 480–491.
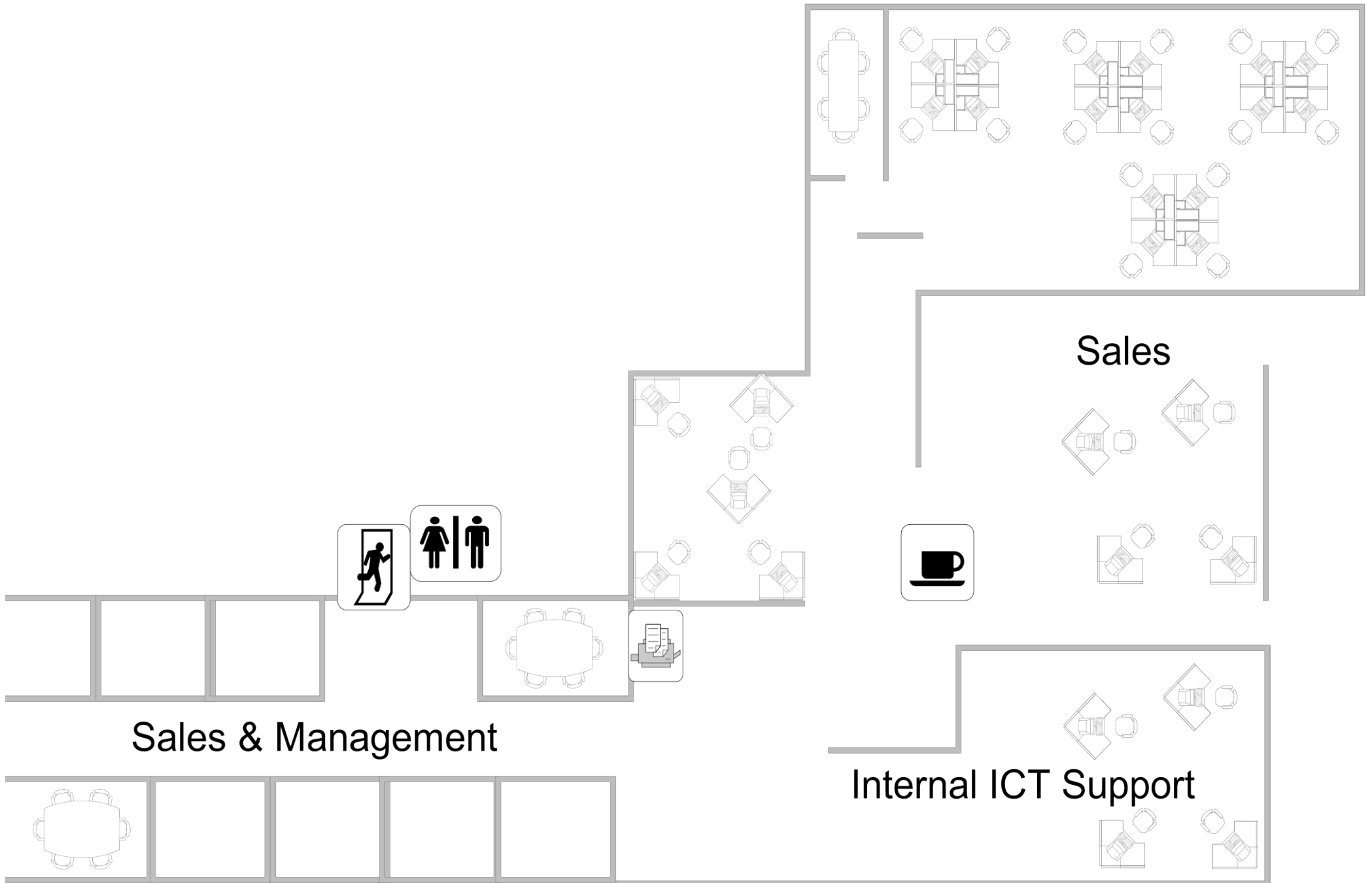
# In Theory: Backup Behaviour

- **Definition:**
  - Anticipate other team members' needs through accurate knowledge about their responsibilities
  - Includes the ability to shift workload among members to achieve balance during high periods of workload or pressure

- **Scrum:**
  - The team is seen as multifunctional
  - Self-organizing

Moe, N.B., Dingsøyr, T., and Dybå, T., A teamwork model for understanding an agile team: A case study of a Scrum project, *Information and Software Technology* 52 (2010) 480–491.
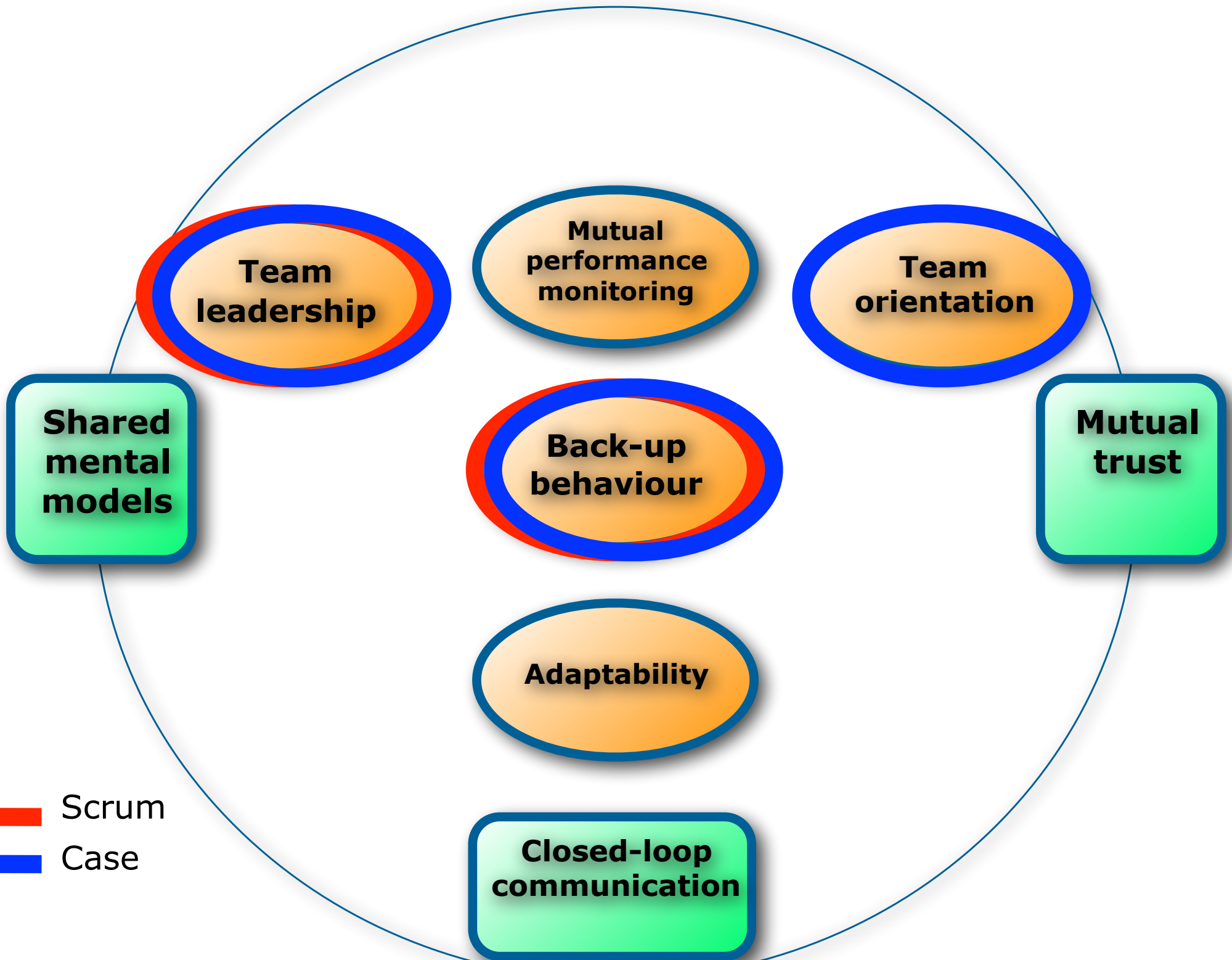
# In Practice: Backup Behaviour

*«Let the person that knows most about the task solve it! We cannot afford several people doing the same thing in this project. We need to continue working like we have done before» – scrum master*

*«We are having problems in one of the modules, but other developers do not want to fix the problem. They want to wait for the developer who created the module» – scrum master*

*«This was a shock to us. The end-users could not start testing, and we had to spend a lot of time trying to fix this. It took almost a month to locate the problems» - developer*

*«It's chaotic now. We work long hours, but I do not do too much. I have done what I was supposed to, and I cannot help them. I do not know anything about what they are doing, so it does not help if I try» – developer*

Moe, N.B., Dingsøyr, T., and Dybå, T., A teamwork model for understanding an agile team: A case study of a Scrum project, *Information and Software Technology* 52 (2010) 480–491.

Shared mental models

Team leadership

Mutual performance monitoring

Team orientation

Mutual trust

Back-up behaviour

Adaptability

Closed-loop communication

Scrum

Case

# Follow the "Agile 2.0" project



https://www.researchgate.net/project/Agile-20