An Introduction to Agile with Scrum

Updated version of Mike Cohn's Scrum lecture
Co-founder, Agile Alliance and Scrum Alliance

Agenda

- Agile project management
- Scrum
- Scrum framework
  - ✓ Roles
  - ✓ Ceremonies
  - ✓ Artefacts

So what's behind Agile?

Teamwork

•Transparent, open and regular communication
•Co-located, multi-disciplined teams
•Continual improvement through learning and adapting
•It's fun!

Quality

•Constant focus
•Built into process
•Addressing risks early

Delivering Value Early

•Early delivery of business value to our customers
•Building the product incrementally with iterative delivery

Customer Collaboration

•Collaborating closely with our customers and all stakeholders
•Absolute customer focus
•Open, transparent and courageous communication

Responding to Change

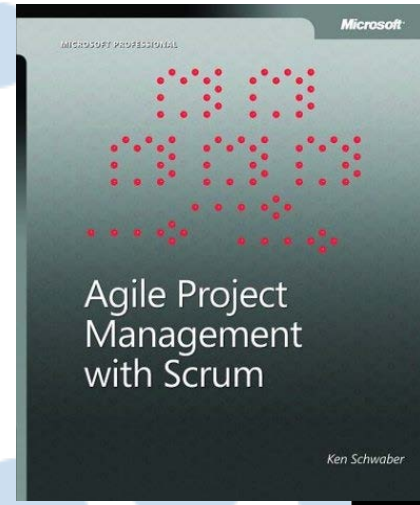
•Welcome changing requirements
•Embrace change efficiently
•Earlier identification of projects that are not likely to deliver business value

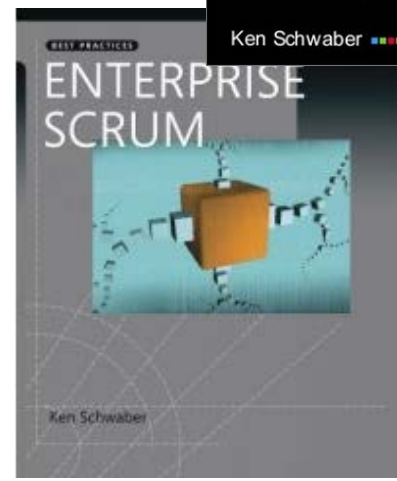
Scrum in 100 words

- 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 95 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

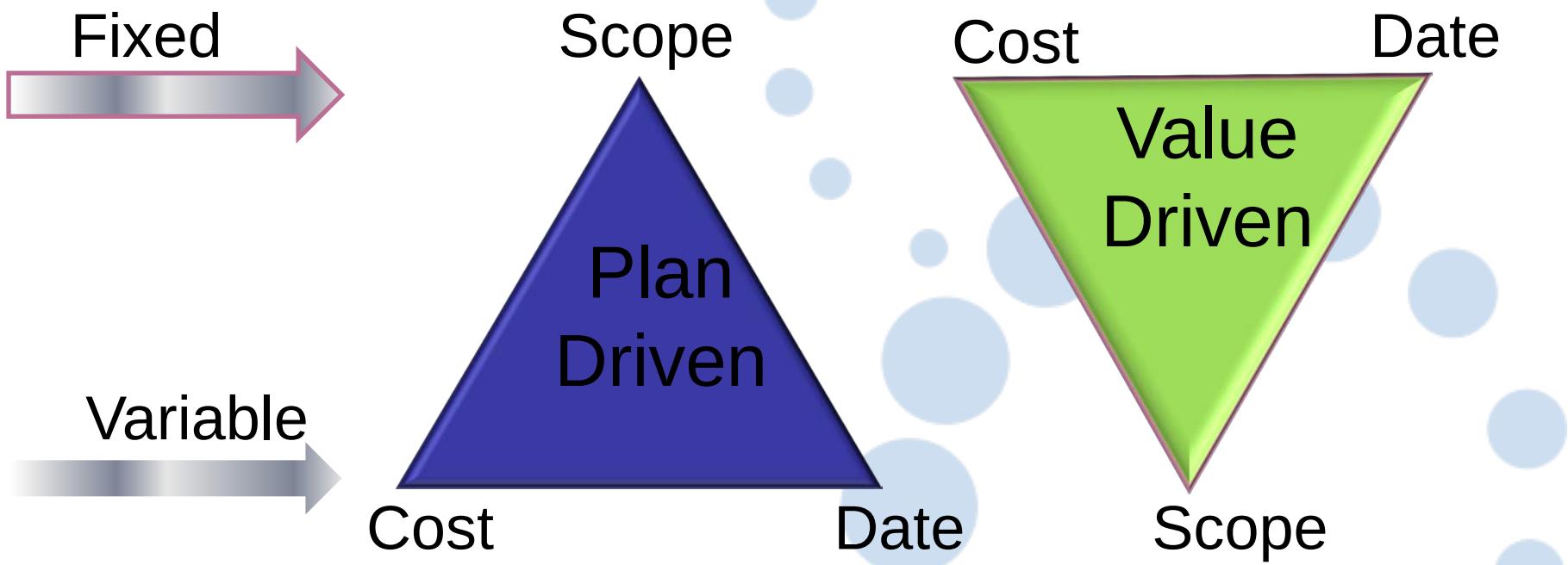




Characteristics

- 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”

Old project approach v/s New project paradigm

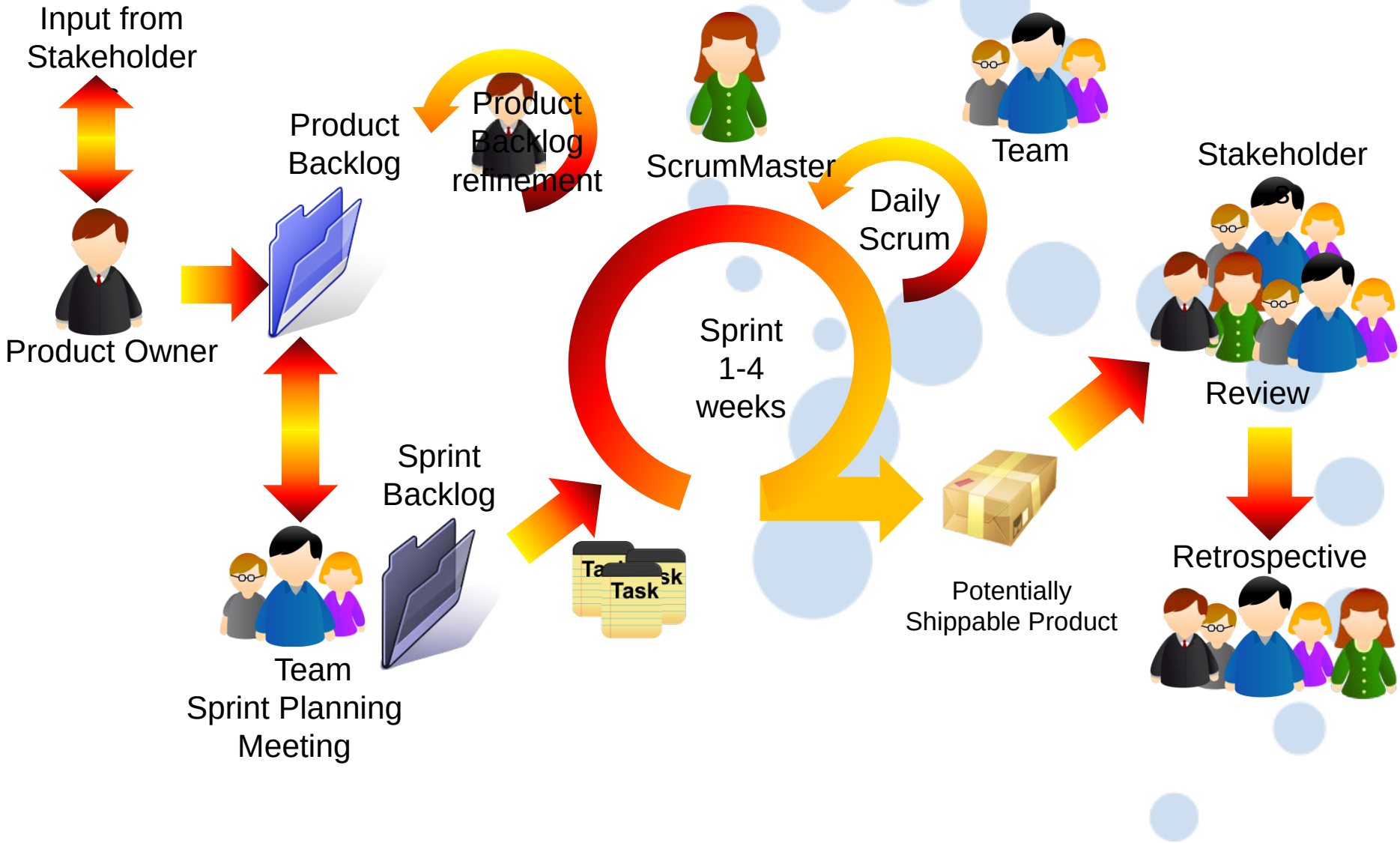


The Agile Manifesto–a statement of values

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

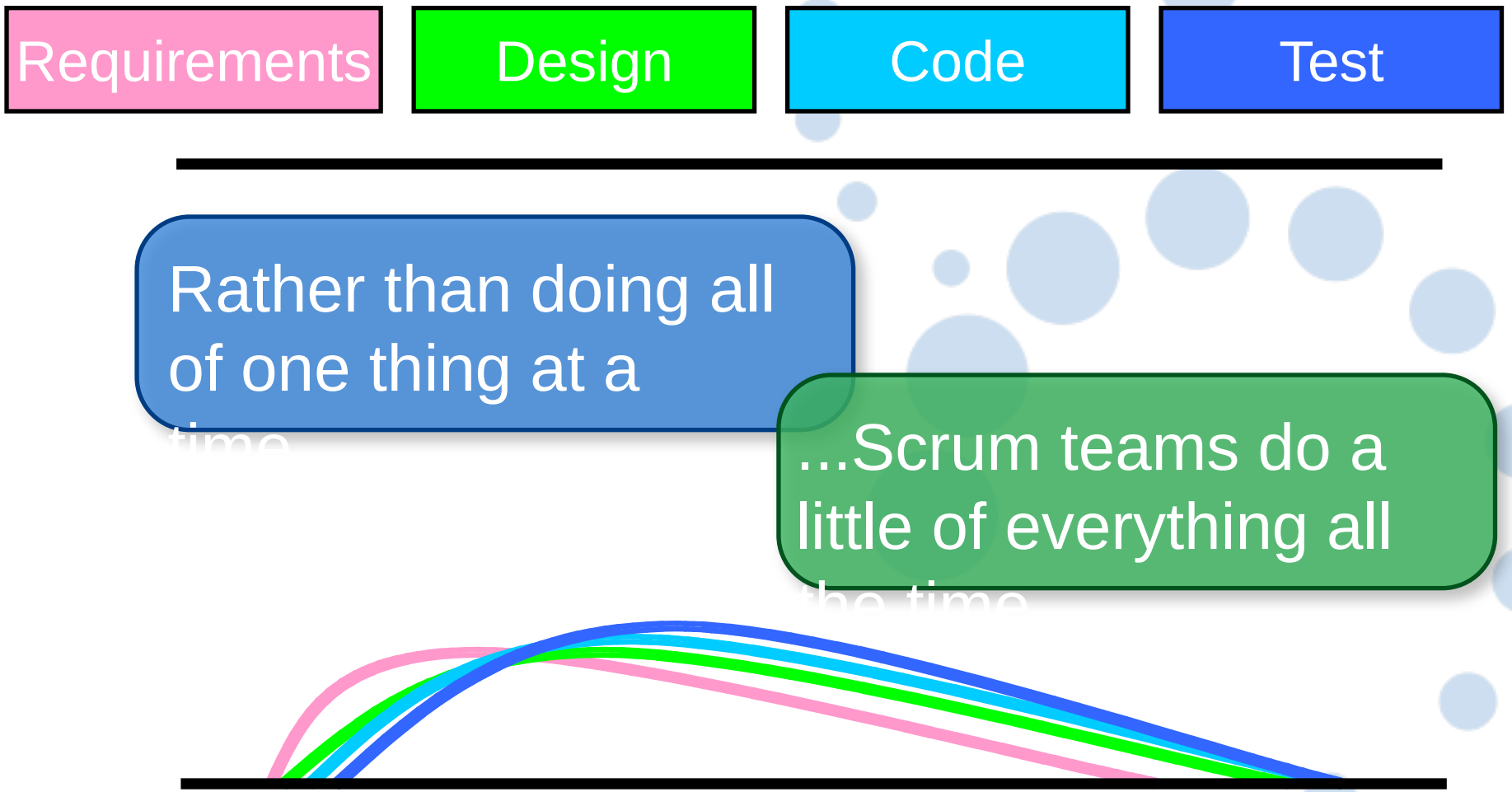
Scrum in a Nutshell



Sprints

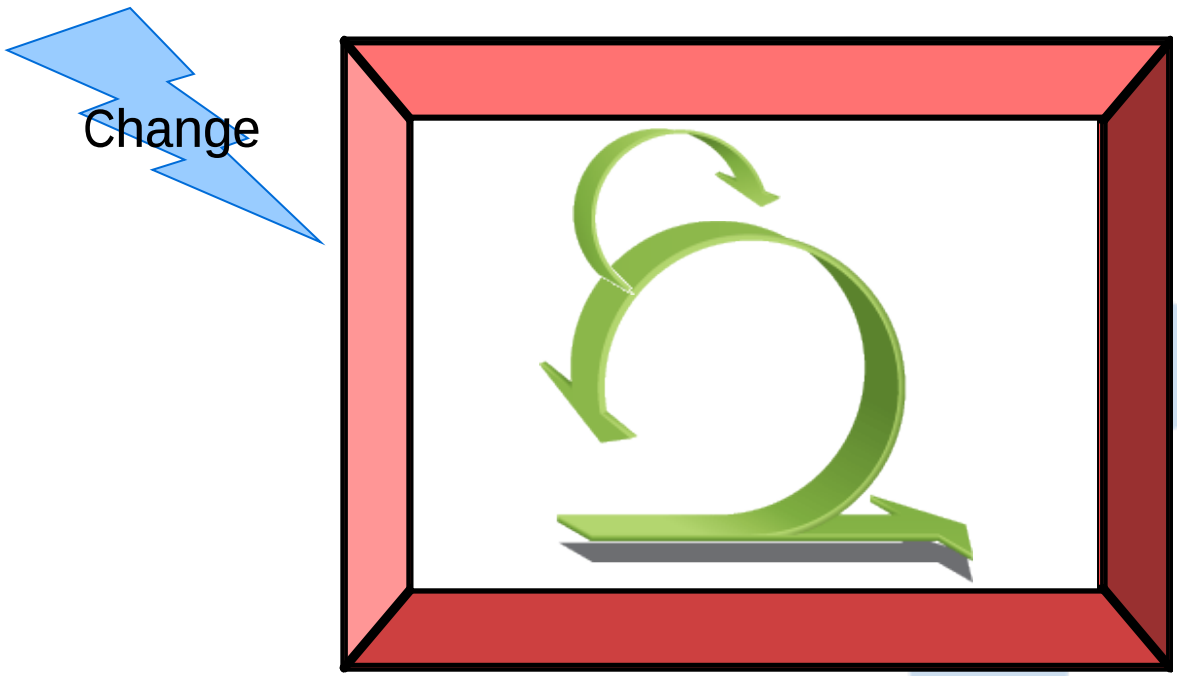
- Scrum projects make progress in a series of “sprints”
  - ✓ Analogous to Extreme Programming iterations
- Typical duration is 1–4 weeks or a calendar month at most
- A constant duration leads to a better rhythm
- Product is designed, coded, and tested during the sprint

Sequential v/s overlapping development



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

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

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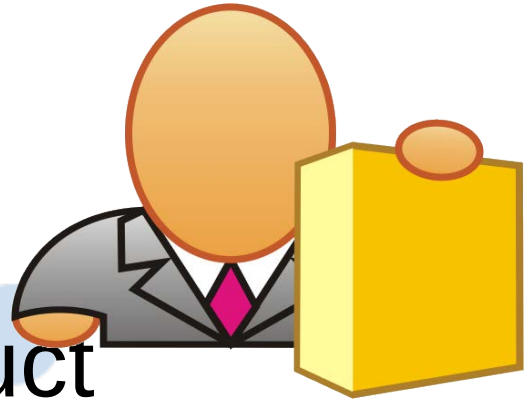
Product owner

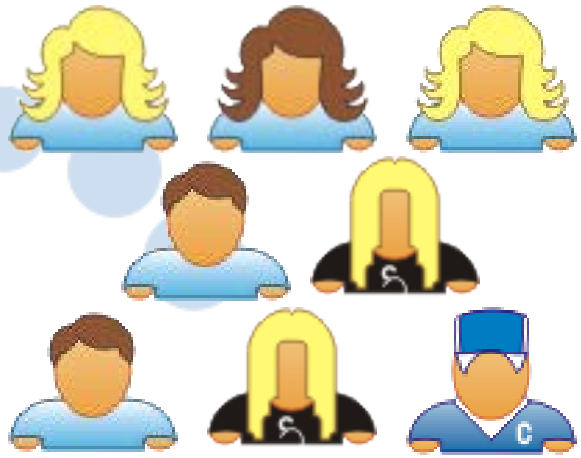


- Define the features of the product
- Decide on release date and content
- Be responsible for the profitability of the product (ROI)
- Prioritize features according to market value
- Adjust features and priority every iteration, as needed
- Accept or reject work results

The ScrumMaster

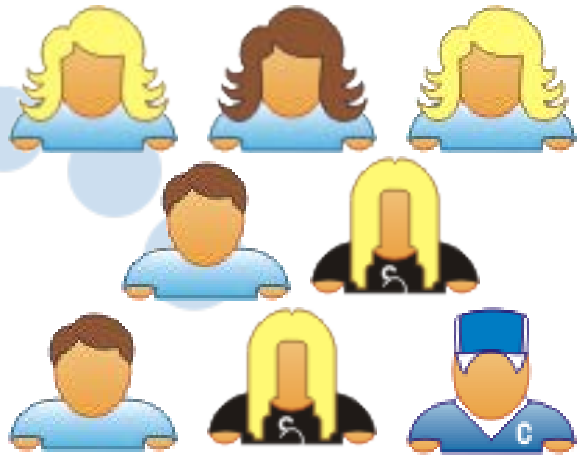
- Represents management to the project
- Responsible for enacting Scrum values and practices
- Removes impediments
- Ensure that the team is fully functional and productive
- Enable close cooperation across all roles and functions
- Shield the team from external interferences

The team (I)



- Typically 5-9 people
- Cross-functional:
  - ✓ Programmers, testers, user experience designers, etc.
- Members should be full-time
  - ✓ May be exceptions (e.g., database administrator)

The team (II)



- Teams are self-organizing
  - ✓ Ideally, no titles but rarely a possibility
- Membership should change only between sprints

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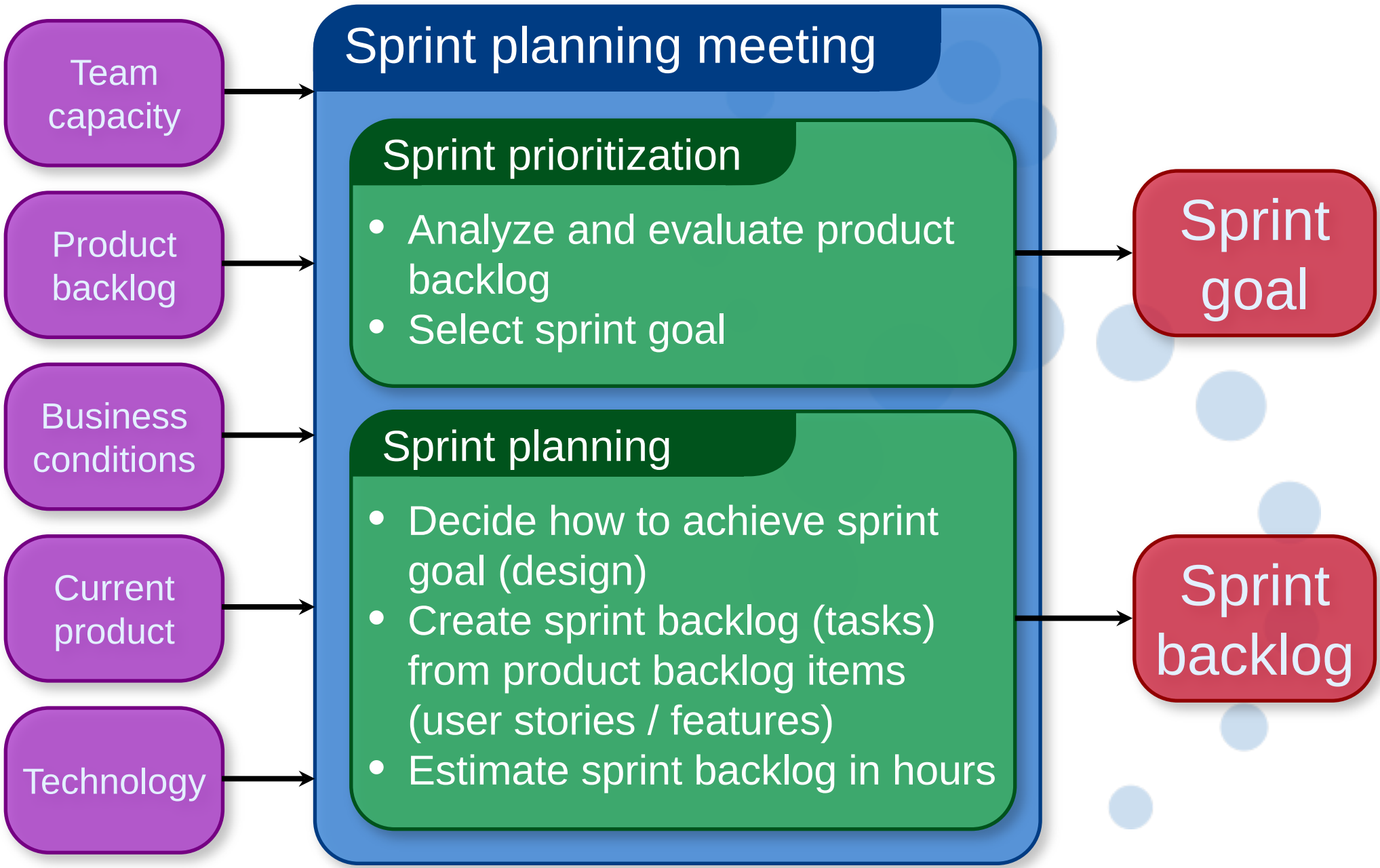

Team capacity
Product backlog
Business conditions
Current product
Technology
Sprint planning meeting
Sprint prioritization
Analyze and evaluate product backlog
Select sprint goal
Sprint planning
Decide how to achieve sprint goal (design)
Create sprint backlog (tasks) from product backlog items (user 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

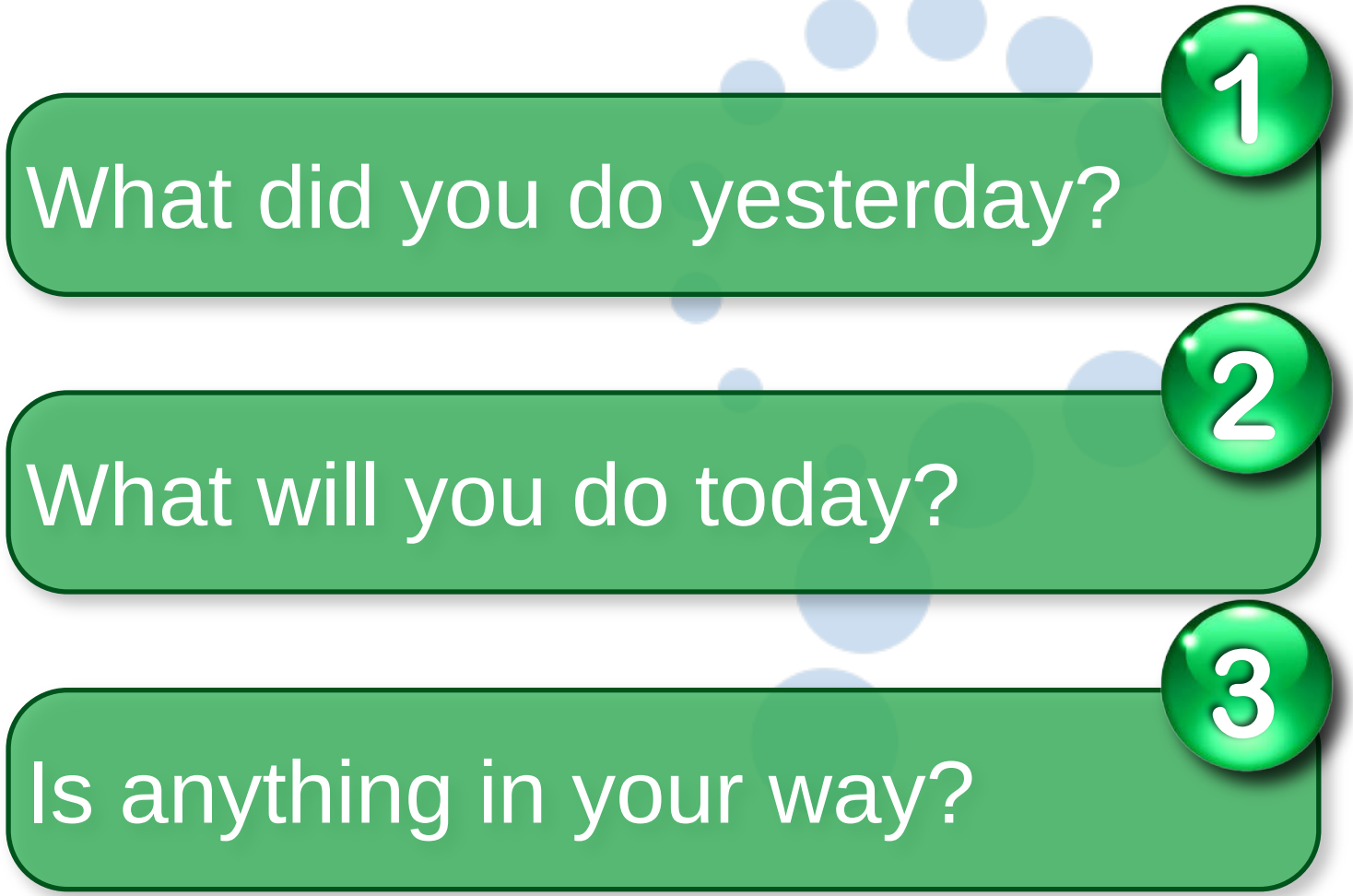
As a vacation planner, I want to see photos of the hotels.

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



- 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

Start / Stop / Continue

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

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

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Product backlog

This is the product backlog

- Basically, 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

User Story (I)

IN ORDER TO <Value>

AS <User/Customer>

I WANT <something>

ACCEPTANCE CRITERIA

I want …
I would like to see ….

User Story (II)

IN ORDER TO save time when banking and not have to wait in line or opening hours

AS Customer of the Bank

I WANT to be able to manage my account at any time (day or night)

ACCEPTANCE CRITERIA

I want to be able to find out the balance of my account
I want to be able to know all recent transactions
etc, etc

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

Done Definition

- Peer review (another member of the team has to review work)
- Acceptance Criteria met for Story
- All Defects have to be approved as acceptable by the Product Owner
- All deliverables are on view (deployed) to a wall in the room
- All stories delivered must have a visible test

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.

Managing the sprint backlog

- Individuals sign up for work of their own choosing
  - ✓ Work is never assigned
- Estimated work remaining is updated daily

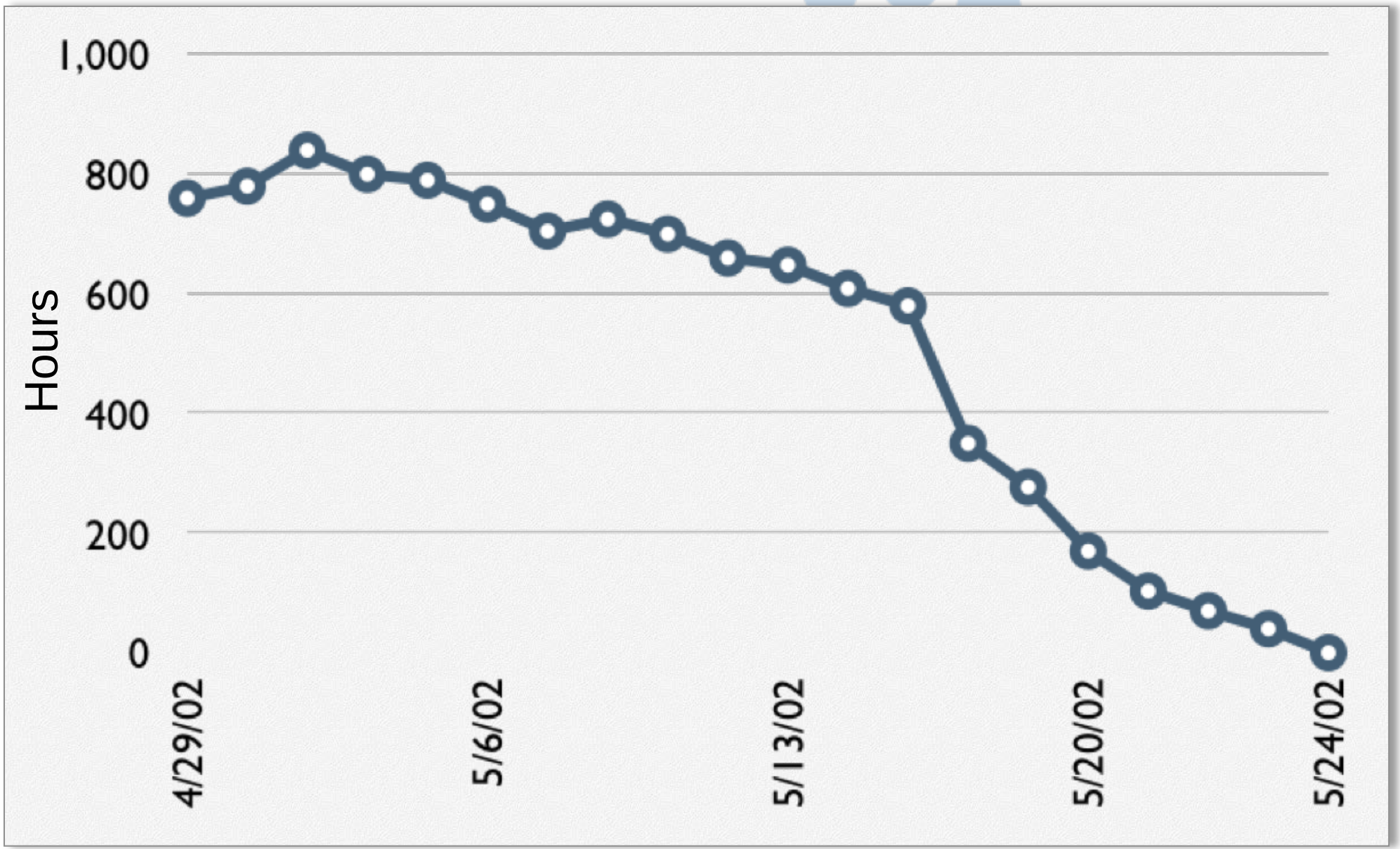
Managing the sprint backlog

- 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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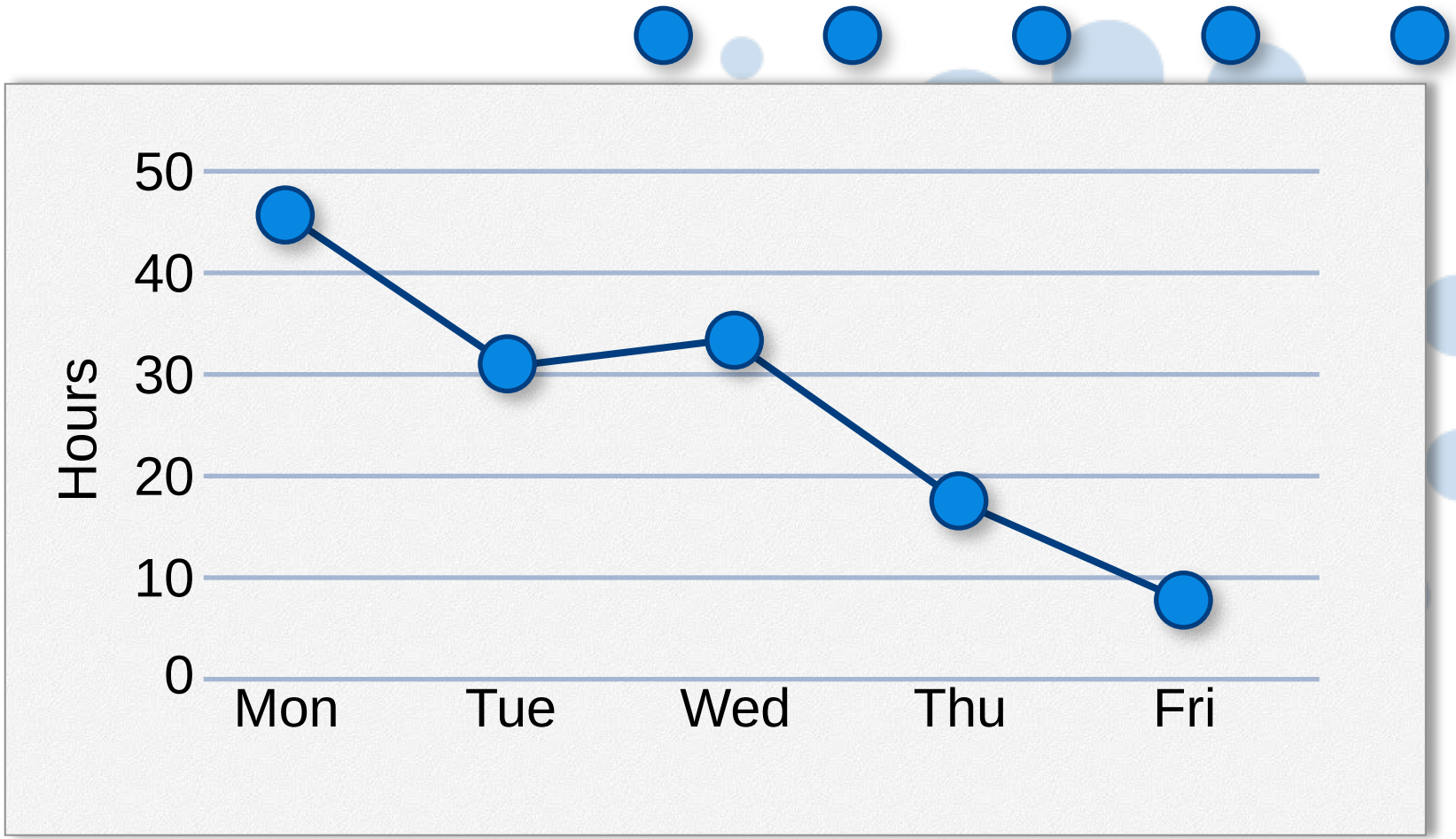

Summary

- Create a backlog
- Regularly order it with your product owner and ensure that it is estimated
- Track your progress as a team
- Small is better – break things down into independent value items
- Actively look for feedback on your product and aim to get things to a place called DONE … not “done, but …” – Know what done looks like!
- Collaborate in your team and with your customer – Work together to maximise the business value
- Lots of techniques and info – your journey has only just begun

Resources

- https://www.agilealliance.org/
- www.mountaingoatsoftware.com/scrum
- https://www.scrumalliance.org/why-scrum/scrum-resources
- http://www.scrumhub.com/
- http://www.scrumguides.org/
- http://www.scrumstudy.com/download-free-buy-SBOK.asp

A Scrum reading list (I)

- *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

A Scrum reading list (II)

- *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
- *Succeeding with Agile* by Mike Cohn
- *User Stories Applied for Agile Software Development* by Mike Cohn