Project Management

Week 7
Teamwork

&
Team Structure

Teamwork

Lecture Overview
- Software Uses of Teamwork
- Teamwork's Importance to Rapid Development
- Creating a High-Performance Team
- Why Teams Fail
- Long-Term Team Building
- Summary of Teamwork Guidelines

Software Uses of Teamwork

- It takes more than just a group of people who happen to work together to constitute a team;
- A team can be defined as: “a small number of people with complimentary skills who are committed to a common purpose, performance goals and an approach for which they hold themselves mutually accountable;
Teamwork can come into play on software projects on any number of specific tasks:

- Developing & reviewing project requirements;
- Developing the projects architecture & design guidelines that will be used by the whole project;
- Defining aspects of the technical environment that will be used on the project (including programming languages, compilers, source code libraries, code generators, editors, version control tools);
- Developing coding standards that will be used by the whole project;
- Co-ordinating work on related pieces of a project (including defining interfaces between sub-systems, modules & classes);
- Designing difficult parts of the system;
- Reviewing individual developers’ designs and code;
- Debugging difficult parts of the system;
- Testing of requirements, design and code;
- Auditing a project's progress;
- Maintaining software once it has been built (including responding to maintenance requests and making emergency fixes);
Software Uses of Teamwork

- Any of these tasks may be conducted by a single person, however, they can all benefit from the involvement of two or more brains which requires interaction among project members;

- A team exists whenever two heads together are better than two heads individually.

Teamwork’s Importance to RD

- **Small projects** - can get away with not addressing teamwork issues, but they would benefit if they considered them;

- **Large projects** - are group efforts and characteristics of the groups play an important role in those projects’ success.

Teamwork’s Importance to RD

Variations in Team Productivity

- Researchers have found differences in individual productivity on the order of 10 to 1;

- Researchers have also identified dramatic differences in the productivity levels of entire teams;

- It has also been identified that there is a 5 to 1 difference in productivity among groups with different backgrounds and different levels of experience;

- 2.5-1 difference in productivity among groups with similar backgrounds and experience. (DeMarco & Lister, 1985)
In a study by Lakhanpal (1993), it was reported how group cohesiveness, individual capabilities & experience were related to overall project performance on 31 software projects that ranged in size & resources; it was identified that group cohesiveness contributed more to productivity than project members’ individual capabilities or experience; the study suggests that managers who are concerned about RD would be better to assign developers based on their abilities to contribute to a cohesive team primarily and then on individual capabilities.

Creating a High-Performance Team

Productive teams are sometimes characterized as teams that have gelled or as teams that are highly cohesive;

What characteristics does such a team have?

- A shared elevating vision or goal;
- A sense of team identity;
- A results-driven structure;
- Competent team members;
- A commitment to the team;

What characteristics does a high-performance gelled cohesive team have?

- Mutual trust;
- Interdependence among team members;
- Effective communication;
- A sense of autonomy;
- A sense of empowerment;
- Small team size;
- A high level of enjoyment.
Before the project gets really rolling, a team needs to possess a common vision or common goals; Without a shared vision, high performance teamwork can not take place;

Sharing a vision is useful to RD on several levels as having agreement on the project vision helps streamline decision making on the smaller issues; Smaller issues stay small because the big vision keeps them in perspective as everyone agrees on the big vision;

An effective team builds a level of trust and co-operation that allows them to outperform a collection of individuals with similar skills; The vision can be virtually arbitrary, but as long as the whole team shares it, it will serve the same purpose of helping to bring the team together; The response to this challenge is an emotional reaction as it is influenced as much by the way the work is assigned or described as by the work itself; A real team needs a mission - how the project is framed has a lot to do with whether the team sees a mission;

As team members work together toward their common vision, they begin to feel a sense of team identity; Team members allow their sense of team identity to overshadow their identities as individuals; They derive satisfaction from the team’s accomplishments; They see the common goal as more important than their personal agendas - as they have the opportunity to achieve something with the team that they couldn’t achieve individually.
Teamwork’s Importance to RD

Results-Driven Structure

- You can structure teams for optimal output or you can structure them in such a way that it is almost impossible for them to produce anything at all;
- For RD, you need to structure the team with maximum development speed in mind;

Essential Characteristics of a Results-Driven Team Structure

- Roles must be clear and everybody must be accountable for their work at all times;
- The team must have an effective communication system that supports free flow information among team members;
- The team must have some means of monitoring individual performance and providing feedback;
- Decisions must be made based on facts rather than on subjective opinions wherever possible;

Competent Team Members

- Just as team structures are chosen for the wrong reasons, team members are often chosen for the wrong reasons:
  - They have an interest in the project;
  - Cheap;
  - Available;
  - Boss’s grandson;
- They must be chosen with RD in mind;
Teamwork’s Importance to RD

Competent Team Members

For RD, team members need to be chosen based on who has the competencies that are currently needed:

- Specific technical skills - application area, platform, methodologies or programming languages;
- A strong desire to contribute to the project area;
- Specific collaboration skills required to work effectively with others.

Teamwork’s Importance to RD

Competent Team Members - Mix of Roles

- A mix of roles is required - you need team members who have a blend of technical, business, management & interpersonal skills;
- To achieve successful RD - interpersonal leaders and technical leaders are a necessity.

Teamwork’s Importance to RD

Competent Team Members - Mix of Roles

The following leadership roles may exist in a project team that has a list of roles:

- **Driver** - controls team direction at detailed level;
- **Co-ordinator** - controls team direction at highest strategic level;
- **Originator** - provides leadership in ideas & strategies;
- **Monitor** - Analyses problems from a practical point of view;
Teamwork’s Importance to RD

The following leadership roles may exist in a project team that has a list of roles (cont’d):

- **Implementer** - converts concepts & plans into work procedures & carries out group plans efficiently as agreed;
- **Supporter** - builds on team members strengths & underpins their shortcomings;
- **Investigator** - explores & reports on ideas, developments & external resources;
- **Finisher** - ensures all necessary work is completed.

Teamwork’s Importance to RD

**Commitment to the Team**

- The characteristics of vision, challenge & team identity coalesce in the area of commitment;
- On an effective team, team members commit to the team - they make personal sacrifices they wouldn’t otherwise;
- The minimum requirement for team success is that the team members contribute their time, energy & effort - they make a commitment;

Teamwork’s Importance to RD

**Mutual Trust**

Larson & LaFasto purport that trust consists of four components:

- Honesty
- Openness
- Consistency
- Respect

Trust is less a cause than an effect of an effective team - you an not force team members to trust each other, but they can hold each other accountable.
## Teamwork’s Importance to RD

### Independence Among Members
- Team members rely on each other's individual strengths and they all do what is best for the team;
- Everyone gets a chance to contribute and feel that their contributions matter;
- Everybody contributes to decision making as all members become independent.

### Effective Communication
- Members of cohesive teams stay in touch;
- They make sure that everyone understands what they are talking about;
- Their team communication is assisted by the common vision and sense of identity they share;
- Team members express what they are truly feeling, even when it is uncomfortable - the alternative is to cover-up mistakes which is deadly for RD.

### Sense of Autonomy
- Effective teams have a sense that they are free to do whatever is necessary to make the project succeed;
- They can work without interference.
- They may make mistakes - but will often learn from the mistakes.
Teamwork’s Importance to RD

**Sense of Empowerment**
- An effective team needs to feel empowered to take whatever actions are needed to succeed;
- They must feel that the organization both allows them to do what they think is right and support them in doing so.

Teamwork’s Importance to RD

**Small Team Size**
- Some experts say that you must have fewer than 8-10 people in a team for it to gel;
- The 10 person limit applies mainly to single-project teams;
- If you can keep a team together across several projects, you can expand the size of the team as long as the team shares a deep rooted culture;
- However, it is possible for a group to be small to form a team.

Teamwork’s Importance to RD

**High Level of Enjoyment**
- Not every enjoyable team is productive - but most productive teams are enjoyable;
- The reasons for this is that developers like to be productive;
- People naturally spend more time doing things they enjoy;
- Finally, a sense of humor to foster enjoyment will assist a team in gelling.
Teamwork’s Importance to RD

How to Manage a High-Performance Team

A cohesive team creates an US and the manager is in the sticky position of being not completely US and not completely THEM;

Some managers find that type of team unity threatening, others exhilarating as the team takes on autonomy & responsibilities;

This type of team can relieve the manager from tedious management duties.

Why Teams Fail

The cohesiveness of a group depends on the total field of forces that act on that group - you have to do a lot of things to succeed, but only one thing to fail;

Teams can fail due to any of the previously discussed “MORALE KILLERS”.

Managing a cohesive team can be a success if the following are employed:

Establish a vision;
Create change;
Manage the team as a team;
Delegate tasks to the team, leaving details to them;
If team is not functioning well, remove productivity roadblocks.
Why Teams Fail

Other Reasons Why Teams Fail
- Lack of common vision;
- Lack of identity;
- Lack of recognition;
- Productivity roadblocks;
- Ineffective communication;
- Lack of trust;
- Problem personnel

Long-Term Team Building

Teams do not form overnight - some reasons to keep teams together permanently:
- Higher productivity;
- Lower start-up costs;
- Lower risk of personnel problems;
- Less turnover;
- The idleness question.

All these factors will impact positively on a project on a long-term basis & assist in fostering team spirit & enjoyment.

Teamwork Guidelines

<table>
<thead>
<tr>
<th>Team Leader</th>
<th>Team Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>As team leader, I will:</td>
<td>As team member, I will:</td>
</tr>
<tr>
<td>1. Avoid compromising the team’s objective with political issues;</td>
<td>1. Demonstrate a realistic understanding of my role and accountabilities;</td>
</tr>
<tr>
<td>2. Exhibit personal commitment to the team’s goal;</td>
<td>2. Demonstrate objective and fact-based judgements;</td>
</tr>
<tr>
<td>3. Not dilute the team's efforts with too many priorities.</td>
<td>3. Collaborate effectively with other team members;</td>
</tr>
<tr>
<td></td>
<td>4. Make the team goal a higher priority than any personal objective;</td>
</tr>
<tr>
<td></td>
<td>5. Demonstrate willingness to devote effort to achieve team’s success;</td>
</tr>
<tr>
<td></td>
<td>6. Be willing to share information;</td>
</tr>
</tbody>
</table>
Teamwork Guidelines

<table>
<thead>
<tr>
<th>Team Leader</th>
<th>Team Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>As team leader, I will:</td>
<td>As team member, I will:</td>
</tr>
<tr>
<td>4. Be fair &amp; impartial toward all team members</td>
<td>7. Provide help to other team members;</td>
</tr>
<tr>
<td>5. Be willing to confront &amp; resolve issues associated with inadequate</td>
<td>8. Demonstrate high standards of excellence;</td>
</tr>
<tr>
<td>performance by team members;</td>
<td>9. Stand behind &amp; support team decisions;</td>
</tr>
<tr>
<td>6. Be open to new ideas and information from team members.</td>
<td>10. Demonstrate courage of conviction by directly confronting important issues;</td>
</tr>
<tr>
<td></td>
<td>11. Demonstrate leadership in ways that contribute to the team's success;</td>
</tr>
<tr>
<td></td>
<td>12. Respond constructively-feedback;</td>
</tr>
</tbody>
</table>

Lecture Overview

- Software Uses of Teamwork
- Teamwork’s Importance to Rapid Development
- Creating a High-Performance Team
- Why Teams Fail
- Long-Term Team Building
- Summary of Teamwork Guidelines