Getting Agile with Scrum

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Mike Cohn - background

Agile coach and trainer
- Founding member and director of Agile Alliance and Scrum Alliance
- Founder of Mountain Goat Software
- Ran my first Scrum project back in 1995
- Typical programmer to manager etc. progression
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.”


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.
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

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
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

Putting it all together

Image available at www.mountangoatsoftware.com/scrum
Sequential vs. overlapping development

Rather than doing all of one thing at a time...

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


No changes during a sprint

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

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**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

Scrum framework

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- Sprint backlog
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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)
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

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
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

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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
A sample product backlog

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

User stories make great product backlog items

The sprint goal

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

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

Life Sciences
Support features necessary for population genetics studies.

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

A sprint backlog

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thur</th>
<th>Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code the user interface</td>
<td>8</td>
<td>4</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code the middle tier</td>
<td>16</td>
<td>12</td>
<td>10</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Test the middle tier</td>
<td>8</td>
<td>16</td>
<td>16</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Write online help</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write the foo class</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Add error logging</td>
<td>8</td>
<td>8</td>
<td></td>
<td>8</td>
<td>4</td>
</tr>
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</table>
A sprint burndown chart

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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
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

Upcoming public classes

<table>
<thead>
<tr>
<th>Date</th>
<th>What</th>
<th>Where</th>
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<tbody>
<tr>
<td>Oct 18-19</td>
<td>Certified Scrum Product Owner</td>
<td>Denver</td>
</tr>
<tr>
<td>Oct 23-24</td>
<td>Certified ScrumMaster</td>
<td>San Diego</td>
</tr>
<tr>
<td>Oct 25</td>
<td>Agile Estimating and Planning</td>
<td></td>
</tr>
<tr>
<td>Jan 15-16</td>
<td>Certified ScrumMaster</td>
<td>Atlanta</td>
</tr>
<tr>
<td>Jan 17</td>
<td>Agile Estimating and Planning</td>
<td></td>
</tr>
<tr>
<td>Feb 26-27</td>
<td>Certified ScrumMaster</td>
<td>Santa Clara</td>
</tr>
<tr>
<td>Feb 28</td>
<td>Agile Estimating and Planning</td>
<td></td>
</tr>
</tbody>
</table>

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

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