



## **Virtual Collaboration and Tools**

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THM

## Content

- Introduction to Project Management
- Agile Working Methods
- Virtual Collaboration - Advantages and Challenges
- Virtual Collaboration - Success Factors
- Virtual Collaboration - Leadership and Mindset
- IT Tools for distributed Teams
- Summary

Lecturer: Michael Arndt  
Duration: 1,5 h  
Recorded: Yes



# Introduction to Project Management

# Virtual Collaboration takes place on many occasions

## Here, we focus on technical Projects

# Project definitions according to ISO 21500

## Project

Temporary endeavour to achieve one or more defined objectives.

## Project Management

Coordinated activities to direct and control the accomplishment of agreed objectives.

Projects are temporary and focus on retaining or adding value or capability, for a sponsoring organization, stakeholder or customer.



Projects

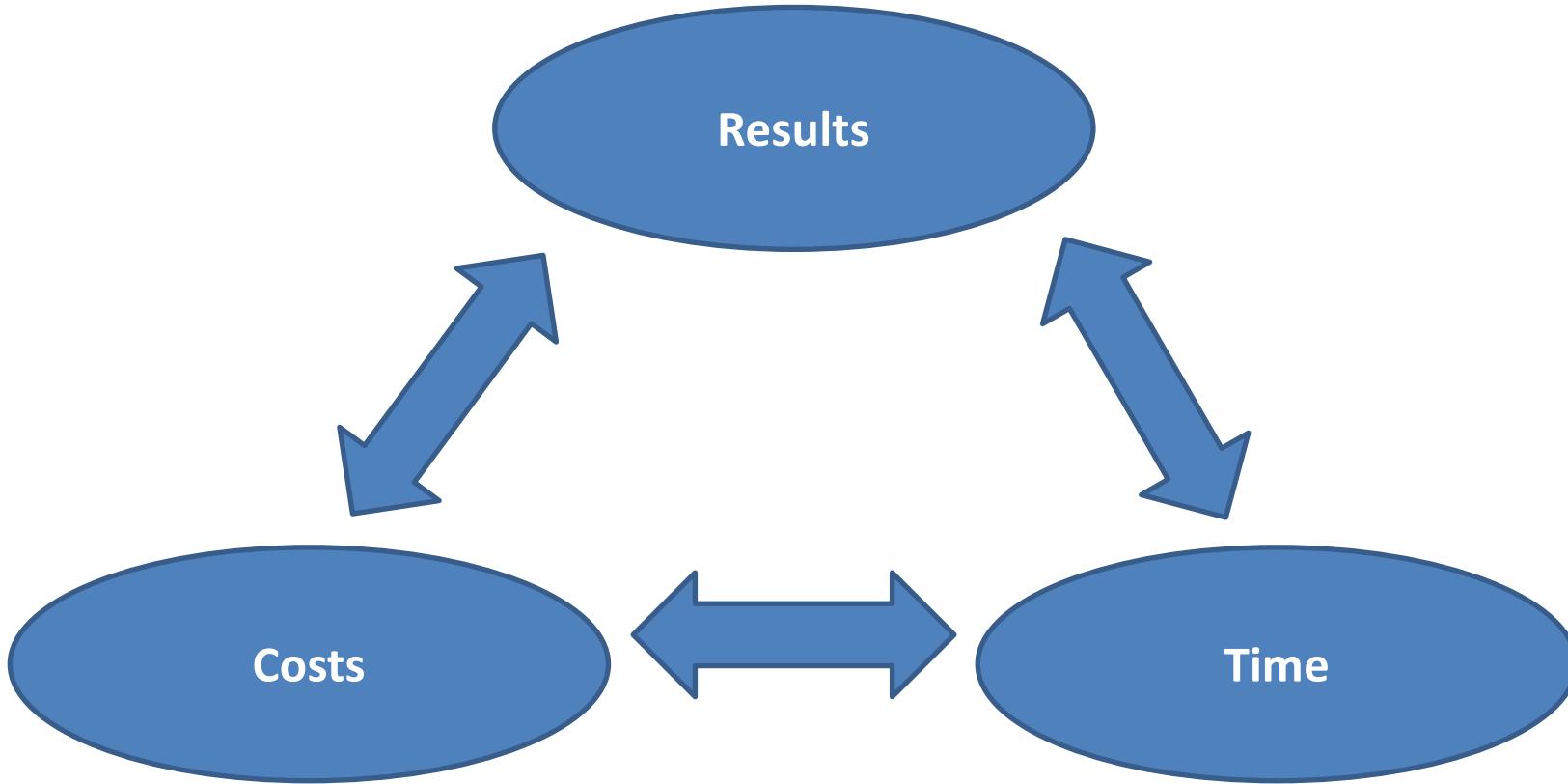
Operations are performed through ongoing activities and can be focused on sustaining the organization, such as through the delivery of repeatable products and services.

Operations

## Characteristics of Projects

- Projects are unique
- Projects are breaking new ground. They realize solutions that do not yet exist in a specific organization in the desired form.
- Projects pursue a clearly specified and positively formulated goal.
- Projects imply the risk of failure.
- Projects require sufficient complexity (otherwise the additional effort of project management is not worth it)
- Projects are time-limited, which means that both the beginning and the end are defined by a specific date.
- Projects have limited resources.
- Projects work interdisciplinary and cross-departmental.

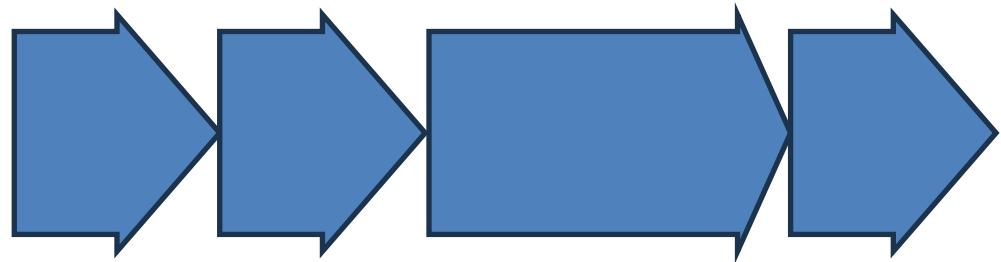
## The magic Triangle of Project Management



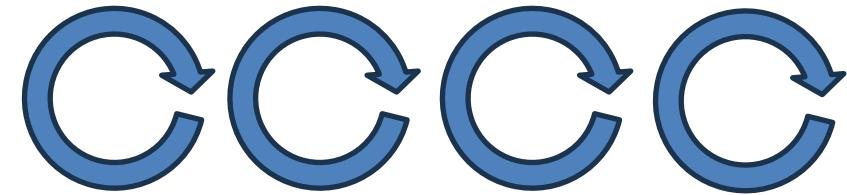
The targets of a project often are defined within the magic triangle

## Process Models for Projects

There exist two fundamental process models for projects:

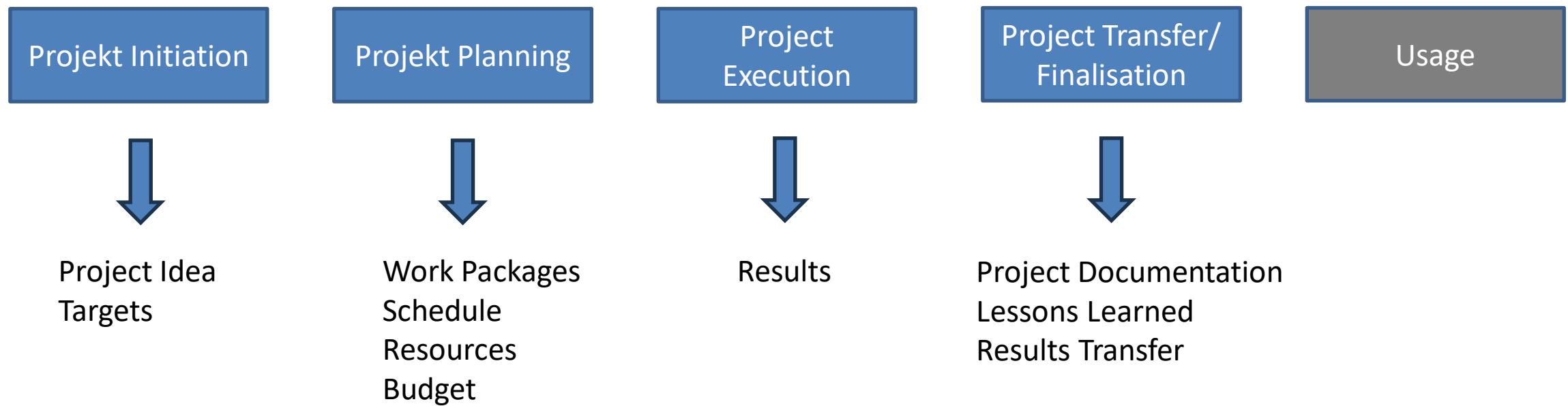


Linear Process



Cyclic Process  
(Agile)

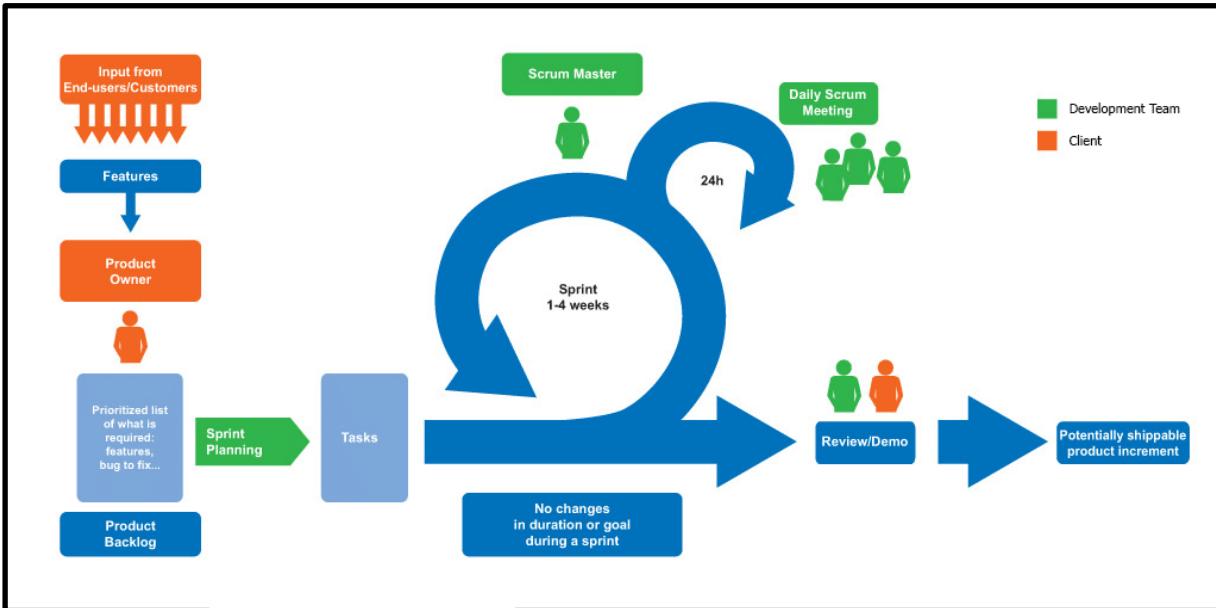
## Linear Process - Project Phases



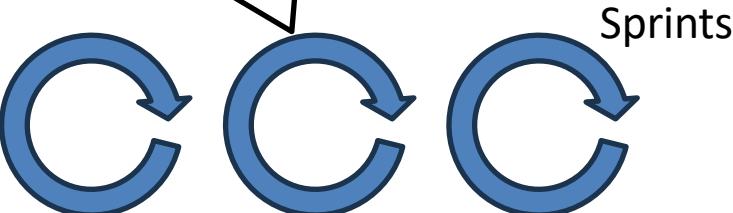
## Main Artefacts of a Project

- Project Contract (Motivation, Targets, expected Results, Milestone Dates, initial Budget etc.)
- Project Plan
  - Schedule (WBS, Detailed Schedule)
  - Resource Plan
  - Budget Plan
  - Results Specification
  - Team
- Documentation of Project Execution (Protocols, OPL, Schedules, etc.)
- Project Results (Documentation, Physical Objects, Test Results, etc.)

# Cyclic Process



Projekt Initiation

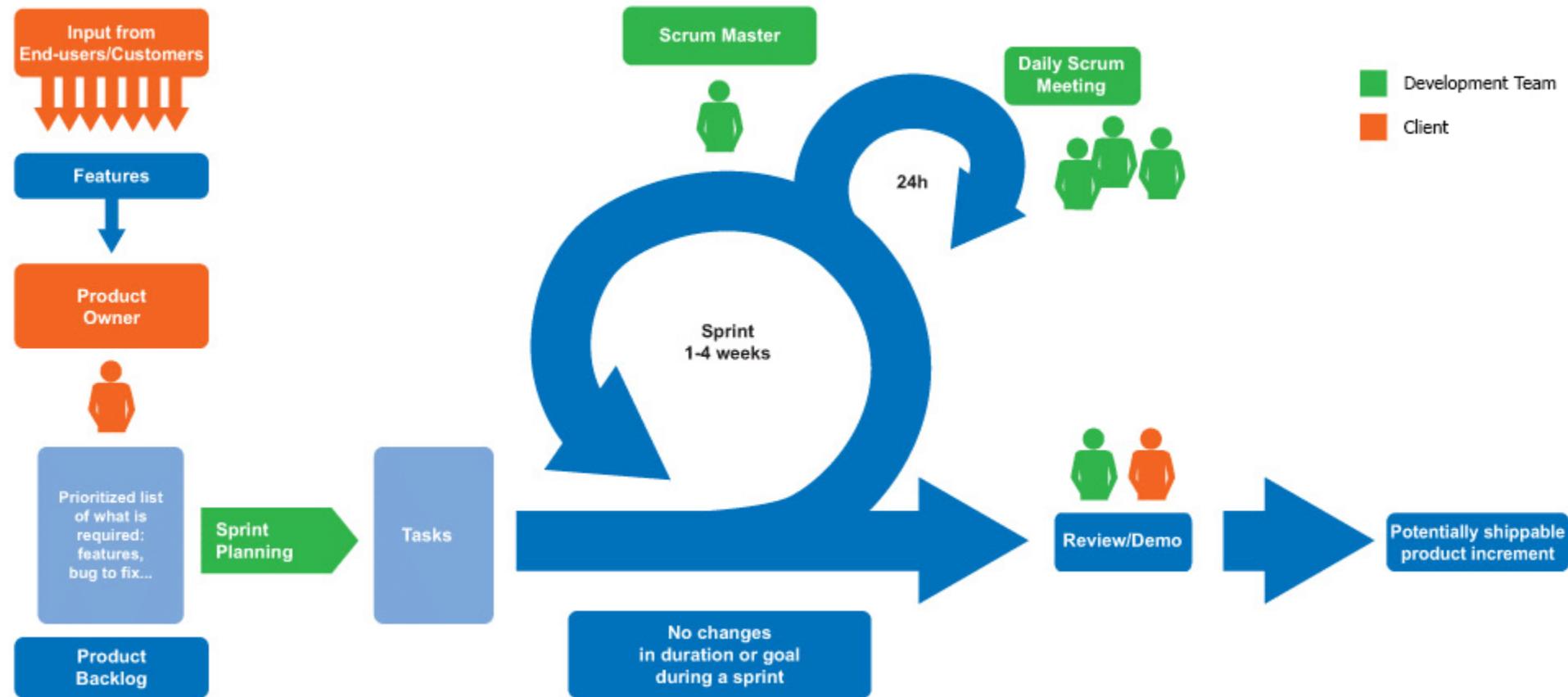


Project Transfer/  
Finalisation



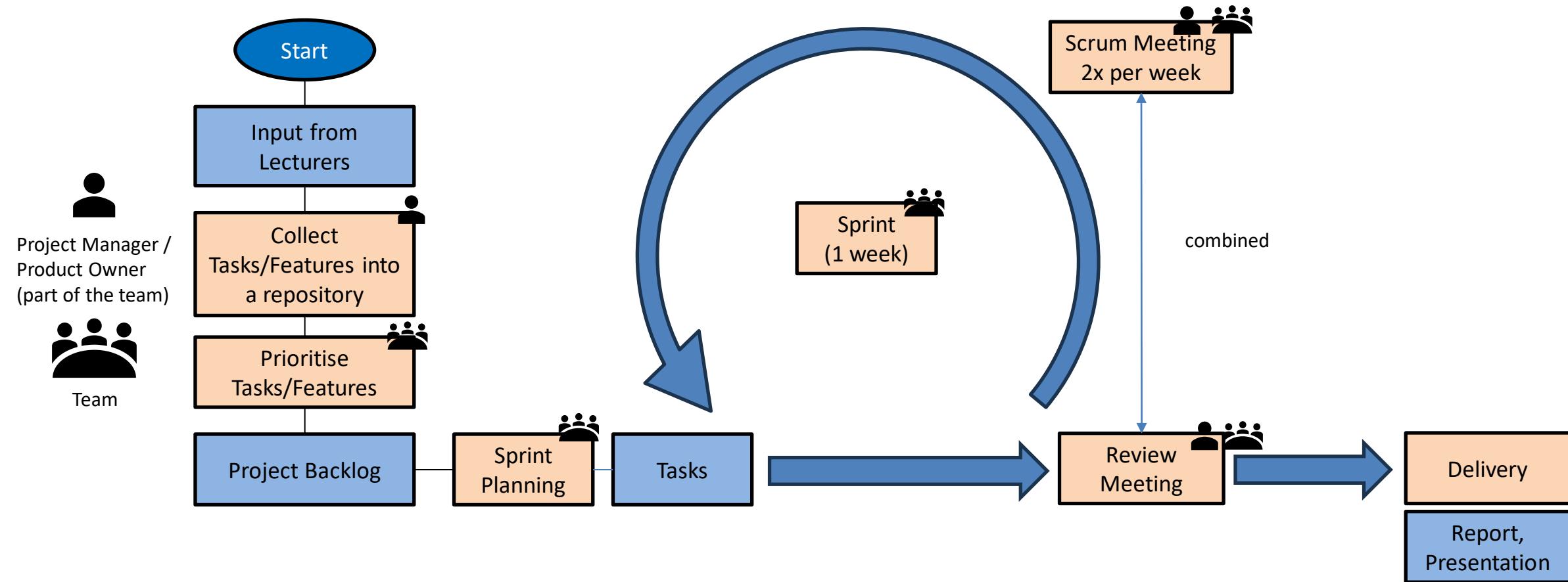
## Agile Working Methods

# Agile Working Method (general)



Task: Activity to be done by someone  
 Feature: Characteristic of the end result

## Proposed agile working Mode for this course





## Virtual Collaboration

## Advantages and Challenges

## Why does virtual Collaboration exist?



Source: C. Ebert, Verteiltes Arbeiten kompakt, 2. Aufl. Springer Vieweg, 2020

## Cost, Flexibility and Innovation are main drivers for virtual Collaboration

- Specialist knowledge can be used in projects on short notice and as long as it is needed. Cost / Flexibility
- Critical resources/knowledge often are rare

Example:

Specific Software development tasks

- Innovation can be tailored for specific markets. Innovation

Example:

A product manager who lives in Asia can define product requirements better for that market than one living in Paris.

## Development of Collaboration Types



Example: Amazons  
mechanical Turk Platform



## Virtual Collaboration

## Success Factors

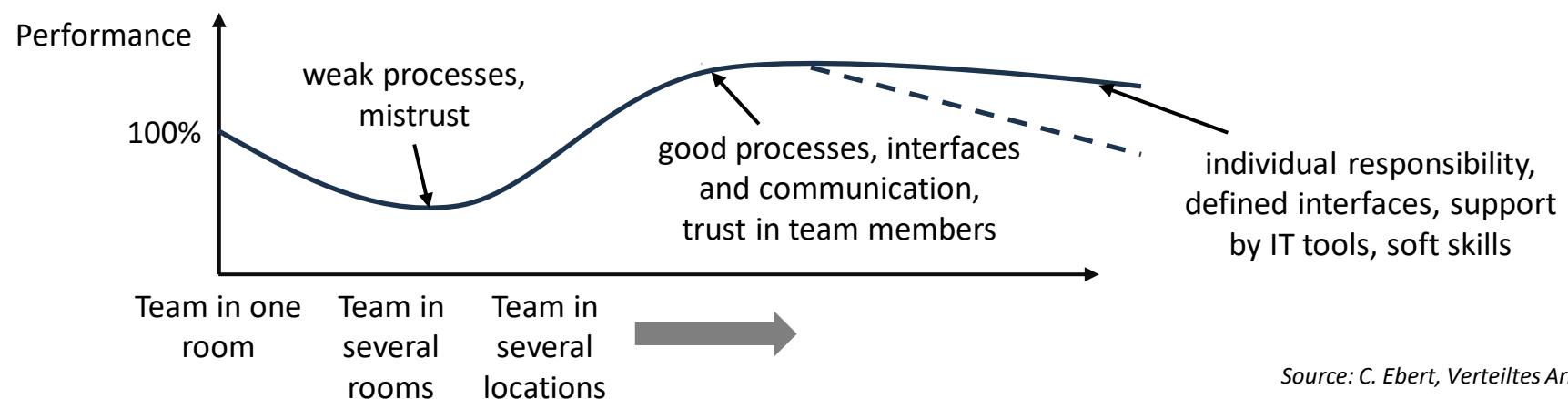
# Virtual Collaboration in Virtual Teams

"Virtual Teams" are also called "Distributed Teams"

**Distance** between team members defines a Distributed Team

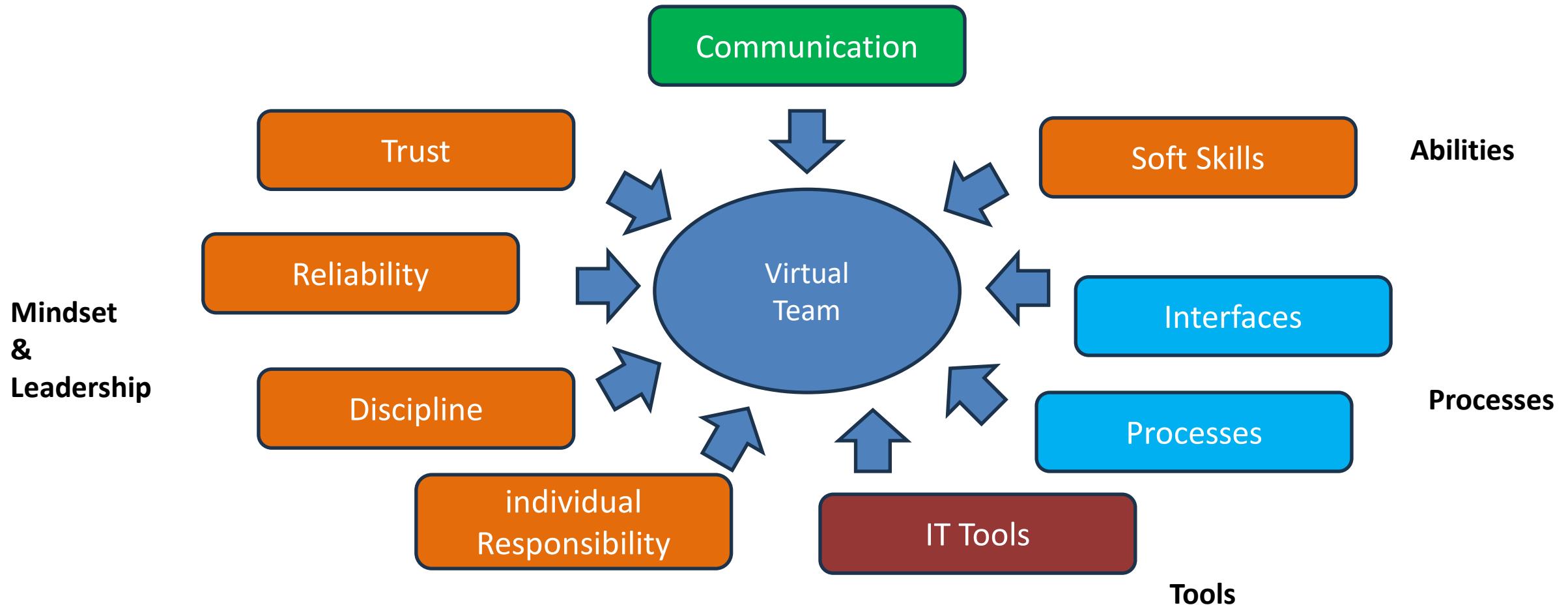
- spatial distance
- time differences
- cultural differences

15m spatial distance and a different office room can result in a Distributed Team

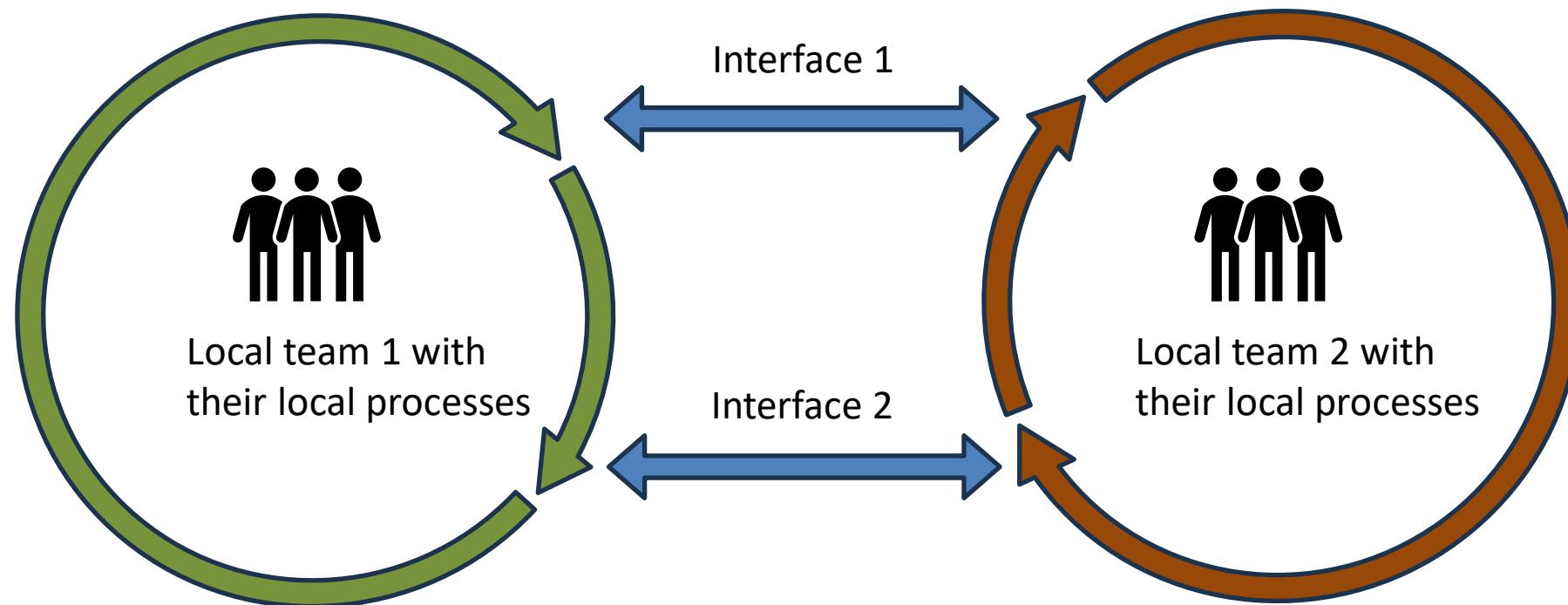


Source: C. Ebert, Verteiltes Arbeiten kompakt, 2. Aufl. Springer Vieweg, 2020

## What is important in virtual Teams ?



## Processes and Interfaces



It is crucial to define good Interfaces between local processes. This allows subteams to work agile and independent.

## Interfaces within distributed teams

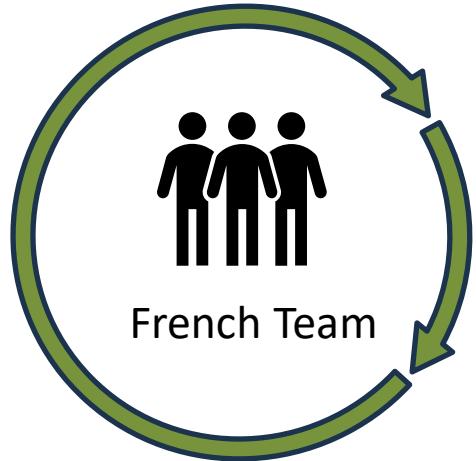
Imagine you are leading a distributed team with two subteams somewhere in France and somewhere in Germany. The two teams must work together on a new software for an Arduino microcomputer. Each subteam has its own way of working and culture.

What can be interfaces between the subteams that should be defined so that they can work effectively together?

1. Think about main working areas and artefacts that need exchange between the teams. Name them.
2. Write down the related interfaces, explain them in 1-2 sentences and
3. make a proposal how these interfaces can be designed for an effective cooperation of the subteams.

Write your results into the chat.

## Interfaces

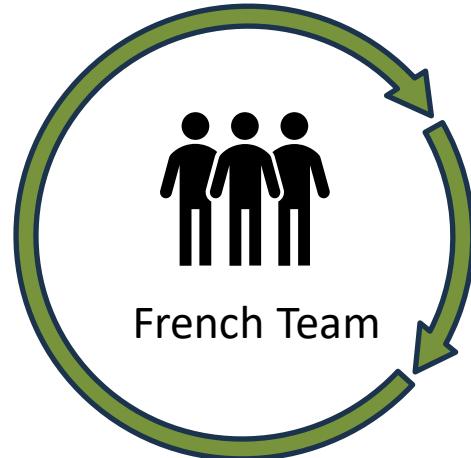


### Main Interfaces

Working area	Interface	Definition



## Interfaces



### Main Interfaces

Working area	Interface	Definition
Project targets	Project Order	Meetings, Document, Wiki
Software requirements	Software Requirement Sheet and Specification	Meetings, Document, Repository, Wiki
SW Architecture	Architecture Specification	Meetings, Document, Repository, Wiki
Development process and tools	Description of the processs and tools	Meetings, Document, Repository, Wiki
SW Development	Code Repository	Repository, Wiki
SW Unit Testing	Test Specification and Setup	Repository, Wiki, Tools
SW Integration and Testing	Integration Process and Tools	Tools, Repository
SW Release	SW Repository	Repository
Customer Management	Meetings with the Customer	Protocols, Wiki, Meetings
Project Management	Schedule, Resource Plan, Status	Meetings, Protocols, Wiki, Repository, Documents



## Results

- Many interfaces need to be defined between virtual teams.
- It requires a lot of communication to define these interfaces.
- Only if this has been done, an effective cooperation can start.
- Different IT tools can support the use of these interfaces.
- If things do not go according to plan, the right mindset is key.

2. Defined Interfaces and Processes

1. Communication

3. The right tools

4. The right mindset

# How can we achieve this?



## Virtual Collaboration

## Leadership and Mindset

## Challenges of virtual Teams

- **Spontaneity** (e.g. for Questions, Agreements) is **restricted**. Quick solution finding is difficult.
- **Communication** is mainly by **electronic tools**. This increases the potential for misunderstandings and errors.
- Direct **contact is missing**. Isolated team members will experience frustration.
- **Trust** has to grow. This will take time and has to be **supported actively**.

## Measure #1 - Goals, Expectations, Rules and Responsibilities

Set up a meeting to discuss the individual and joint goals, expectations, rules and responsibilities in your team. The Duration should be 1.5 to 2 hours

- Exchange about the individual goals and expectations concerning the project. Document the results for each member in a Word document.
- From these results, derive rules for the collaboration in your team (e.g. How will you react as a team if someone does not deliver results he/she has promised?). Document the rules in a Word Document. List at least 5-10 rules.
- Derive rules on how you will use IT tools in your team. Define responsibilities for the maintenance of each tool.
- Define the responsibilities and roles in your team. Who will be the project manager, who will be the specialist for the IT tools, who will write the report, who will present, who will contact the lecturers if necessary etc. Document the responsibilities in a word document.

## Measure #2 - Define your Process and Interfaces

Set up a meeting to discuss your process. The Duration should be 1.5 hours.

The project manager of your team should invite to a team meeting to discuss the working mode and processes.

- How often will you meet (locally, virtually). Who will invite? Who will document the meeting and write a protocol, OPL? What will be the agenda of your meetings (e.g. Standard agenda, individual topics).
- How will you communicate? Define tools and rules for communication.
- Who will define tasks and how? How will they be assigned to the team members?
- How will you organize your project (agile or conventional)? Who will take care of the processes within the project (time planning, task distribution, task status reporting etc.)
- Who will upload results into moodle, so that the lecturers can review them? How often will you do this?
- How will you handle difficulties in your project? Will you define an emergency meeting?
- Are there other processes and interfaces that need to be discussed and defined?

## Measure #3 - Teambuilding Activity

Within your team organize a teambuilding activity. Here are some ideas:

Have a event with your local teammembers. Take photos and videos during this event. After the events, meet virtually and present the events to the other team members. Have a chat about the events.

Have a virtual informal meeting (maybe regularly?) where you meet to have a drink (or even Lunch) together. What about having a virtual cooking event together.

Organize a city tour where you show the virtual team members your favourite places. Zoom will also work on a mobile phone...

Have a virtual gaming event. Play some games in mixed teams.

Many more options exist. You have to be creative...



## IT Tools for distributed Teams

# Overview Tools for the virtual Collaboration

## Communication

Zoom  
Teams

Discord  
WhatsApp

...

## Data Exchange

### Moodle

Github  
WeTransfer  
OneDrive  
GoogleDrive  
Dropbox

...

## Organisation / Management

Asana (free)  
Jira (free)

Google Docs  
monday.com (paid)

## Collaboration / Results

Google Docs  
Miro Board  
Zoom/Teams Whiteboard  
Moodle  
Teams  
MS 365

# Communication vs. Tasks

	Types of Tasks			
Communication Modes	Generating Ideas and Plans	Solving routine problems (Solution exists)	Solving new or complex problems	Conflict solving
Audio only	Marginal fit	Good fit	Good fit	Poor fit
Video and Audio	Poor fit	Good fit	Good fit	Marginal fit
Data only (e.g. email, bulletin boards)	Good fit	Marginal fit	Poor fit	Poor fit

## Communication

You need a way to easily and effectively communicate with each other.



Sending and Receiving at the same time

Audio, Video, Data can be...

...Synchronous



...Asynchronous

Sending and Receiving at different times

## What might be advantages of synchronous and asynchronous Communication?

Please write into the chat!

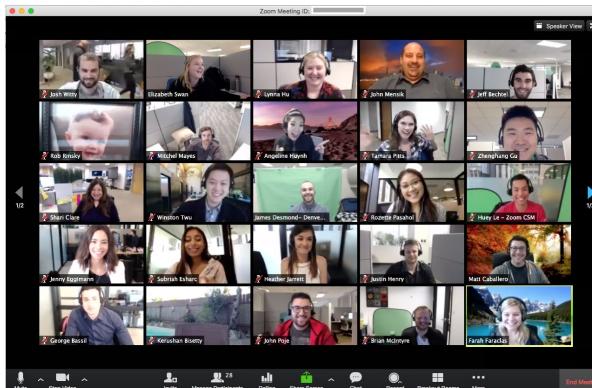
### Synchronous Communication

### Asynchronous Communication

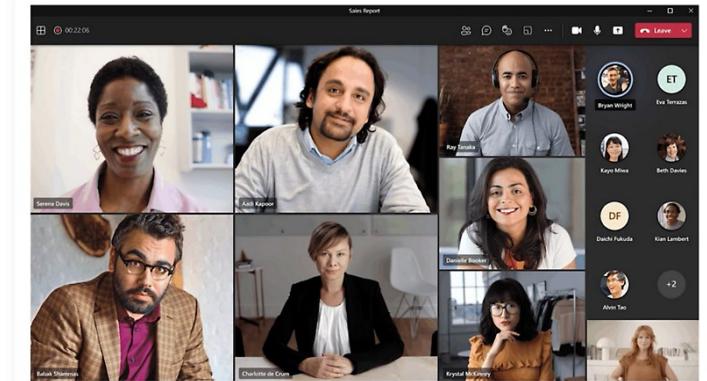
By the way - Communication by Chat is asynchronous !

# Tools for Communication

## Synchronous Communication

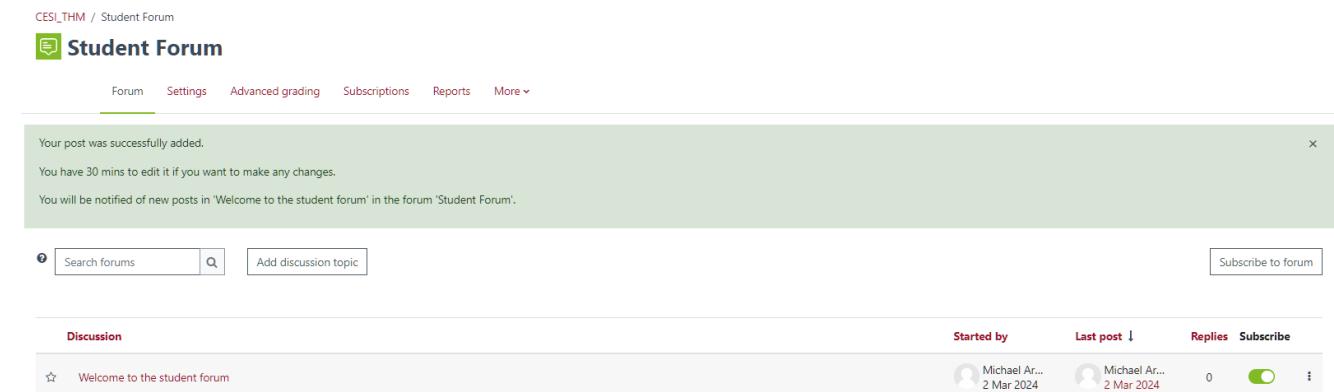


zoom



Microsoft  
Teams

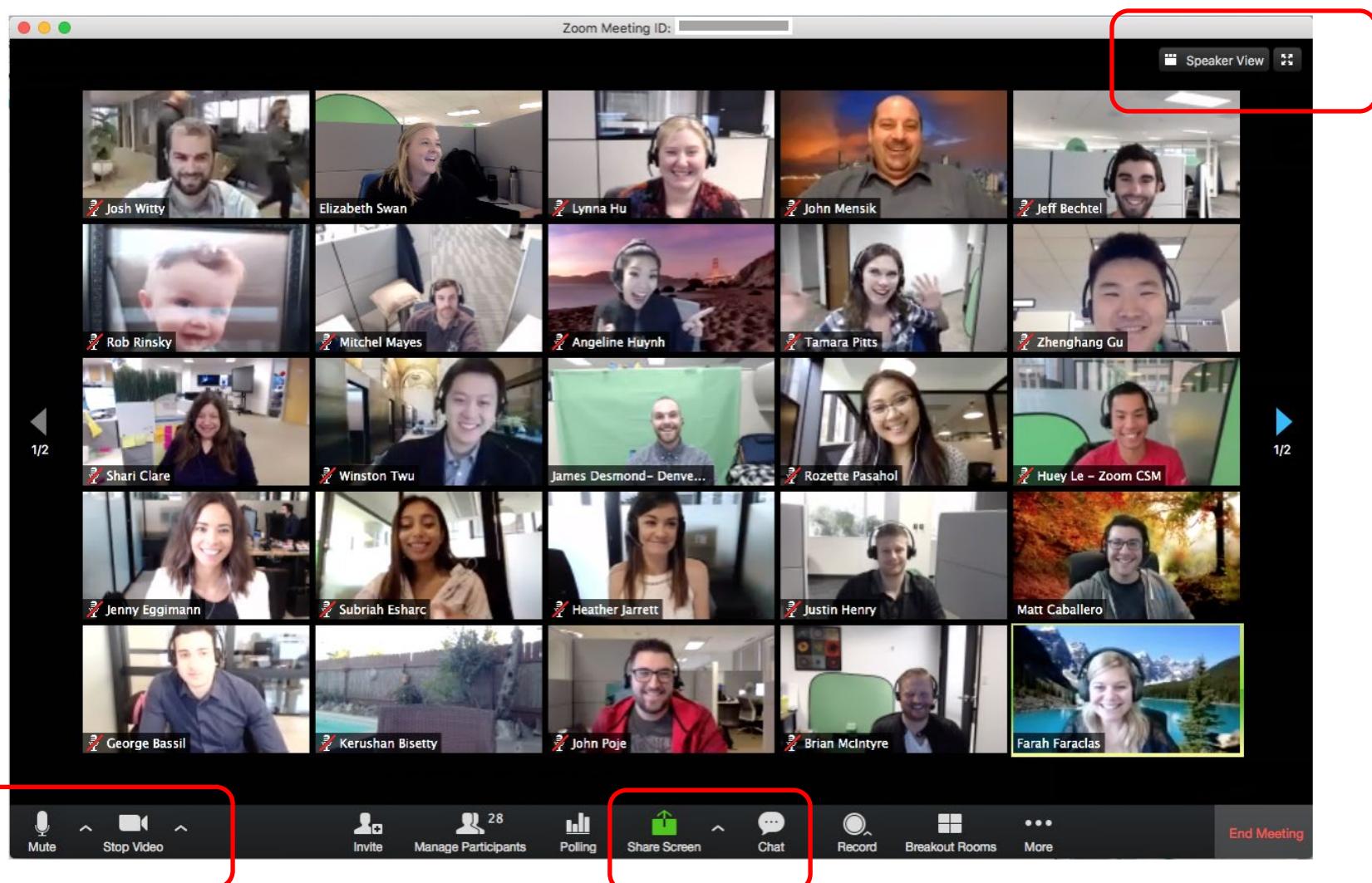
## Asynchronous Communication



The screenshot shows a Moodle student forum titled "Student Forum". The top navigation bar includes links for "Forum", "Settings", "Advanced grading", "Subscriptions", "Reports", and "More". A success message box displays: "Your post was successfully added.", "You have 30 mins to edit it if you want to make any changes.", and "You will be notified of new posts in 'Welcome to the student forum' in the forum 'Student Forum'." Below the message are search and topic creation buttons ("Search forums", "Add discussion topic") and a "Subscribe to forum" button. The main content area shows a single discussion topic titled "Welcome to the student forum" started by Michael Arndt on 2 Mar 2024, with 0 replies.

moodle

## Zoom



Layout Selection

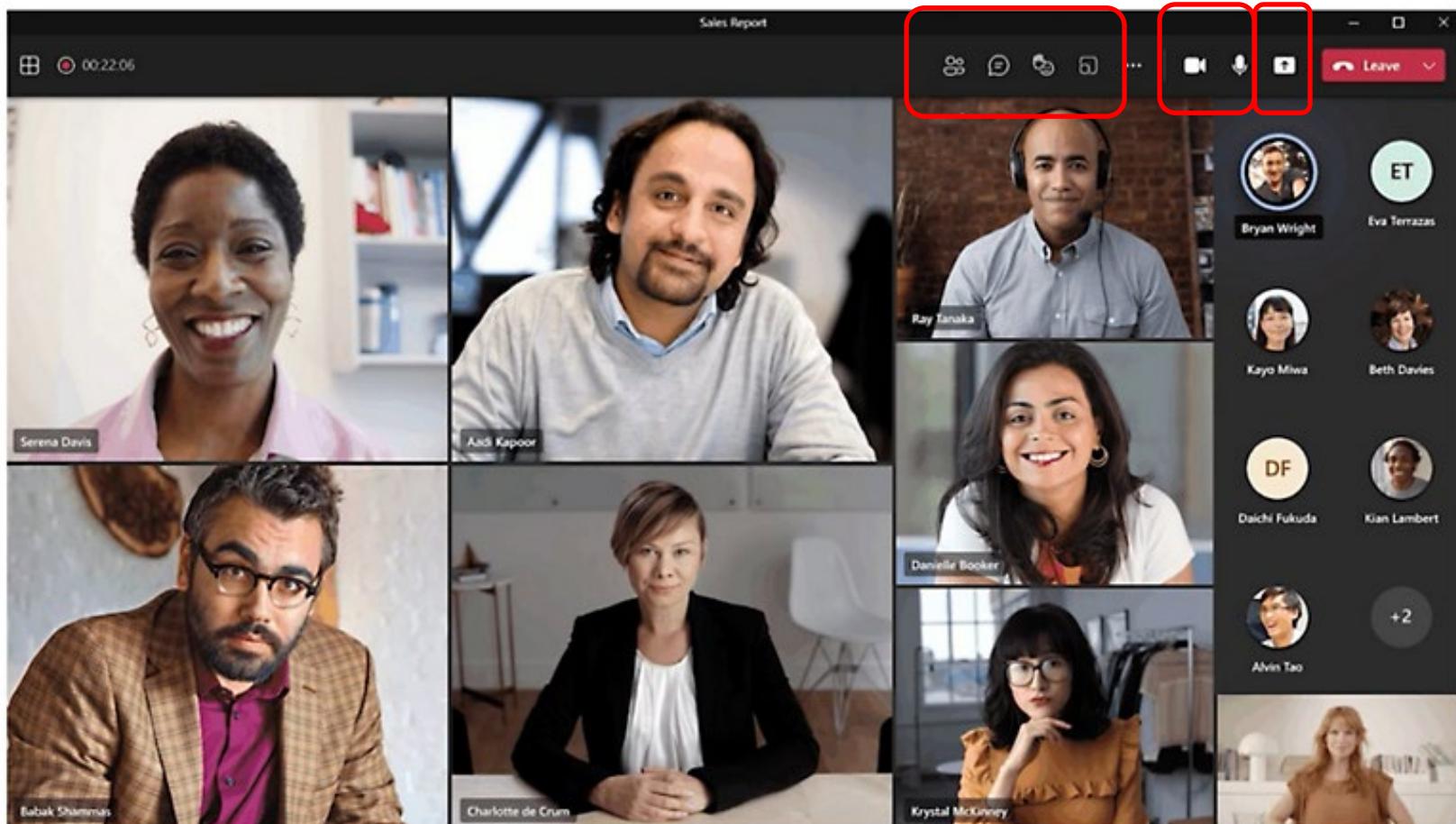
Microphone  
and Camera  
Control

Screen Sharing, Chat

## Teams

Chat, Participants, Reactions

Screen Sharing



Myself

# Moodle Student Forum - General

CESI\_THM / Student Forum

## Student Forum

Forum   Settings   Advanced grading   Subscriptions   Reports   More ▾

Your post was successfully added.

You have 30 mins to edit it if you want to make any changes.

You will be notified of new posts in 'Welcome to the student forum' in the 'General Student Forum'.

Click here to add a new topic

You can only address your group members

Subscribe to the forum

Search forums 

Add discussion topic

Subscribe to forum

### Discussion

Started by

Last post ↓

Replies

Subscribe

☆ Welcome to the student forum

Michael Ar...  
2 Mar 2024

Michael Ar...  
2 Mar 2024

0



# Moodle Student Forum - New Topic

CESI\_THM / Student Forum

## Student Forum

Forum    Settings    Advanced grading    Subscriptions    Reports    More ▾



Search forums



Add discussion topic

Subscribe to forum

Separate groups

All participants

Subject

Test

Message

This is a test of the forum.



Post to forum

Cancel

Advanced

# Asana Project Management (free)

Search 30 days left in trial Add billing info MA

+ Create

Home My tasks Inbox

Simulation Project Set status

Layout Selection

Overview List Board Timeline ... Calendar Workflow Dashboard Messages Files +

+ Add task All tasks Sort Today Weeks Color: Default Unscheduled ...

February March April

28 29 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8

Longlist

In Work

Finished

Get Data from on... (MA)

Analyze Data (MA)

Generate Report

Timeline View

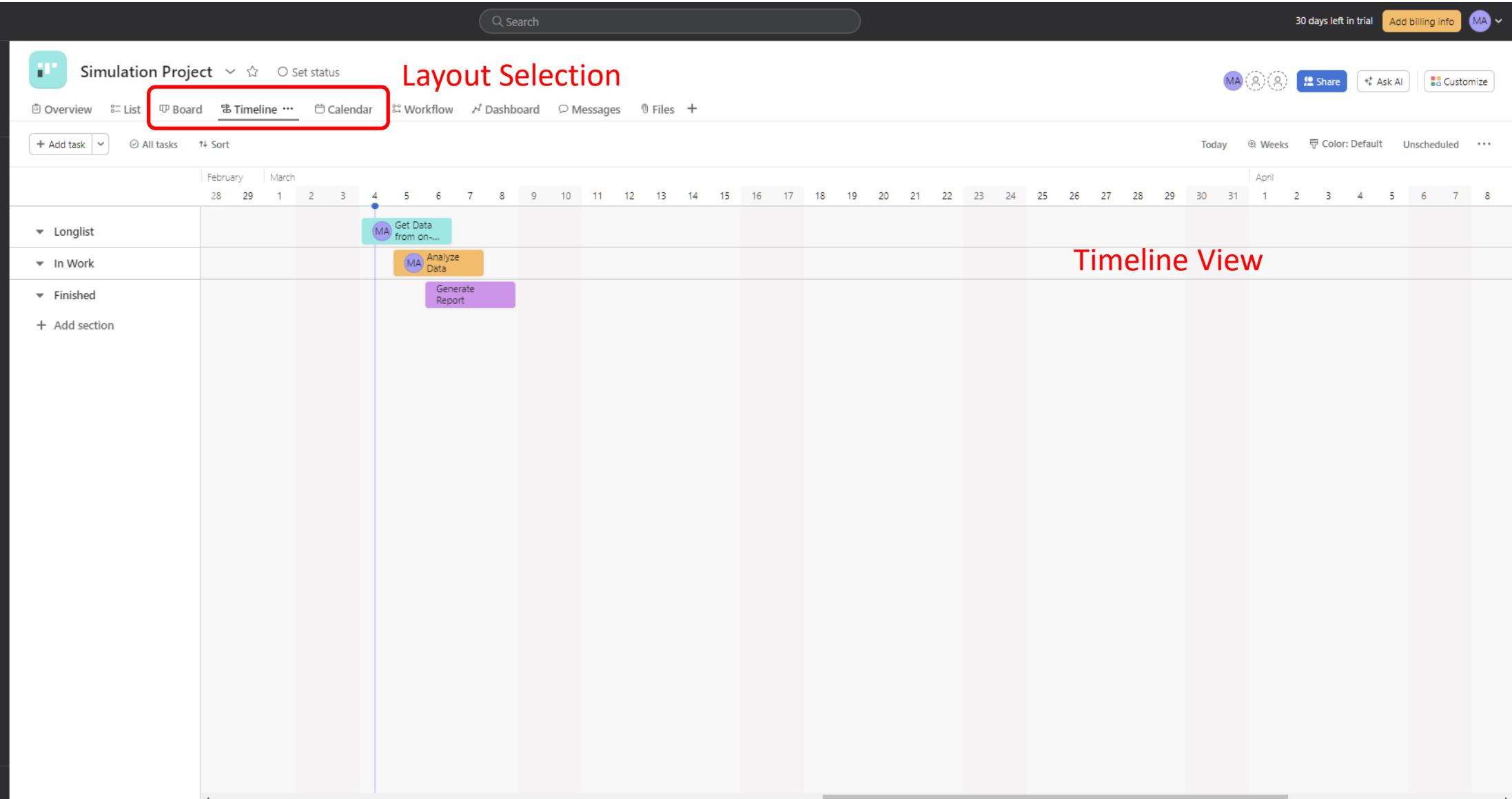
Starred items appear here

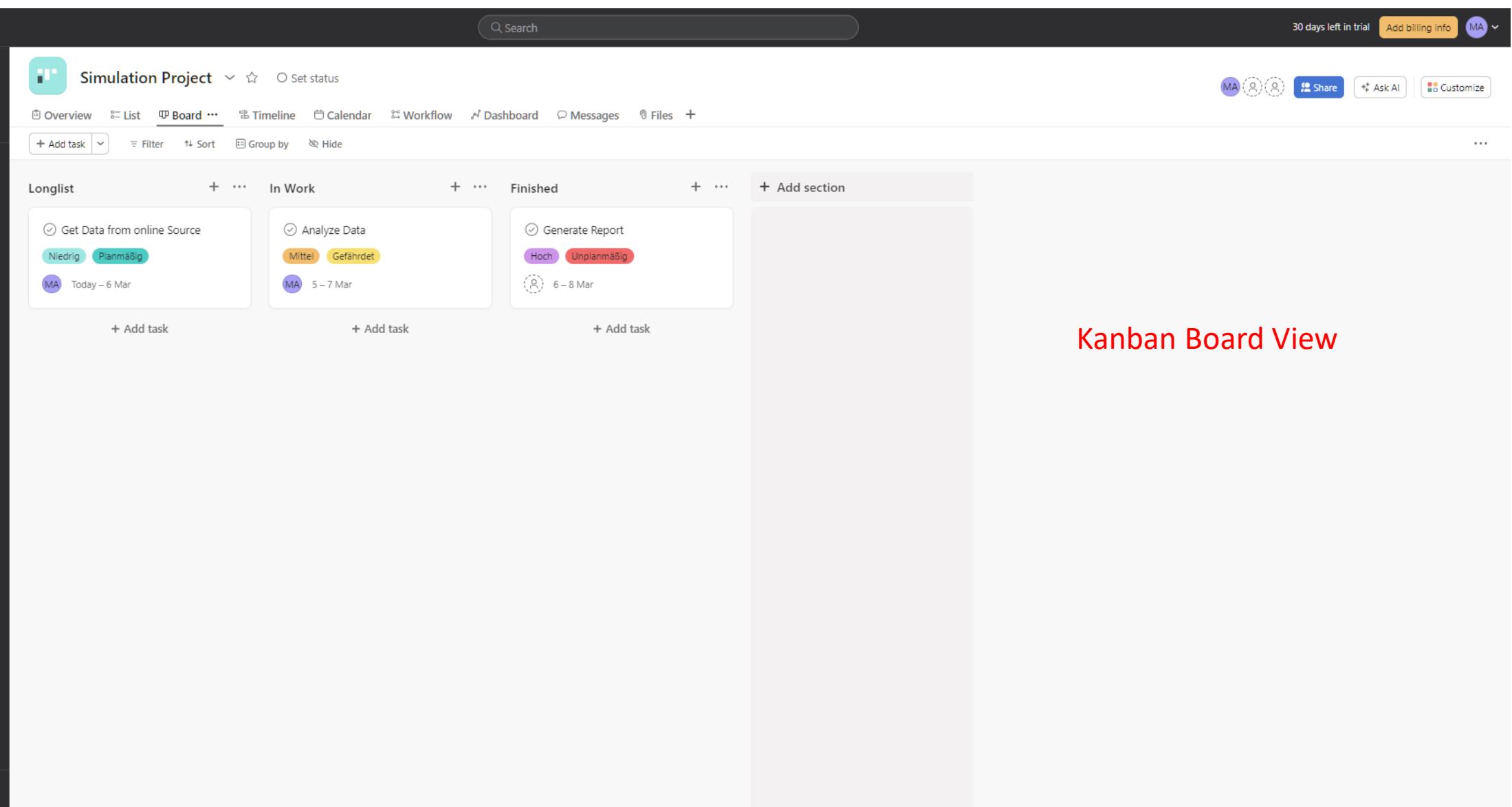
Projects Simulation Project

Teams Das erste Team von ...

Browse teams

Invite Help





The screenshot shows the Asana project management interface. At the top, there's a navigation bar with 'Create', a search bar, and account information ('30 days left in trial', 'Add billing info', 'MA'). On the left, a sidebar lists 'Home', 'My tasks', 'Inbox', 'Insights', 'Reporting', 'Portfolios', 'Goals', 'Starred' (with a note about starred items appearing here), 'Projects' (selected, showing 'Simulation Project'), 'Teams' (with a note about the first team), and 'Browse teams'. The main area is titled 'Simulation Project' and shows a Kanban board with three columns: 'Longlist', 'In Work', and 'Finished'. Each column has a '+' button to add more sections. Under 'Longlist', there's one task: 'Get Data from online Source' (checkbox checked, priority 'Niedrig', status 'Planmäßig', due 'Today – 6 Mar'). Under 'In Work', there are two tasks: 'Analyze Data' (checkbox checked, priority 'Mittel', status 'Gefährdet', due '5 – 7 Mar') and 'Generate Report' (checkbox checked, priority 'Hoch', status 'Unplanmäßig', due '6 – 8 Mar'). A red text overlay 'Kanban Board View' is positioned in the middle-right area of the main content.

# Jira Project Management (free)

The screenshot shows the Jira Project Management interface. At the top, there's a navigation bar with links like "Jira Software", "Your work", "Projects", "Filters", "Dashboards", "Teams", "Plans", "Apps", and "Create". On the right of the header are "Upgrade", "Search", and other user icons.

The main area is titled "My Project" and shows a Kanban board for "Mein Kanban-Projekt". The board has three columns: "TO DO 1", "IN PROGRESS 1", and "DONE 1".

- TO DO 1:** Contains one card: "Gaet simulation data" (checkbox checked, assigned to "KAN-1").
- IN PROGRESS 1:** Contains one card: "Analyze Data" (checkbox checked, assigned to "KAN-2").
- DONE 1:** Contains one card: "Generate Report" (checkbox checked, assigned to "KAN-3").

On the left sidebar, under "PLANNING", the "Board" tab is selected. Other tabs include "Timeline" and "Issues". Under "DEVELOPMENT", there are "Code", "Project pages", "Add shortcut", and "Project settings". A message at the bottom left says "You're in a team-managed project" with a "Learn more" link. A "Quickstart" button is at the bottom right.

**Jira has similar functions and looks**

## Set up a Kanban Board for a project

Each participant should organize a free account for Asana or Jira.

Asana (Personal) = <https://asana.com/de/pricing#close> 30days full version, then reduced functions

Jira (Free) = <https://www.atlassian.com/de/software/jira>

Set up your first project in your chosen tool. Define some mock up tasks and assign them to other students. Send them the tasks by email and see what happens.



## Summary

Task: Activity to be done by someone  
Feature: Characteristic of the end result

## Proposed Working MOde and IT Tools

