

L9: Teams and teamwork

Motivation

What is a team?

Stages of team development

Real teams

Characteristics of real teams

Team process guidelines

Case study

Motivation

Why teams?

- Engineering projects are far too large to be carried out by a single person \Rightarrow must work on team
- High-performance teams can outperform equal number of individuals working in isolation
- **Employers desire it** – consistently listed as one of the top skills required of engineers!



What is a team?

“A small group of people with complementary skills, who are committed to a common performance, performance goals, and approach for which they hold themselves mutually accountable.”
–Katzenbach and Smith, 1993

- **Small, typically 2-10 people**
 - Larger than that it becomes very difficult to manage
 - Think of the # relationships in an n-person team: $n(n - 1)/2$
- **Complementary skills**
 - Cross functional: engineering, marketing, manufacturing...
 - Cross disciplinary: engineering, life sciences, liberal arts...
- **Common performance goals**
 - Without them, there is no need for a team
- **Common approach...**
 - To solving technical problems and hold members accountable

Stages of team development

Forming

- The team is created
- Members may not know each other, may be anxious or uncomfortable

Storming

- Team works to develop objectives and define individual roles
- Conflict may appear as team resolves individual vs. group goals

Norming

- The team starts to become cohesive
- Members accept team's objective, procedures, and individual roles

Performing

- Team focuses on performing tasks and achieving objectives
- Disagreements are resolved by the team's norms

Adjourning

- The team dissolves, hopefully as a result of success

Working group

- No significant incremental performance needs that would require the group to become a team
 - Individuals work in isolation and meet occasionally to exchange information

Pseudo-team

- There could be a performance need, but the group has not focused on collective performance and is not really trying to achieve it

Potential team

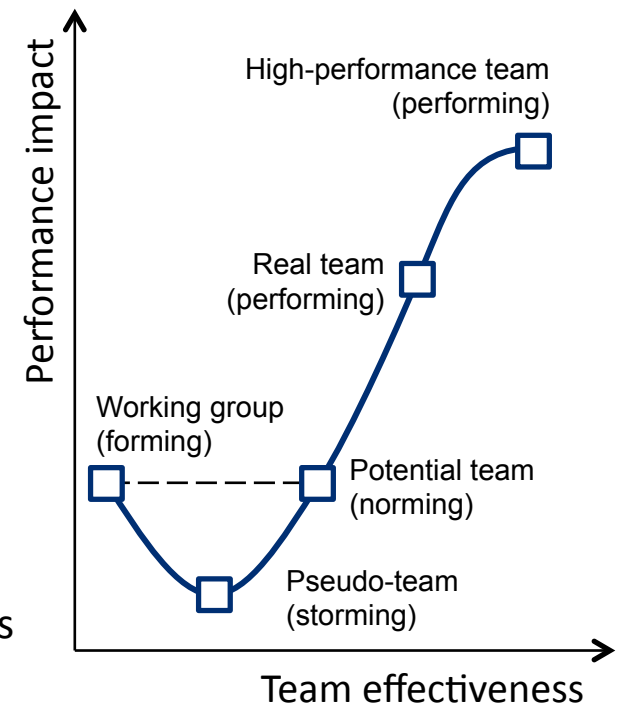
- There is a performance need, and the group is trying to improve its performance, but it still requires
 - More clarity about purpose, goals
 - More discipline to define a common working approach
 - A mechanism to collective accountability

Real team

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

High-performance team

- A real team whose members are also deeply committed to one another's personal growth and success



Characteristics of real teams

How to become a real team

- There is no set process that guarantees a team becomes a real team
- Real teams, however, apply teamwork principles that we review here
 - Applying teamwork principles does not guarantee but improves the odds a team will become a real team

Characteristics

- Select team members based upon skills
- Identify and agree upon objectives upon objectives
- Make it CLEAR how the team will make decisions!
- Hold effective meetings
- Determine team roles
- Assign tasks and responsibilities
- Spend a lot of time together
- Respect team members
- Manage conflicts constructively

Select team members based upon skills

- Three categories of relevant skills
 - Technical and functional
 - Problem solving
 - Interpersonal
- Personality or temperament tests may assist in the process
- Self selected vs. appointed teams... which one is better?
 - In self-selected teams, members are more likely to believe the team objectives are important, but may not pay enough attention to skills necessary to complete the project
 - In appointed teams, the person appointing the team can balanced skills more easily, but team members may be dissatisfied with their project assignment

Identify objectives

- Teams are created to achieve shared goals
- If goals are not well-defined, the motivation for the team is unclear
- That's why the problem statement and requirements specifications are so important
 - The problem statement describes the overarching objective
 - The requirement specs set verifiable targets that define success
- The team must achieve consensus about both

Develop decision-making guidelines

- **By authority:** leader makes decision w/o consultation; only effective for fast decision making
- **Expert member:** effective when only one member has the expertise
- **Average member opinion:** needs a method to compute average
- **Decision by authority after discussion:** team discusses, leader decides
- **Minority control:** a few members form a subcommittee to decide
- **Majority control:** everyone votes, majority wins
- **Consensus:** all team members must agree to and commit to the decision.
 - The best approach but time consuming
 - Only necessary for important decisions

Hold effective meetings

- Have an agenda
- Show up prepared
- Pay attention
- Agree on meeting time and place
- Summarize (meeting minutes)

Develop team roles

- **Administrative:** leader, scribe, project manager, procurement...
- **Technical:** hardware, software, interfaces, testing...

Assign tasks and responsibilities

- Each team member must have clear responsibilities and tasks
- Workload must be distributed fairly
- See chapter 10 for guidelines

Spend a lot of time together

- Strong correlation between time together and success
 - Meetings
 - Joint work
 - Extracurricular

Respect each other

- Listen actively: formulate responses after (not during) listening
- Consider how you respond to others
- Constructively criticize ideas, not people
- Respect those not present
- Communicate your ideas

Manage conflicts constructively

- Focus on performance and ideas, not on individual personality
- Keep calm & listen
- Identify concerns, rather than hide them
- Apply the team's process guidelines (next)
- Develop a plan to resolve the conflict
- Mediation
 - 1) Each member supplies anonymously a description of the conflict and suggested remedies to the mediator
 - 2) Mediator proposes a solution
 - 3) Team members can suggest modifications
 - 4) Steps 1-3 are repeated until consensus is reached

Team process guidelines (needed on your proposal)

- The team's name
- Team's mission and objectives
- Decision making guidelines
- Meeting guidelines
- Team roles
- Conflict resolution

- **See checklist on table 9.1**

Case study

Boeing's code of cooperation

- Every member responsible for team's progress and success
- Attend all meetings, be on time
- Come prepared
- Carry out assignments on schedule
- Listen to and show respect for others' contributions; be an active listener
- Constructively criticize ideas, not persons
- Resolve conflicts constructively
- Pay attention; avoid disruptive behavior

Boeing's code of conduct

- No disruptive side conversations
- Only one person speaks at a time
- Everyone participates; no one dominates
- Be succinct; avoid long anecdotes and examples
- No rank in the room
- Respect those not present
- Ask questions when you do not understand.
- Have fun