

# **Professional Practices**

## **Organizations and Team Structures**

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# Team

- By team, we usually mean group of people who are working together in the same space at the same location.
- The term project team is used to refer all the people working on a common project who may sit in different work groups at some distance from each other.

# **Becoming a Team**

- Just throwing people together will not immediately enable them to work together as a team.
- Teams go through five basic stages of development.

# Becoming a Team

- ***Forming:*** members of a group get to know each other and try to set up some ground rules about behavior.
- ***Storming:*** conflict arise as various members of the group try to exert leadership.
- ***Norming:*** conflicts are largely settled and a feeling of group identity emerges.
- ***Performing:*** the emphasis is now on the tasks at hand.
- ***Adjourning:*** the group disbands.

# Organization and Team structures

- Large software development companies are usually organized into departments.
- Each department usually handles several projects at any time, and each project is assigned to a separate team of developers.
- Working of any organization is significantly affected by its department structure and team structure.

# Organization and Team structures

- ***Department structure:*** how a department is organized into teams. Two ways are
  - Functional Format
  - Project Format
- ***Team structure:*** how individual teams are structured. Two ways are
  - Chief programmer team
  - Democratic team

# **Functional Format**

- Developers are divided into functional groups based on their specialization or experience.
- For example different functional groups of an organization might specialize in areas such as database, networking, requirement analysis, design, testing and so on.
- Every developer in organization would belong to some functional group depending on his expertise.
- For carrying out specific activities, different projects borrow developers from different functional groups



# **Functional Format**

- Upon the completion of their activities, the developers are returned to their respective functional groups.
- The partially completed product passes from one team to another and evolves due to the work done on it by several teams.
- A functional team working on a project does not physically meet the members of other functional teams who have carried out other parts of the project.

# **Functional Format**

- A team understands the work done by other team solely by studying the documents produced by them.
- Teams working subsequently on the project will find it difficult to understand the work already completed if good quality documents are not produced.

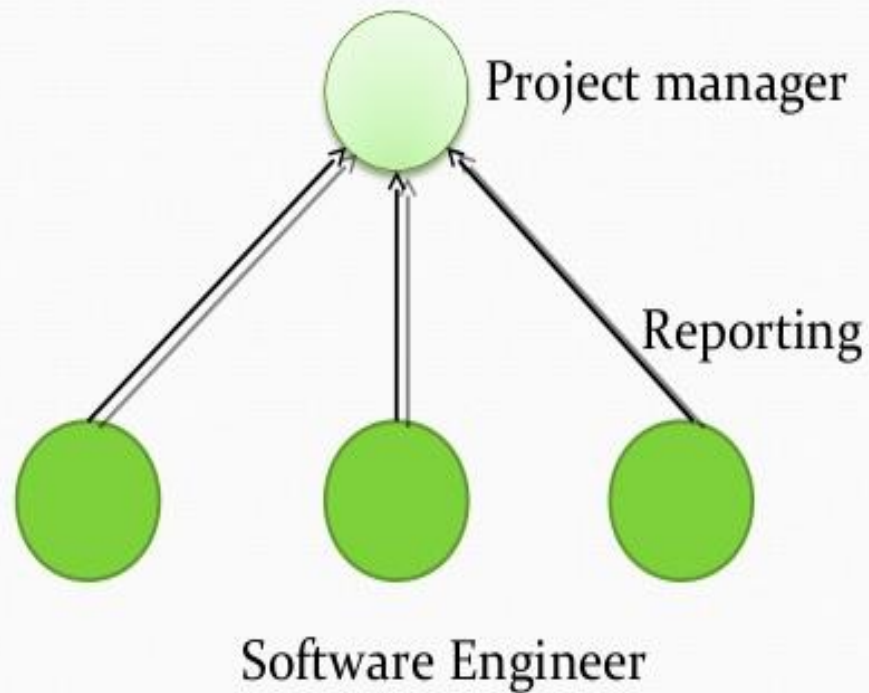
# Project Format

- In the project format, a set of developers are assigned to a project at its start.
- It is assumed that, the assigned members can carry out various activities required for project completion.
- The developers remain with the project till the completion of the project, thus the same team carries out all the project activities.
- Functional vs. project format.

# **Activity**

- Despite of several important advantages of the functional format, it is rarely adopted by the industry. Can you think about some reasons?

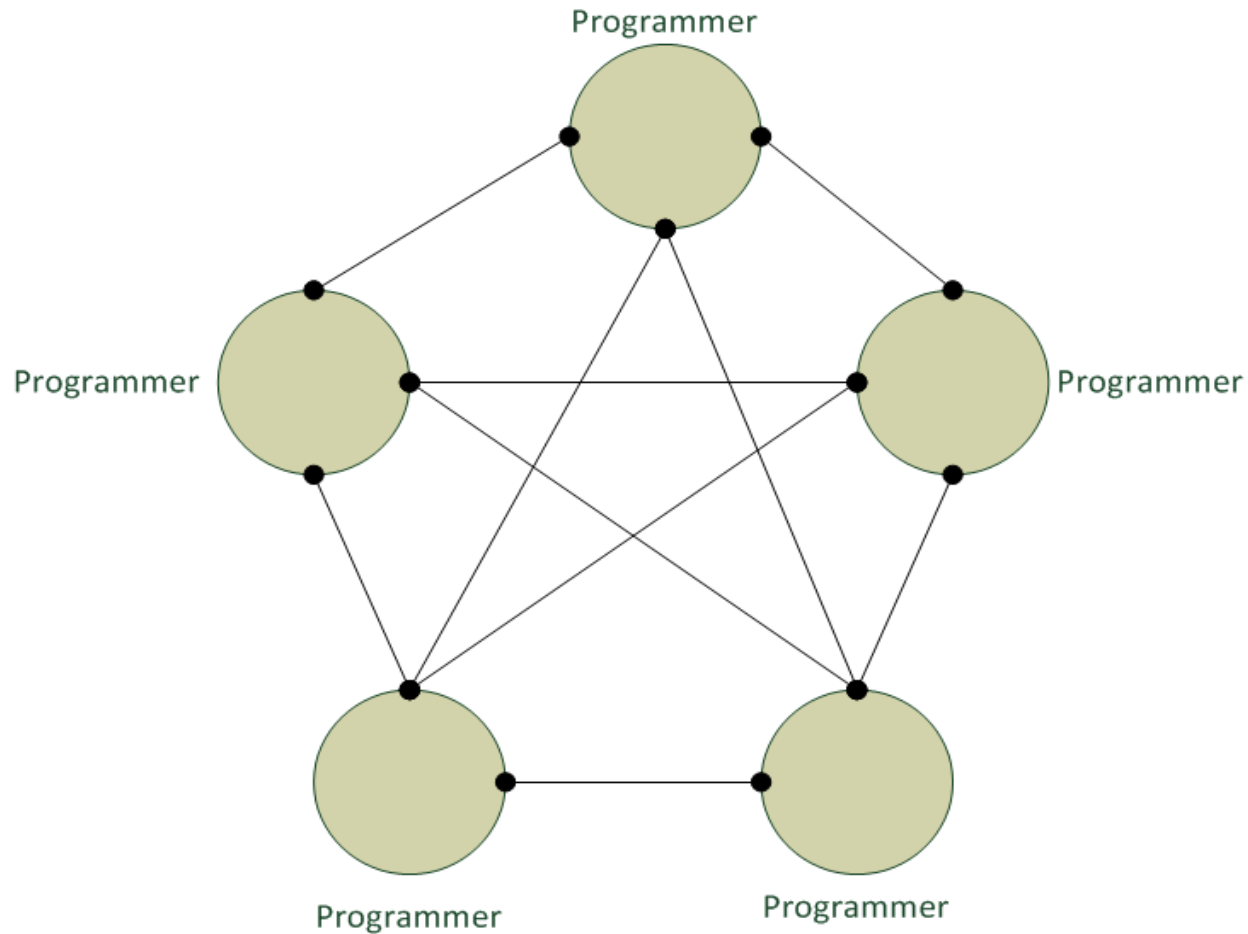
# Chief Programmer Team



# Chief Programmer Team

- A senior member provides the technical leadership and is designated as the chief programmer.
- The chief programmer defines the specification and constructs the high level design.
- He then partitions the remaining tasks such as detail design, coding, testing and documentation into many smaller tasks and assigns them to the team members.
- He also verifies and integrates the work completed by different team members.

# Democratic Team



# **Democratic Team**

- Democratic team structure does not enforce any formal team hierarchy.
- Decisions are taken on the base of discussions, where any member is free to discuss with any other member.
- A manager provides the administrative leadership.
- Different members of the team provide technical leadership at different times.
- A lot of debate and discussions take place among team members, a significant overhead is experienced for large teams.



# Dispersed and Virtual Teams

- Virtual teams are the group of individuals spread across different time zones, cultures and languages which are united by a common goal.
- These are the groups of geographically, organizationally and/or time dispersed workers brought together by information and telecommunication technologies to accomplish one or more organizational tasks.

# Dispersed and Virtual Teams

- Some advantages are
  - A reduction in staff cost.
  - The flexible use of staff.
  - Use of specialist staff for specific jobs.
- Some disadvantages are
  - Coordination of dispersed workers can be difficult.
  - Different time zones can cause communication and coordination problems.
  - Social isolation.

# Leadership

- Leadership is the ability to influence others in a group to act in a particular way to achieve group goals.
- Some common characteristics of a good leader are
  - They have a greater need for power and achievement.
  - They have more self control
  - They have more self confidence

# Leadership

- Leadership is based on the idea of authority or power.
- Power can either be
  - Position power
  - Personal power
- A leader should know that when he must be authoritative and insist on things and when he must be flexible and tolerant.

# Leadership

- Leadership styles are measured on two axes: directive vs. permissive and autocratic vs. democratic.
- ***Directive autocrat:*** makes decisions alone, close supervision of implementation.
- ***Permissive autocrat:*** makes decisions alone, subordinates have liberty in implementation.
- ***Directive democrat:*** makes decisions participatively, close supervision of implementation.
- ***Permissive democrat:*** makes decisions participatively, subordinates have liberty in implementation.