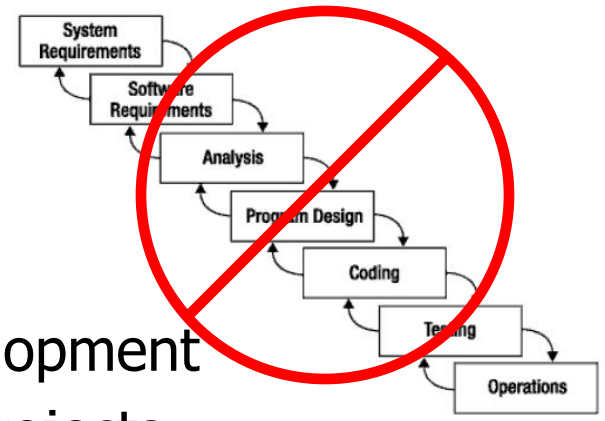
What is Scrum?

- **Scrum**:

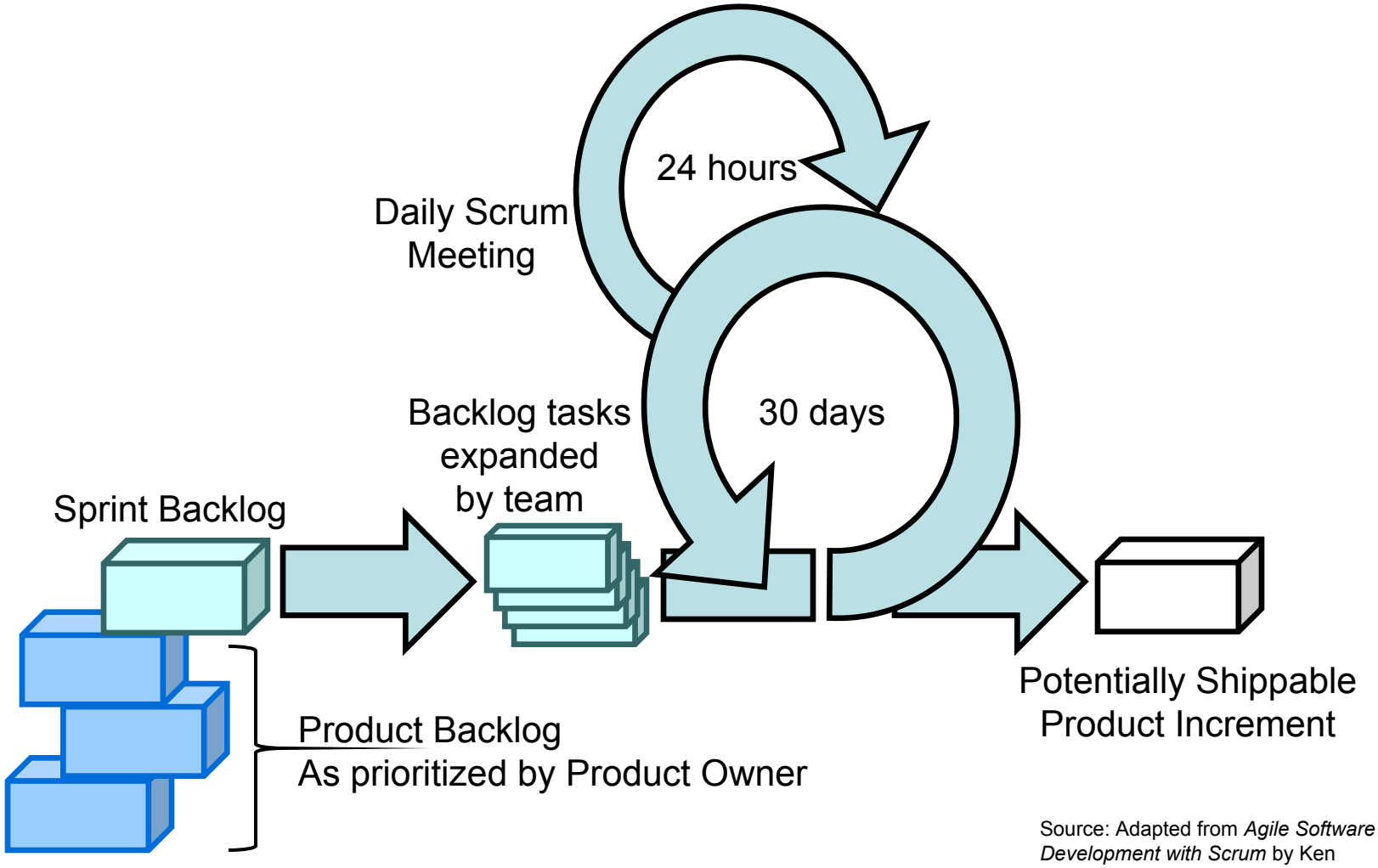
It's about common sense

  - Is an agile, lightweight process
  - Can manage and control software and product development
  - Uses iterative, incremental practices
  - Has a simple implementation
  - Increases productivity
  - Reduces time to benefits
  - Embraces adaptive, empirical systems development
  - Is not restricted to software development projects



  - Embraces the opposite of the waterfall approach…

Scrum at a Glance



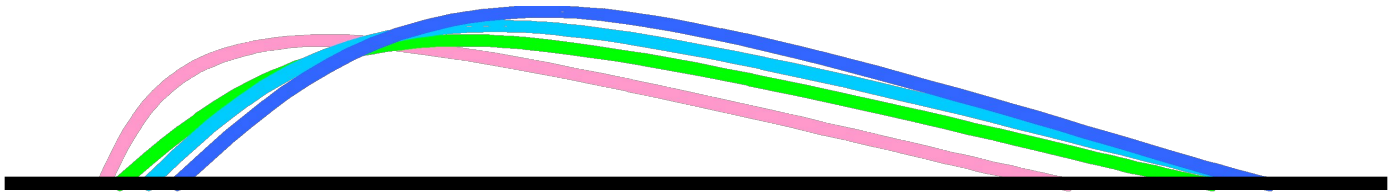
Source: Adapted from *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle.

Sequential vs. Overlap

Requirements | Design | Code | Test

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

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



Scrum Framework

Roles

- Product owner
- Scrum Master
- Team

Ceremonies

- Sprint planning
- Sprint review
- Sprint retrospective
- Daily scrum m

Artifacts

- Product backlog
- Sprint backlog
- Burndown charts

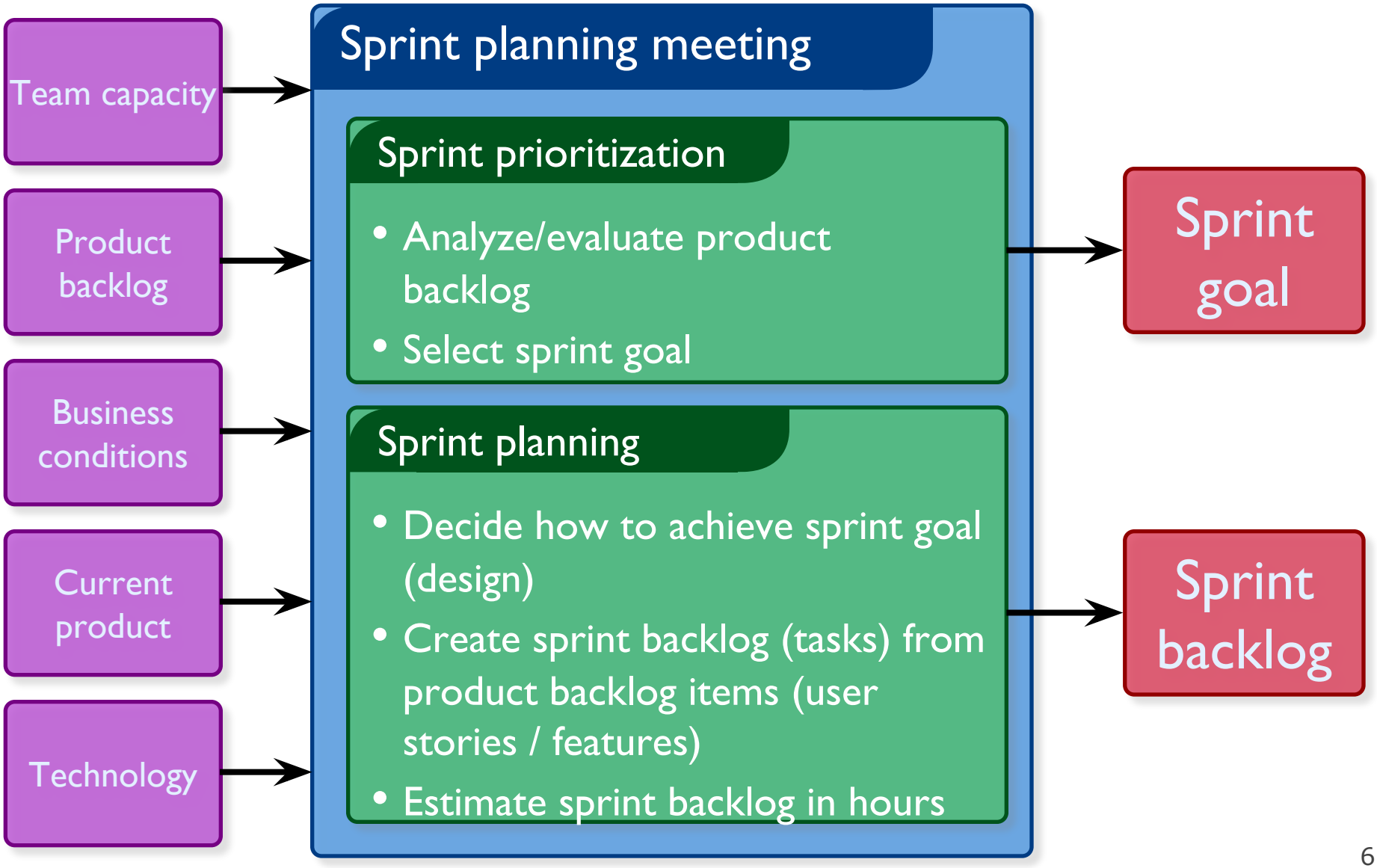
Scrum Roles

- Product Owner
  - Possibly a Product Manager or Project Sponsor
  - Decides features, release date, prioritization, $$$

- Scrum Master
  - Typically a Project Manager or Team Leader
  - Responsible for enacting Scrum values and practices

- Project Team
  - 5-10 members; Teams are self-organizing
  - Cross-functional: QA, Programmers, UI Designers, etc.
  - Membership should change only between sprints

Sprint Planning Mtg.



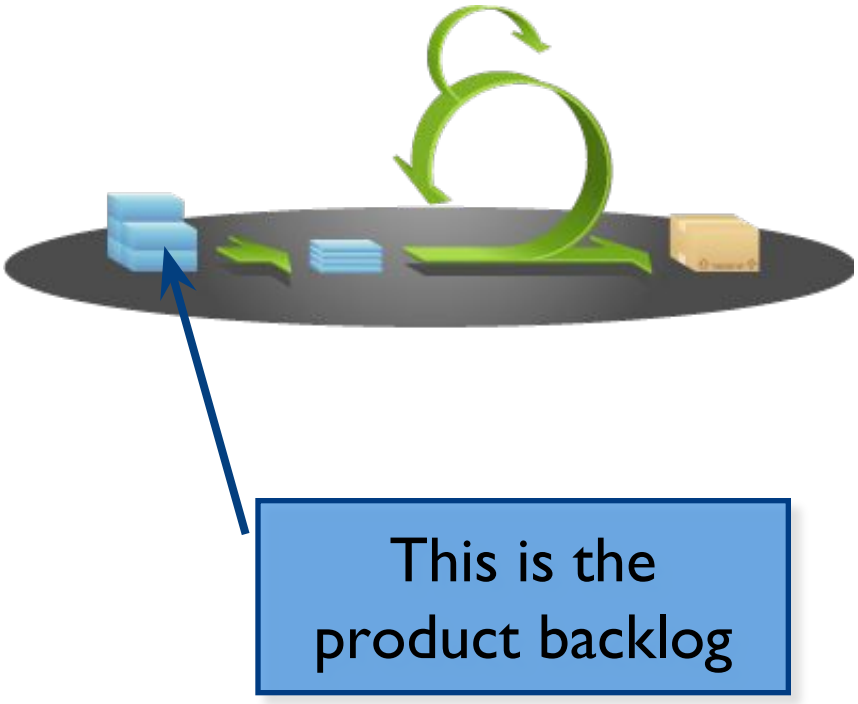
Daily Scrum Meeting

- Parameters
  - Daily, ~15 minutes, Stand-up
  - Anyone late pays a $1 fee
- Not for problem solving
  - Whole world is invited
  - Only team members, Scrum Master, product owner, can talk
  - Helps avoid other unnecessary meetings
- Three questions answered by each team member:
  1. What did you do yesterday?
  2. What will you do today?
  3. What obstacles are in your way?

Scrum's Artifacts

- Scrum has remarkably few artifacts
  - Product Backlog
  - Sprint Backlog
  - Burndown Charts
  - A **sprint backlog** is the set of items that a cross-functional product team selects from its product **backlog** to work on during the upcoming **sprint**. Typically the team will agree on these items during its **sprint** planning session. In fact, the **sprint backlog** represents the primary output of **sprint** planning.
- Can be managed using just an Excel spreadsheet
  - More advanced / complicated tools exist:
    - Expensive
    - Web-based – no good for Scrum Master/project manager who travels
    - Still under development

Product Backlog



- The requirements
- A list of all desired work on project
- Ideally expressed as a list of user stories along with "story points", such that each item has value to users or customers of the product
- Prioritized by the product owner
- Reprioritized at start of each sprint

User Stories

- Instead of Use Cases, Agile project owners do "user stories"
  - **Who** (user role) – Is this a customer, employee, admin, etc.?
  - **What** (goal) – What functionality must be achieved/developed?
  - **Why** (reason) – Why does user want to accomplish this goal?

As a [user role], I want to [goal], so I can [reason].

- Example:
  - "As a user, I want to log in, so I can access subscriber content."

- **story points**: A **story point** is a number that tells the team about the difficulty level of the **story**.
- Rating of effort needed to implement this story
  - common scales: 1-10, shirt sizes (XS, S, M, L, XL), etc.

Sample Product Backlog

Backlog item	Estimate
Allow a guest to make a reservation	3 (story points)
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

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 change 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

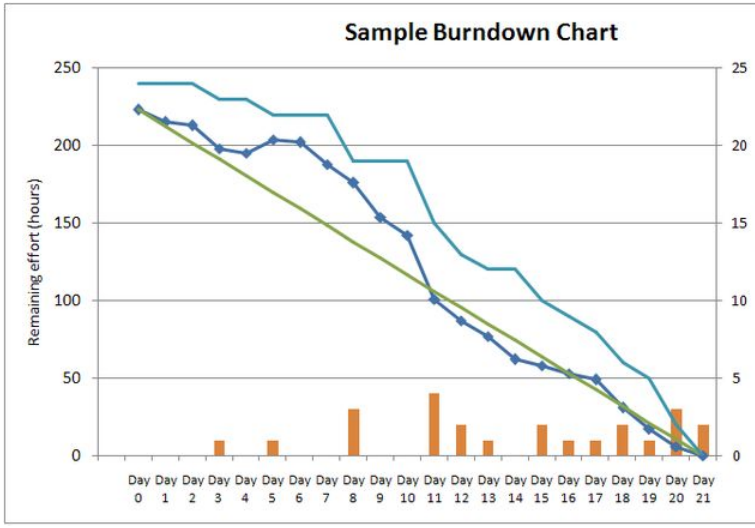
Sample Sprint backlog

Tasks	Mon	Tue	Wed	Thu	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	

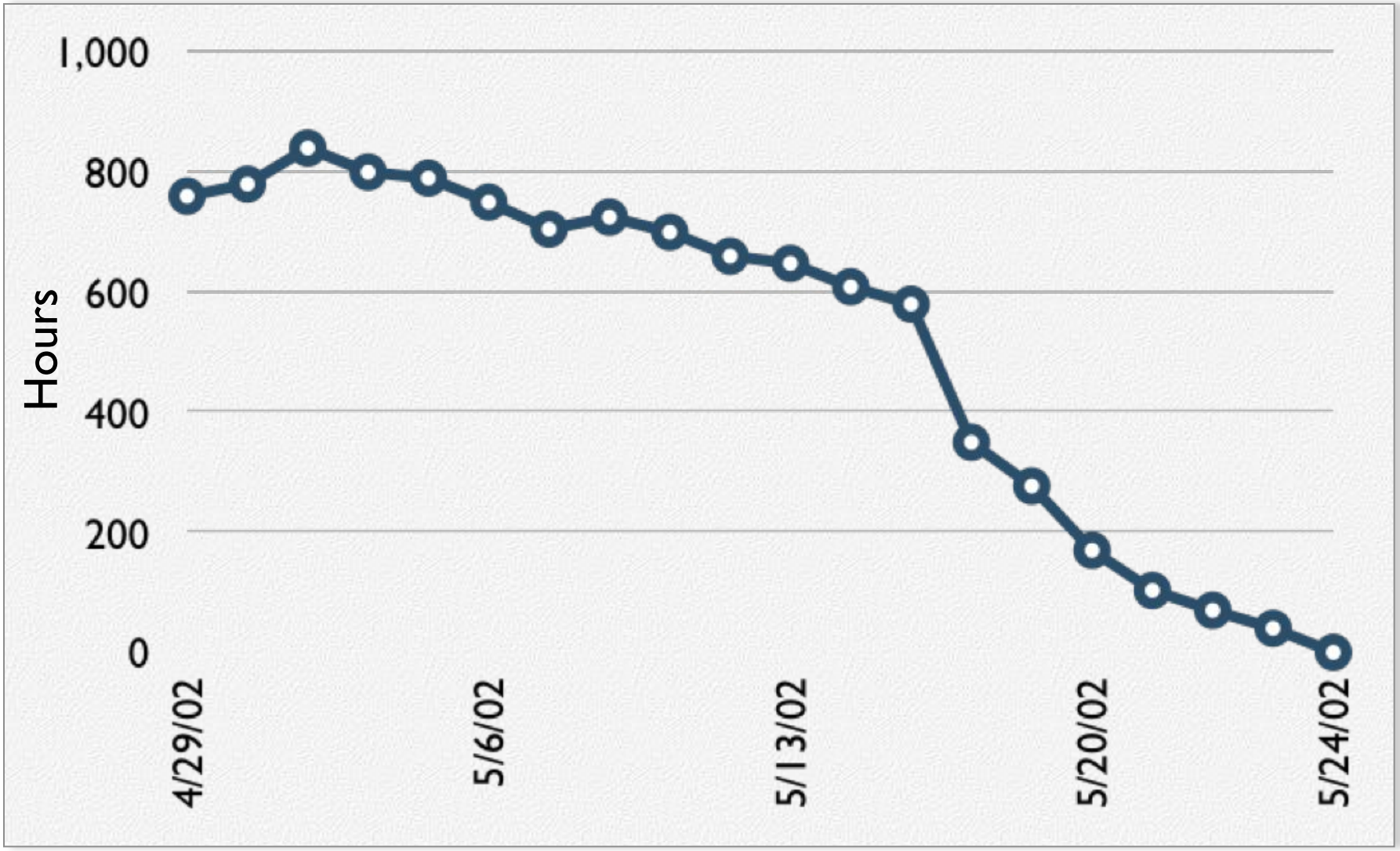
Sprint Burndown Chart

- A display of what work has been completed and what is left to complete
  - one for each developer or work item
  - updated every day
  - (make best guess about hours/points completed each day)

- *variation:* Release burndown chart
  - shows overall progress
  - updated at end of each sprint



Sample Burndown Chart



Tasks	Mon	Tue	Wed	Thu	Fri
Code the user interface	8	4	8		
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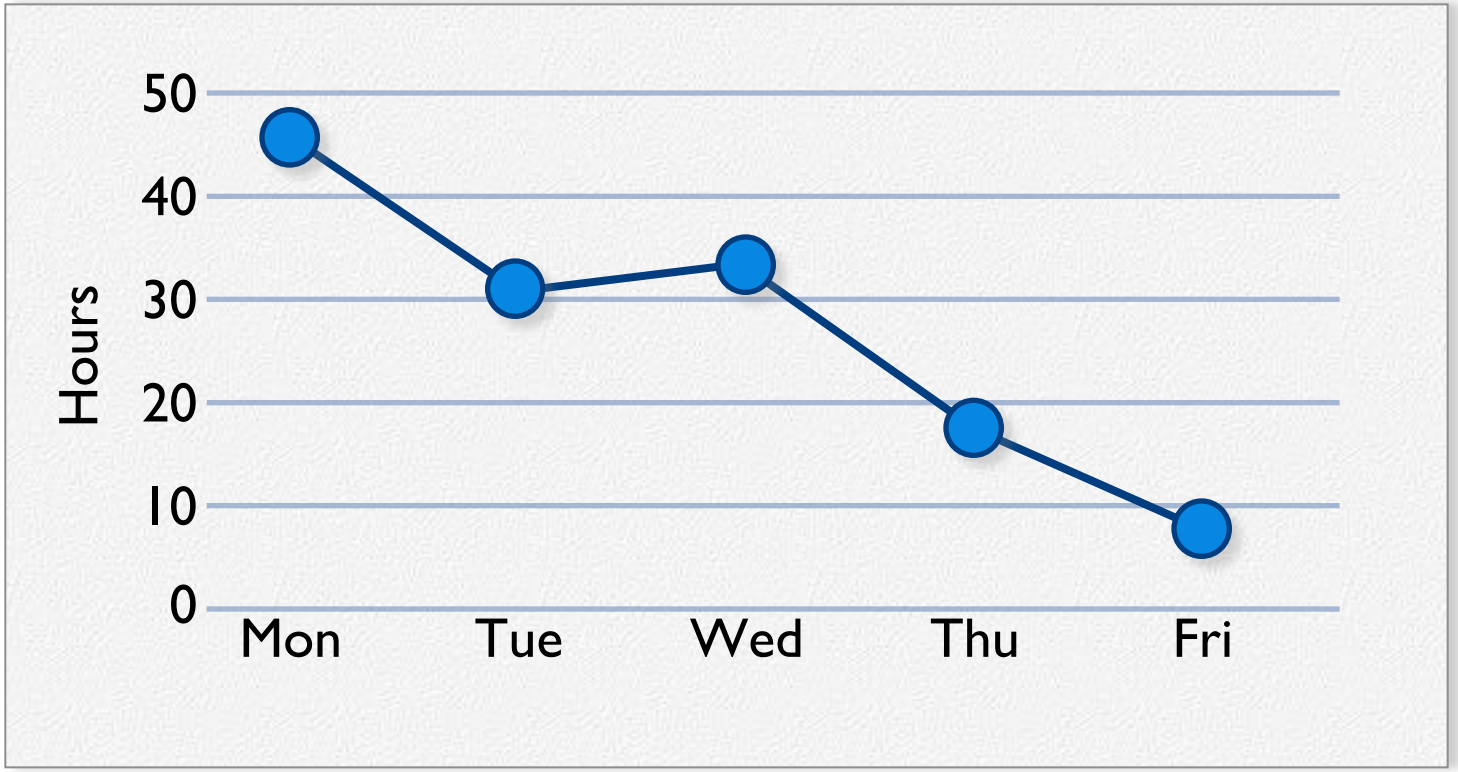
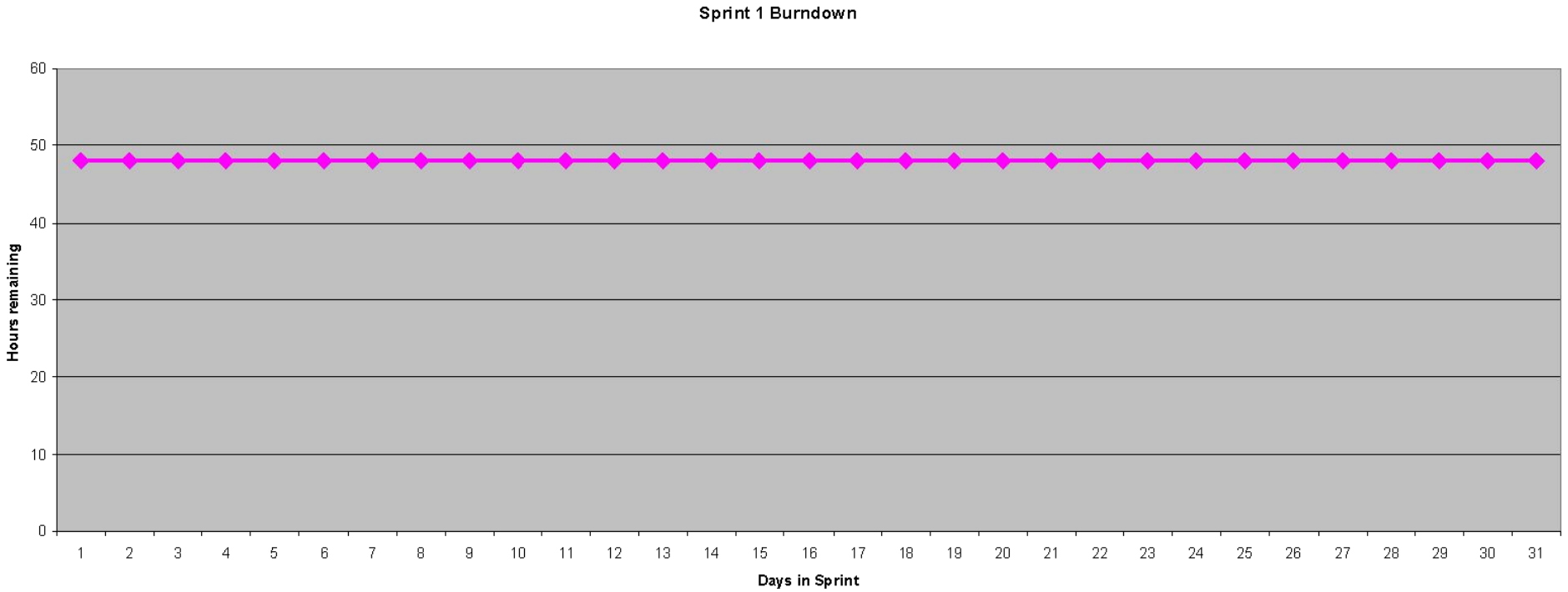


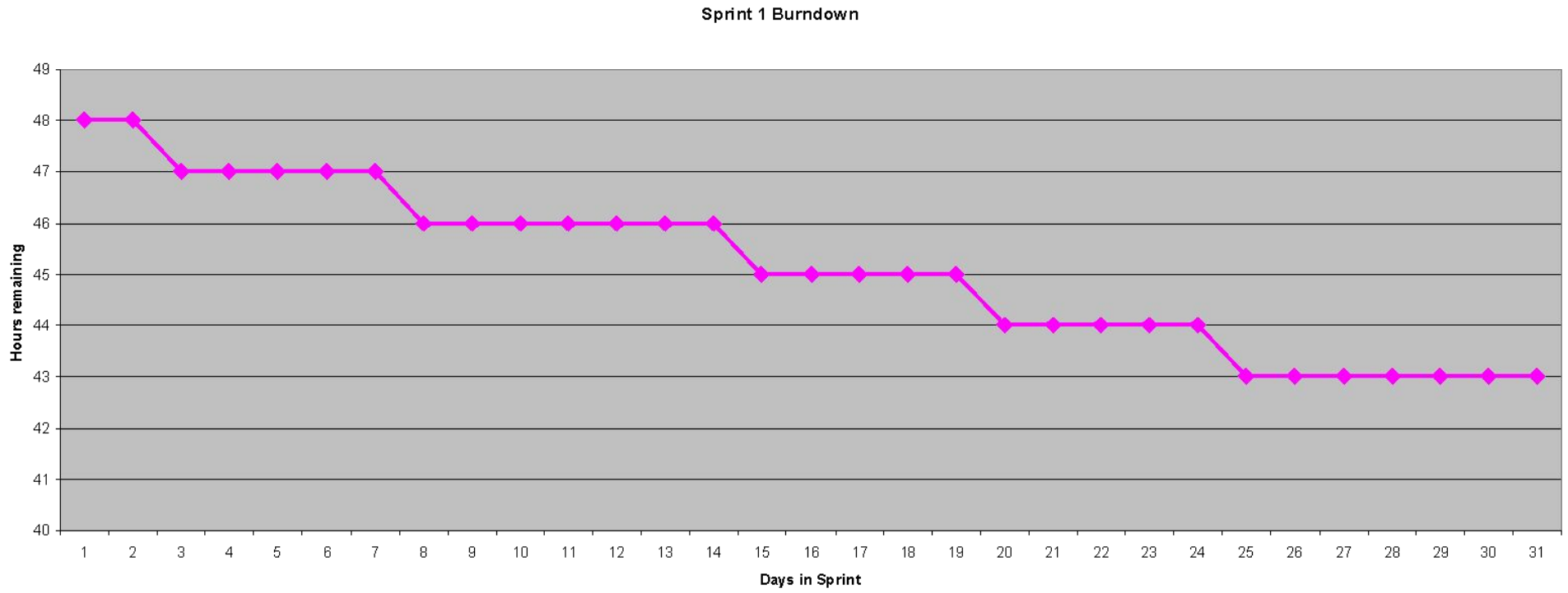
Burndown Example 1

No work being performed



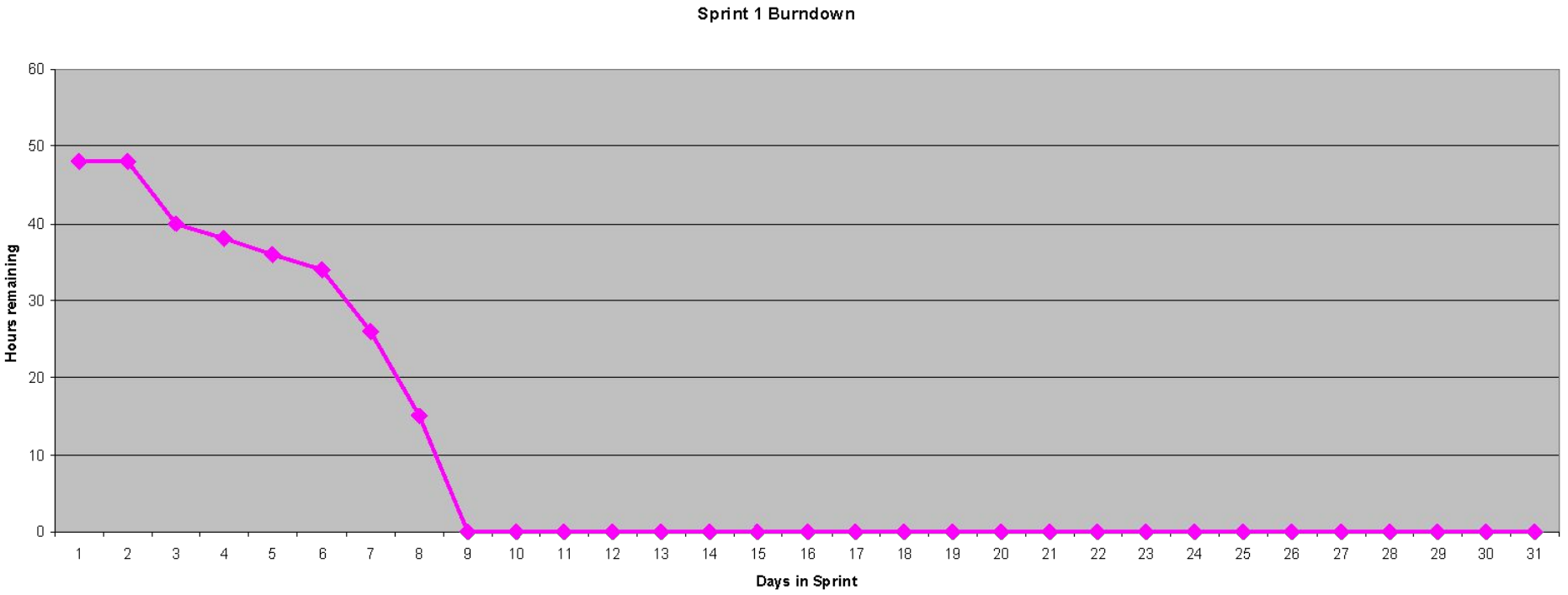
Burndown Example 2

Work being performed, but not fast enough



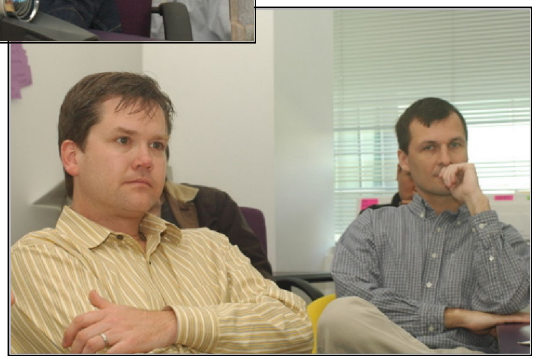
Burndown Example 3

Work being performed, but too fast!



The Sprint Review

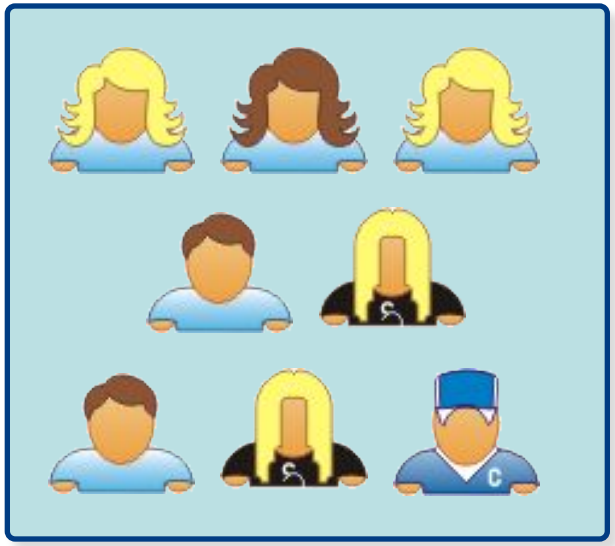
- Team presents what it accomplished during the sprint
- Typically takes the form of a demo of new features or underlying architecture
- Informal
  - 2-hour prep time rule
  - No slides
- Whole team participates
- Invite the world

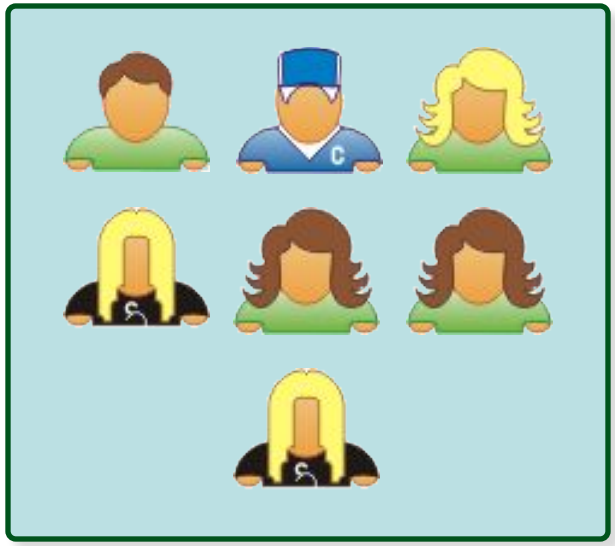


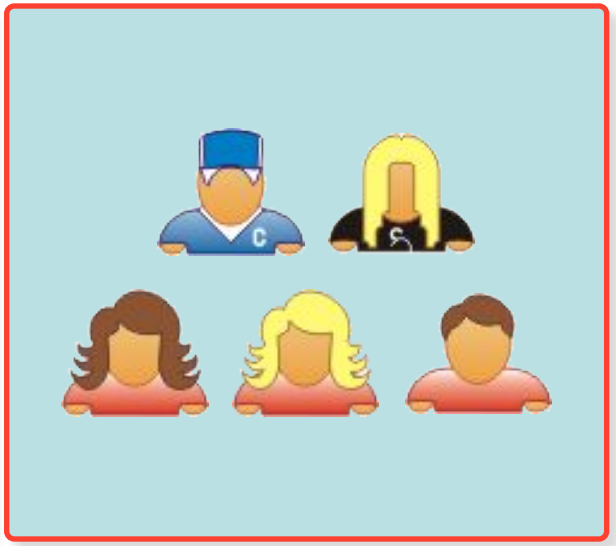
Scalability

- 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: Scrum of Scrums







Scrum vs. Other Models

Process Comparison

	Waterfall	Spiral	Iterative	SCRUM
Defined processes	Required	Required	Required	Planning & Closure only
Final product	Determined during planning	Determined during planning	Set during project	Set during project
Project cost	Determined during planning	Partially variable	Set during project	Set during project
Completion date	Determined during planning	Partially variable	Set during project	Set during project
Responsiveness to environment	Planning only	Planning primarily	At end of each iteration	**Throughout**
Team flexibility, creativity	Limited - cookbook approach	Limited - cookbook approach	Limited - cookbook approach	**Unlimited during iterations**
Knowledge transfer	Training prior to project	Training prior to project	Training prior to project	**Teamwork during project**
Probability of success	Low	Medium Low	Medium	**High**

Credits, References

- Mike Cohn, Mountain Goat Software
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