Project Teams

CSE 403, Winter 2006

Software Engineering

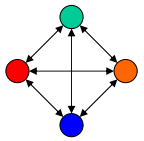
http://www.cs.washington.edu/education/courses/403/06wi/

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

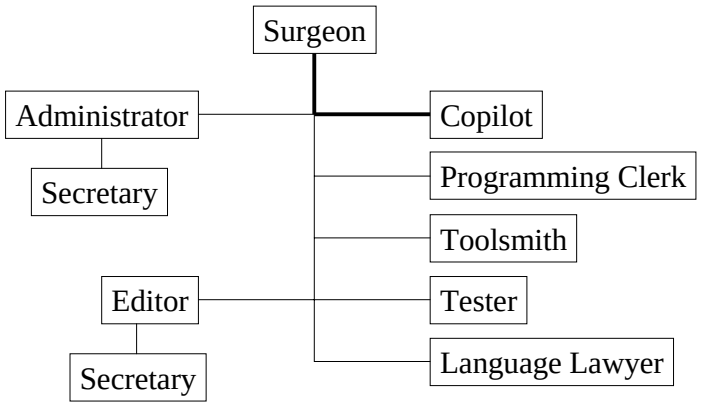
Results-driven Structure

- 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

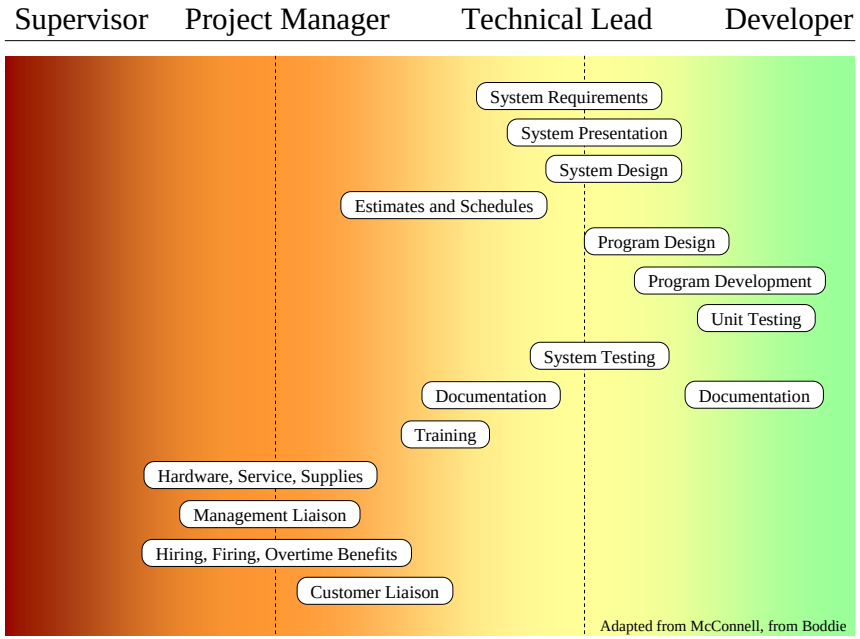
- Business Team
  - » peer group headed by technical lead
- Chief Programmer Team
  - » Brooks' surgical team - surgeon plus support
- Skunkworks team
  - » Black box, creative but maybe ad-hoc
- Feature team, Search-and-Rescue team, SWAT team, Professional Athletic team, Theater team, etc, etc

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