

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.

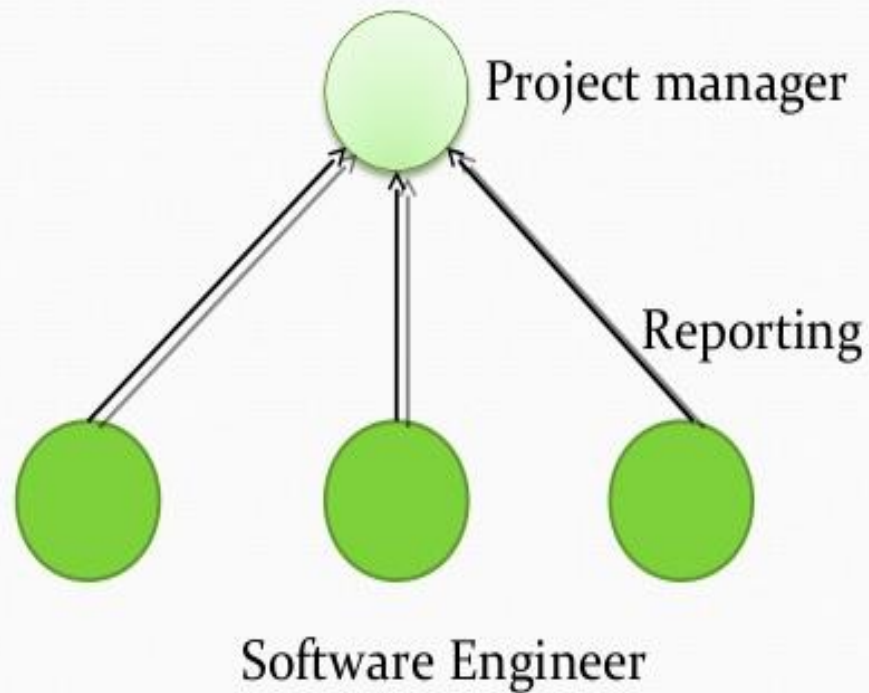
Project Format

- 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?

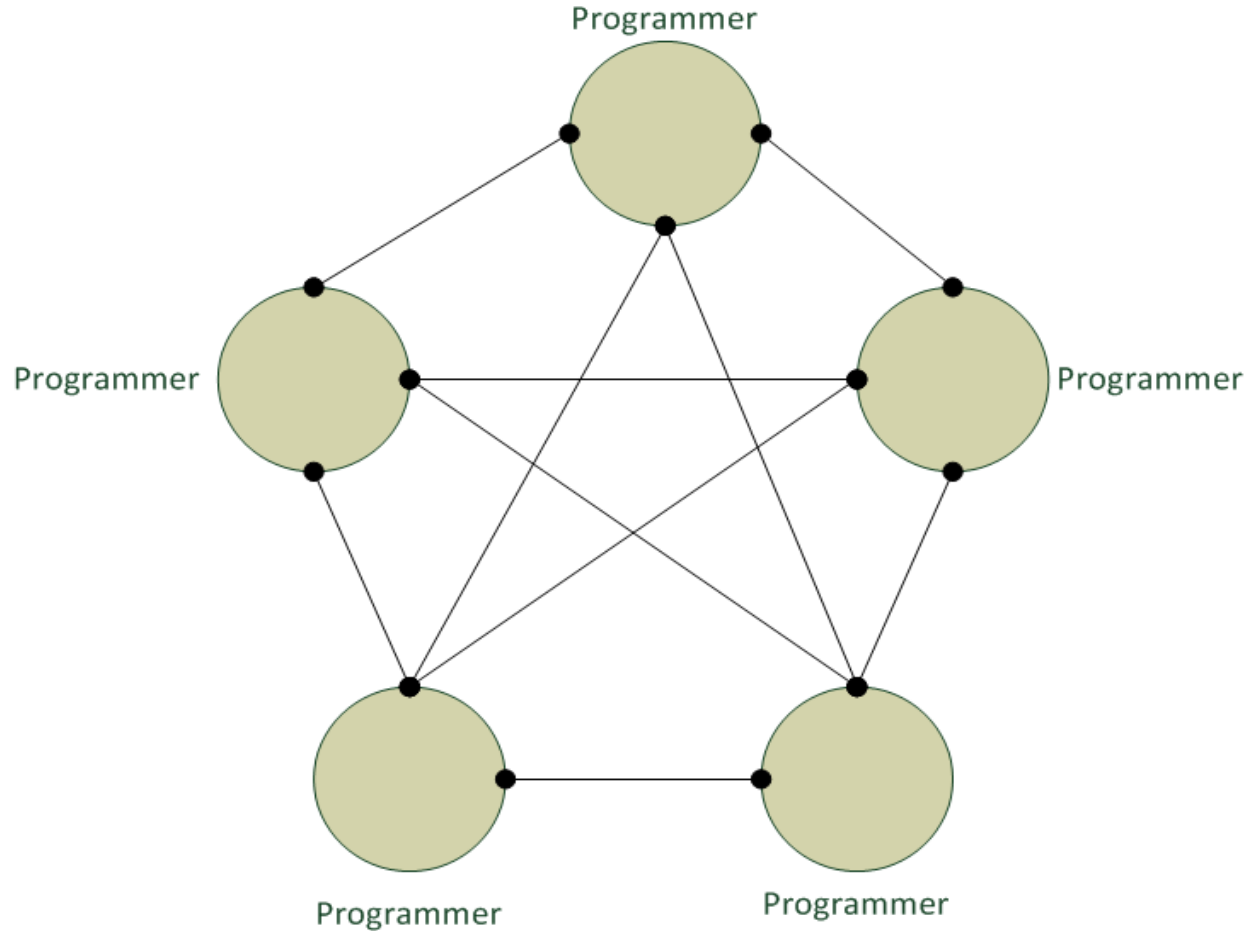
Chief Programmer Team



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 the 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.

Directive => Close Supervision
Permissive => have liberty

Auto Crat => make decisions alone
Demo Crat => // // participatively