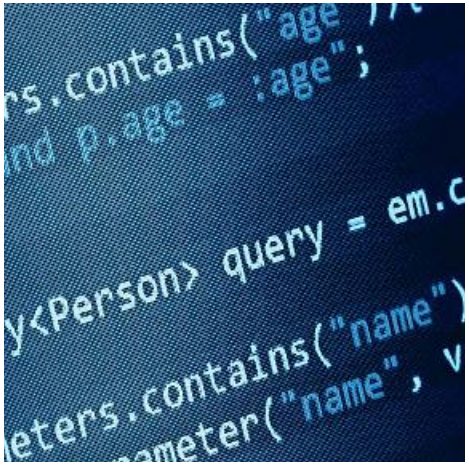
CS3500 Software Engineering

2017/2018



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Welcome to CS3500

Scrum

Part I: An Overview of Scrum

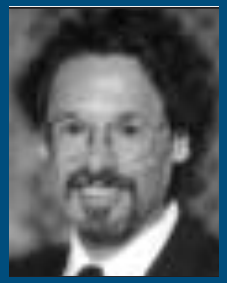
After studying this material and associated papers, you should be able to:

- Understand and describe the 3 Scrum roles.
- Understand and describe the 5 Scrum ceremonies.
- Understand and describe the 3 Scrum artifacts.

Reading Assignment

“The Scrum Software Development Process”

By: Linda Rising and Norman Janoff

Originally published in:
IEEE Software, July/August 2000, pp. 26-32

Estimated reading time:
7 pages, 60 min.

Contents

SECTION I

Overview of Scrum

1. Origin of Scrum

2. The Scrum Framework

Traditional approaches

- Separate phases, each with specific deliverables.
- Each phase potentially performed by different people.
- Like a relay race.
  - Different runners, pass on the baton

Takeuchi and Nonaka (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.

The new new product development game

Stop running the relay race and take up rugby

Hirotaka Takeuchi and Ikujiro Nonaka

In today's fast-paced, fiercely competitive world of commercial new product development, speed and flexibility are essential. Companies are increasingly realizing that the old, sequential approach to developing new products simply won't get the job done. Instead, companies in Japan and the United States are using a holistic method—as in rugby, the ball gets passed within the team as it moves as a unit up the field.

This holistic approach has six characteristics: built-in instability, self-organizing project teams, overlapping development phases, "multilearning," subtle control, and organizational transfer of learning. The six pieces fit together like a jigsaw puzzle, forming a fast and flexible process for new product development. Just as important, the new approach can act as a change agent: it is a vehicle for introducing creative, market-driven ideas and processes into an old, rigid organization.

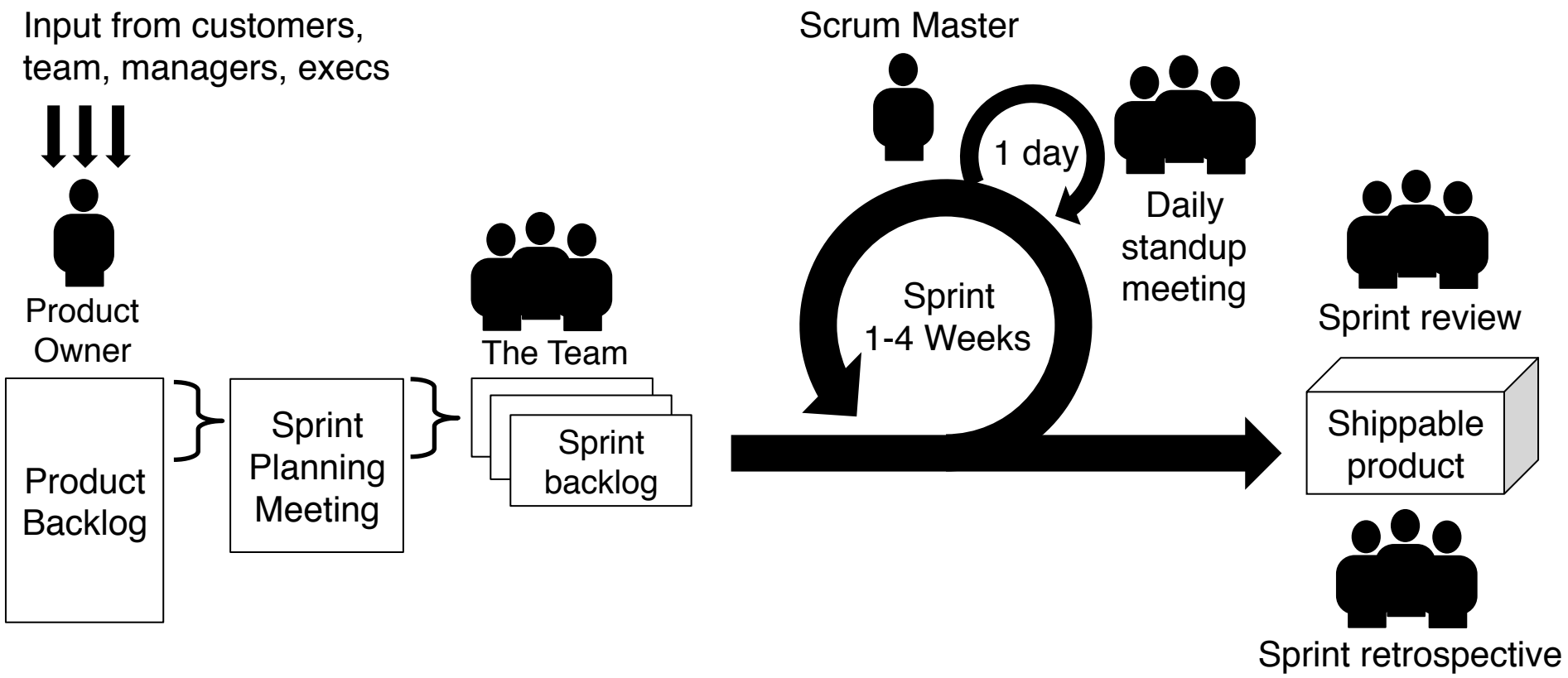
Mr. Takeuchi is an associate professor and Mr. Nonaka, a professor at Hitotsubashi University in la-

The rules of the game in new product development are changing. Many companies have discovered that it takes more than the accepted basics of high quality, low cost, and differentiation to excel in today's competitive market. It also takes speed and flexibility.

This change is reflected in the emphasis companies are placing on new products as a source of new sales and profits. At 3M, for example, products less than five years old account for 25%·of sales. A 1981 survey of 700 U.S. companies indicated that new products would account for one-third of all profits in the 1980s, an increase from one-fifth in the 1970s.[1]

This new emphasis on speed and flexibility calls for a different approach for managing new product development. The traditional sequential or "relay race" approach to product development—

The Scrum Framework



Scrum

- Scrum is one of several agile methods.
- Widely adopted in industry.
  - But often tailored to setting.
- Empirical approach:
  - Knowledge comes from experience
  - Decisions based on what is known.

Empirical Approach

Requires:

1. Transparency: process must be visible.
2. Inspection: make sure all is still OK.
3. Adaptation: adjust when needed.

SECTION II

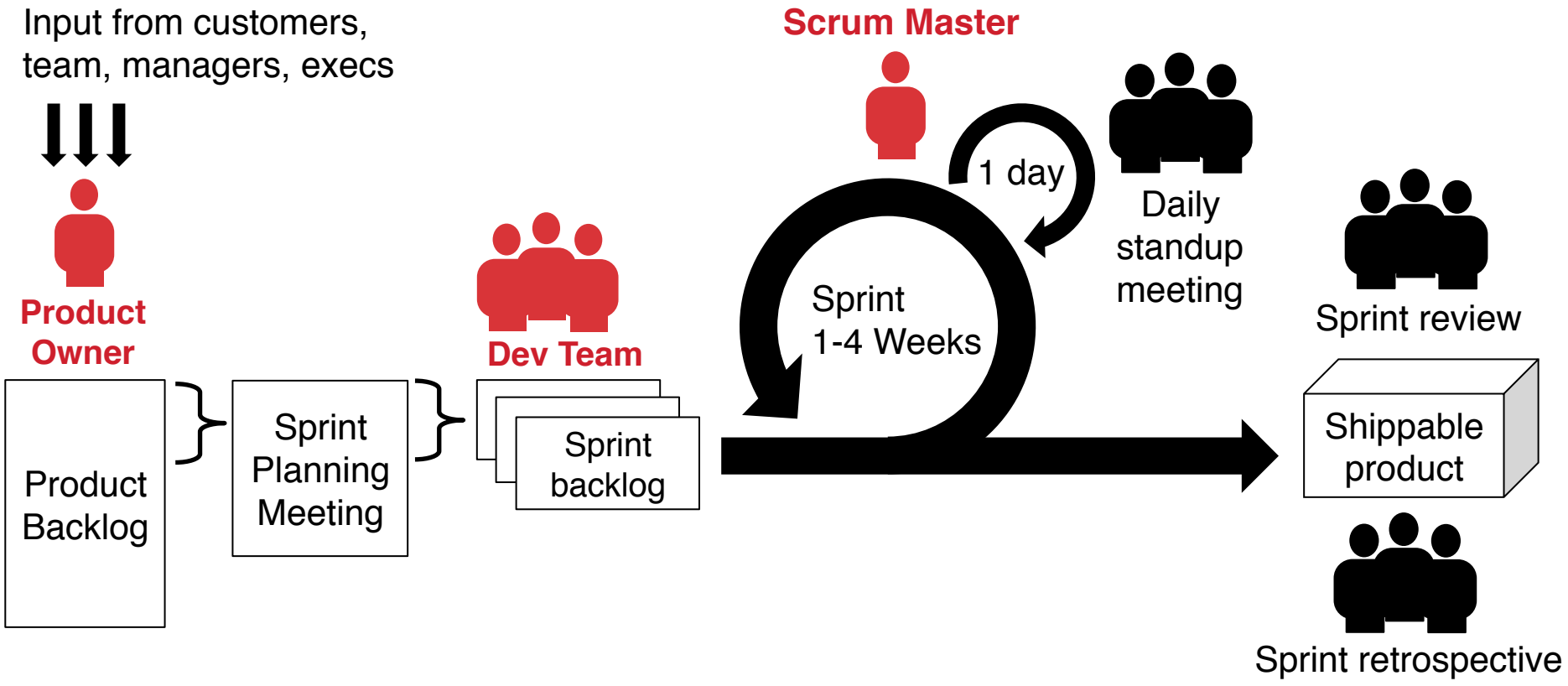
Scrum Roles

1. Product Owner (PO)

2. Scrum Master (SM)

3. Scrum Team

Scrum Roles


Input from customers,
team, managers, execs
Product Owner
Product Backlog
Sprint Planning Meeting
Dev Team
Sprint backlog
Scrum Master
1 day
Daily standup meeting
Sprint
1-4 Weeks
Sprint review
Shippable product
Sprint retrospective

Product Owner (PO)

- Responsible for maximizing value of the product.
- Plays role of customer
  - Marketing may play customer role.
- Sole responsible for maintaining, ordering (of priority), and communicating product backlog.
- PO an individual, not a committee.

Scrum Master (SM)

- Responsible for enacting Scrum values.
- Removes impediments to get work done.
- Ensures that team is functional & productive.
- Shield the team from external interference.
- Scrum Master IS NOT a Project Manager
  - Scrum Teams share management roles and self-manage
  - Scrum Master is a servant-leader & coach

Development Team

- Typically 5-9 people
- Teams are self-organizing and cross-functional
  - Team has all skills necessary, not dependent on others
  - No titles – just "developers"
  - May have specialists, but whole team bears responsibility
- Self-organizing—Team decides how to turn backlog items into product increments
- Members should be full-time
  - May be exceptions (e.g., database administrator)
- Membership should change only between sprints

SECTION III

Scrum Ceremonies

Also known as Scrum Events

1. The Sprint

2. Sprint Planning

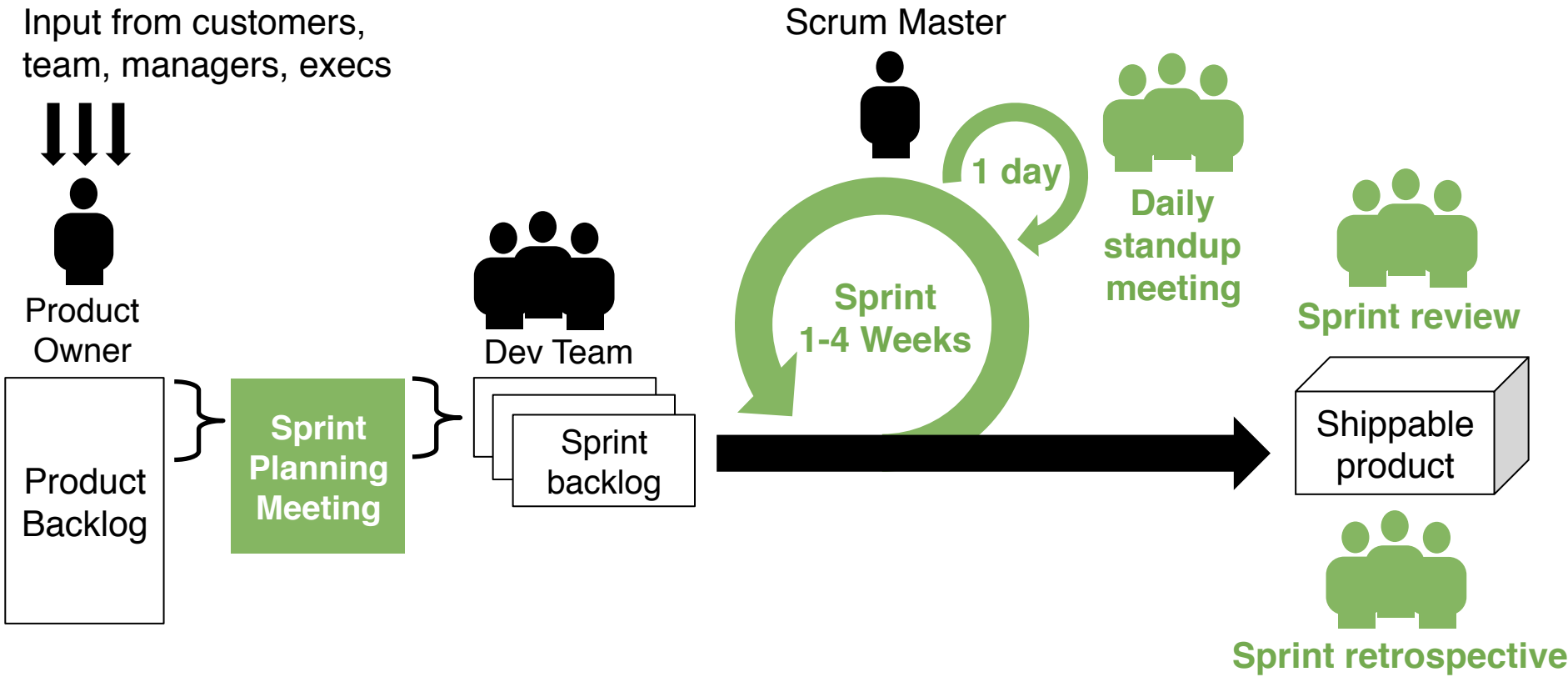
3. Daily Scrum (stand-up)

4. Sprint Review

5. Sprint Retrospective

Scrum Ceremonies

Also known as Scrum Events



The Sprint

- A Time-boxed period of 1-4 weeks
  - Varies per setting, could be longer.
- During sprint, no changes allowed.
- Scope may be re-negotiated with PO.
  - When dev team feels too much/little work.
- Must result in a shippable product.
  - But don't have to necessarily deploy.
- Sprints may be cancelled when Sprint goals become obsolete (e.g. changing biz focus)

Sprint Planning

- Sprint planning answers:
  1. What to deliver next sprint?
  2. How to achieve this?

  } Sprint Backlog

- Which items in the product backlog to deliver in the next sprint?
  - Decided by team only!
- For a 4-week sprint, max. 8h planning.
- Once committed to plan, no changes unless Sprint is cancelled.

Daily Scrum (or Daily Stand-up)

- 15-min. time-boxed event
- Synchronize activities
- Create plan for next 24h.
- Held at same time, same place
  - Make it a quick, no-fuss meeting
  - Usually first thing in the morning

3 key questions:

1. What did I do towards Sprint goal?
2. What will I do today toward Sprint goal?
3. What are blockers that stop me?

Daily Scrum (or Daily Stand-up)

- Scrum Master ensures the daily Scrum takes place.
- Not meant for problem-solving.
  - Issues go to a parking lot /impediments chart and get resolved after the meeting.
- Only for team members and Scrum Master.

Daily Scrum (or Daily Stand-up)

Sprint Review

- Max. 4 hour time-boxed meeting for the team and PO to inspect the software product and adapt in the next sprint.
- Results should be accepted only if they fulfill the Definition of Done
  - E.g. code is integrated, fully tested, documented, and potentially shippable
- Partially done work and defective work should never be taken into account.
  - Otherwise, false sense of progress.

Sprint Retrospective

- Follows Sprint Review and focus is on inspect and adapt the process
  - Note the difference with Sprint Review
- Key Questions:
  - What's Working Well?
  - What Could Work Better?
- 3-hour time-boxed meeting
- Empirical: retrospectives / improvements based on real data.

SECTION IV

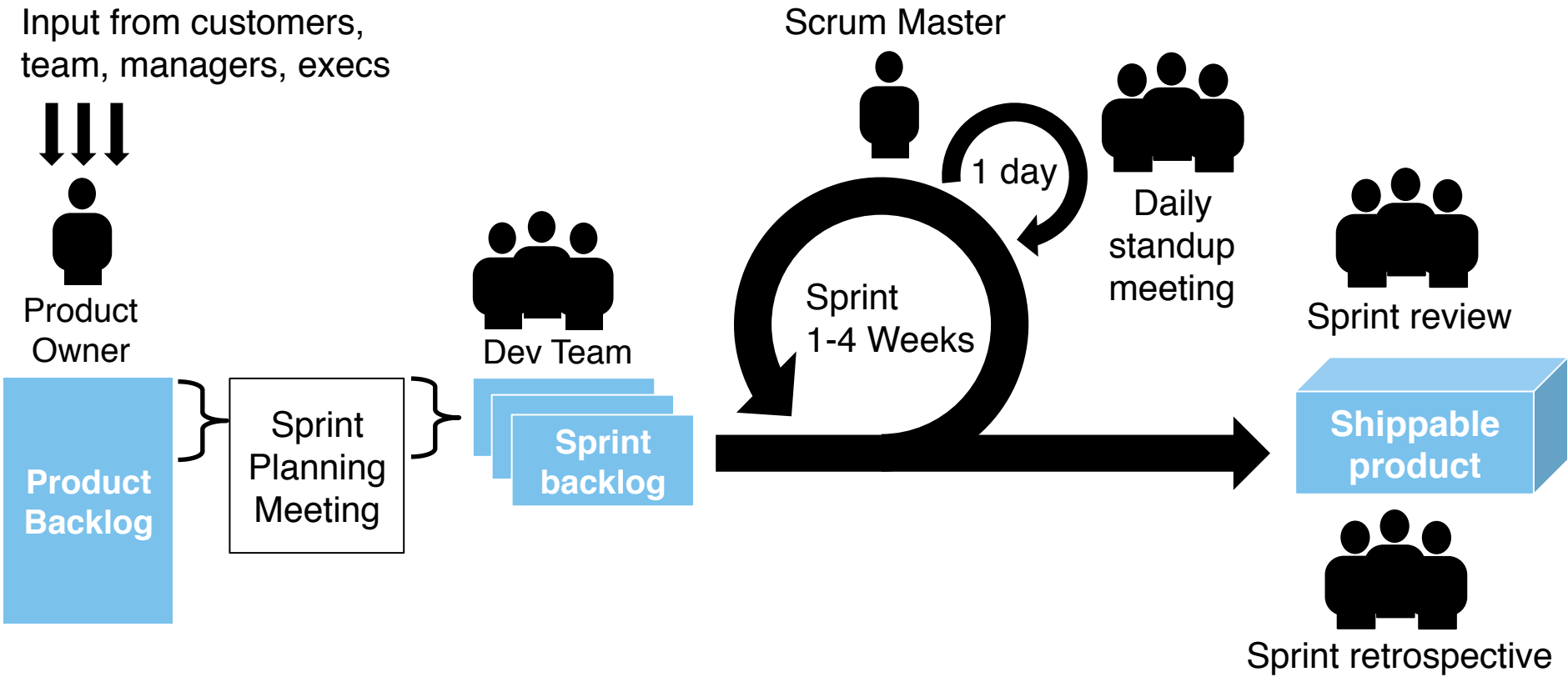
Scrum Artifacts

1. Product Backlog

2. Sprint Backlog

3. Potentially Shippable Product

Scrum Artifacts



Product Backlog

- An evolving, prioritized queue of everything needed in the product.
- Single definitive source of features, functions, requirements, enhancements, and fixes.
- Product owner is responsible for maintaining, ordering, clarity, and its availability.
- Backlog items get refined/clarified over time.

Sprint Backlog

The Sprint Backlog consists of:

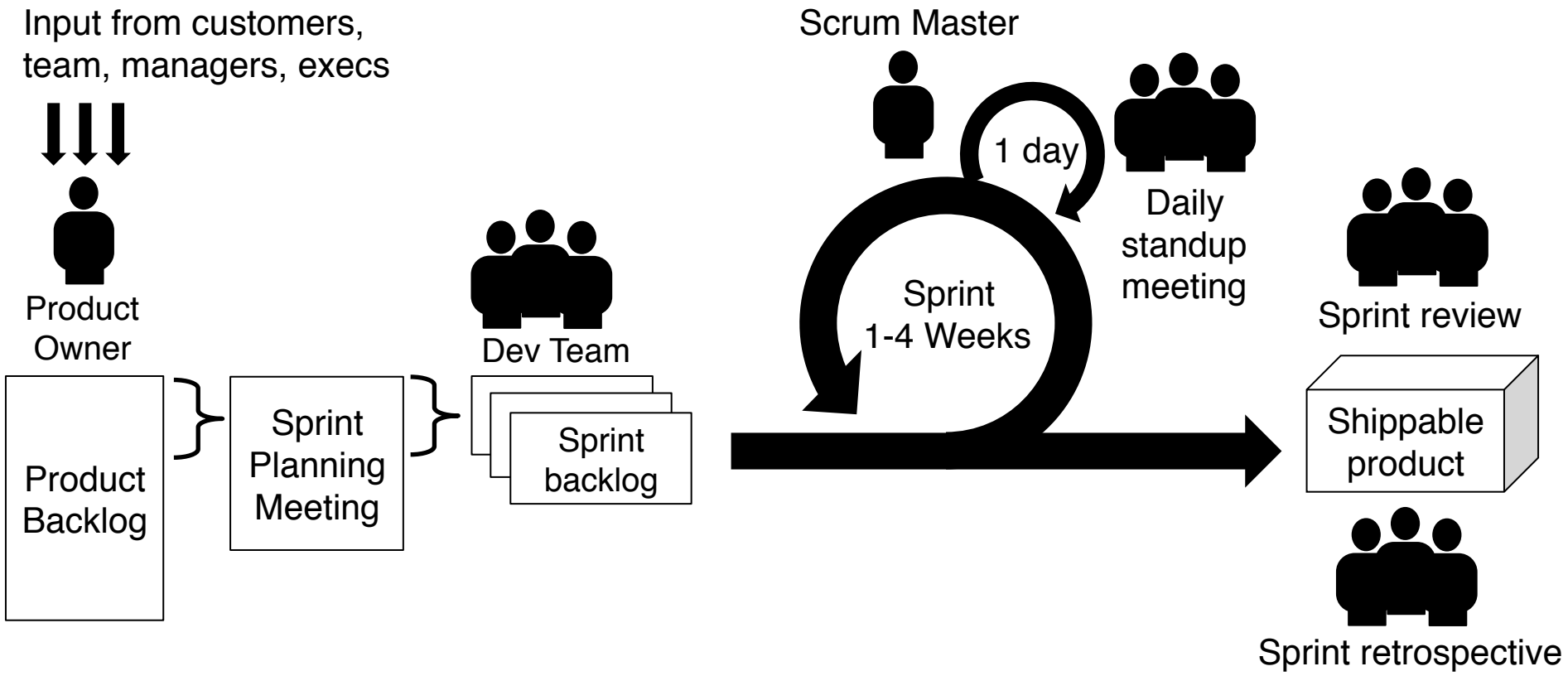
- Product backlog items selected for Sprint.
- Plan for implementation: A design that is discussed and agreed by all.

- Selected Product Backlog items are broken down into individual tasks. (more in Part II)

Potentially shippable product
(product increment)

- Every Sprint ends with a potentially shippable product.
  - May or may not be released by PO.
- Product increment is the sum of:
  - All product backlog items completed during a sprint.
  - Plus all previous increments.
- Must be usable by customer.
  - Must be “done” – in a usable condition.

The Scrum Framework



Next time in CS3500: Scrum Part II

- User stories
- Planning
- Process Transparency
- Progress Monitoring

Summary

- Scrum is an agile software development framework.
- Scrum Roles:
  - Scrum Master
  - Product Owner
  - Development Team
- Scrum Ceremonies (or events):
  - The Sprint
  - Sprint Planning
  - Sprint Review
  - Sprint Retrospective
- Scrum Artifacts:
  - Product Backlog
  - Sprint Backlog
  - Product Increment (shippable product)

Thank you for your attention

Questions & suggestions can be sent to:
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