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

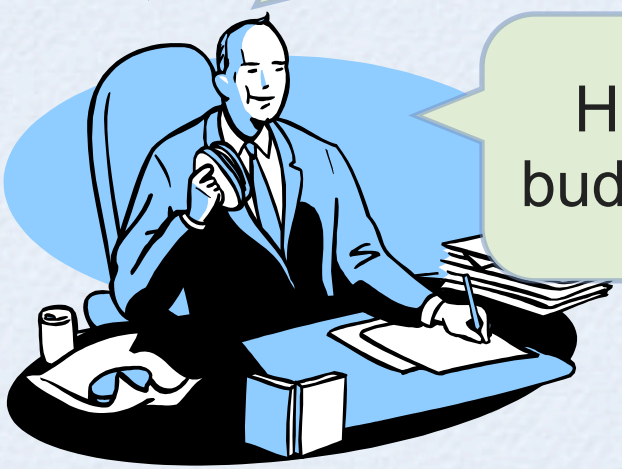
A FAILURE TO COMMUNICATE

A Failure to Communicate

How many people do we need?

When will the project be done?

How is the budget doing?



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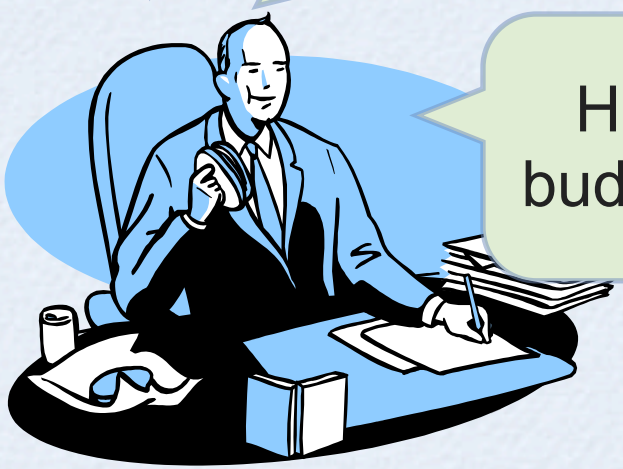

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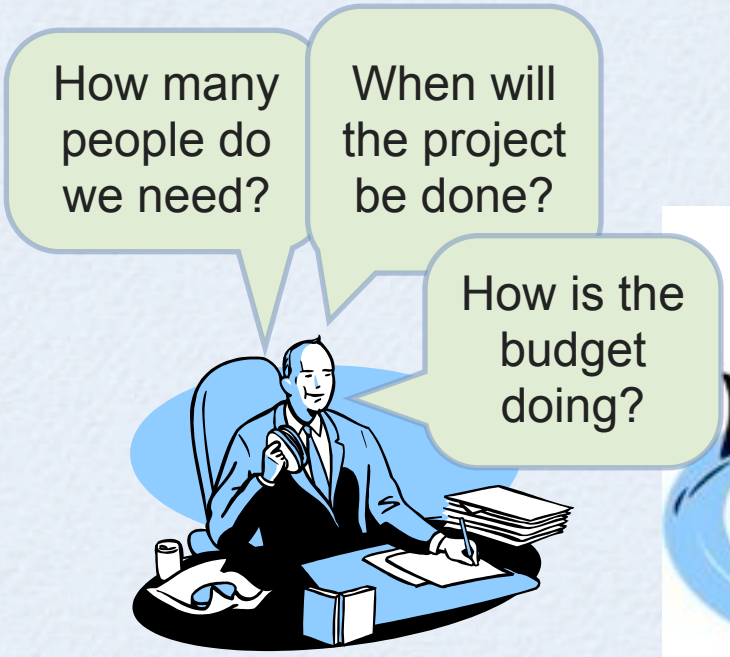
THE PROJECT MANAGER

THE PROJECT MANAGER

- Liaison between upper management and developers
- Experienced in project management
- Often not a developer

THE PM'S JOB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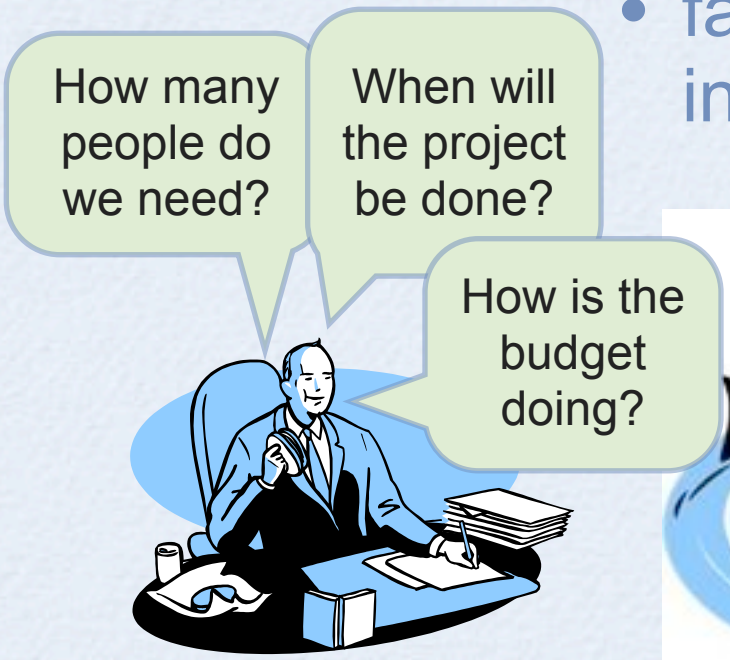
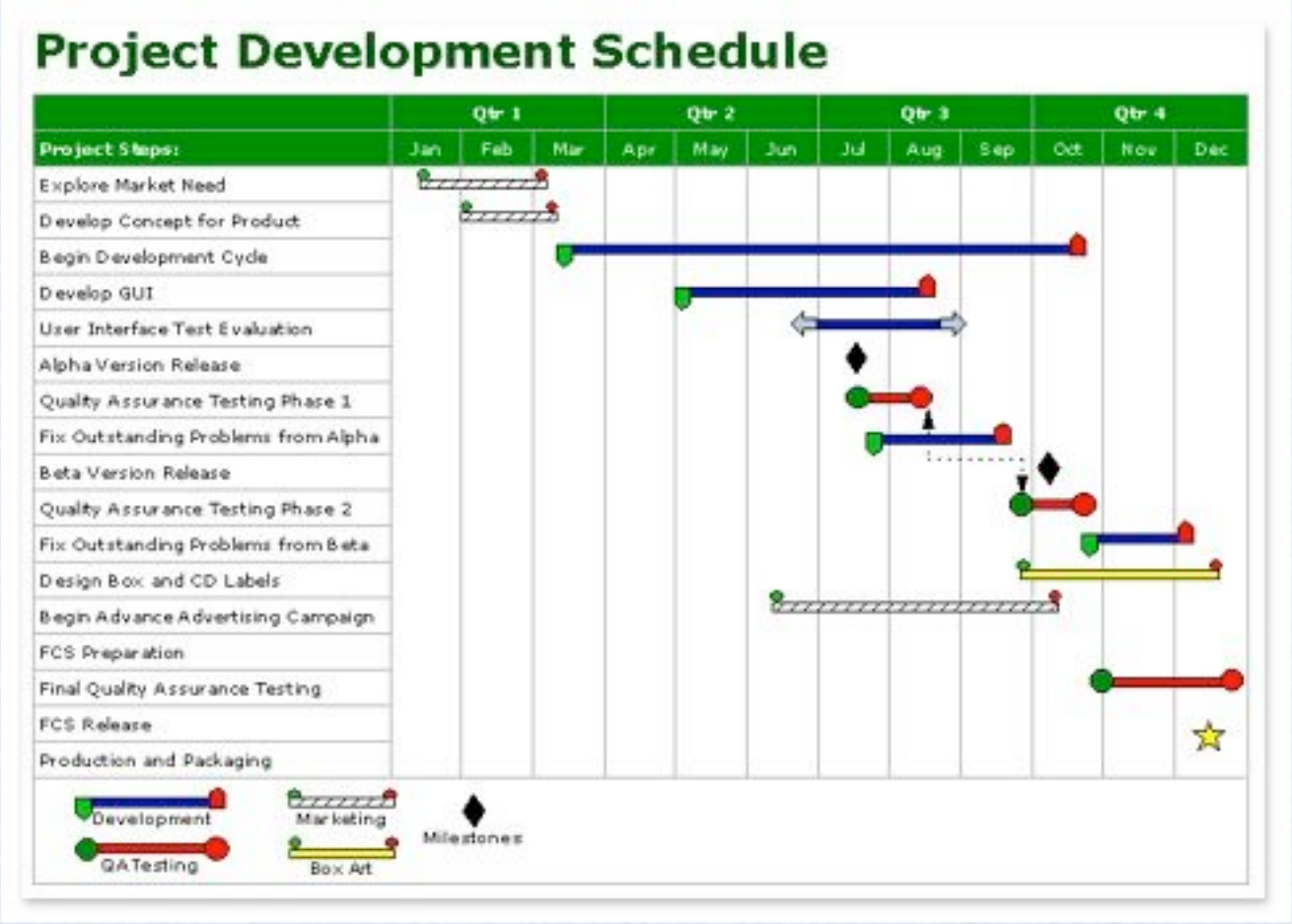
THE PM'S JOB

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



GANTT CHARTS



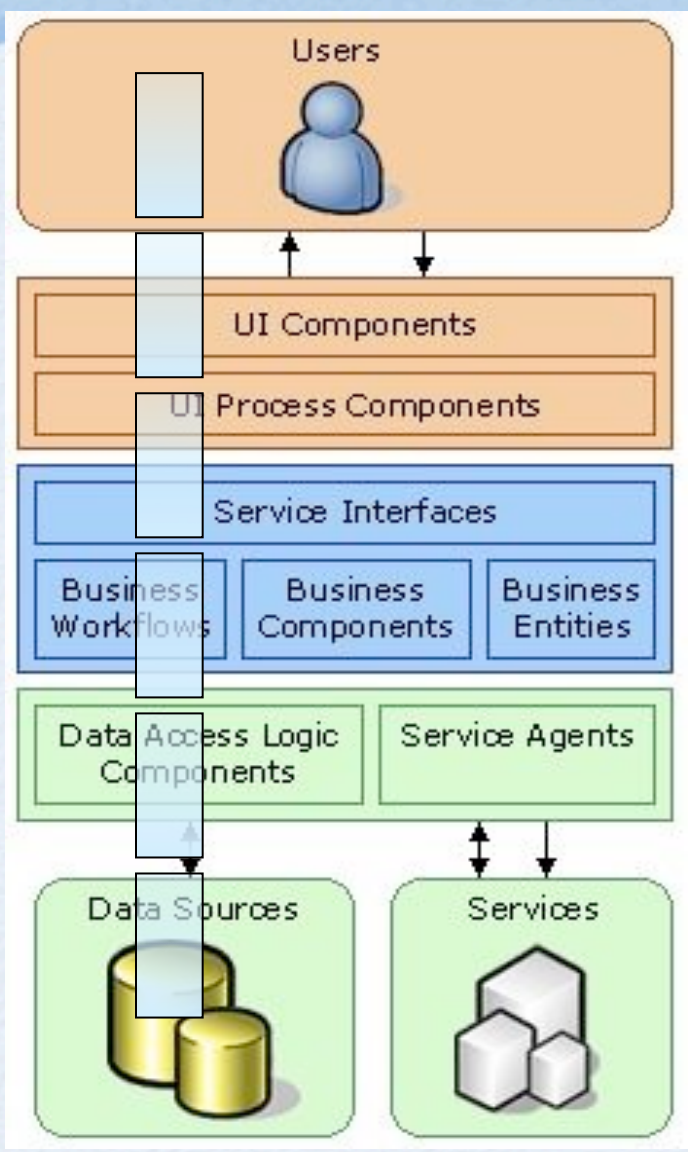
http://www.total-quality-management-software.com/gantt-chart-examples.asp

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

http://rapidapplicationdevelopment.blogspot.com/2008/10/forget-burndown-use-burnup-charts.html

Burndown Charts

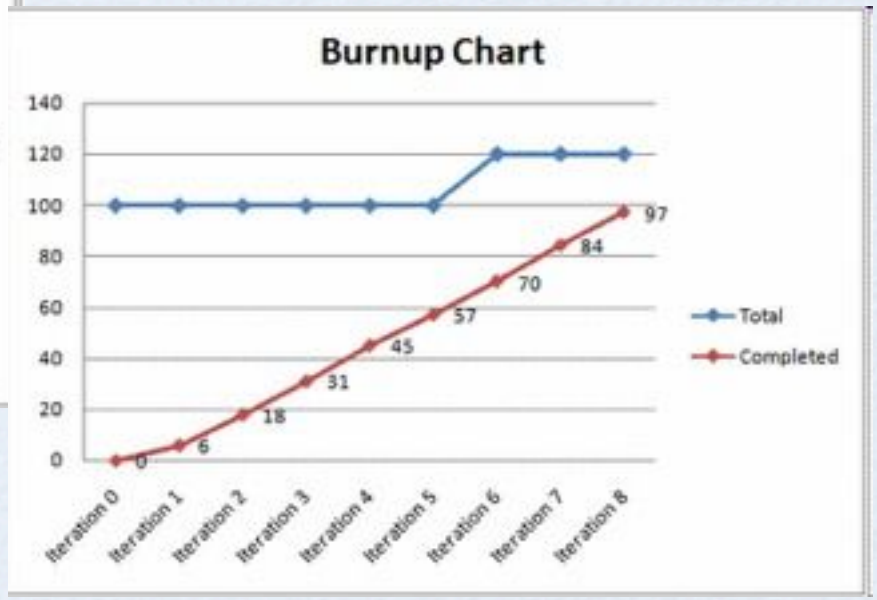
Graphs story points left in backlog

http://rapidapplicationdevelopment.blogspot.com/2008/10/forget-burndown-use-burnup-charts.html

BURNDOWN CHARTS

Graphs total story points and story points finished

Shows scope change

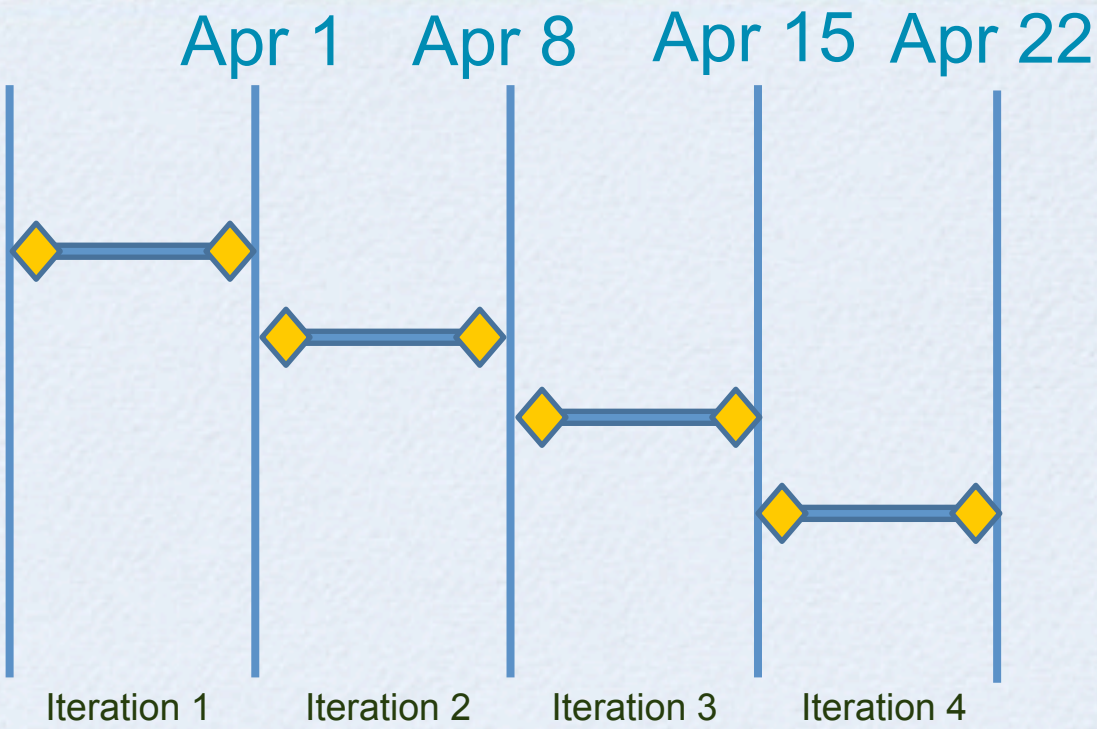


Graphs story points left in backlog

Helps estimate project end point

http://rapidapplicationdevelopment.blogspot.com/2008/10/forget-burndown-use-burnup-charts.html

GANTT MATH


Apr 1
Apr 8
Apr 15
Apr 22
Iteration 1
Iteration 2
Iteration 3
Iteration 4


April
S M T W T F S
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30

GANTT MATH


April
S M T W T F S
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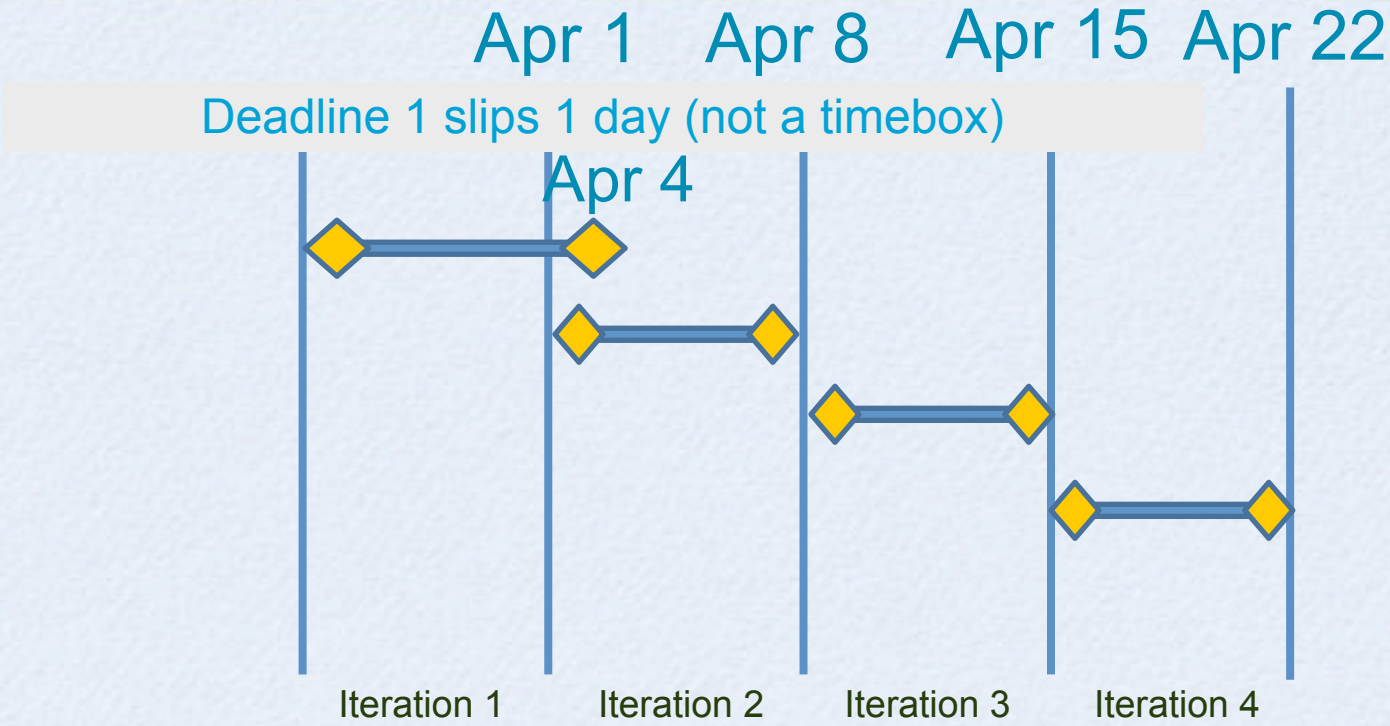
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GANTT MATH

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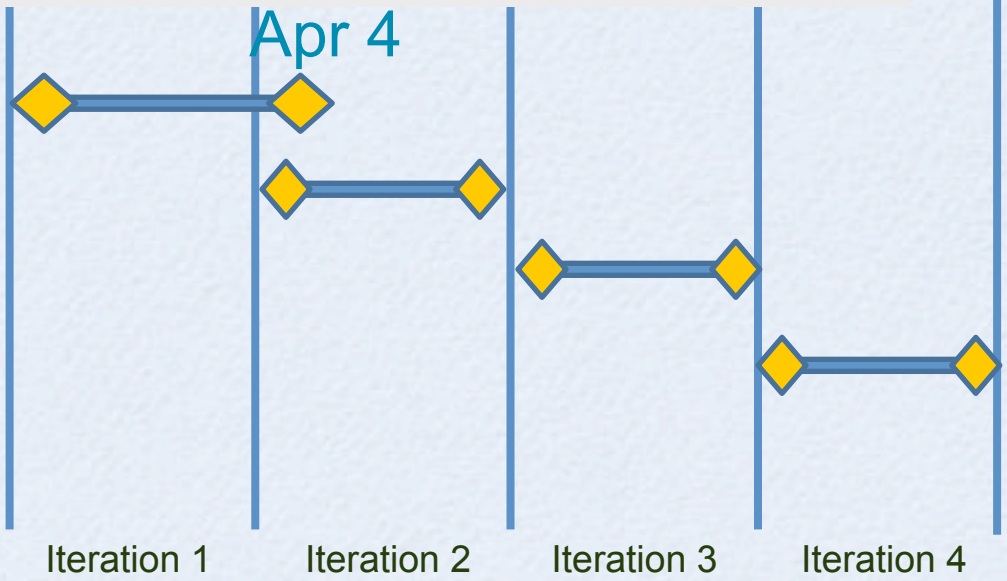
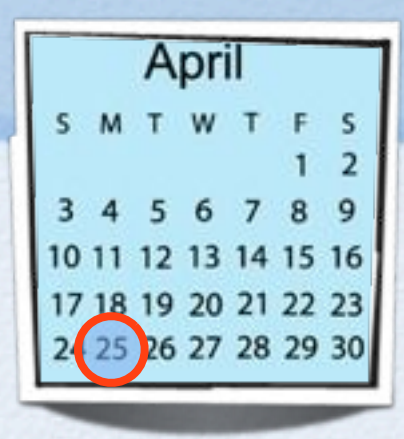


What does this predict for the new end date?

GANTT MATH



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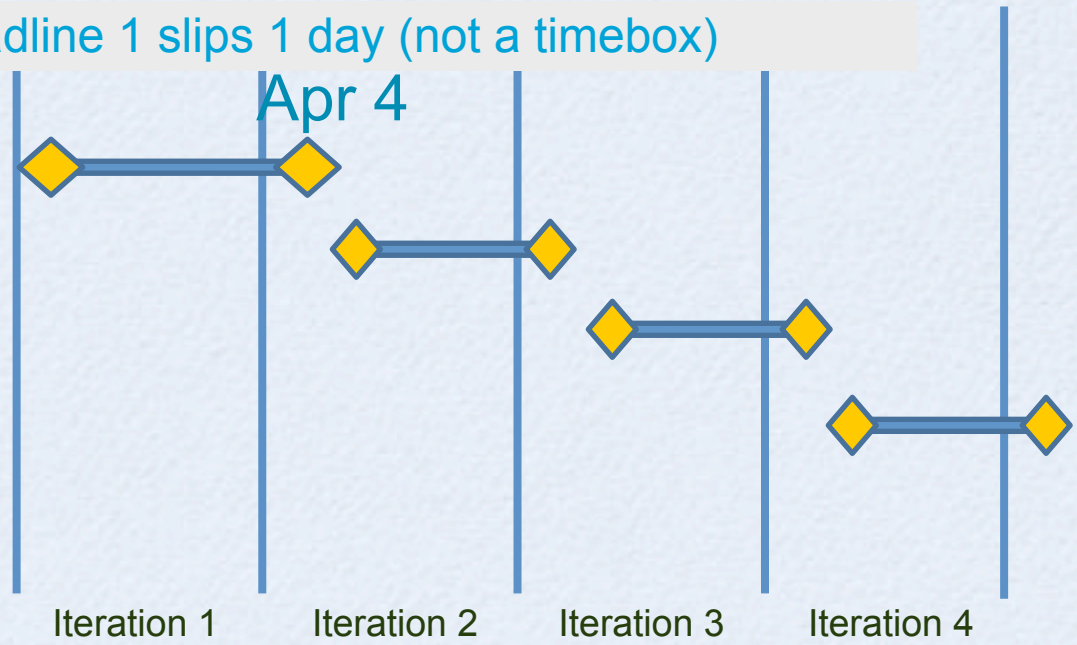

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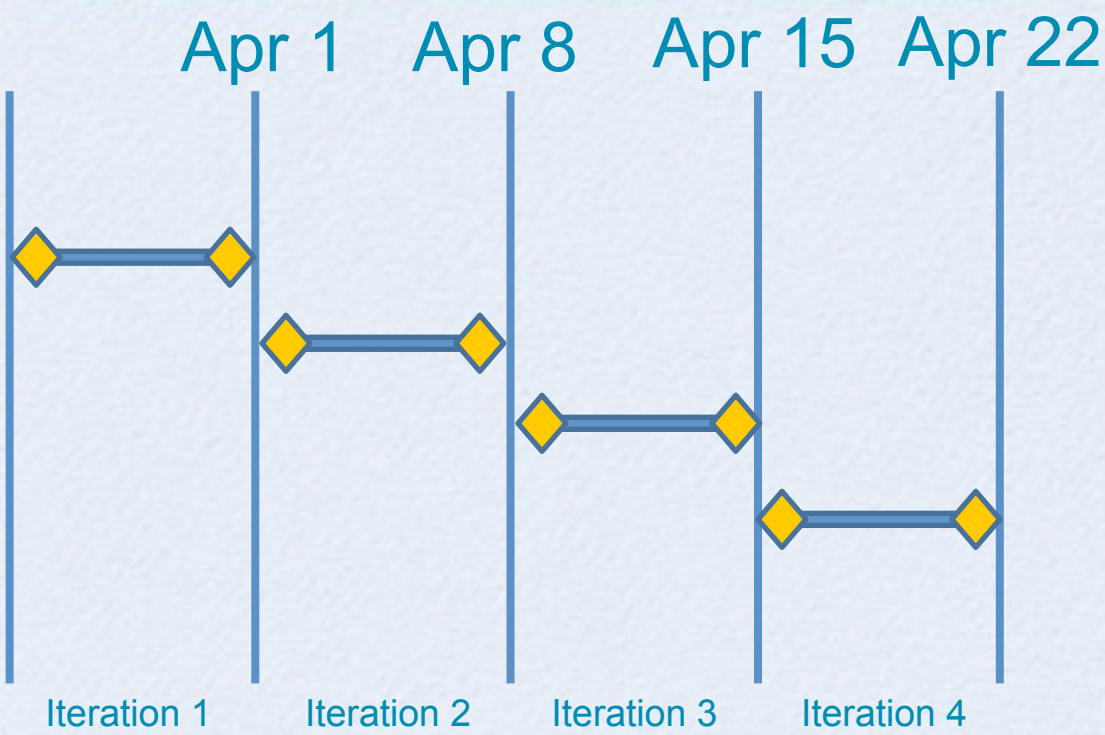
Apr 25

Velocity Math



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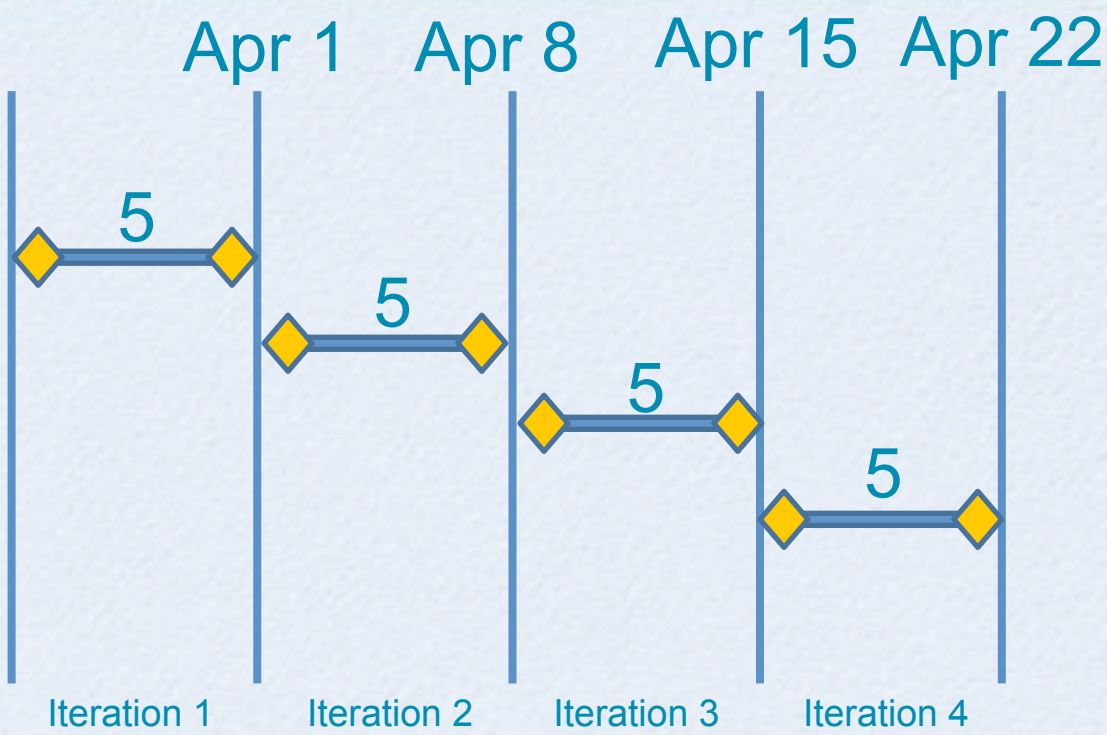
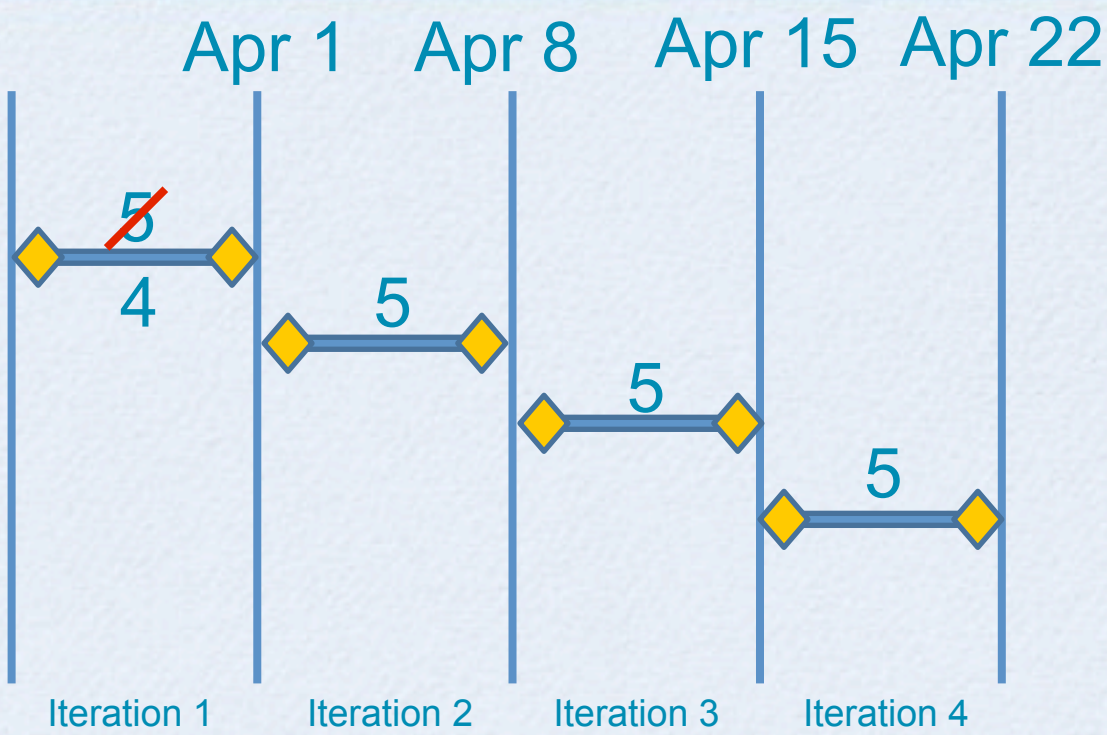


20 points in release plan

Expected velocity = 5

Velocity Math

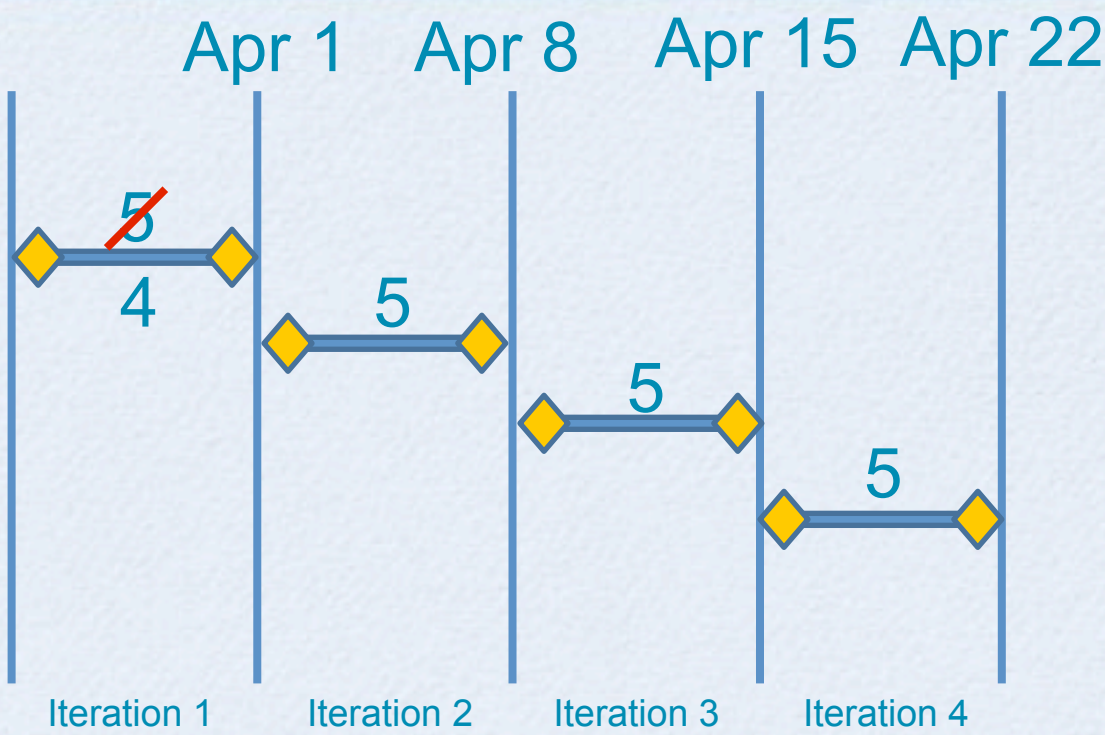


20 points in release plan

Expected velocity = 5

Actual velocity for iteration 1 = 4

Velocity Math



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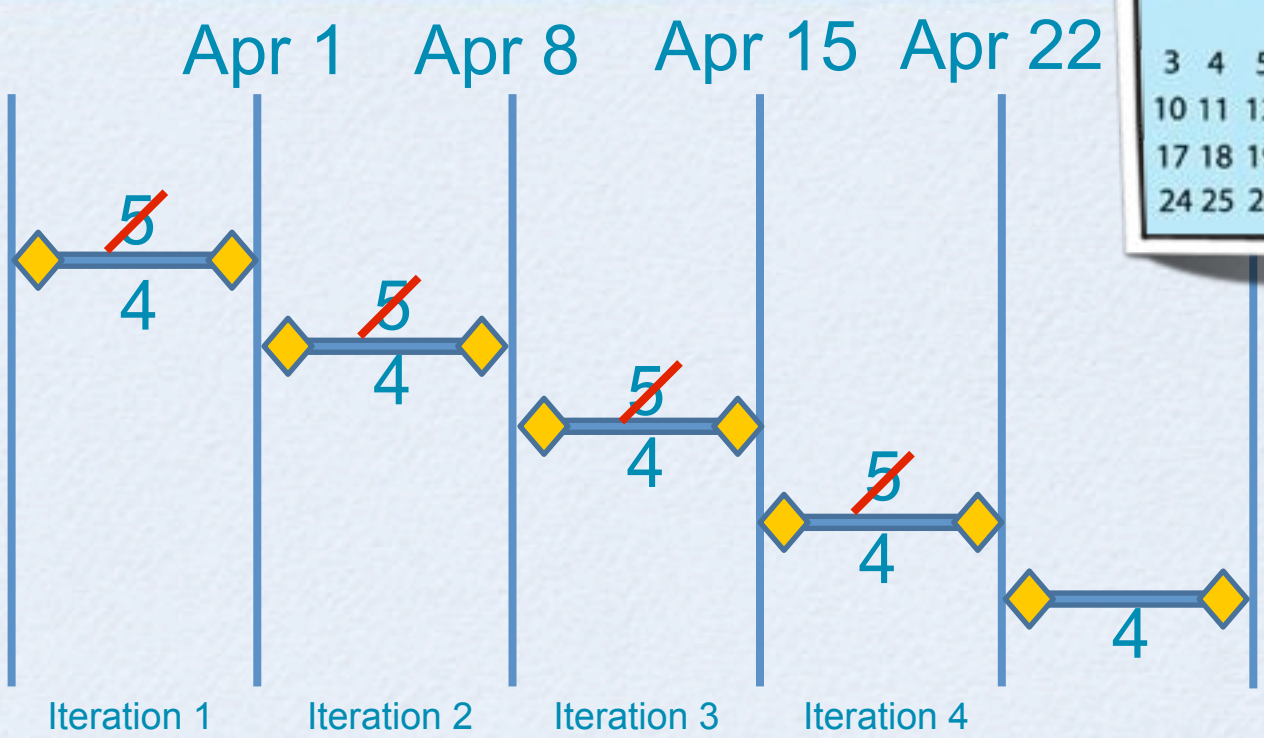

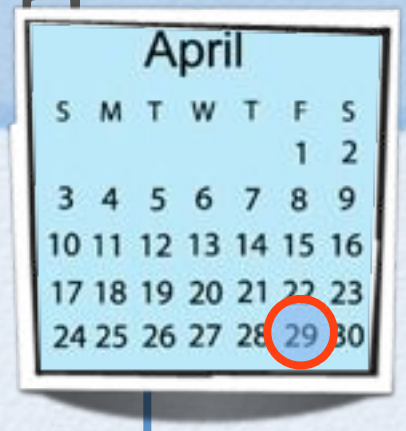

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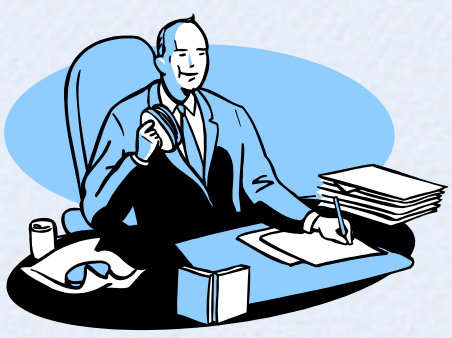
What does this predict for the new end date?

Apr 29!

POP QUIZ

How long will the project take?



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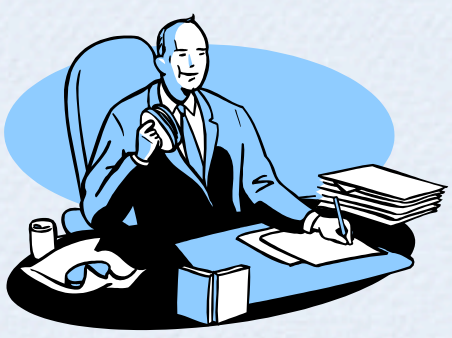
How many people do you need?



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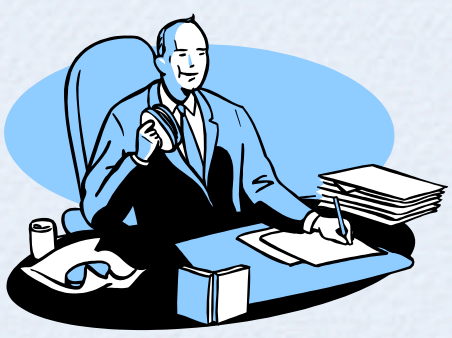

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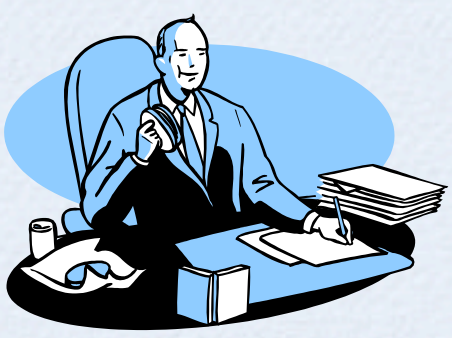

How many people do we need?

_____

BEING A MANAGER

What is Management?

Management is kicking ass.

Developing a process and sticking to it!

Tracking what they're doing like a hawk.

What is Management?

Tom DeMarco and Timothy Lister

What is Management?

The manager's function is <u>not</u> to make people work, it is to make it <u>possible</u> for people to work.

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Process obsession is the problem.

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What is Management?

The manager's function is not to make people work, it is to make it possible for people to work.

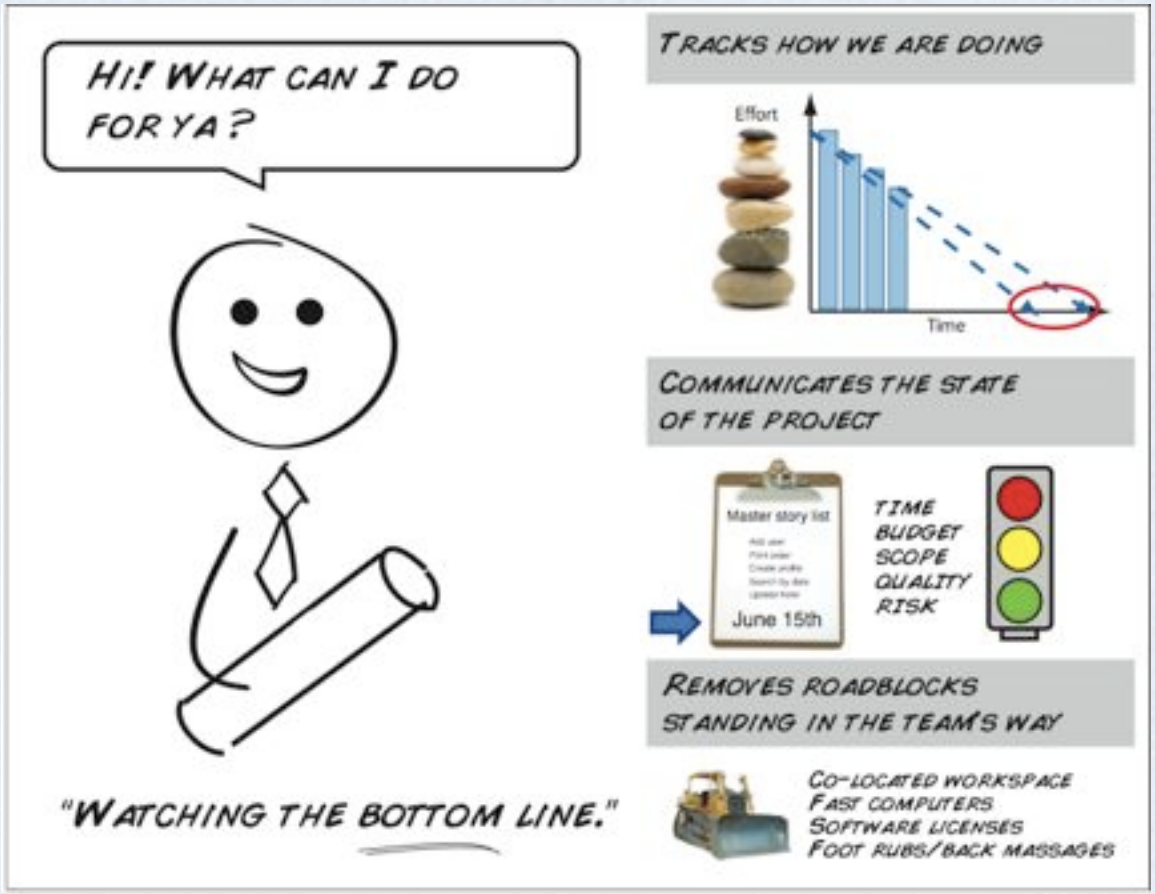
Process obsession is the problem.

The ultimate management sin is wasting people's time.

Tom DeMarco and Timothy Lister

Peopleware: Productive Projects and Teams

Agile Managing



In my opinion, this is true, but misses the hardest, most important goal of a manager.

The Agile Warrior, Chapter 2

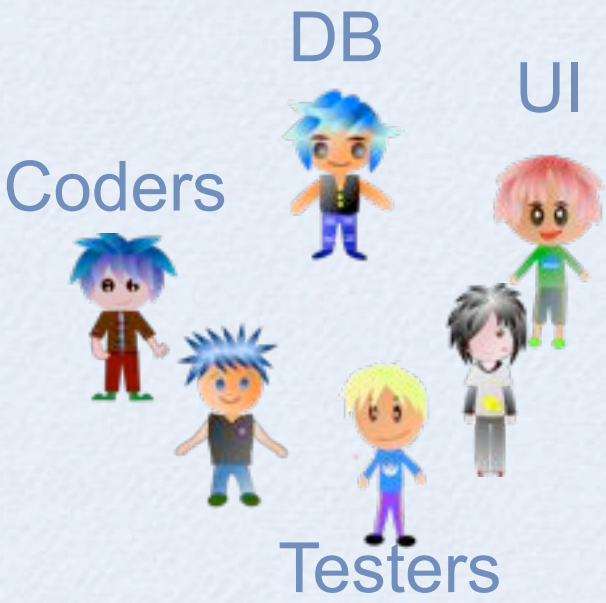
TEAMS

Functional Teams

~~Functional Teams~~

Silos!

Cross-functional teams



Jelled Teams

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

Peopleware, chapter 18

Jelled Teams

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

Peopleware, chapter 18

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

TEAMICIDE

Defensive management

Bureaucracy

Lowered quality expectations

Fragmentation of time

Clique control

Phony deadlines

Out of the loop

Physical separation

Peopleware, chapter 20

POP QUIZ

Missing Expertise

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)

Negative Productivity

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.

Sharing the Wealth

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.