EECS 394
SOFTWARE DEVELOPMENT

Chris Riesbeck

MANAGING
WORKING WITH MANAGERS
Managing software is just like managing any project.

Software projects are different! Programming is not like building a house.
Why Software Projects Are Just Like Other Projects

- limited time, money
- have users
- have clients
- have people to be managed
- are legal contracts
- have risks
- require tools, hence acquisition and training
Why Software Projects Are Not Like Other Projects

- often done by non-software businesses
- needs to iterate more to get right thing?
- software is easier to test and revise
- prototyping is possible/easy
- software is often more complex
  - many more custom pieces that interact closely
- less experience with software (and it keeps changing)
- still many new ideas
- replication is not a software project
- people are the dominant cost
A FAILURE TO COMMUNICATE

How many people do we need?

When will the project be done?

How is the budget doing?
A FAILURE TO COMMUNICATE

How many people do we need?

When will the project be done?

How is the budget doing?

???

??

???

??
THE PROJECT MANAGER
THE PROJECT MANAGER

- Liaison between upper management and developers
- Experienced in project management
- Often not a developer
The PM's Job

How many people do we need?
When will the project be done?
How is the budget doing?

Wednesday, May 30, 2012
The PM's Job

- track progress and budget
- determine and acquire resources
- facilitate accurate communication in both directions

How many people do we need? When will the project be done? How is the budget doing?
GANTT CHARTS

Project Development Schedule

Velocity

Number of story points finished per iteration

Finished story = all tests pass, code integrated into system.

No partial credit.

Velocity limits number of stories selected per iteration.
BURNDOWN CHARTS

BURNDOWN CHARTS

Graphs story points left in backlog

Burndown Charts

Graphs story points left in backlog
Helps estimate project end point

Graphs total story points and story points finished
Shows scope change

Iteration 1
Iteration 2
Iteration 3
Iteration 4

Deadline 1 slips 1 day (not a timebox)

Wednesday, May 30, 2012
What does this predict for the new end date?
Apr 1  Apr 8  Apr 15  Apr 22

Deadline 1 slips 1 day (not a timebox)

What does this predict for the new end date?

Apr 25
VELOCITY MATH

Apr 1  Apr 8  Apr 15  Apr 22

Iteration 1  Iteration 2  Iteration 3  Iteration 4

Wednesday, May 30, 2012


20 points in release plan

Expected velocity = 5
20 points in release plan

Expected velocity = 5

Actual velocity for iteration 1 = 4
20 points in release plan

Expected velocity = 5

Actual velocity for iteration 1 = 4

What does this predict for the new end date?
20 points in release plan

Expected velocity = 5

Actual velocity for iteration 1 = 4

What does this predict for the new end date?
POP QUIZ
How long will the project take?
How long will the project take?

How long will the project take?
How long will the project take?

How long will the project take?

_______
How many people do you need?
How many people do you need?

How many people do we need?
How many people do you need?

How many people do we need?

_______
BEING A MANAGER
Management is kicking ass.

Developing a process and sticking to it!

Tracking what they're doing like a hawk.

What is Management?
WHAT IS MANAGEMENT?

Tom DeMarco and Timothy Lister
The manager's function is not to make people work, it is to make it possible for people to work.
The manager's function is not to make people work, it is to make it possible for people to work.

Process obsession is the problem.

Tom DeMarco and Timothy Lister
The manager's function is not to make people work, it is to make it possible for people to work.

Process obsession is the problem.

The ultimate management sin is wasting people's time.

Peopleware: Productive Projects and Teams
In my opinion, this is true, but misses the hardest, most important goal of a manager.
TEAMS
FUNCTIONAL TEAMS

Coders | DB | UI | Testers

Wednesday, May 30, 2012
CROSS-FUNCTIONAL TEAMS

Coders  DB  UI

Testers
A jelled team: the whole is more productive than the sum of its parts.
A jelled team: the whole is more productive than the sum of its parts.

Signs of a jelled team

- Low turnover
- Team identity
- Team pride
- Joint ownership of projects
- Having fun
FOSTERING JELLED TEAMS

- Preserve and protect successful teams
  - Teams stay while projects come and go
  - IBM's "Black Team" in 1960s
- Make a cult of quality, a sense of eliteness
- Ensure satisfying closures
- Allow and encourage heterogeneity
- Provide strategic not tactical direction
  - Answer questions with (the right) questions
- Encourage learning and growth

Peopleware, p 151
Peopleware, chapter 20

- Bureaucracy
- Fragmentation of time
- Defensive management
- Lowered quality expectations
- Clique control
- Physical separation
- Phony deadlines
- Out of the loop
- Defensive management
- Lowered quality expectations
- Clique control
- Physical separation
- Phony deadlines
- Out of the loop

Wednesday, May 30, 2012
POP QUIZ
You are managing a 3-month project to update the company web site where employees review and modify various benefit options during open enrollment. One big technological change will be using AJAX (Asynchronous Javascript and XML) to provide more responsive web pages. Unfortunately, Alice, the lead programmer, says that she and the other 3 team members have only limited experience with Javascript and none at all with AJAX.

Options suggested by Alice:

- Send one of the team to a 1-week intensive Javascript and AJAX course. If so, who? ($1800 + travel)
- Hire an AJAX expert for a week. (5 x $800 / day)
- Buy some Javascript and AJAX books for self-training ($200)
Alice, your lead programmer, has concerns about Wally, one of her team members. Her project has been underway for 6 months and has a critical deadline in 2 months. She says Wally appears to be working quite hard, but is twice as slow in generating code as the next slowest programmer, and, worse, his code is very buggy. Several times, after Wally’s code has been checked into the system, the entire application has become unstable. The other programmers have had to stop their own work to find and fix the bugs. Alice thinks the work would go faster if Wally were not involved.

Wally has been with the company for about 2 years. He has a CS degree from one of the better engineering schools. His performance reviews have been average, neither glowing nor meriting probation.

Options suggested by Alice:

• Move Wally to some project that doesn’t have a near-term deadline.
• Meet with Wally and explain that his performance must improve significantly immediately.
The manager for an internal project just starting up would like to borrow one of your programmers, Ashok. Ashok is currently on a 5-person team for the GoldDigger data mining project you are managing. GoldDigger is a new company initiative, with a year-long timeframe that’s also just started. The manager for the other project says the commitment would be for one month at most. Privately, you expect it would stretch to two months. Ashok has a fair amount of implementation experience with JDBC (Java Database Connectivity), XML (eXtensible Markup Language) and web services, which both projects need.

Some obvious initial options:

• Put Ashok half-time on both projects.
• Put Ashok full-time on the other project.
• Keep Ashok full-time on your project.