Introduction to Scrum

Mountain Goat Software, LLC

Scrum in 100 words

Scrum is an agile method 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
Lockheed Martin
Philips
Siemens
Nokia
IBM
Capital One
BBC

Intuit
Nielsen Media
First American Real Estate
BMC Software
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

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Characteristics

Self-organizing teams

Product progresses in a series of fixed-length “sprints”

Requirements are captured as items in a “product backlog”

No specific engineering practices prescribed

Uses generative rules to create an agile environment for delivering projects

The Agile Manifesto
a statement of values

Individuals and interactions over Process and tools

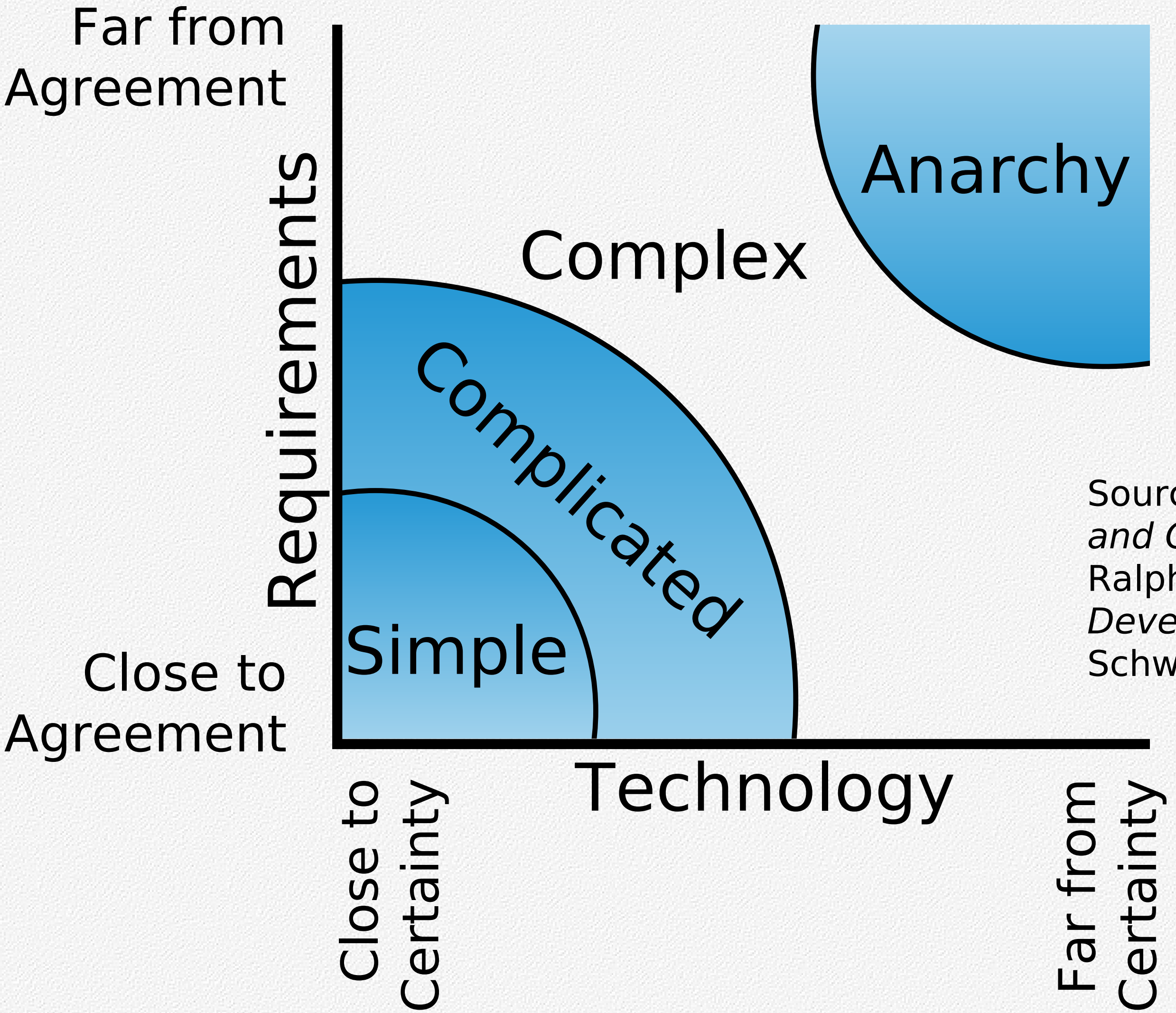
Working software over Comprehensive documentation

Customer collaboration over Contract negotiation

Responding to change over Following a plan

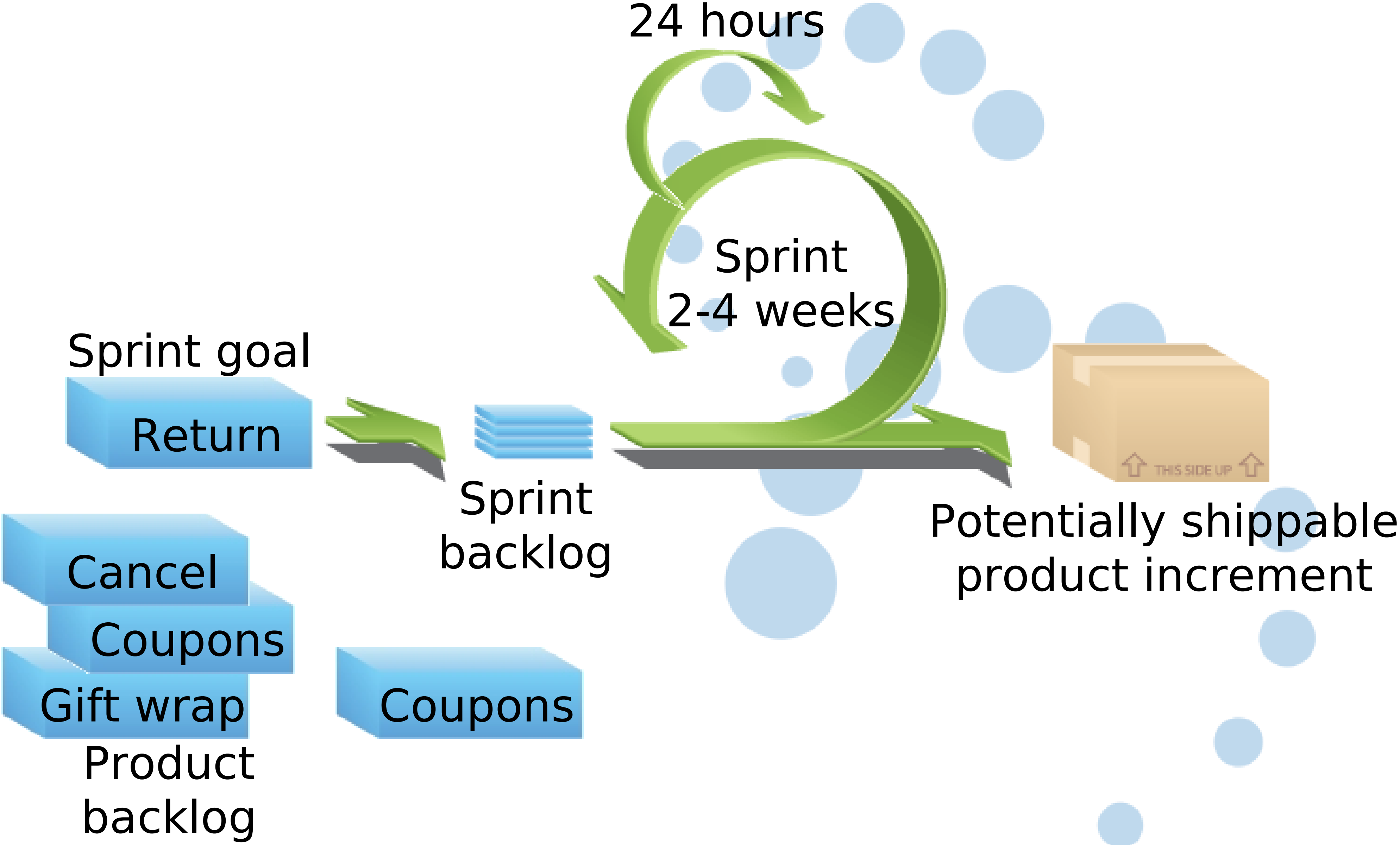
Source:
www.agilemanifesto.org

Project noise level



Source: *Strategic Management and Organizational Dynamics* by Ralph Stacey in *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle.

Scrum



24 hours

Sprint
2-4 weeks

Sprint goal

Return

Cancel

Coupons

Gift wrap

Product backlog

Coupons

Sprint backlog

Potentially shippable product increment

Putting it all together

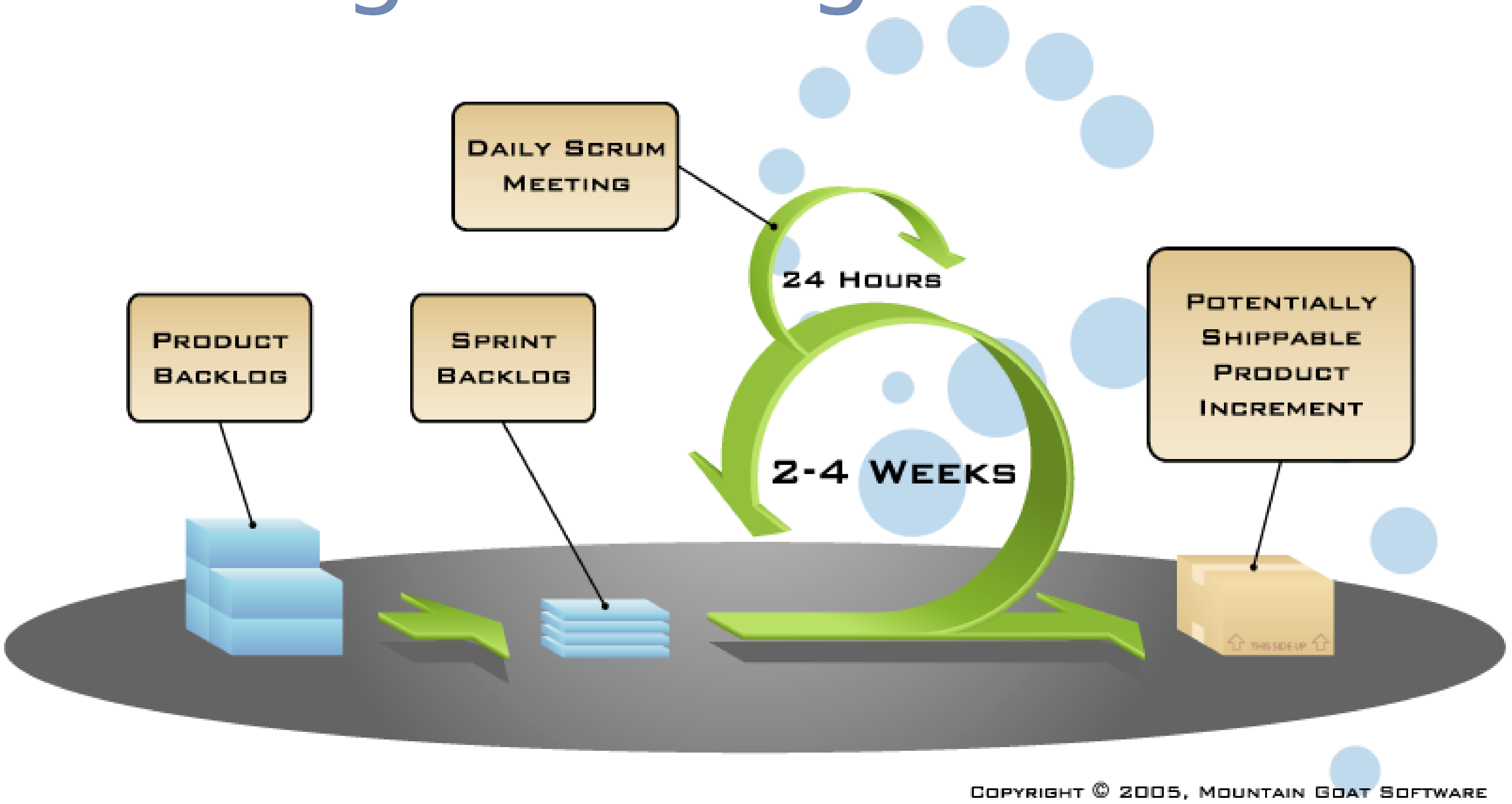


Image available at
www.mountaingoatsoftware.com/scrum

Sprints

Product is designed, coded, and tested during a series of sprints

Typical length 2–4 weeks; a calendar month at most

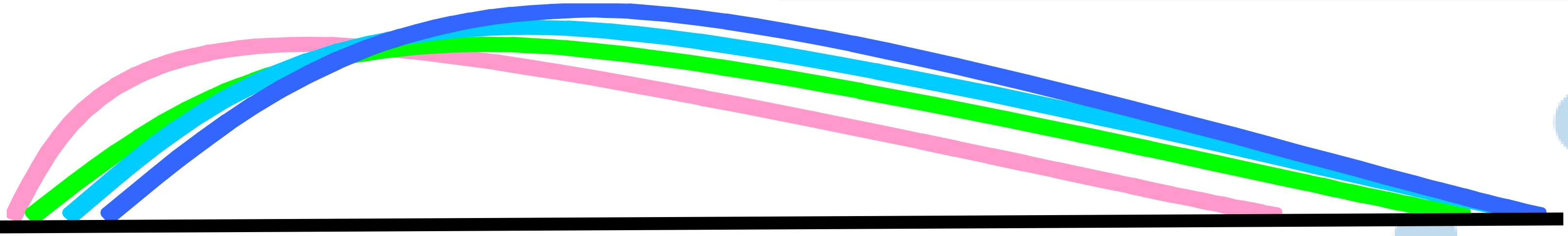
A constant duration leads to a better rhythm

Sequential vs. overlapping development

Requirements | Design | Code | Test

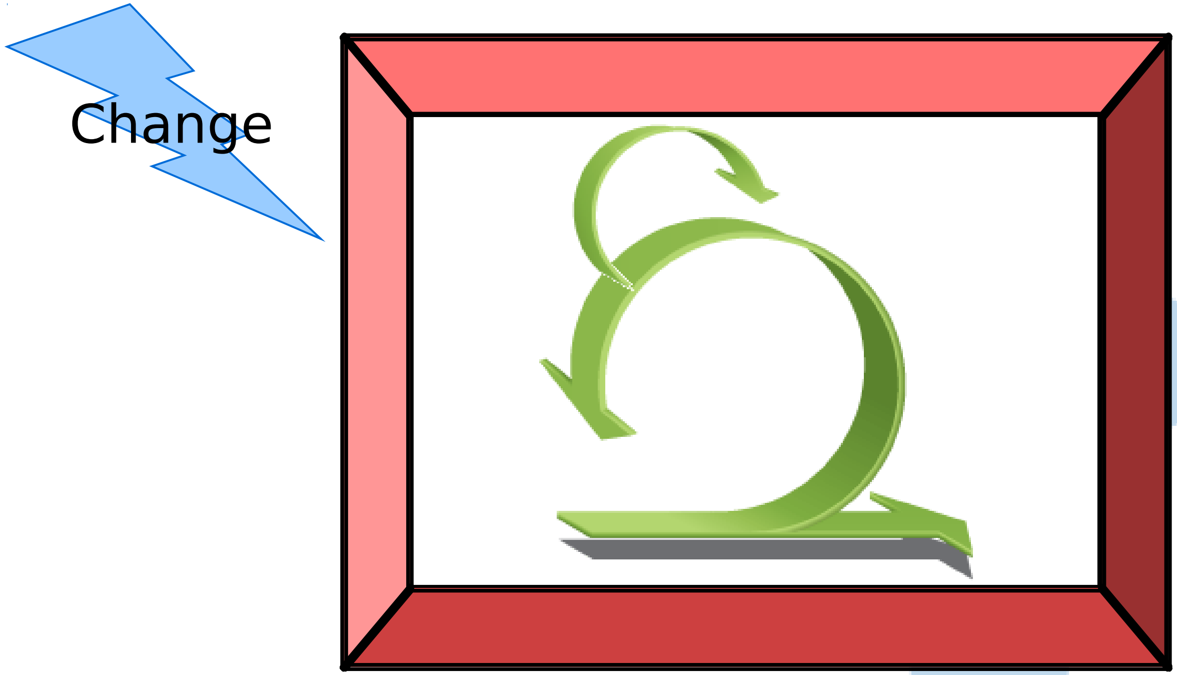
Rather than doing all of one thing at a time...

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



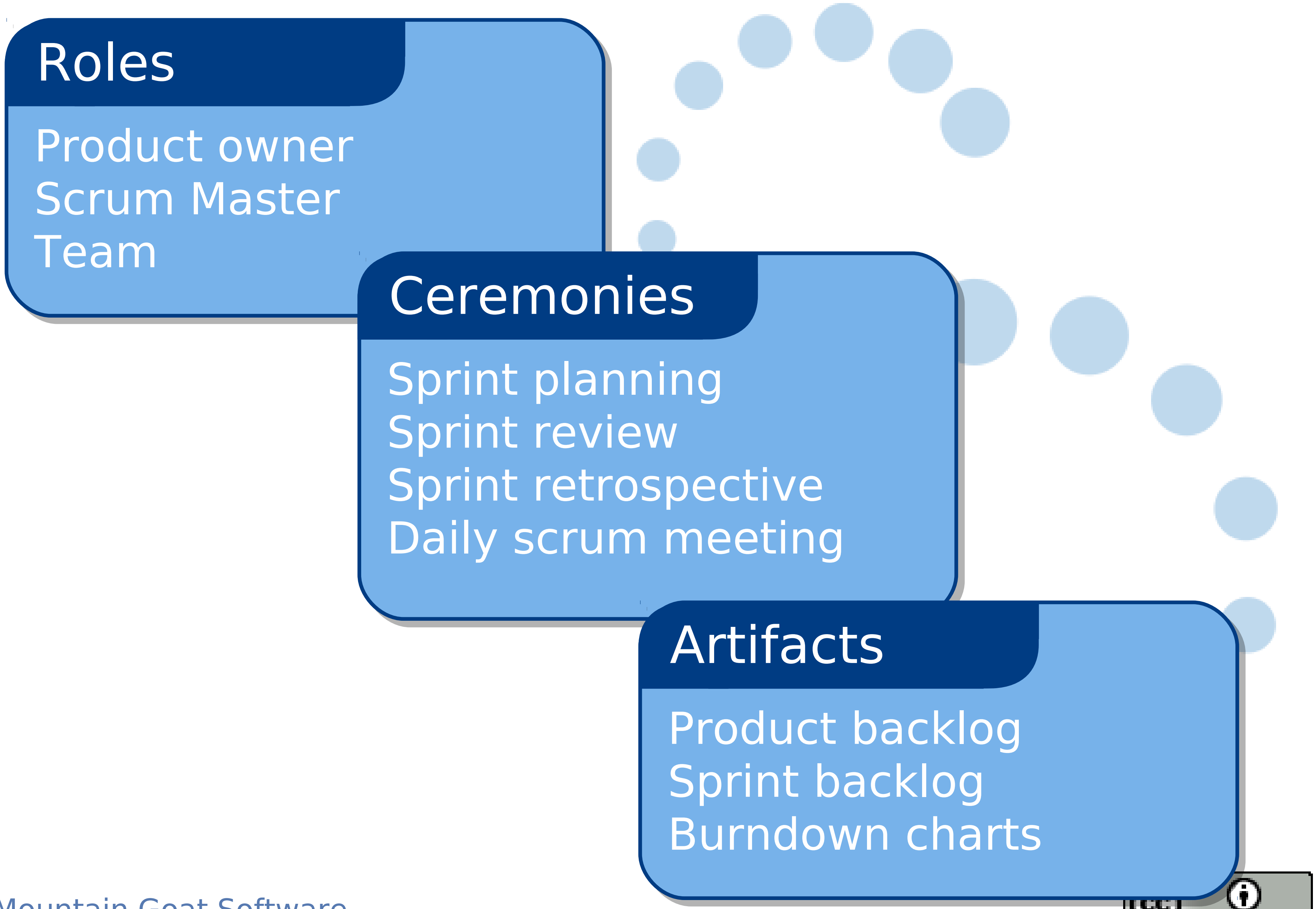
Source: “The New New Product Development Game” by Takeuchi and Nonaka. *Harvard Business Review,* January 1986.

No changes during a sprint



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

Scrum framework



Roles

- Product owner
- Scrum Master
- Team

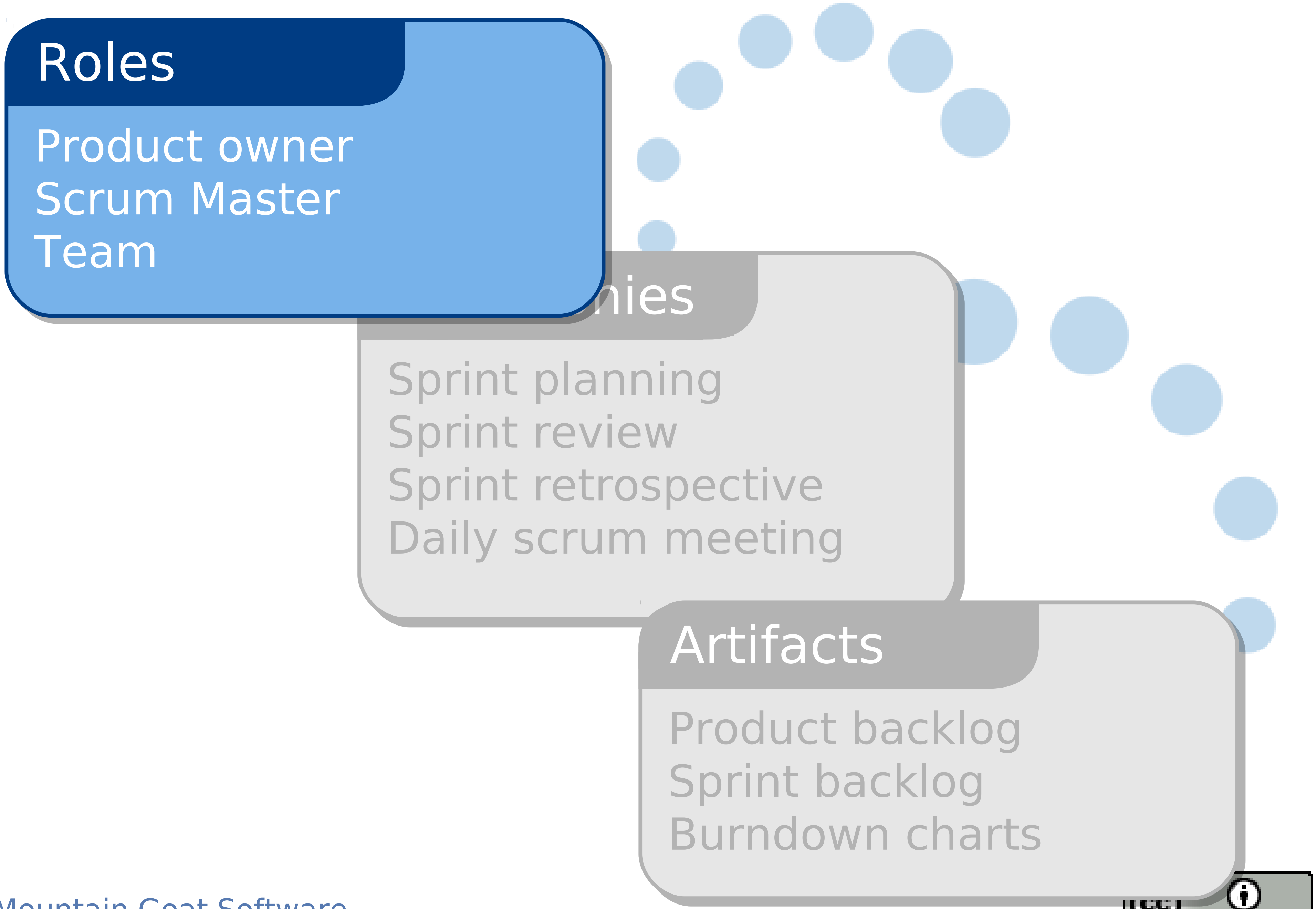
Ceremonies

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

Artifacts

- Product backlog
- Sprint backlog
- Burndown charts

Scrum framework



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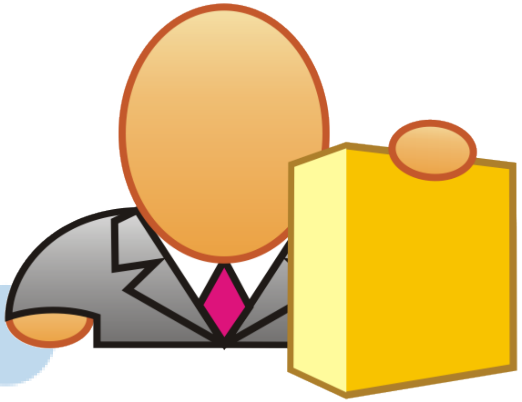
Product owner

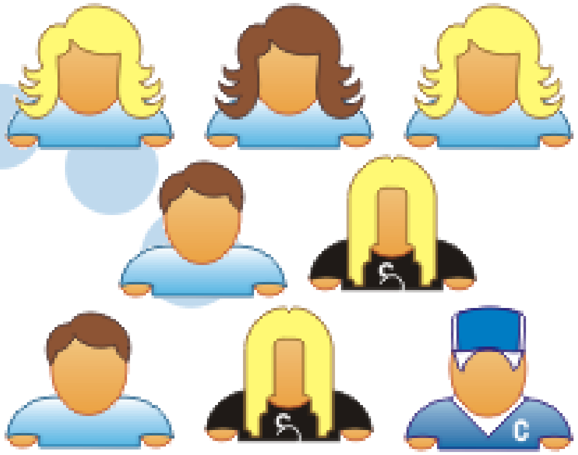


- Define the features of the product
- Decide on release date and content
- Be responsible for the profitability of the product (ROI)
- Prioritize features
- Adjust features and priority every iteration, as needed
- Accept or reject work results

The Scrum Master

- 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 interference

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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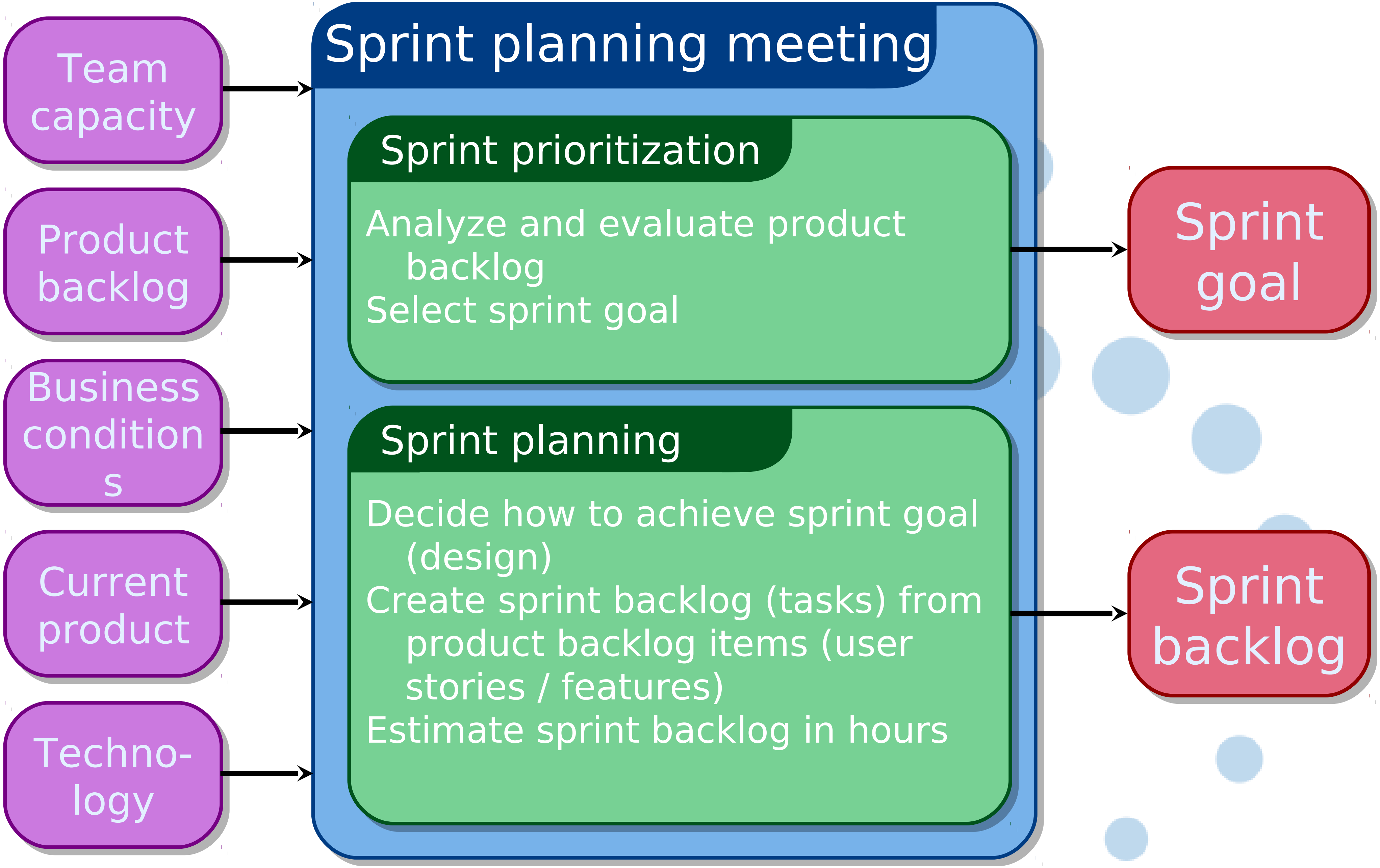


Sprint planning meeting

Team capacity

Product backlog

Business condition s

Current product

Techno- logy

Sprint prioritization

Analyze and evaluate product backlog

Select sprint goal

Sprint planning

Decide how to achieve sprint goal (design)

Create sprint backlog (tasks) from product backlog items (user stories / features)

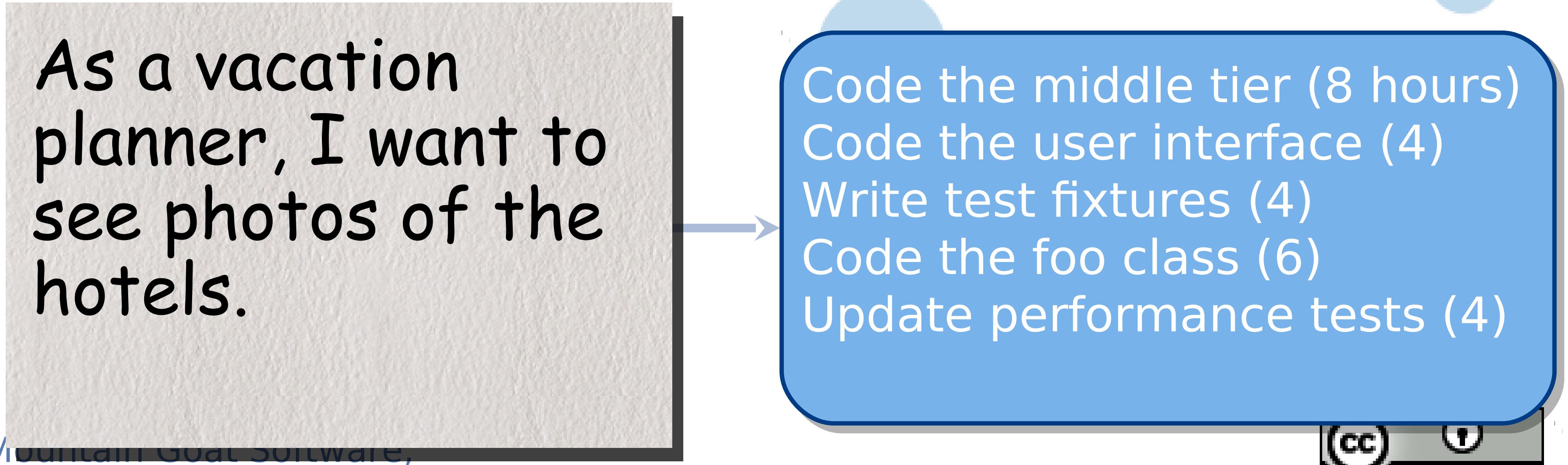
Estimate sprint backlog in hours

Sprint goal

Sprint backlog

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 Scrum Master

They are commitments in front of peers

The sprint review

Team presents what it accomplished during the sprint

Typically a demo of new features or underlying architecture

Informal

- 2-hour prep time rule
- No slides

Whole team participates

Invite everyone

Sprint retrospective

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

Start / Stop / Continue

Whole team gathers and discusses what they'd like to:

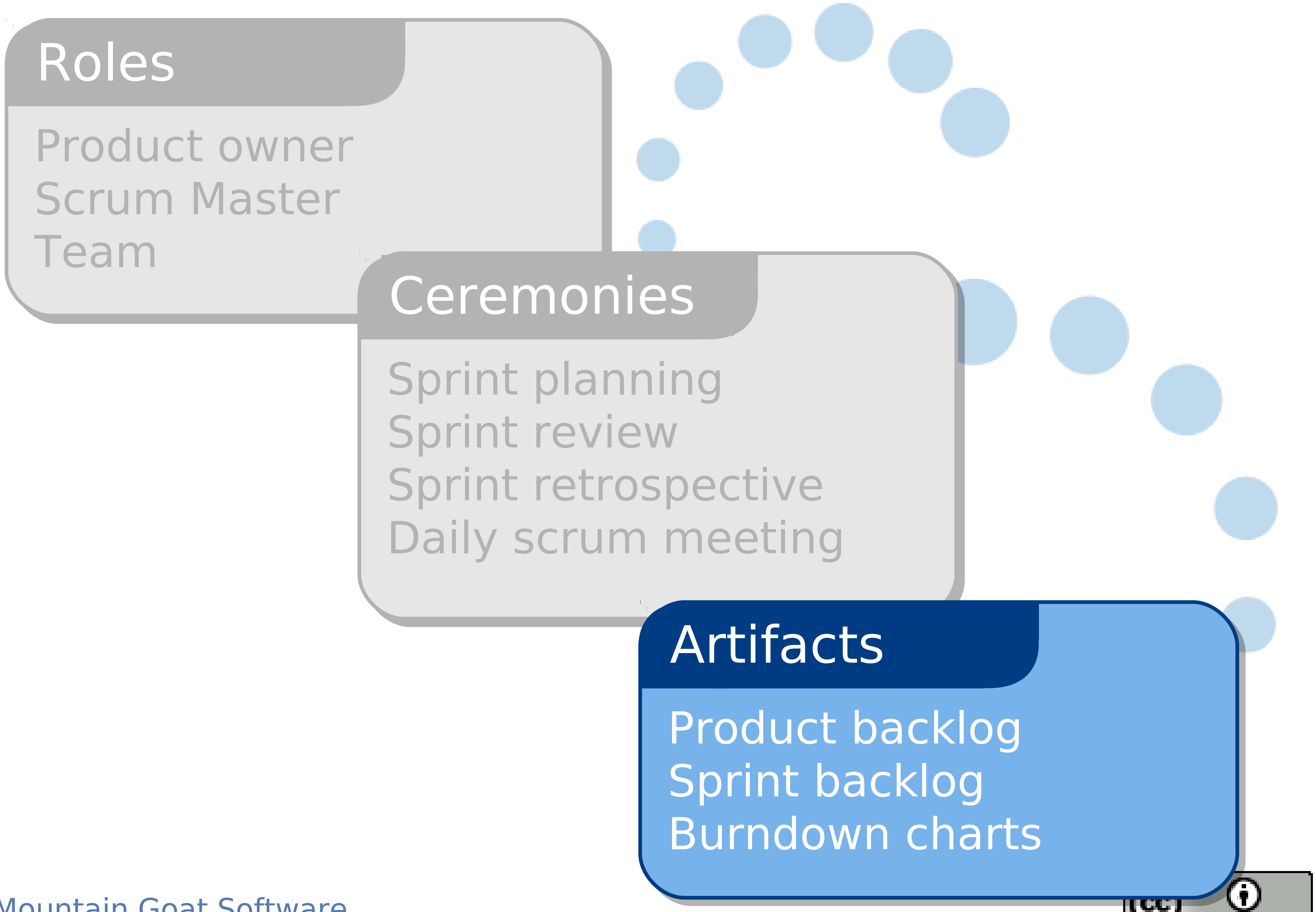
Start doing

Stop doing

Continue doing

This is just one of many ways to do a sprint retrospective.

Scrum framework



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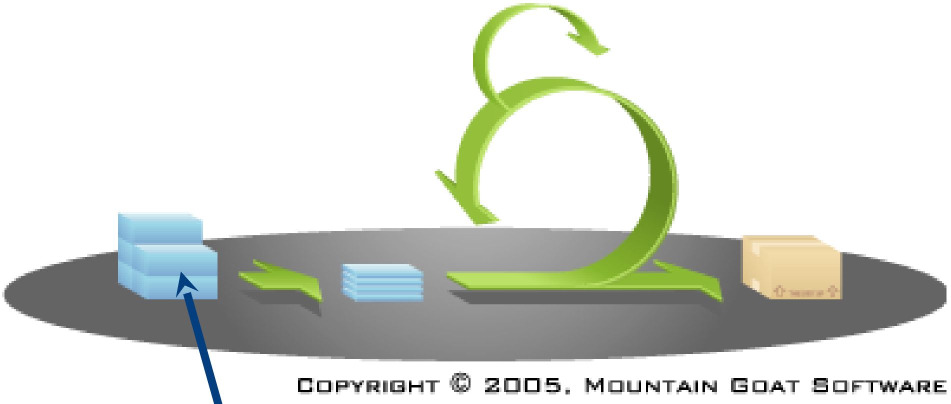
Product backlog



This is the 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
- Prioritized by the product owner
- Re-prioritize at the start of each sprint

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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

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

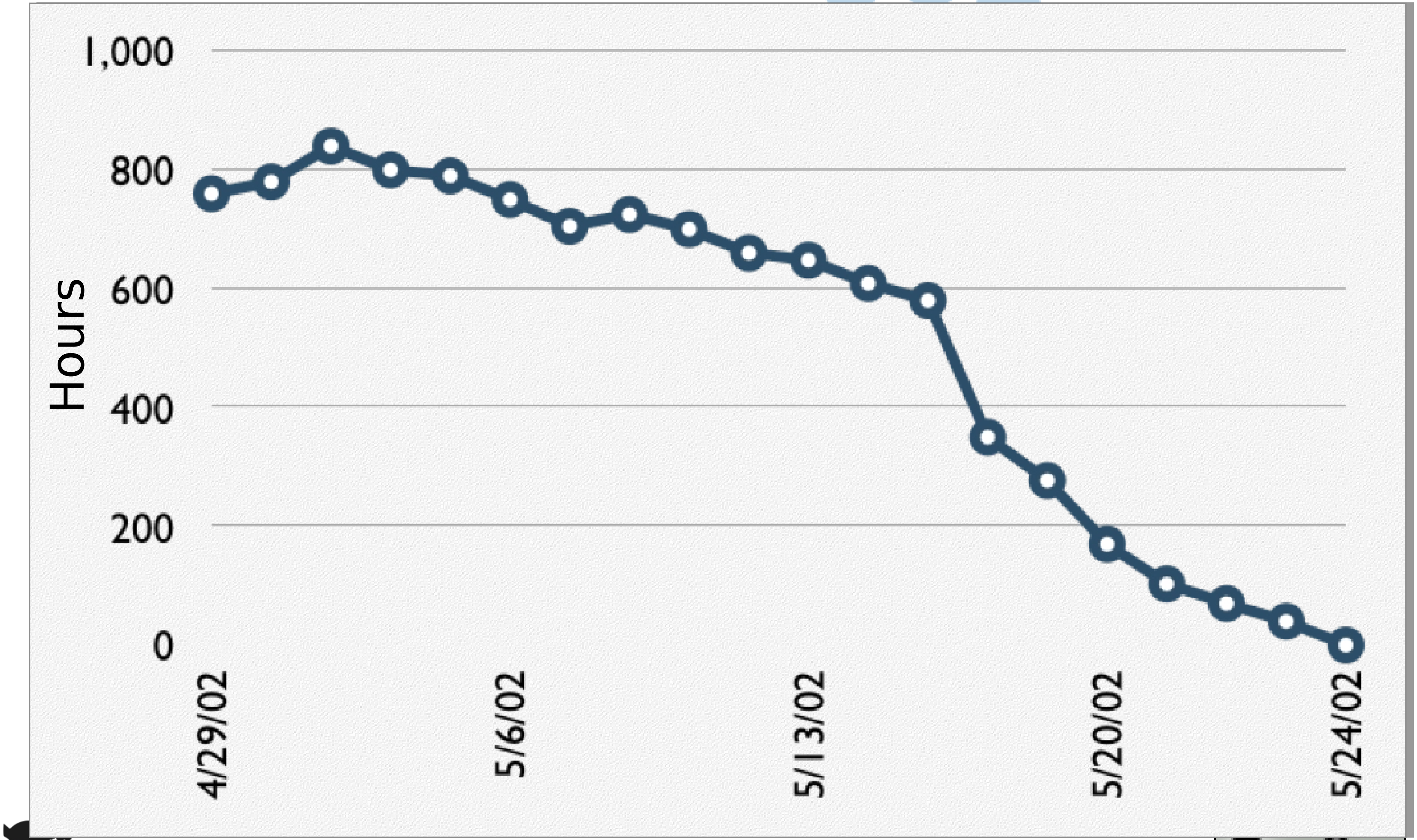
If work is unclear, define a sprint backlog item with a larger amount of time and break it down later

Update work remaining as more becomes known

A sprint backlog

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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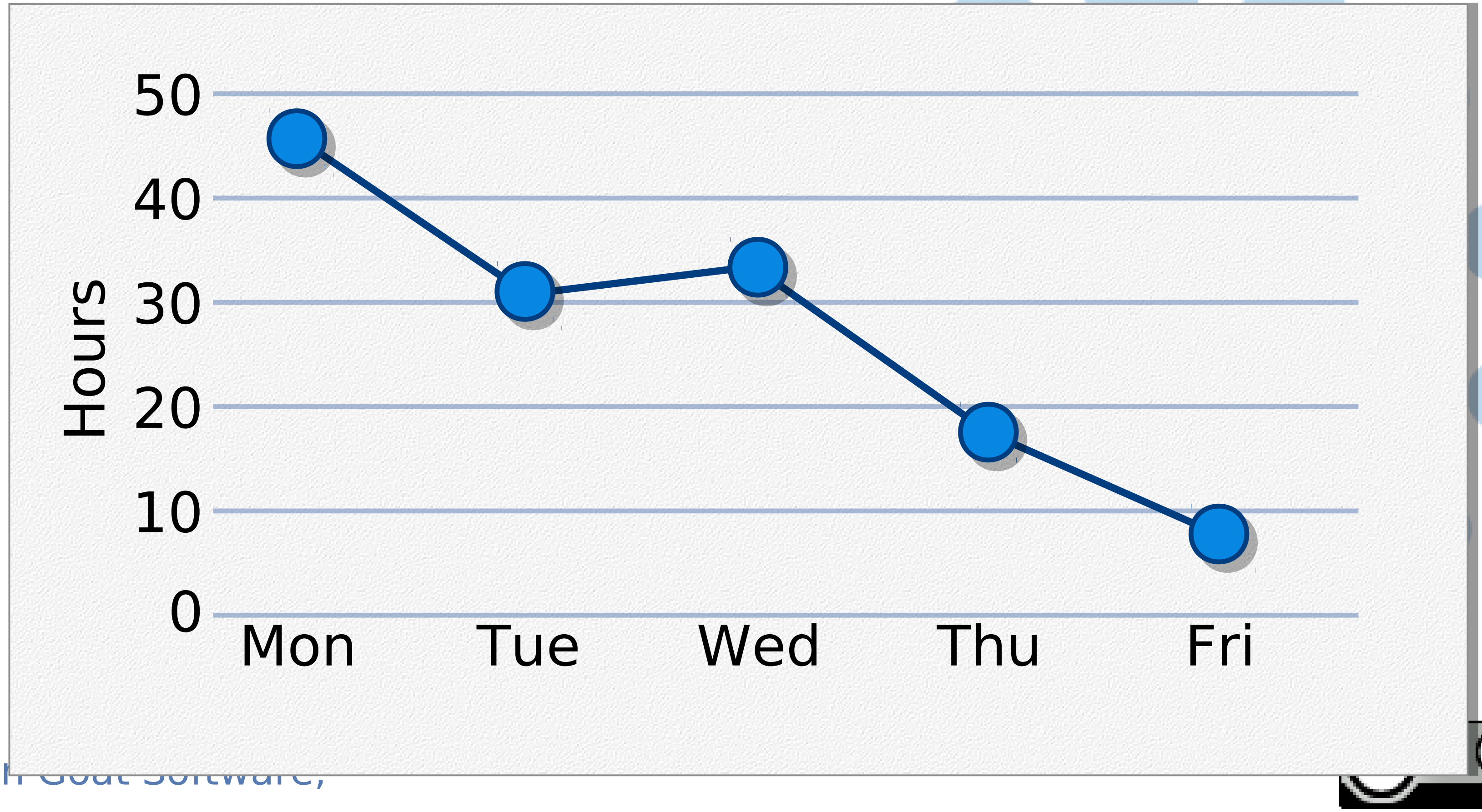
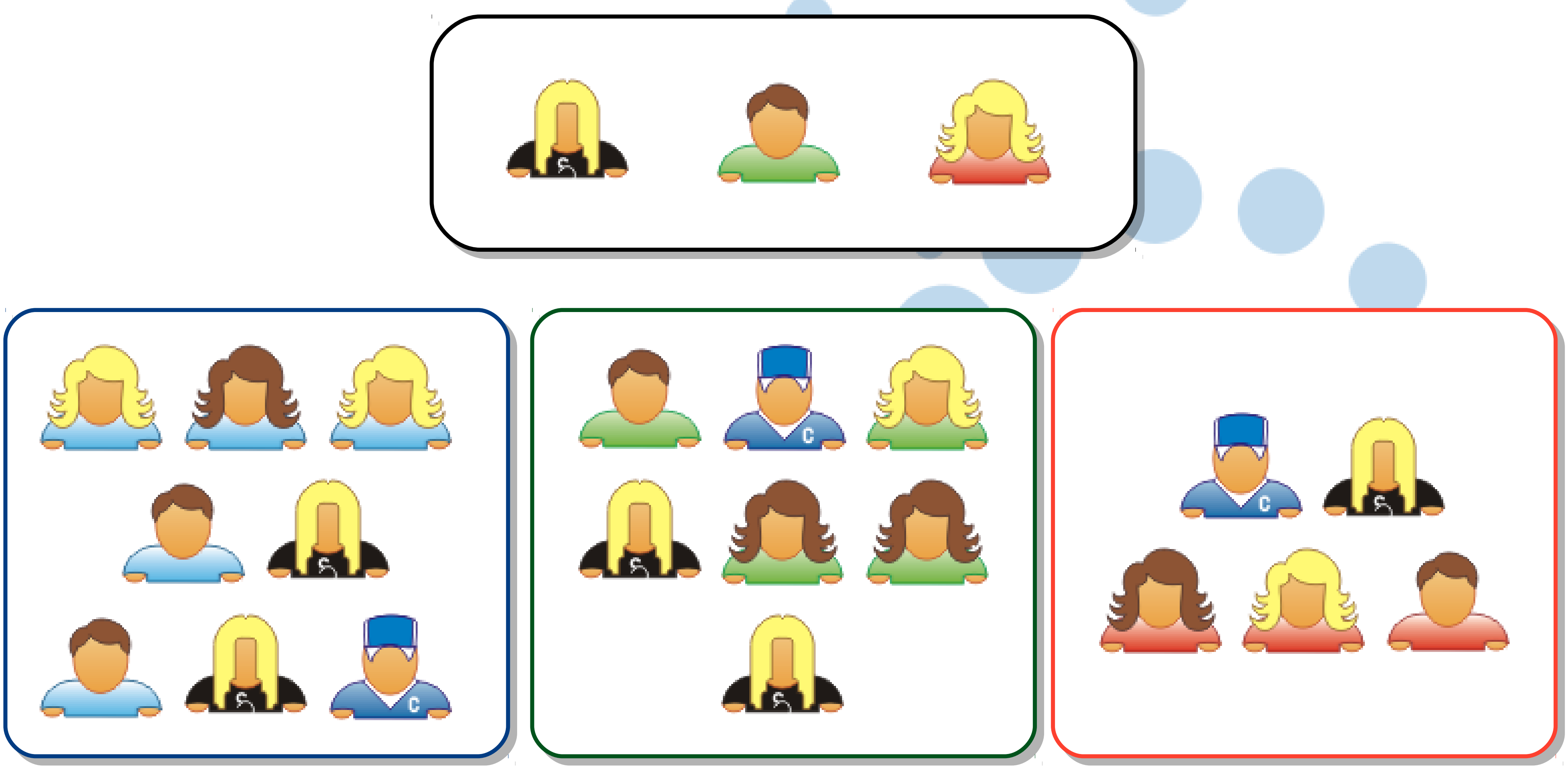


Scalability

- 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



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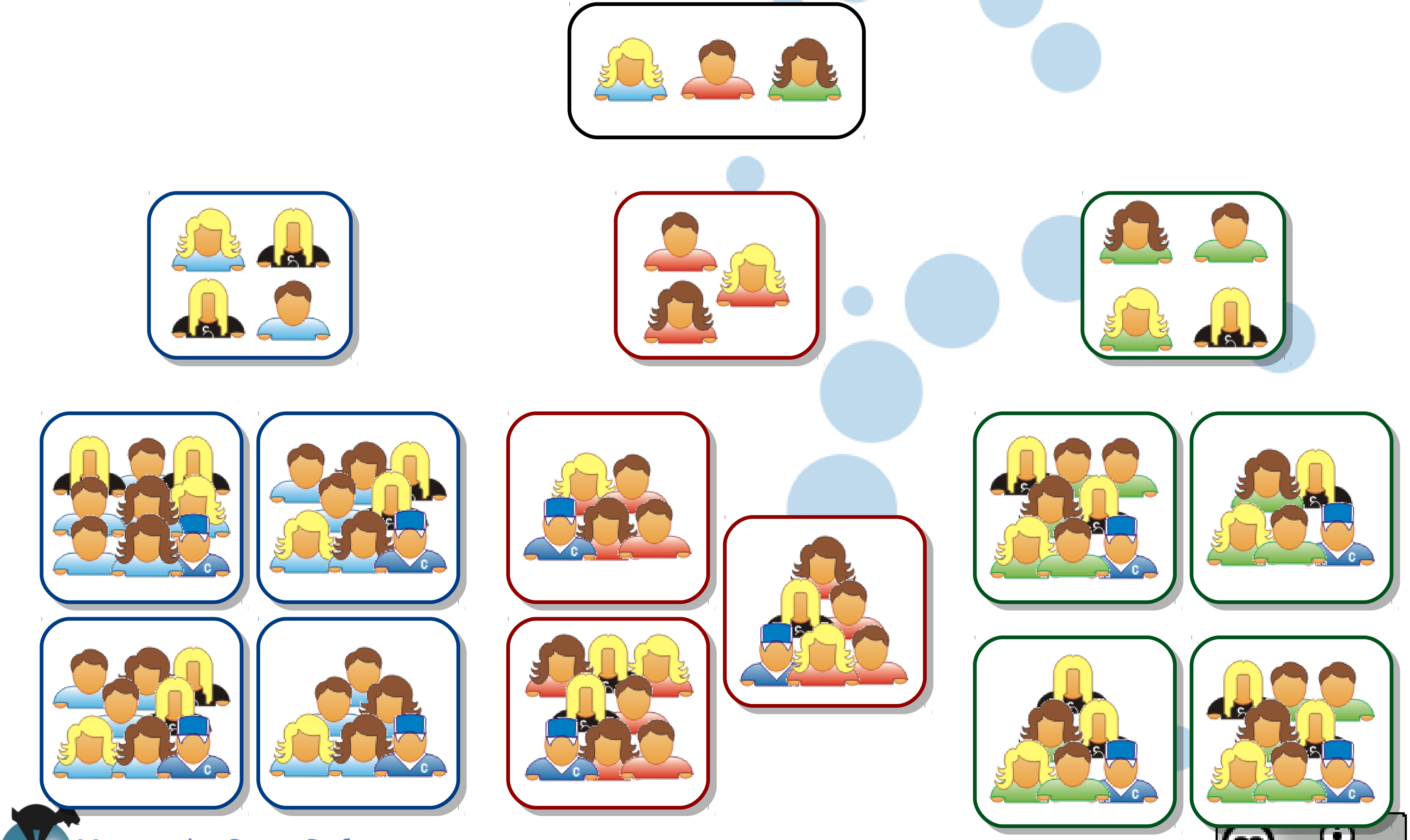
Scrum of scrums of scrums



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Where to go next

www.mountaingoatsoftware.com/scrum

www.scrumalliance.org

www.controlchaos.com

scrumdevelopment@yahoogroups.com

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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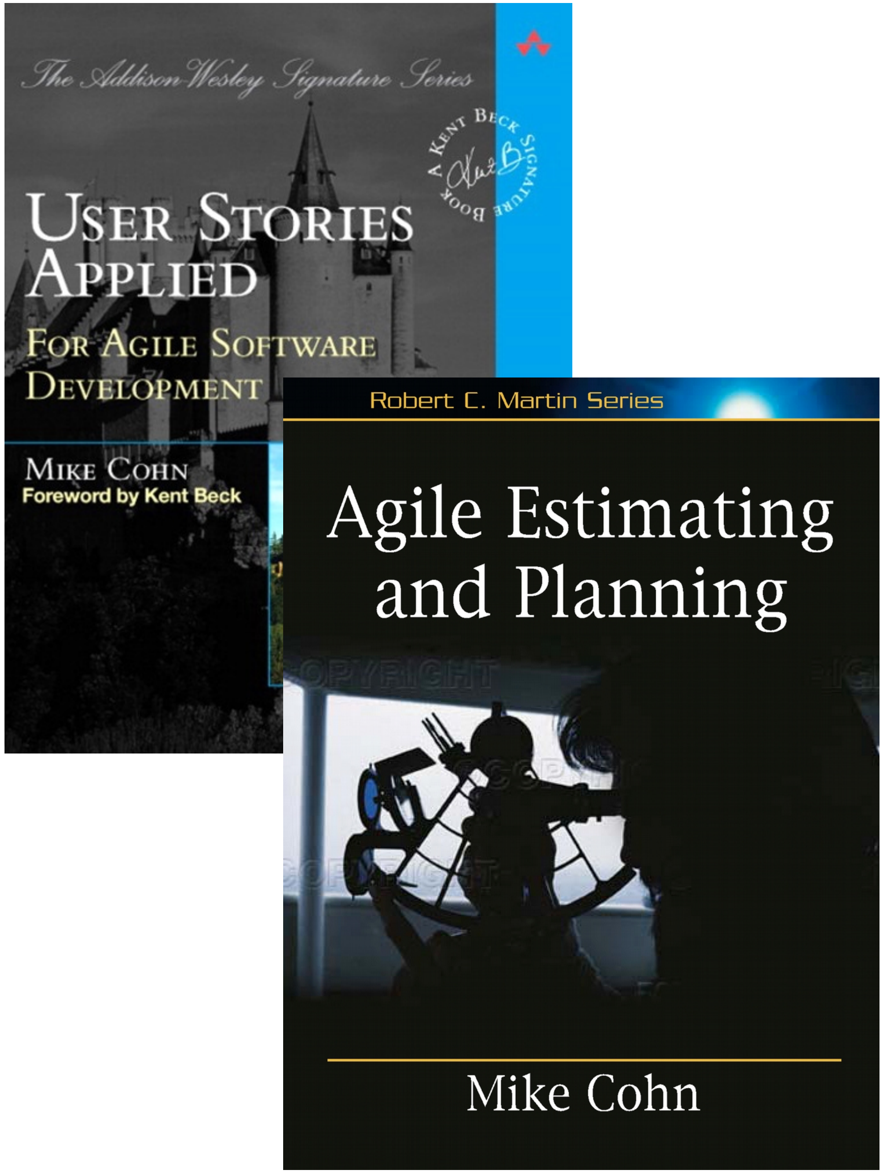
Contact information


The Addison-Wesley Signature Series
A Kent Beck Signature Book
User Stories Applied
For Agile Software Development
Mike Cohn
Foreword by Kent Beck
Robert C. Martin Series
Agile Estimating and Planning
Mike Cohn

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