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INF

FAKULTÄT FÜR
INFORMATIK

PPSW

Project Management & Teamwork

Contents

Contents of the lecture

- Project Management
- Planning a Project
- Conducting a Project

- Definitions an Examples of Teams
- Tuckman's Model
- Teams Dysfunctions
- Criticism

What is a Project?

A project is an endeavor which is
- unique
- complex
- goal-oriented

It has…
- a beginning
- an end
- limited resources

Not every activity qualifies as a project!

What is a Project?

The following are (usually) not projects:

- Going jogging every morning
- Day-to-day running of a factory
- A marriage
- Running a company

The following are/could be projects:

- Reducing your weight to X kg
- Building a factory
- Preparing your wedding
- Founding a company

Project Management

YouTube: "What is project management?"

- https://www.youtube.com/watch?v=Jk-JwtScIlw

Project management serves to …

- Carry out projects successfully and efficiently

This includes:

- Project planning
- Organization
- Leading the project team
- Internal and external coordination and communication

Project Management

How to solve a problem:

- *Formulate the problem you want to solve in writing.*
- *Continue subdividing the problem until each sub-problem becomes understandable and seems solvable.*
- *Pay attention to the entire context, and organise and visualise the individual parts, so that you understand everything and miss nothing.*
- *Check the facts and assume nothing.*
- *Then solve each sub-problem one after the other consistently and accurately.*

(René Descartes, 1622)

The Project Management Triangle

Project Management means planning, monitoring and steering the three project quantities:
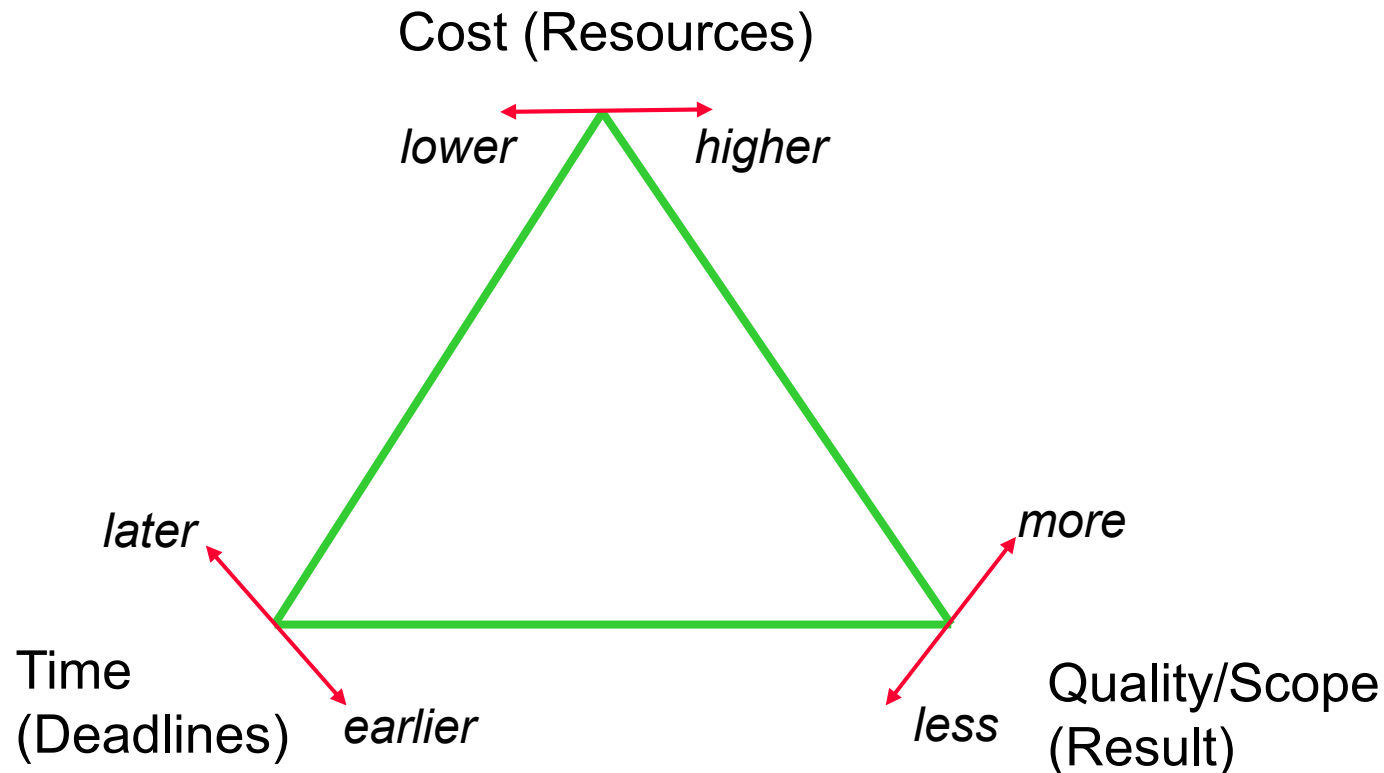
Project Goals

Every project must have a goal

- The goal tells you when the project is complete

Goals must be measurable!

Example: Simulation Project

- Student team project in the 6th semester
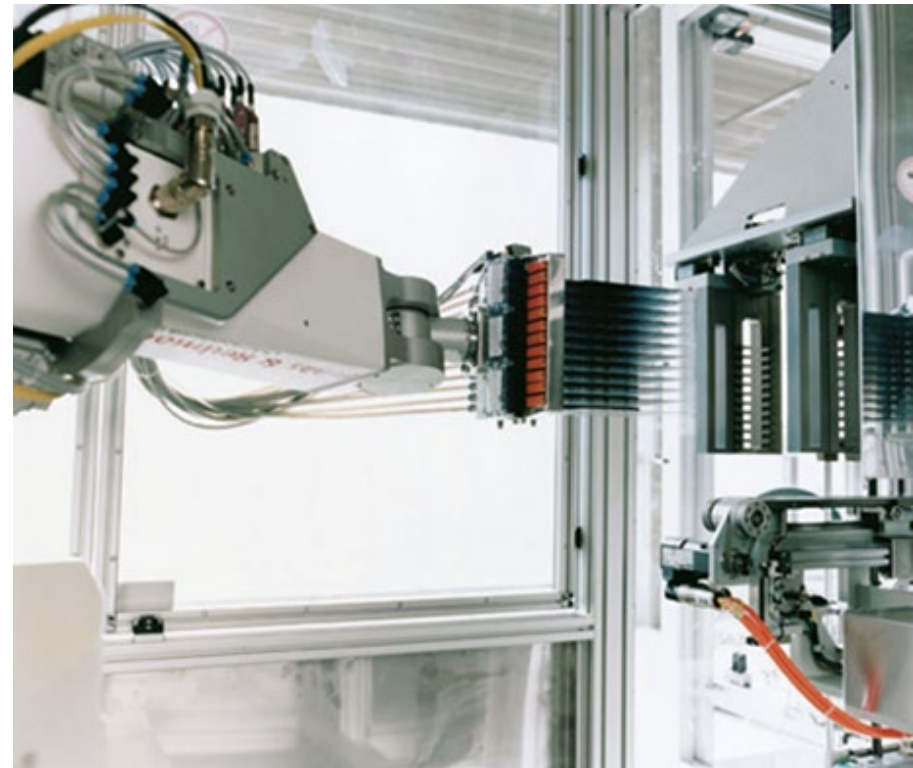- Milestone #1 is to formulate the team goal

Project Goals

An inappropriate project goal:

- *Our goal is to write a program that simulates the factory.*

A better project goal:

- *Our goal is to determine the maximum number of wafers per hour that can be produced.*

Project Goals

There are several good reasons for having project goals

Decision-making

- Goals form criteria for making decisions

Motivation

- Motivation is higher when there is a clear, measurable goal

Controlling

- Goals help to track progress

Legitimation

- Goals can justify the team's existence and activities

Project Goals

Goals must be …

- measurable
- realistic
- acceptable (and accepted!)

Inexperienced groups often find goals difficult:

- Finding goals
- Accepting and committing to goals
- Concentrating energy on achieving goals

Setting and achieving goals is a leadership ability!

Planning a Project

Project Planning

Project planning …

- is the description of the path to a desired future state
- describes goals, boundary conditions and use of resources
- comes before implementation
- is based on predictions, not certainties!

Planning means replacing randomness by errors

Reason: When something goes wrong (which it will!) …

- Can you learn anything useful from it?

Project Planning

Elements of Project Planning

- Project structure
- Scheduling
- Organisation
- Estimate of effort
- Deadline/milestone planning
- Cost planning
- Capacity planning
- Quality planning
- Communication standards
- …

Structuring Projects

A project should be divided into manageable parts

- These parts are called Work Packets (WP)

The reasons for structuring are

- to provide a representation of the overall project
- to provide the basis for defining work packets
- to provide the basis for deadline and resource planning
- to provide the basis for costing and documentation

Work Packets

Every Work Packet should ...

- have clearly defined prerequisites (input)
- deliver clearly defined results (output)
- be able to use resources up to some maximum limit
- last for some maximum time
- be carried out by a person or group under their own responsibility
- be as independent as possible of other Work Packets
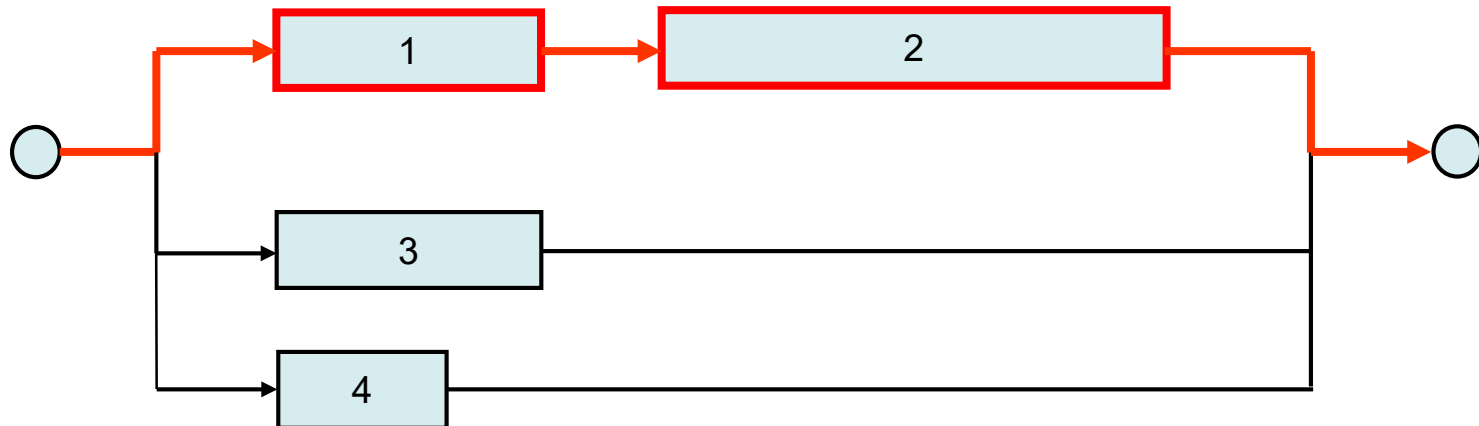
Project Network Plan

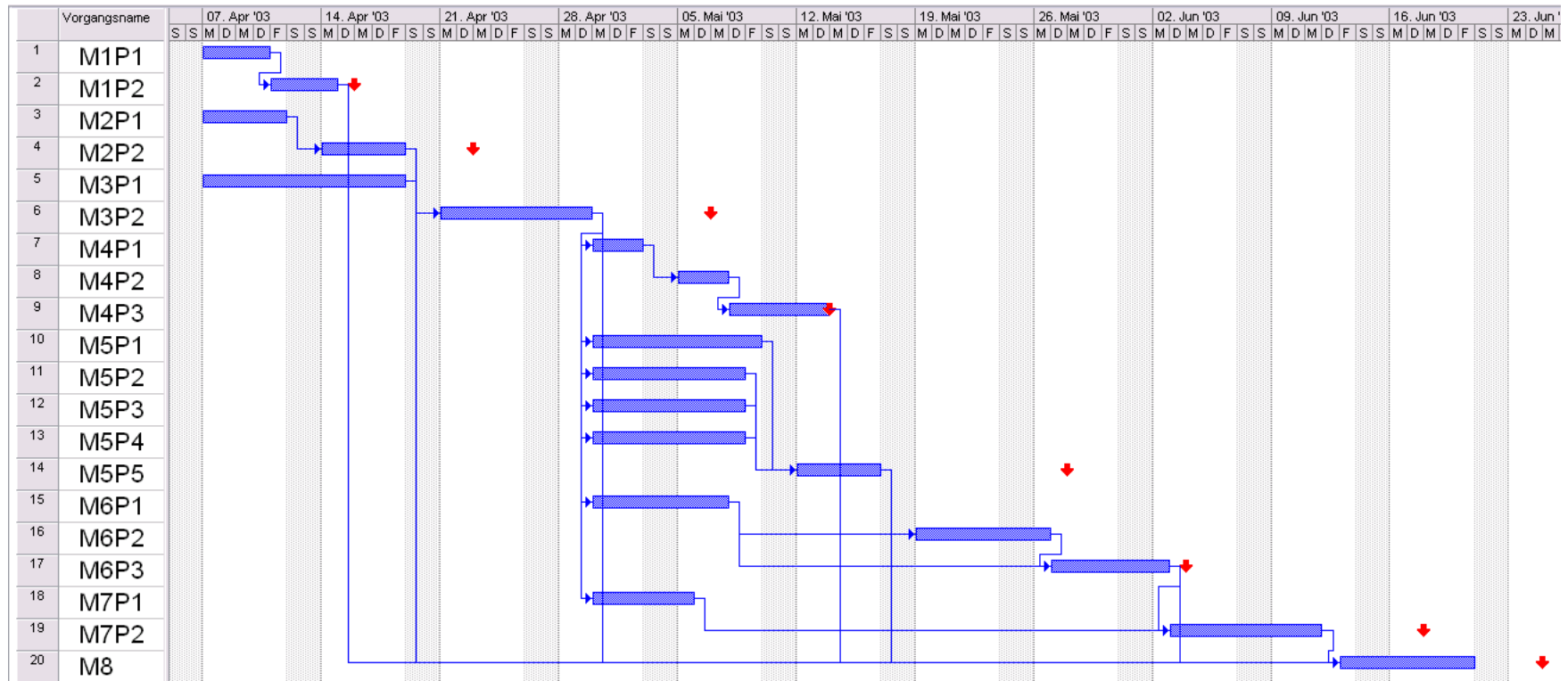## The project schedule is created using a Network Plan
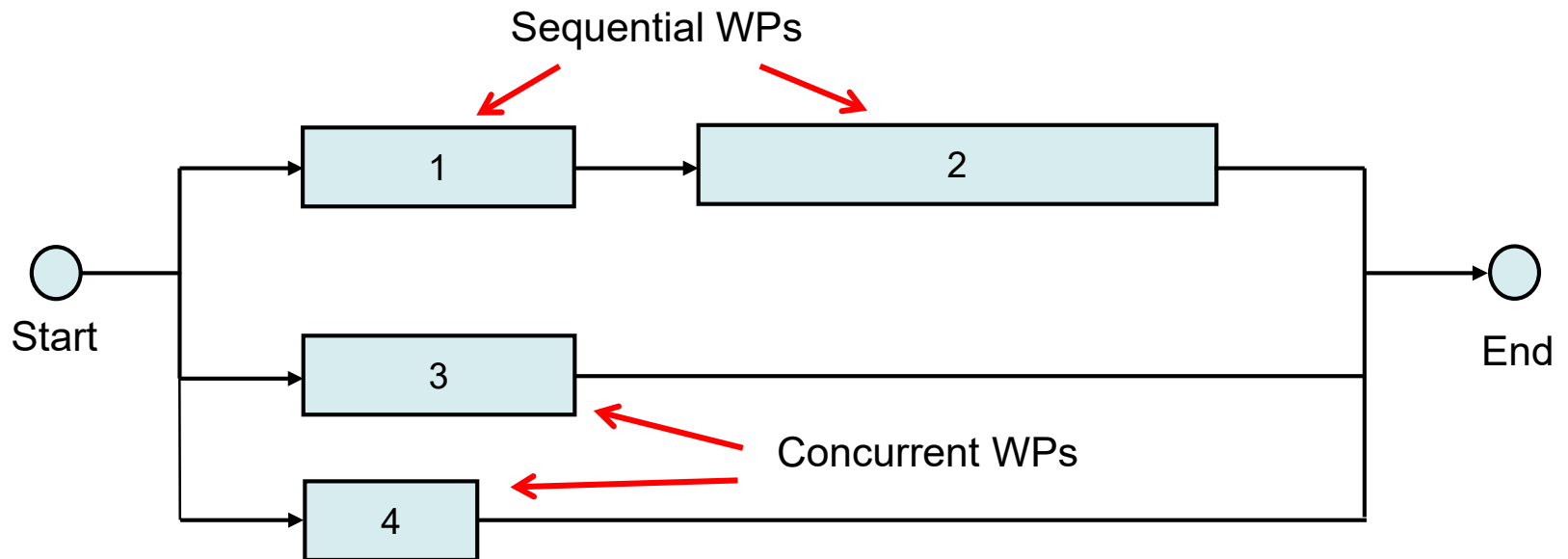
The Critical Path

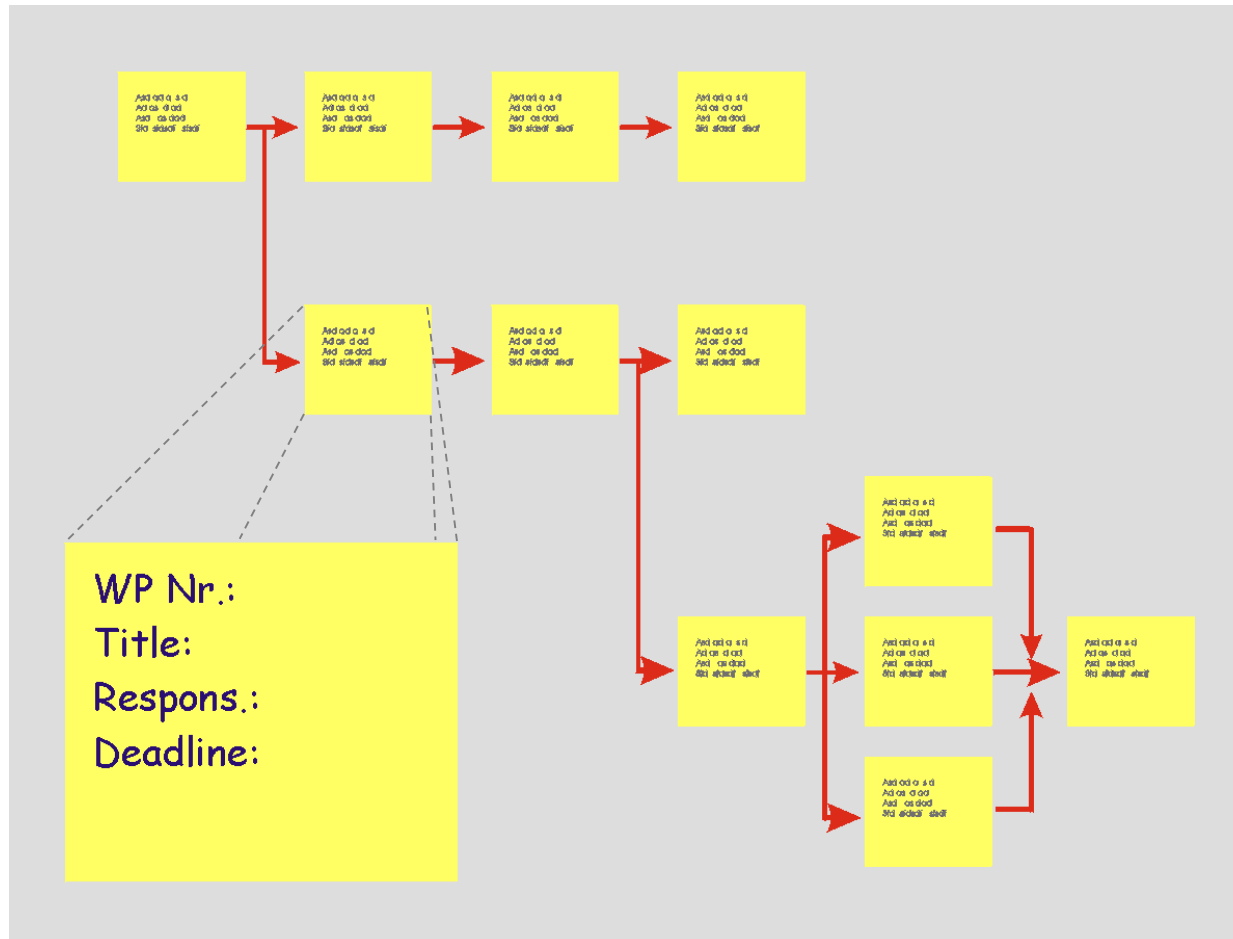## The Critical Path (CP):

- A sequence of WPs from beginning to end
- The sequence with the longest total duration

The Critical Path determines the total project duration!
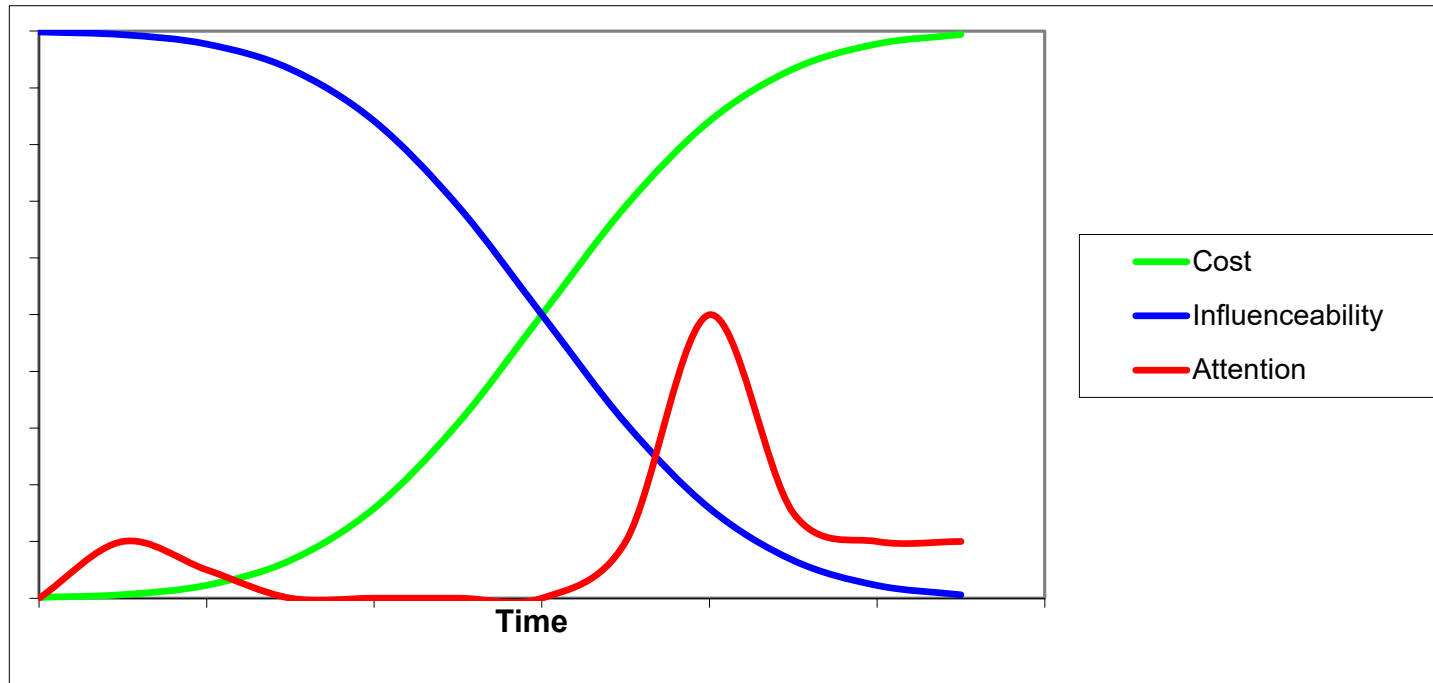
Software PM Tools

Post–It Note Scheduling

Conducting a Project

Influenceability of Projects

Influenceability, costs and attention from Management:

Lesson: Things that go wrong are noticed very late
- Too late / too expensive to correct

Influence of Errors

The cost to correct an error grows exponentially
- The "Law of Tens"

For each phase a project moves into:
- The cost of correcting an error goes up by a factor of 10!

Consequence: it pays to …
- plan early
- verify each step of the process

Scope Creep

YouTube: "The Wasa – a true story of scope creep"
- https://www.youtube.com/watch?v=kmJ59yyYza4

Uncontrolled changes or continuous growth of an ongoing project's scope
- Increases costs
- Endangers deadlines
- Possibly reduces quality

Mostly caused by insufficient initial specification
- time pressure, not involving all stake holders, unclear objectives, bad change management

Proper project planning and management can prevent unwanted scope creep!

Experiences with Students

My "Top Ten List" of student Project Management errors:

1. Ineffective meetings
2. Imprecise planning
3. No clear delegation of work packets
4. Starting work packets too late
5. Lack of clarity and agreement about goals
6. Unwillingness to accept and exercise responsibility
7. Lack of discipline
8. Lack of measurement and controls
9. Bad communication
10. Weak leadership

Practical Tips

What things in your life are projects?

- Do you know what the project goals are?
- Do you have a plan that will get you to your goal on time?
- How do you plan to measure your progress?
- How well is your working capacity planned?
- Is your project subdivided into work packets appropriately?
- Have you defined the result quality you intend to achieve?
- What will you do in order to ensure the quality of your results?
- With whom must you communicate? How will you do that?
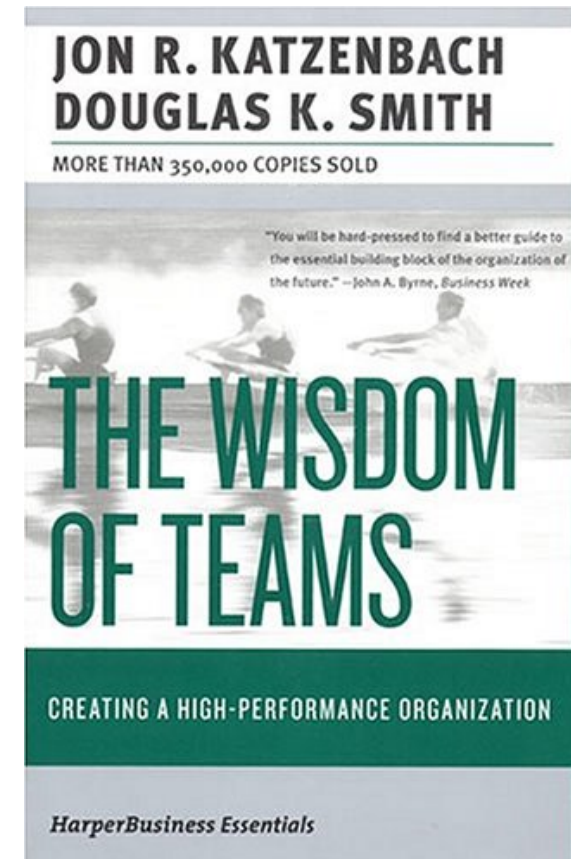
Definition and Examples of Teams

What is a Team?

A team is …

- a small number of people
- with complementary skills
- who are committed to
  - a common purpose,
  - performance goals, and
  - common approach
- for which they hold themselves mutually accountable.

Definition by Katzenbach and Smith

- *The Wisdom of Teams*

Models for Effective Teams

Groups of musicians

Jupiter String Quartet
Print number: MS040831.DSC_1862.tif

2004 Banff International String Quartet Competition
Photography By Donald Lee

The Banff Centre
Publication must include photo credit

Models for Effective Teams

Emergency Services

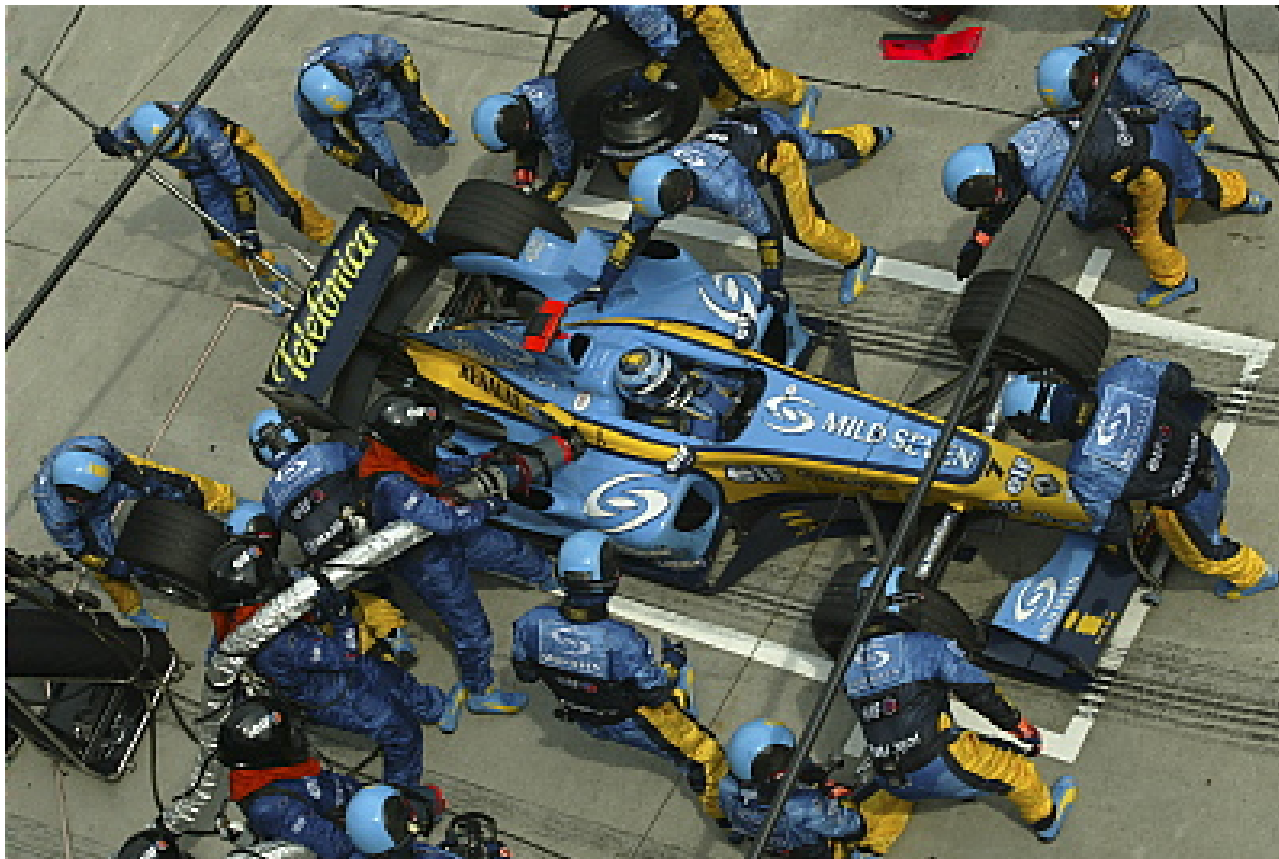# Models for Effective Teams

A pit stop crew

Models for Effective Teams

Sports teams

Tuckman's Model

Tuckman's Model

Bruce Tuckman 1965

- Developmental Sequence in Small Groups. *Psychological Bulletin*, vol. 63, 1965
- A model for the development of cooperation in groups

The model describes four phases of team development:

1. Forming
2. Storming
3. Norming
4. Performing

Tuckman's Model

Forming

- The members of the new team get to know each other

Storming

- The members fight for positions and try to organise themselves

Norming

- The members agree on the team rules and relationships

Performing

- The team is able to work together efficiently

Forming

Goals of the Forming stage:

- Team members are introduced to each other
- Team members state what they hope to accomplish in the team
- Learn about the opportunity & challenges
- Determine acceptable group behavior
- Decide what information needs to be gathered

Potential problems

- There is much happening that members get distracted
- Difficulty in identifying the relevant problems
- The team often accomplishes little concerning its goals

Storming

Goals of the Storming phase

- Let everybody express their opinions and perspectives
- Work through differences of opinion and personality
- Avoid problems later due to hidden conflicts or reservations
- Decide what leadership model the team will accept
- Team members begin to understand one another

Storming

Potential problems

- Realization that the tasks that are ahead are different and more difficult than they previously imagined
- Aggression towards leaders
- Resistance to approaches suggested by other members
- Resistance to the process
- Personal agendas are often at the forefront
- Little energy is spent on progressing towards the goal

The maturity of the team members determines whether the team will ever move out of this stage

Norming

Goals of the Norming phase

- The team reaches a consensus on what the team is
- Create understanding
- Find group symbolism
- Increase motivation & energy
- Agree on rules, values, professional behavior, methods & tools
- Acceptance of the team, ground rules, roles, and other members

Potential problems

- Loss of creativity owing to groupthink
- Healthy conflict may disappear

Performing

Goals of the Performing stage

- Relationships and expectations are settled
- There is a good group structure and clear roles
- Work is goal-oriented
- There are few disruptions from within the group
- The team finds ways to get the job done smoothly and effectively
- No inappropriate conflict or need for external supervision

Potential problems

- Hopefully none!

YouTube: "Everything is Awesome Lego Movie song"

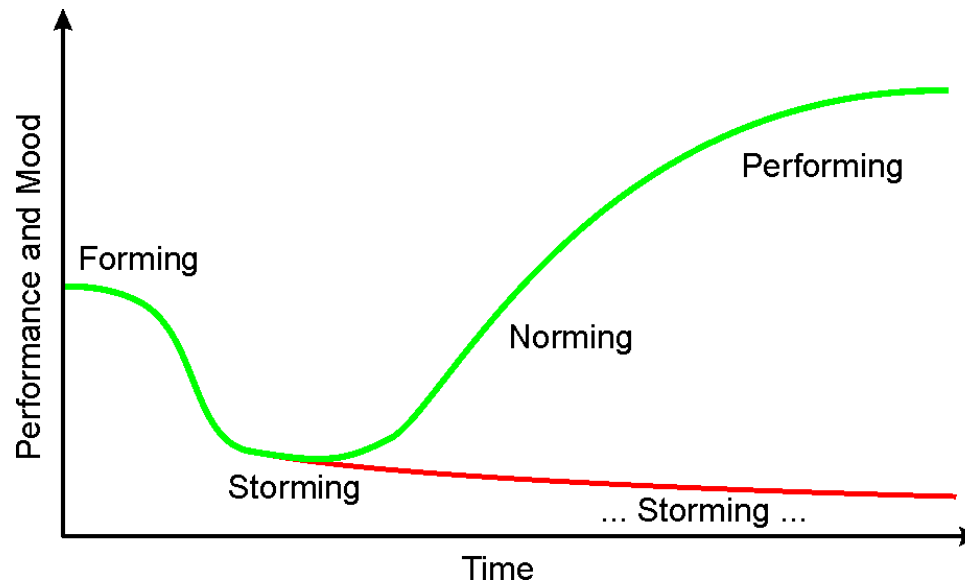- https://www.youtube.com/watch?v=9cQgQIMlwWw

Team Performance Curve

Typical dynamics for a team project:

- **Describes both performance and mood**

Consequence:

- **The team leader must plan for and complete all phases!**
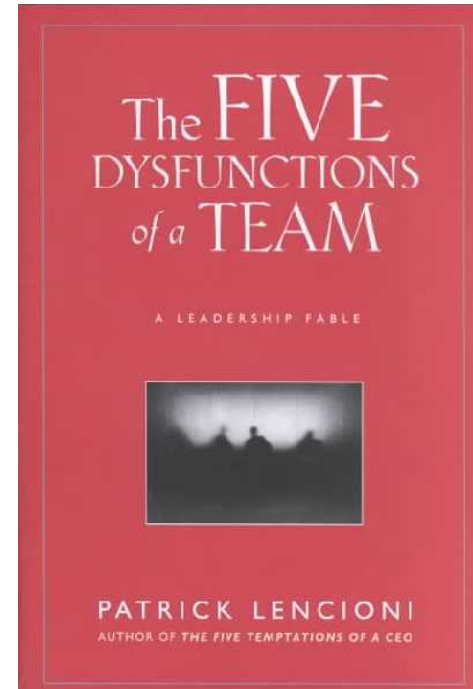
Team Dysfunctions

The Five Dysfunctions of a Team

Patrick Lencioni:

- *The Five Dysfunctions of a Team*

Lencioni identifies five dysfunctions of teams:

- Absence of Trust
- Fear of Conflict
- Lack of Commitment
- Avoidance of Accountability
- Inattention to Results

These can very often be observed in student teams!

The Five Dysfunctions of a Team

Absence of Trust
- The team members are afraid to speak openly

Fear of Conflict
- The team is afraid to engage in healthy conflict

Lack of Commitment
- Members do not "buy in" to the team's rules and goals

Avoidance of Accountability
- Members are not held accountable for their behaviour or results

Inattention to Results
- The goals and tasks are not the team's top priority

Absence of Trust

Members of teams with an absence of trust …

- Conceal emotions and information from one another
- Hesitate to ask for help or to provide constructive feedback
- Waste time and energy managing their behaviors for effect
- Dread meetings

Members of trusting teams …

- Ask each other for help
- Take risks: Give honest feedback & admit own mistakes
- Focus time and energy on important issues, not politics
- Offer and accept apologies without hesitation

Fear of Conflict

Teams that fear (healthy) conflict …

- Have boring meetings
- Ignore controversial topics that are critical to team success
- Fail to tap into all the opinions and perspectives

Teams that engage in (healthy) conflict …

- Have lively, interesting meetings
- Extract and exploit the ideas of all team members
- Solve real problems quickly
- Put critical topics on the table for discussion

Lack of Commitment

A team that fails to commit …

- Creates ambiguity among the team about direction and priorities
- Misses opportunities due to excessive analysis
- Revisits discussions and decisions again and again
- Encourages second-guessing among team members

A team that commits …

- Creates clarity around direction and priorities
- Aligns the entire team around common objectives
- Develops an ability to learn from mistakes
- Makes decisions quickly

Avoidance of Accountability

A team that avoids accountability …

- Creates resentment with stronger team members
- Encourages mediocrity
- Misses deadlines and key deliverables
- Relies on the team leader as the sole source of discipline

A team that holds one another accountable …

- Ensures that poor performers feel pressure to improve
- Identifies potential problems quickly
- Establishes respect among team members
- Has simple, transparent performance management

Inattention to Results

A team that is not focused on results …

- Fails to grow
- Rarely defeats competitors
- Loses high-performance members
- Is easily distracted

A team that focuses on collective results …

- Develops and improves
- Retains achievement-oriented employees
- Enjoys success
- Avoids distractions

Student Teams

Top Ten Problems

The Top Ten errors made by student teams:

1. They never get out of the "Storming" phase
2. They do not achieve commitment from all members
3. They do not agree on standards and rules
4. They do not agree on goals
5. There is a significant absence of trust
6. There is a fear of conflict – a need for false harmony
7. Accountability is avoided
8. There is no establishment of team identity
9. They try to jump directly to the "Performing" phase
10. There is a lack of leadership and/or acceptance of the leader

Cultural Perspective

India

Germany

Fatalism / Optimism

Strong Hierarchies

Personal accountability

Expertise beats Status

Important to know

- Team members have the responsibility to contact the leader when: they have questions, problems or cannot complete a task
- If the team leader / customer does not hear anything, he assumes everything is going according to plan
- Employees have the responsibility to report task completion and fill their time with useful work

Some Suggestions

Consider your study group or project team:

- Assume you are the team leader

It is your responsibility …

- to build a team
- to ensure that all team members pass the exam in July

What could you do to…

- help your group become a team?
- help your team pass through Tuckman's stages successfully?
- avoid the five dysfunctions identified by Lencioni?

Write down <u>concrete</u> activities with <u>specific</u> goals!

Criticism

Criticizing

What is criticism?

- Actually dealing with a topic
- The "Art of Judging"
- Contains positive and negative elements
- Example: newspaper critiques on movies or concerts

Popular meaning (Wikipedia):

- "having an objection", "expressing dissent",
  "stating a dislike",
  "wanting to dissociate from something",
  or "rejecting something"

Criticizing

Criticism is inevitable
- Humans are different and imperfect

Criticism is important
- For an organization to work properly

Criticism is uncomfortable
- No one likes to be the „bad guy"

Criticism is dangerous
- Badly delivered it can lead to serious conflicts

Criticism – 4 Steps

A recommendation when delivering criticism:

1. Describe the unwanted behavior
2. Name the problem resulting from that
3. Describe the goal that should be reached
4. Make a suggestion to improve the situation

Example

1. *You came late for our project meeting yesterday*
2. *The other four team members waited for you to start*
3. *In order to discuss important project matters, we need everyone to be there*
4. *Should one of us pick you up on the way to the next meetings?*

Four Target Properties of Criticism

Criticism should have the following four characteristics:

1. Factual — only mention actual facts, not opinions
2. Goal-oriented — you want to improve the situation
3. Open — ask for deeper problems or concerns
4. Helpful — not mean, but well meaning

Examples:

1. *Yesterday a customer had to wait 10 minutes for you.*
2. *We would like our customers to trust us*
3. *Can you describe your perspective on that?*
4. *Is there anything I can do for you?*

Four Mistakes when Criticizing

The following four mistakes are commonly made when criticizing and lead to resistance and blocking:

1. You-Messages
2. Absolute or exaggerated statements
3. Allegations – implying bad intentions
4. Cross-examination – probing questions

Examples:

1. *You left me all alone!*
2. *You are <u>always</u> late! Your results are <u>useless</u>!*
3. *You think you can get away with that?*
4. *Why are you doing that? Don't you get it?*