An Introduction to Scrum

Presented at Telelogic Seminar
September 2, 2004
By Mike Cohn

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My background
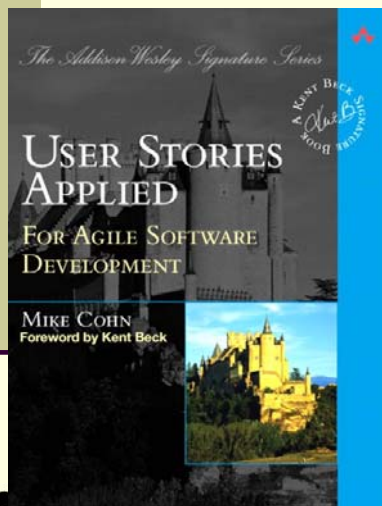
- Programming for 20 years, managing for 17
  - Author of book on user stories as well as C++ and Java
- Past consulting to Viacom, Fidelity Investments, Nielsen Media Research, Procter & Gamble, NBC, United Nations, Citibank, other companies
- Founding member and director of the Agile Alliance
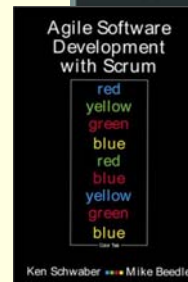- Certified ScrumMaster and been doing Scrum since 1995

The Addison Wesley Signature Series

USER STORIES APPLIED

FOR AGILE SOFTWARE DEVELOPMENT

MIKE COHN
Foreword by Kent Beck

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Scrum

- "The New New Product Development Game" in *Harvard Business Review*, 1986.
  - "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."
- *Wicked Problems, Righteous Solutions* by DeGrace and Stahl, 1990.
  - First mention of Scrum in a software context

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Scrum origins

- Jeff Sutherland
  - Initial Scrums at Easel Corp in 1993
  - IDX and nearly 600 people doing Scrum
  - Not just for trivial projects
    - FDA-approved, life-critical software for x-rays and MRIs
- Ken Schwaber
  - ADM
  - Initial definitions of Scrum at OOPSLA 96 with Sutherland
- Mike Beedle
  - Scrum patterns in PLOPD4

Agile Project Management with Scrum
Ken Schwaber

Agile Software Development with Scrum
red
yellow
green
blue
red
blue
yellow
green
blue
Ken Schwaber •••• Mike Beedle

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Scrum has been used in…

Independent Software Vendors (ISVs)

Offshore development

Small to medium-sized startups

Internal development

Fortune 100 companies

Contract development

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Scrum has been used for…

- FDA-approved, life-critical software for x-rays and MRIs
- Enterprise workflow systems
- Financial payment applications
- Biotech
- Call center systems
- Tunable laser subsystems for fiber optic networks
- Application development environments
- 24x7 with 99.99999% uptime requirements
- Multi-terabyte database applications
- Media-neutral magazine products
- Web news products
- ISO 9001 projects

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Characteristics

- One of the "agile processes"
- 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
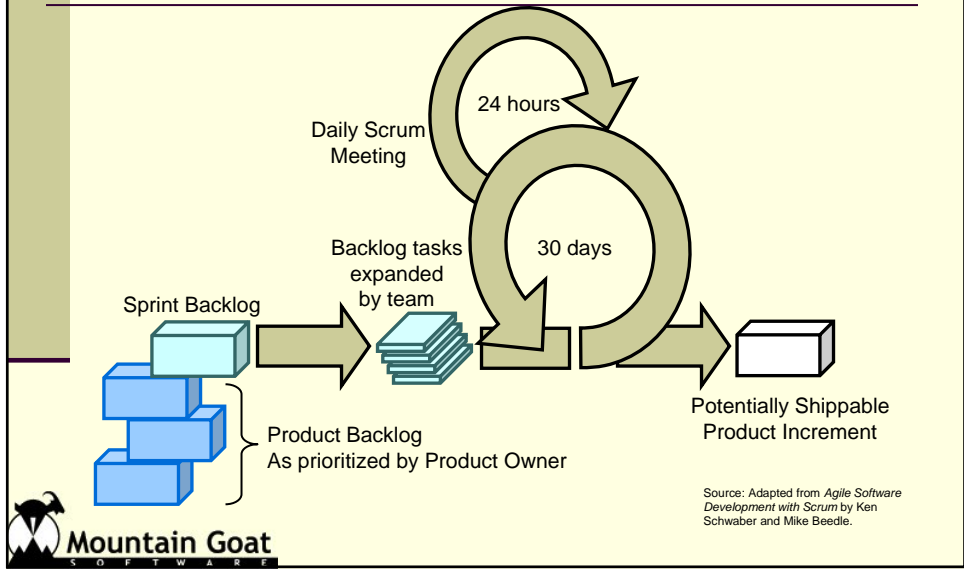
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Project Noise Level
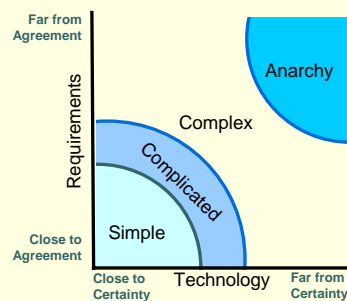
Source: *Strategic Management and Organizational Dynamics* by Ralph Stacey in *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle.

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Overview

24 hours

Daily Scrum
Meeting

Backlog tasks
expanded
by team

30 days

Sprint Backlog

Product Backlog
As prioritized by Product Owner

Potentially Shippable
Product Increment

Source: Adapted from *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle.

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The Scrum Master

CERTIFIED **SCRUM** MASTER ™

Represents management to the project

Typically filled by a Project Manager or Team Leader

Responsible for enforcing Scrum values and practices

Main responsibility is to remove impediments to the team's progress

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The Scrum Team

- Typically 5-10 people
- Cross-functional
  - QA, Programmers, UI Designers, etc.
- Members should be full-time
  - May be exceptions (e.g., System Admin, etc.)
- Teams are self-organizing
  - Ideally, no titles but rarely a possibility
- Membership can change only between sprints

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The Product Owner

Represents (or is) the user or customer for the project

One voice, even if not one person

Typically a Product Manager, someone from Marketing, or similar

Main responsibility is knowing what to build and in what sequence

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Sprints

- Scrum projects make progress in a series of "sprints"
- 30 days is standard recommendation
  - I prefer two weeks
  - Whatever you pick…
    - … a constant duration leads to a better rhythm
- Product is designed, coded, and tested during the sprint

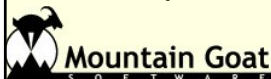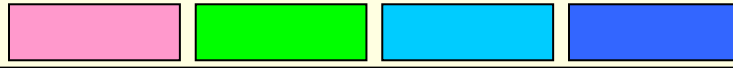> Product is potentially releasable after each sprint

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No changes during the sprint

Change

Inputs → Sprint → Tested Code
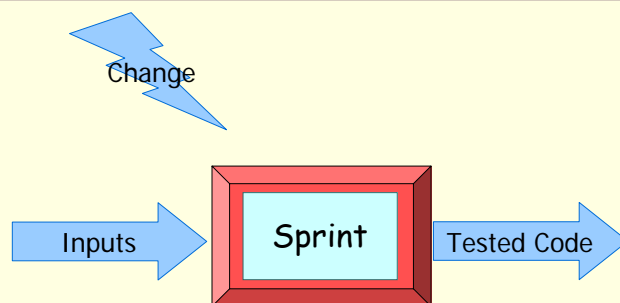
- Plan sprint durations around how long you can commit to keeping change out of the sprint
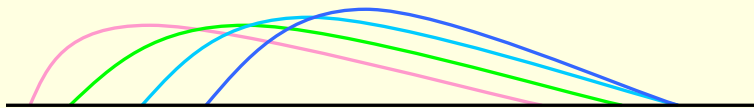
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Sequential vs. Overlapping Development

Rather than doing all of one thing at a time

In Scrum, we do a little of everything all the time

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

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Product Backlog

- Scrum's form of requirements
- A list of all desired work on the project
  - Usually a combination of
    - story-based work ("a user can search for…")
    - task-based work ("improve exception handling")
- List is prioritized by the Product Owner
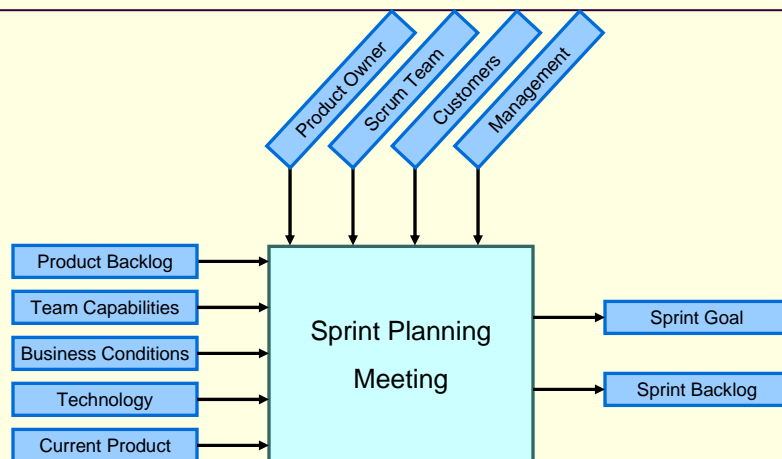 - Reprioritized at the start of each sprint

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Sample Product Backlog

Sprint Planning Meeting

The Sprint Goal

- A short "theme" for 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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From Sprint Goal to Sprint Backlog

- Scrum team takes the Sprint Goal and decides what tasks are necessary
- Team self-organizes around how they'll meet the Sprint Goal
  - Manager doesn't assign tasks to individuals
- Managers don't make decisions for the team
- Sprint Backlog is created
  - The list of tasks necessary to achieve the work selected for the sprint

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Sample Sprint Backlog

CR ID	Synopsis		Resolver	Status	Release
SF#1	Get new marketing message out to public ASAP!		jcarrill	assigned	gdidemo/2.0.1

Task Number	Synopsis	Resolver	Status	Estimated Duration	Estimated Completion Date
SF#18	See problem 1: Include new marketing message in screen saver app	jcarrill	excluded	2 days	03/03/2000 1:00:00
SF#19	See problem 1: Create new link on the Customer Only page of web-site	mmorriss	completed	2 days	03/06/2000 1:00:00
UK#19	Add rotation to the cube.	mic	completed	1	11/09/2000 1:00:00
SF#20	See problem 1: Update all marketing collateral	ssweet	task_assigned	6	03/17/2000 1:00:00
SF#73	See Problem 1: Update web site products page with new screen capture	mmorriss	task_assigned	1 day	04/07/2000 1:00:00
SF#86	See Problem 1: Updated company name on pages in Employee application	rmartin	task_assigned	1	07/11/2000 1:00:00

SF#2	Add color to the random shapes		mic	assigned	gdidemo/3.0

Task Number	Synopsis	Resolver	Status	Estimated Duration	Estimated Completion Date
SF#21	See problem 2:Add color to the random shapes	mic	completed		
SF#35	See problem 2: Add more generated shapes	jcarrill	completed	4	04/12/2000 1:00:00

SF#3	The web-site Guestbook is missing the YK2 look		mmorriss	assigned	maintenance

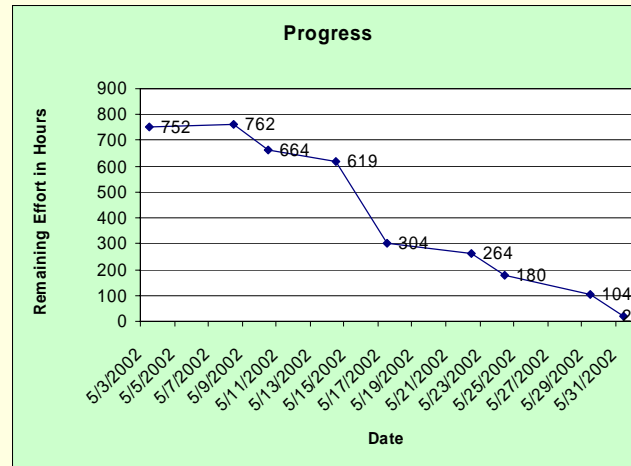| Task Number	Synopsis	Resolver	Status	Estimated Duration	Estimated Completion Date
SF#22	See problem 3:The web-site Guestbook is missing the YK2 look	mmorriss	task_assigned	1 day	

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Sprint Backlog during the Sprint

- Changes
  - Team adds new tasks whenever they need to in order to meet the Sprint Goal
  - Team can remove unnecessary tasks
  - But: Sprint Backlog can only be updated by the team
- Estimates are updated whenever there's new information

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Sprint Burndown Chart

Progress

Remaining Effort in Hours

900	
800	752
700	762
600	664
500	619
400	
300	304
200	264
100	180
0	104

Date

5/3/2002 5/5/2002 5/7/2002 5/9/2002 5/11/2002 5/13/2002 5/15/2002 5/17/2002 5/19/2002 5/21/2002 5/23/2002 5/25/2002 5/27/2002 5/29/2002 5/31/2002

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Daily Scrum meetings

- Parameters
  - Daily
  - 15-minutes
  - Stand-up
  - Not for problem solving
- Three questions:
  1. What did you do yesterday
  2. What will you do today?
  3. What obstacles are in your way?
- Chickens and pigs are invited
  - Help avoid other unnecessary meetings
- Only pigs can talk

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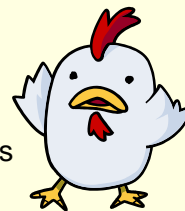
Questions about Scrum meetings?

- Why daily?
  - "How does a project get to be a year late?"
    - "One day at a time."
      - Fred Brooks, *The Mythical Man-Month.*
- Can Scrum meetings be replaced by emailed status reports?
  - No
    - Entire team sees the whole picture every day
    - Create peer pressure to do what you say you'll do

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Constraints

- A complete list of constraints put on the team during a Sprint:

- </end of list>

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Sprint Review Meeting

- 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
- Participants
  - Customers
  - Management
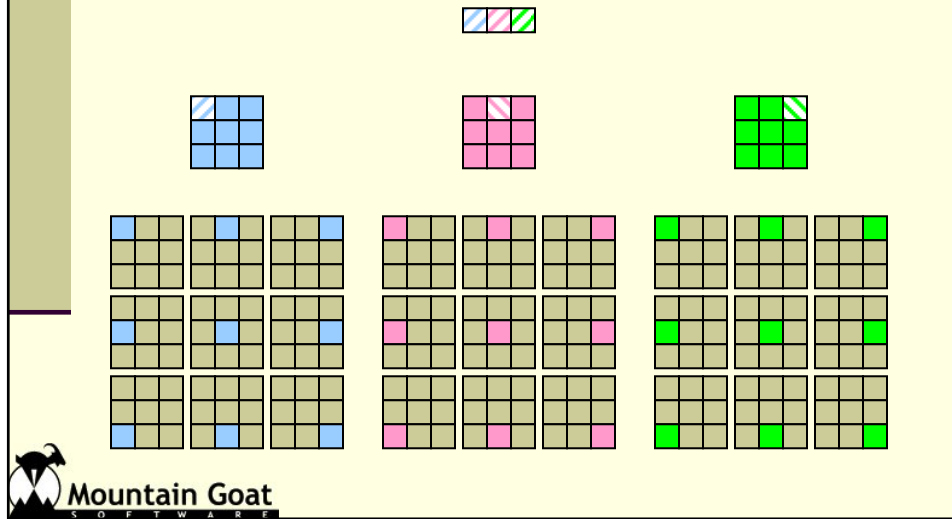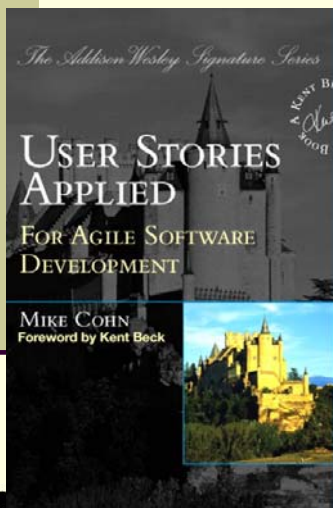 - Product Owner
  - Other engineers

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Scalability of Scrum

- Typical Scrum team is 5-10 people
- Sutherland used Scrum in groups of 600+
- I've used in groups 100+

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Scrum of Scrums / Meta-Scrum

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Where to go next?

Agile Alliance

USER STORIES APPLIED

FOR AGILE SOFTWARE DEVELOPMENT

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Foreword by Kent Beck

- Agile Requirements
  - My book, *User Stories Applied*
  - www.userstories.com

- Scrum
  - www.mountaingoatsoftware.com/scrum
  - www.controlchaos.com
  - www.scrumalliance.org
  - *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle
  - *Agile Project Management with Scrum* by Ken Schwaber

- Agile Software Development in general
  - www.agilealliance.org

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▪ www.userstories.com — **Websites**

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