Project Teams

CSE 403, Winter 2005
Software Engineering

http://www.cs.washington.edu/education/courses/403/05wi/

Readings and References

• Readings
  » Rapid Development, Steve McConnell
    • Chapter 4, Software Development Fundamentals
    • Chapter 12, Teamwork
    • Chapter 13, Team Structure

• References
  » The Mythical Man-Month, Brooks
    • Chapter 3, The Surgical Team

Issues

• Most projects need teams of people for success
  » many skills required
  » time is limited

• Communication requirements increase with increasing numbers of people
  » everybody to everybody $\rightarrow$ $\frac{n(n-1)}{2}$
  » even just somebody to everybody $\rightarrow$ $n-1$

• Every effort at communication is a chance for miscommunication

Take risks, but manage them

• The need for many people exposes us to risk
• What are the tools that we use to manage it?
  » Good, well-known product definition
  » Planning and organization
  » Monitoring and direction as needed
    • we have a plan
    • we’ll work to the plan and monitor our performance
    • we’ll change the plan if we need to
  » Transparency - no secrets
Management Fundamentals: Planning

- “We have a plan”
- Estimation and scheduling
- How many people with what skills, when?
- Organization of the team
- Lifecycle events
- Managing the risks
- Strategic decisions
  » for example, build or buy decisions

Management Fundamentals: Tracking

- “We’ll work to the plan and monitor our performance”
- Some tools
  » Task lists, status meetings, status reports, milestone reviews, budget reviews
- Management by walking around
- “We’ll change the plan if we need to”
  » Can only be effective if all the facts are known

Management Fundamentals: Measurement

- Help validate comparisons between this project and previous/future work
- Basic measurements of the code
  » Non Commenting Source Statements (NCSS)
  » Number of modules, packages
- Project build: success and frequency
- Change and defect data
- Be careful: we optimize to the metric in use

Teamwork and Organization

- Teams of people can achieve big goals
  » Panama Canal, man in space, Mt. Everest
  » but it ain’t easy
- The members of a good team
  » know what the goals of the team are
  » know what their own task responsibilities are
  » have the tools they need to accomplish their tasks
  » have reason to believe that the team will succeed
Results-driven Structure

- Roles are clear within the team
  - Each person is accountable for their work
- Effective communication system
  - Change management, schedule, tracking, decisions
- Monitor individual performance
  - Who is doing what, are we getting the work done?
- Fact based decisions
  - Focus on the facts, not the personalities

Team Models

- Business Team
  - Peer group headed by technical lead
- Chief Programmer Team
  - Brooks’ surgical team - surgeon plus support
- Skunkworks team
  - Black box, creative but maybe ad-hoc
- Feature team, Search-and-Rescue team, SWAT team, Professional Athletic team, Theater team, etc, etc

Brooks: Surgical Team

Managers and Technical Leads

- No matter what you call the structure, teams usually have:
  - Several “regular” developers
  - A technical lead developer
  - A project management function, assigned to:
    - The technical lead
    - A separate project manager
    - The group supervisor
    - ...
Responsibility

- Take individual responsibility for your tasks
- In order to succeed, the team must
  - Decide what the tasks are
    - task content, interfaces, order, ...
  - Clearly define who is going to do each task
  - “Sign up” to do them
  - Let ‘er rip
- Communicate as you go