SD BEST PRACTICES
CONFERENCE & EXPO
2007

September 18-21, 2007
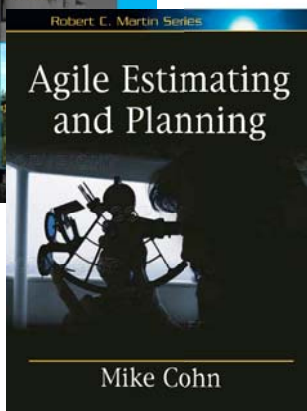Hynes Convention Center
Boston, MA

Getting Agile
with
Scrum

Mike Cohn
Mountain Goat Software
mike@mountaingoatsoftware.com

the future of software development

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Mike Cohn - background

The Addison Wesley Signature Series

USER STORIES APPLIED
FOR AGILE SOFTWARE DEVELOPMENT

MIKE COHN
Foreword by Kent Beck

Robert C. Martin Series

Agile Estimating and Planning

Mike Cohn

Agile coach and trainer

O Founding member and director of Agile Alliance and Scrum Alliance

O Founder of Mountain Goat Software

O Ran my first Scrum project back in 1995

O Typical programmer to manager etc. progression

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We're losing the relay race

"The... 'relay race' approach to product development...may conflict with the goals of maximum speed and flexibility. Instead a holistic or 'rugby' approach—where a team tries to go the distance as a unit, passing the ball back and forth—may better serve today's competitive requirements."

Hirotaka Takeuchi and Ikujiro Nonaka, "The New New Product Development Game", *Harvard Business Review*, January 1986.

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Scrum in 100 words

- Scrum is an agile process that allows us to focus on delivering the highest business value in the shortest time.
- It allows us to rapidly and repeatedly inspect actual working software (every two weeks to one month).
- The business sets the priorities. Teams self-organize to determine the best way to deliver the highest priority features.
- Every two weeks to a month anyone can see real working software and decide to release it as is or continue to enhance it for another sprint.

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Scrum origins

- Jeff Sutherland
  - Initial scrums at Easel Corp in 1993
  - IDX and 500+ people doing Scrum
- Ken Schwaber
  - ADM
  - Scrum presented at OOPSLA 96 with Sutherland
  - Author of three books on Scrum
- Mike Beedle
  - Scrum patterns in PLOPD4
- Ken Schwaber and Mike Cohn
  - Co-founded Scrum Alliance in 2002, initially within the Agile Alliance

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Scrum has been used by:

- Microsoft
- Yahoo
- Google
- Electronic Arts
- High Moon Studios
- Lockheed Martin
- Philips
- Siemens
- Nokia
- Capital One
- BBC
- Intuit

- Nielsen Media
- First American Real Estate
- High Moon Studios
- Ipswitch
- John Deere
- Lexis Nexis
- Sabre
- Salesforce.com
- Time Warner
- Turner Broadcasting
- Oce

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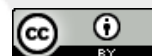
Scrum has been used for:

- Commercial software
- In-house development
- Contract development
- Fixed-price projects
- Financial applications
- ISO 9001-certified applications
- Embedded systems
- 24x7 systems with 99.999% uptime requirements
- the Joint Strike Fighter

- Video game development
- FDA-approved, life-critical systems
- Satellite-control software
- Websites
- Handheld software
- Mobile phones
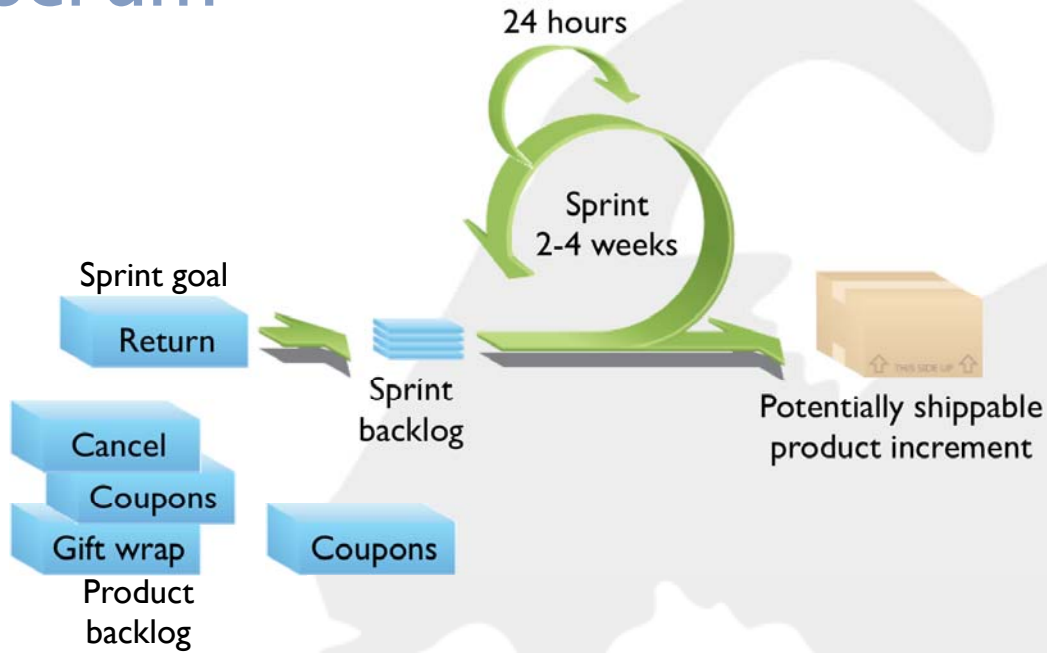- Network switching applications
- ISV applications
- Some of the largest applications in use

Characteristics

- Self-organizing teams
- Product progresses in a series of month-long "sprints"
- Requirements are captured as items in a list of "product backlog"
- No specific engineering practices prescribed
- Uses generative rules to create an agile environment for delivering projects
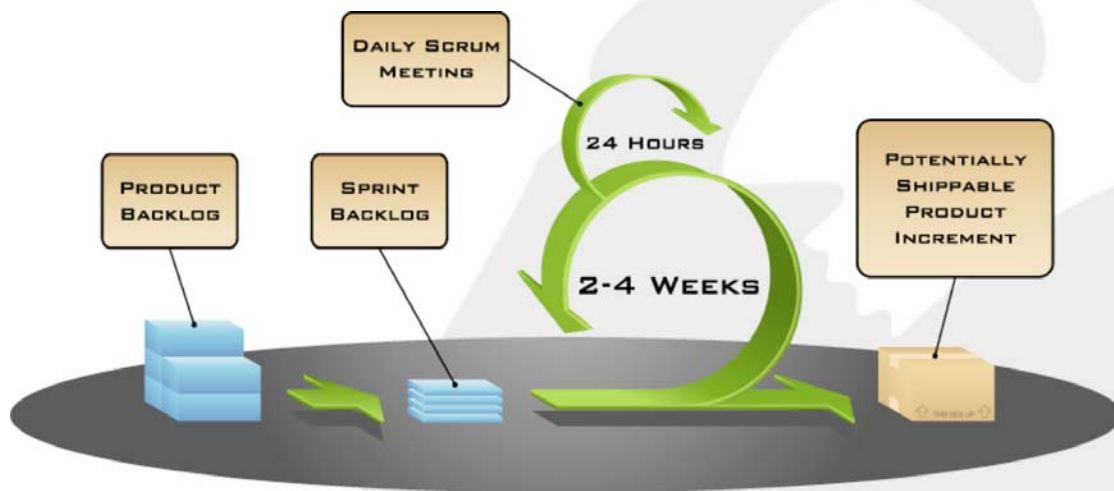- One of the "agile processes"

Scrum

Sprint goal

Return

Cancel

Coupons

Gift wrap

Product backlog

Sprint backlog

Coupons

24 hours

Sprint 2-4 weeks

Potentially shippable product increment

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Putting it all together

DAILY SCRUM MEETING

PRODUCT BACKLOG

SPRINT BACKLOG

24 HOURS

2-4 WEEKS

POTENTIALLY SHIPPABLE PRODUCT INCREMENT

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Image available at
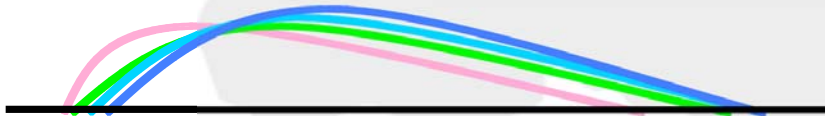www.mountangoatsoftware.com/scrum

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Sequential vs. overlapping development

Requirements	Design	Code	Test
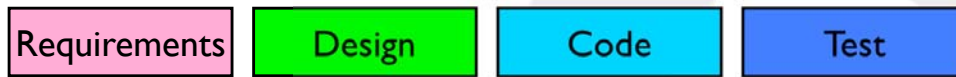
Rather than doing all of one thing at a time...

...Scrum teams do a little of everything all the time

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No changes during a sprint

Change

• Plan sprint durations around how long you can commit to keeping change out of the sprint

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Scrum framework

**Roles**
- Product owner
- ScrumMaster
- Team

Ceremonies
- Sprint planning
- Sprint review
- Sprint retrospective
- Daily scrum meeting

Artifacts
- Product backlog
- Sprint backlog
- Burndown charts

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Scrum framework

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Product owner
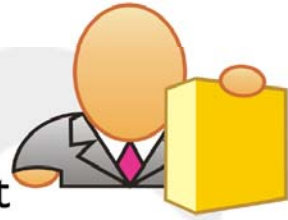
- Define the features of the product
- Decide on release date and content
- Be responsible for the profitability of the product (ROI)
- Prioritize features according to market value
- Adjust features and priority every iteration, as needed
- Accept or reject work results

The ScrumMaster

- Represents management to the project
- Responsible for enacting Scrum values and practices
- Removes impediments
- Ensure that the team is fully functional and productive
- Enable close cooperation across all roles and functions
- Shield the team from external interferences

The team

- Typically 5-9 people
- Cross-functional:
  - Programmers, testers, user experience designers, etc.
- Members should be full-time
  - May be exceptions (e.g., database administrator)
- Teams are self-organizing
  - Ideally, no titles but rarely a possibility
- Membership should change only between sprints
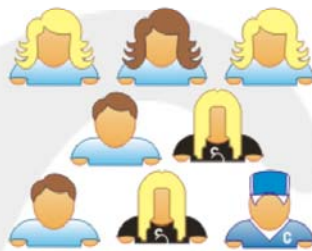
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Scrum framework

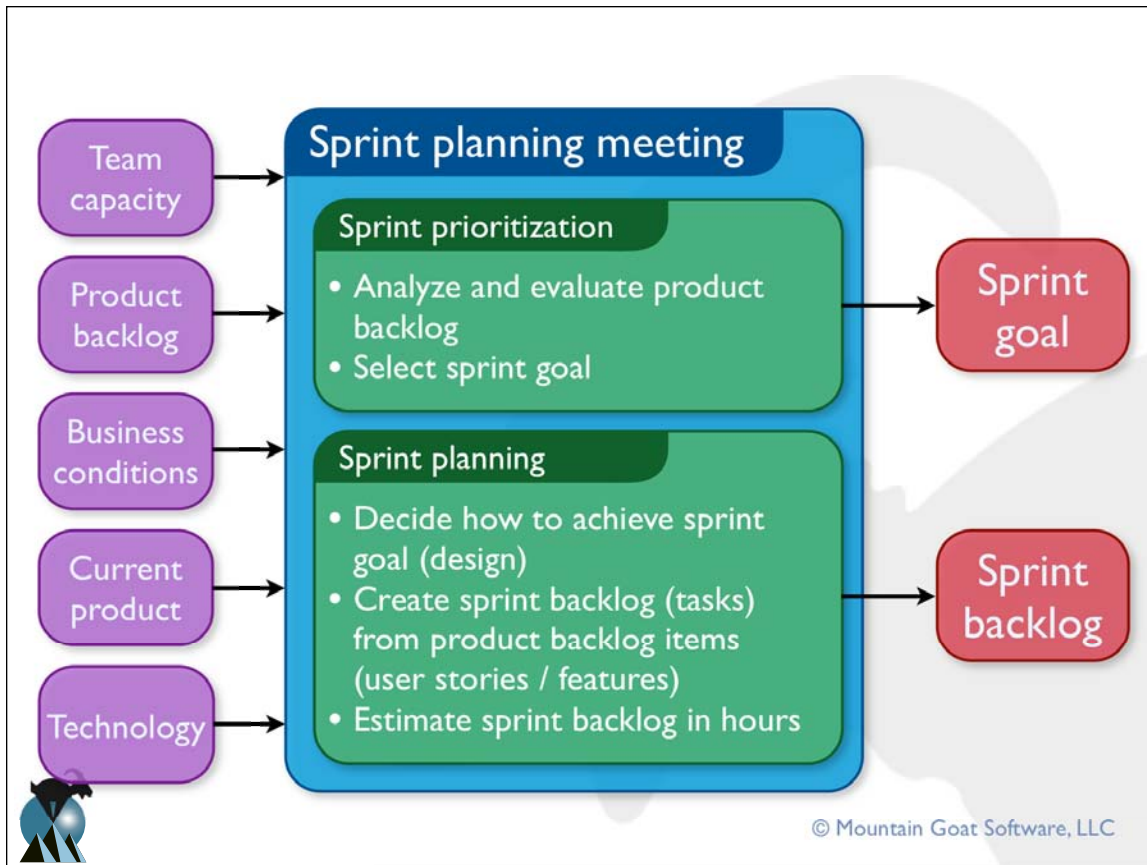**Roles**
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Sprint planning

- Team selects items from the product backlog they can commit to completing
- Sprint backlog is created
  - Tasks are identified and each is estimated (1-16 hours)
  - Collaboratively, not done alone by the ScrumMaster
- High-level design is considered

As a vacation planner, I want to see photos of the hotels.

Code the middle tier (8 hours)
Code the user interface (4)
Write test fixtures (4)
Code the foo class (6)
Update performance tests (4)

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The daily scrum

- Parameters
  - Daily
  - 15-minutes
  - Stand-up
- Not for problem solving
  - Whole world is invited
  - Only team members, ScrumMaster, product owner, can talk
- Helps avoid other unnecessary meetings

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Everyone answers 3 questions

1. What did you do yesterday?

2. What will you do today?

3. Is anything in your way?

- These are *not* status for the ScrumMaster
  - They are commitments in front of peers

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The sprint review

- Team presents what it accomplished during the sprint
- Typically takes the form of a demo of new features or underlying architecture
- Informal
  - 2-hour prep time rule
  - No slides
- Whole team participates
- Invite the world

Sprint retrospective

- Periodically take a look at what is and is not working
- Typically 15–30 minutes
- Done after every sprint
- Whole team participates
  - ScrumMaster
  - Product owner
  - Team
  - Possibly customers and others

Scrum framework

Roles
• Product owner
• ScrumMaster
• Team

Ceremonies
• Sprint planning
• Sprint review
• Sprint retrospective
• Daily scrum meeting

Artifacts
• Product backlog
• Sprint backlog
• Burndown charts

Product backlog

• The requirements
• A list of all desired work on the project
• Ideally expressed such that each item has value to the users or customers of the product
• Prioritized by the product owner
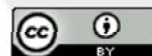• Reprioritized at the start of each sprint

This is the product backlog

A sample product backlog

Backlog item	Estimate
Allow a guest to make a reservation	3
As a guest, I want to cancel a reservation.	5
As a guest, I want to change the dates of a reservation.	3
As a hotel employee, I can run RevPAR reports (revenue-per-available-room)	8
Improve exception handling	8
...	30
...	50

User stories make great product backlog items

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The sprint goal

- A short statement of what the work will be focused on during the sprint

Life Sciences
Support features necessary for population genetics studies.

Database Application
Make the application run on SQL Server in addition to Oracle.

Financial services
Support more technical indicators than company ABC with real-time, streaming data.

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Managing the sprint backlog

- Individuals sign up for work of their own choosing
  - Work is never assigned
- Estimated work remaining is updated daily
- Any team member can add, delete or change the sprint backlog
- Work for the sprint emerges
- If work is unclear, define a sprint backlog item with a larger amount of time and break it down later
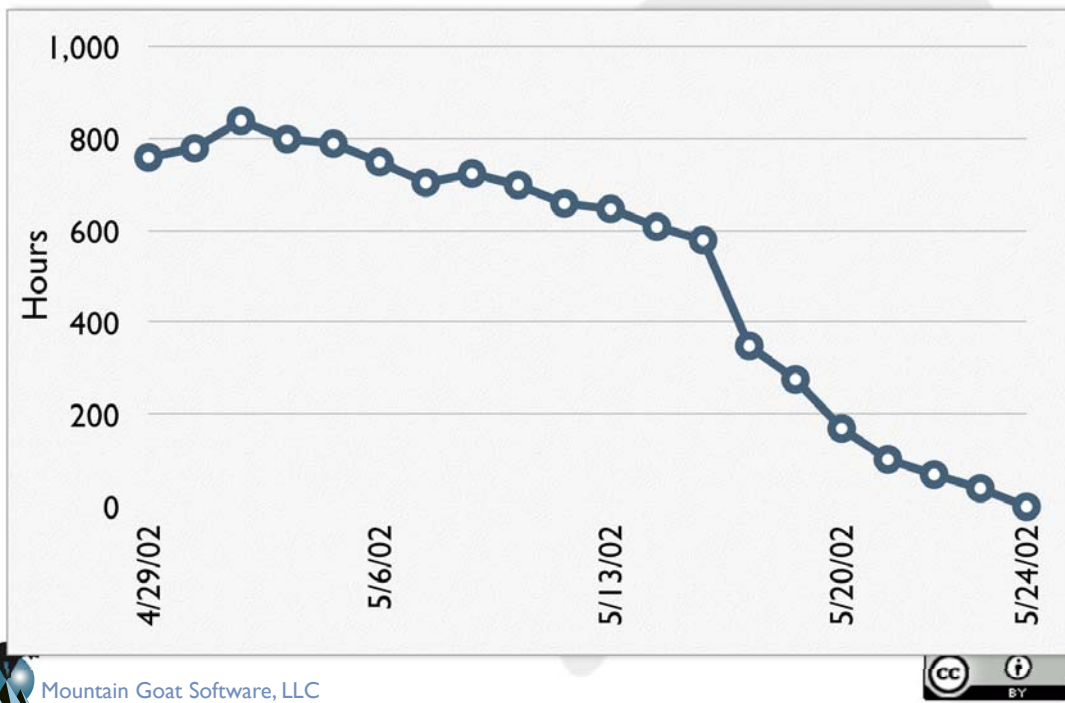- Update work remaining as more becomes known

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A sprint backlog

Tasks	Mon	Tues	Wed	Thur	Fri
Code the user interface	8	4	8		
Code the middle tier	16	12	10	4	
Test the middle tier	8	16	16	11	8
Write online help	12				
Write the foo class	8	8	8	8	8
Add error logging			8	4	

A sprint burndown chart

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| Tasks	Mon	Tues	Wed	Thur	Fri
Code the user interface	8	4	8		
Code the middle tier	16	12	10	7	
Test the middle tier	8	16	16	11	8
Write online help	12				
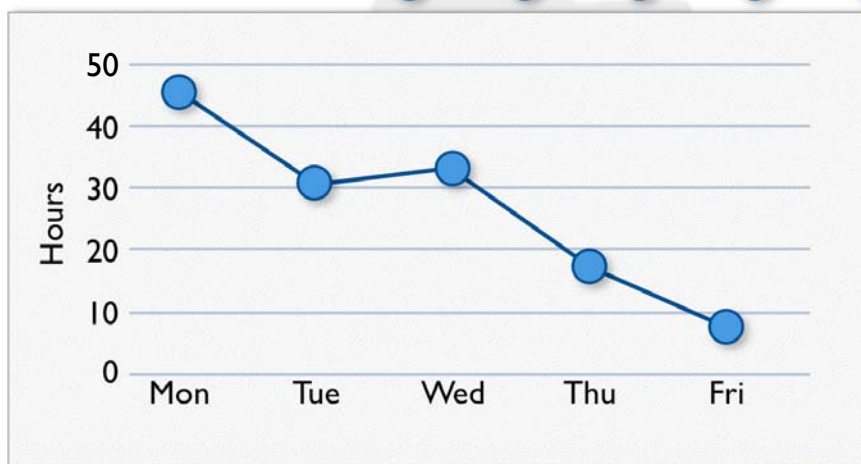
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Scalability

- Typical individual team is 7 ± 2 people
  - Scalability comes from teams of teams
- Factors in scaling
  - Type of application
  - Team size
  - Team dispersion
  - Project duration
- Scrum has been used on multiple 500+ person projects

Scaling through the Scrum of scrums
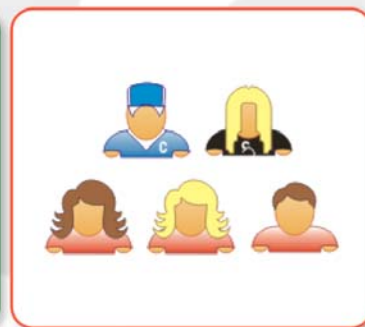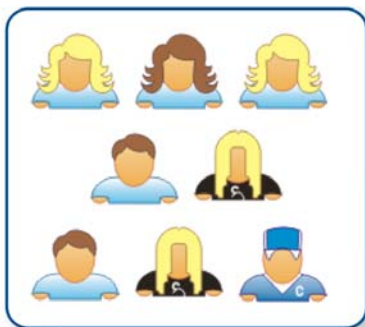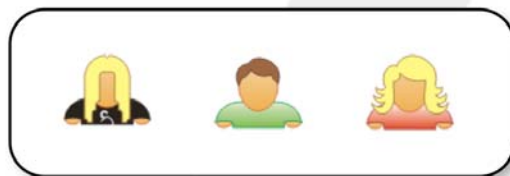
Scrum of scrums of scrums
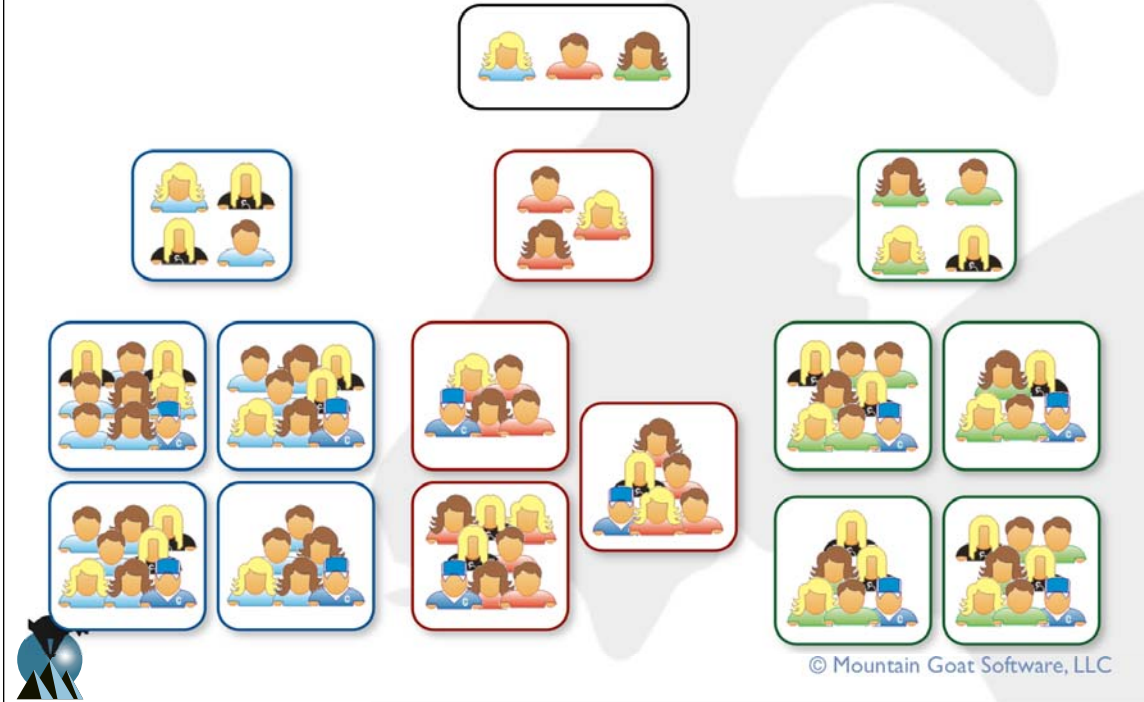
Where to go next

- www.mountaingoatsoftware.com/scrum

- www.scrumalliance.org

- www.controlchaos.com

- scrumdevelopment@yahoogroups.com

- *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle

- *Agile Project Management with Scrum* by Ken Schwaber

- *Scrum and the Enterprise* by Ken Schwaber

A Scrum reading list

- *Agile and Iterative Development: A Manager's Guide* by Craig Larman
- *Agile Estimating and Planning* by Mike Cohn
- *Agile Project Management with Scrum* by Ken Schwaber
- *Agile Retrospectives* by Esther Derby and Diana Larsen
- *Agile Software Development Ecosystems* by Jim Highsmith
- *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle
- *Scrum and The Enterprise* by Ken Schwaber
- *User Stories Applied for Agile Software Development* by Mike Cohn
- Lots of weekly articles at www.scrumalliance.org

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Upcoming public classes

Date	What	Where
Oct 18-19	Certified Scrum Product Owner	Denver
Oct 23-24 Oct 25	Certified ScrumMaster Agile Estimating and Planning	San Diego
Jan 15-16 Jan 17	Certified ScrumMaster Agile Estimating and Planning	Atlanta
Feb 26-27 Feb 28	Certified ScrumMaster Agile Estimating and Planning	Santa Clara

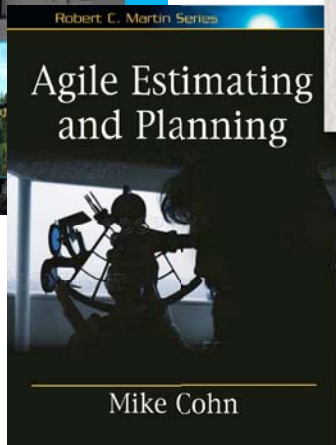Other classes in London and Oslo if you're up for a longer trip.

More info at
www.mountaingoatsoftware.com

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Mike Cohn contact info

mike@mountaingoatsoftware.com

www.mountaingoatsoftware.com

(720) 890-6110 (office)

(303) 810-2190 (mobile)

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