# Scrum Framework

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# Overview(I)

- Scrum is not a standardized process where you methodically follow a series of sequential steps that are guaranteed to produce, on time and on budget, a high-quality product that delights customers.
- Instead, Scrum is a framework for organizing and managing work.

# Overview(II)

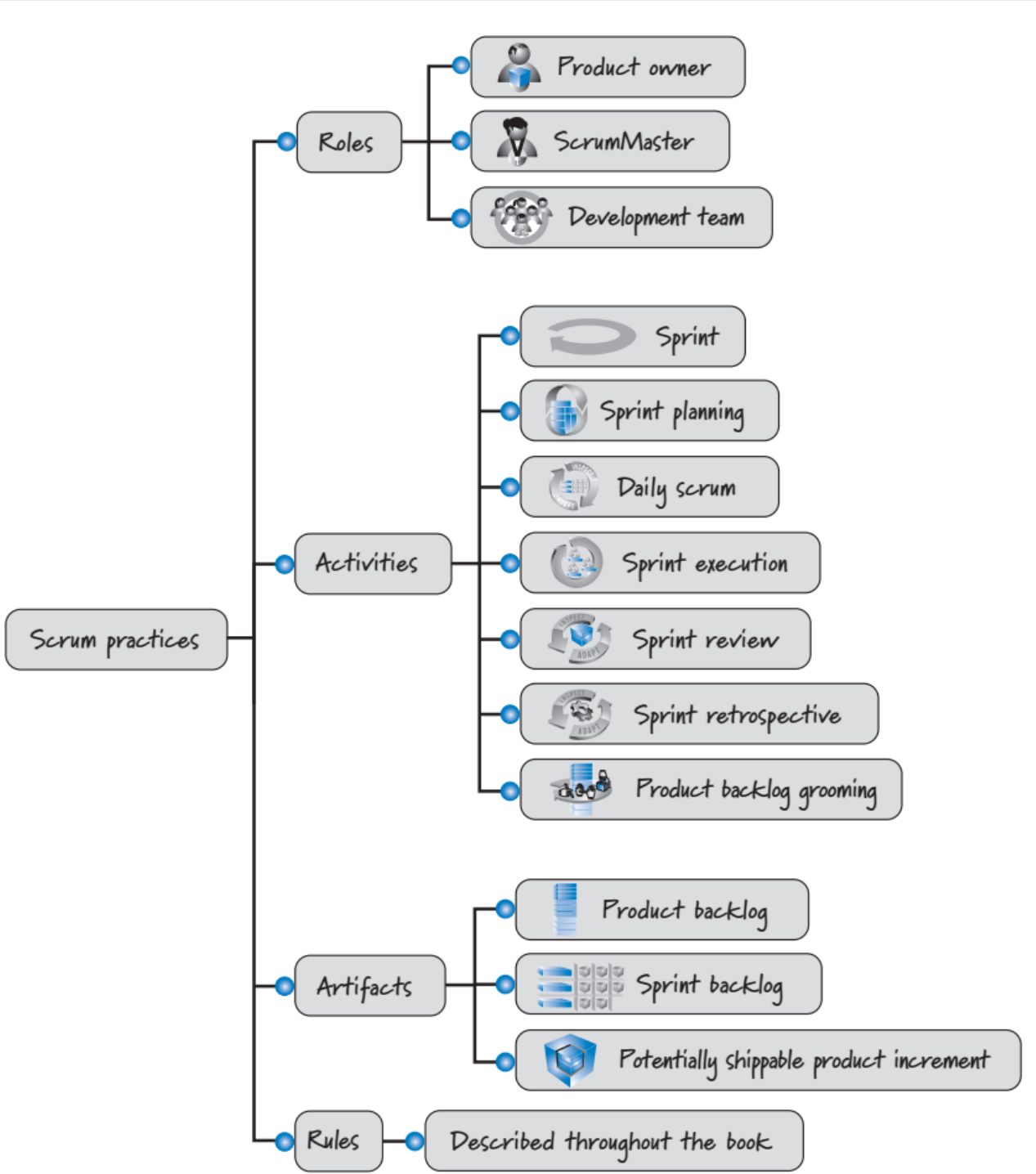
- The Scrum framework is based on a set of **values**, **principles**, and **practices** that provide the foundation to which your organization will add its unique implementation of relevant engineering practices and your specific approaches for realizing the Scrum practices.
- The result will be a version of Scrum that is uniquely yours.

# Overview(III)

- To better grasp the framework concept, imagine that the Scrum framework is like the foundation and walls of a building.
- The Scrum values, principles, and practices would be the key structural components.
- You can’t ignore or fundamentally change a value, principle, or practice without risking collapse.

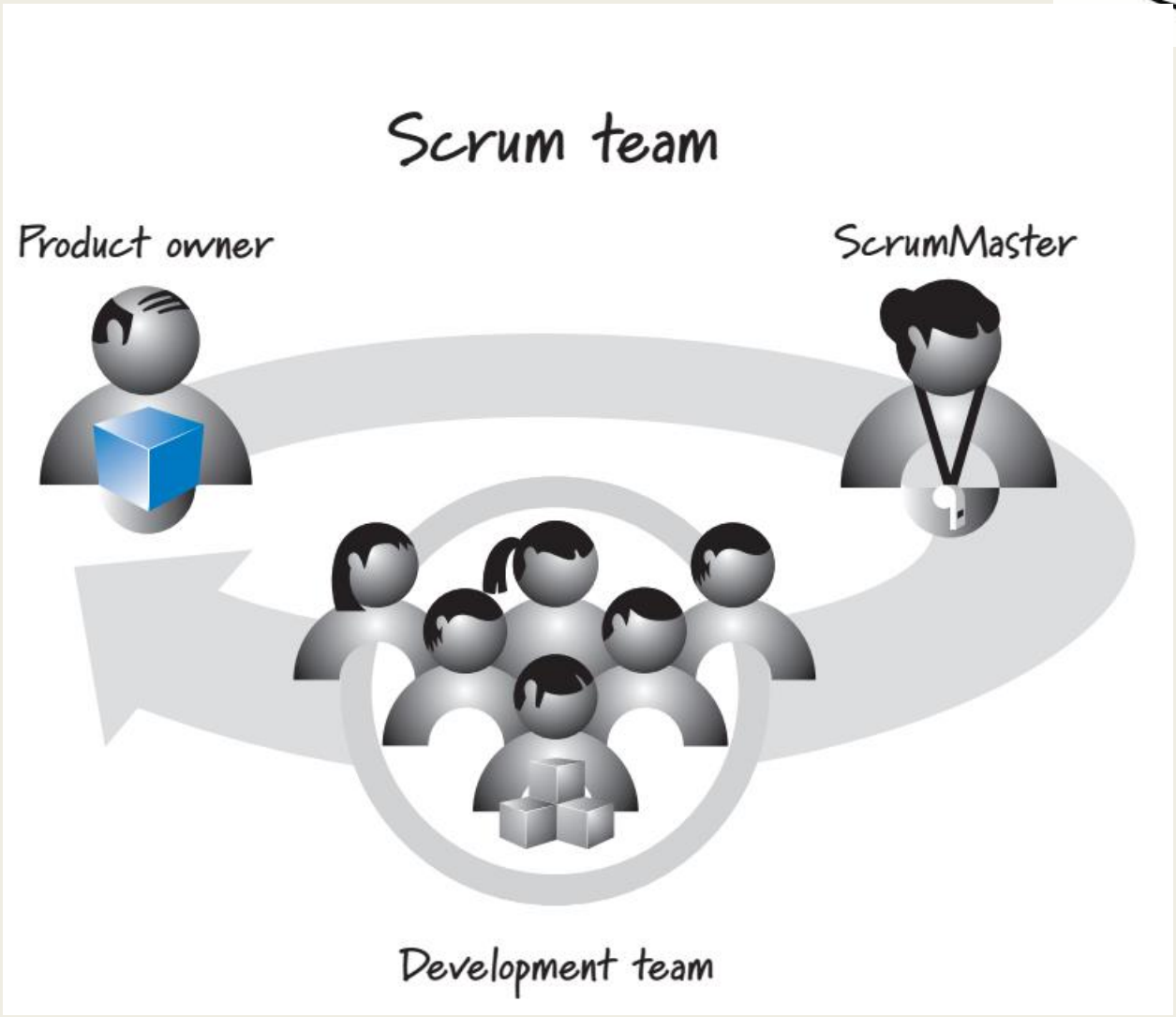
# Overview(IV)

- Scrum is simple, people-centric framework based on the
  1. ***values*** *of honesty, openness, courage, respect, focus, trust, empowerment, and collaboration.*
  2. ***Principles*** *of Agile Manifasto.*
  3. ***Practices*** *that are embodied in specific roles, activities, artifacts, and their associated rules.*


Scrum practices
Roles
Product owner
ScrumMaster
Development team
Activities
Sprint
Sprint planning
Daily scrum
Sprint execution
Sprint review
Sprint retrospective
Product backlog grooming
Artifacts
Product backlog
Sprint backlog
Potentially shippable product increment
Rules
Described throughout the book

# Scrum Roles(I)

- Product owner
- Scrum master
- Development team



# Scrum Roles(II)

- **Product owner** is responsible for what will be developed and in what order.
- The **ScrumMaster** is responsible for guiding the team in creating and following its own process based on the broader Scrum framework.
- The **development team** is responsible for determining how to deliver what the product owner has asked for.

# Product owner(I)

- Central point of product leadership.
- Is the single authority responsible for deciding which features and functionality to build and the order in which to build them.
- Maintains and communicates to all other participants a clear vision of what the Scrum team is trying to achieve.
- Is responsible for the overall success of the solution being developed or maintained.

# Product owner(II)

- It doesn’t matter if the focus is on an external product or an internal application; the product owner still has the obligation to make sure that the most valuable work possible, which can include technically focused work, is always performed.

- To ensure that the team rapidly builds what the product owner wants, the product owner actively collaborates with the ScrumMaster and development team and must be available to answer questions soon after they are posed.

# Product owner(III)

- Is responsible for maximizing return on investment (ROI) by identifying product features, translating these into a prioritized feature list, deciding which should be at the top of the list for the next Sprint, and continually reprioritizing and refining the list.

- Takes the inputs of what the product should be and translates them into a product vision or a Product Backlog.

# Scrum Master(I)

- Helps everyone involved understand and embrace the Scrum values, principles, and practices.
- Acts as a coach, providing process leadership and helping the Scrum team and the rest of the organization develop their own high performance, organization-specific Scrum approach.
- Helps the organization through the challenging change management process that can occur during a Scrum adoption.
- As a facilitator, the Scrum Master helps the team resolve issues and make improvements to its use of Scrum.

# Scrum Master(II)

- Does whatever it takes to make the Scrum Team successful, such as removing organizational impediments, facilitating meetings, acting as a gatekeeper so no one unnecessary interrupts the team's work.
- Is responsible for protecting the team from outside interference and takes a leadership role in removing impediments that inhibit team productivity (when the individuals themselves cannot reasonably resolve them).

# Scrum Master(III)

- The Scrum Master has no authority to exert control over the team, so this role is not the same as the traditional role of project manager or development manager.
- The Scrum Master functions as a leader, not a manager.
- Helps the product group learn and apply Scrum to achieve business value.
- The Scrum Master does whatever is in their power to help the team be successful.

# Development Team(I)

- Traditional software development approaches discuss various job types, such as architect, programmer, tester, database administrator, UI designer, and so on.

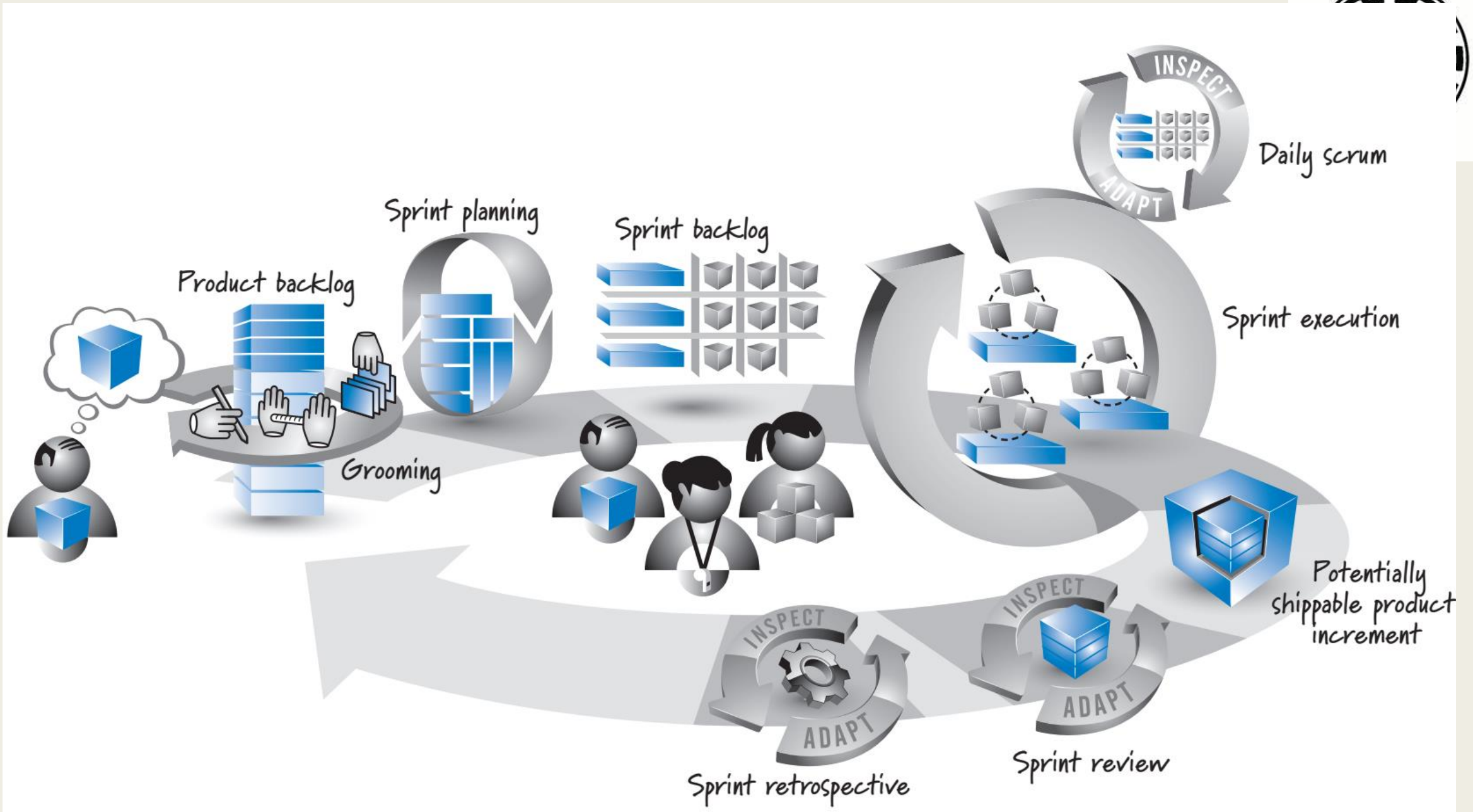
- Scrum defines the role of a development team, which is simply a diverse, cross-functional collection of these types of people who are responsible for designing, building, and testing the desired product.

# Development Team(II)

- The Team builds the product that the customer is going to use.
- The team in Scrum is cross-functional and includes all the expertise necessary to deliver the potentially shippable product each Sprint.
- It is also self-organizing (self-managing), with a very high degree of autonomy and accountability to determine the best way to accomplish the goal set out by the product owner.

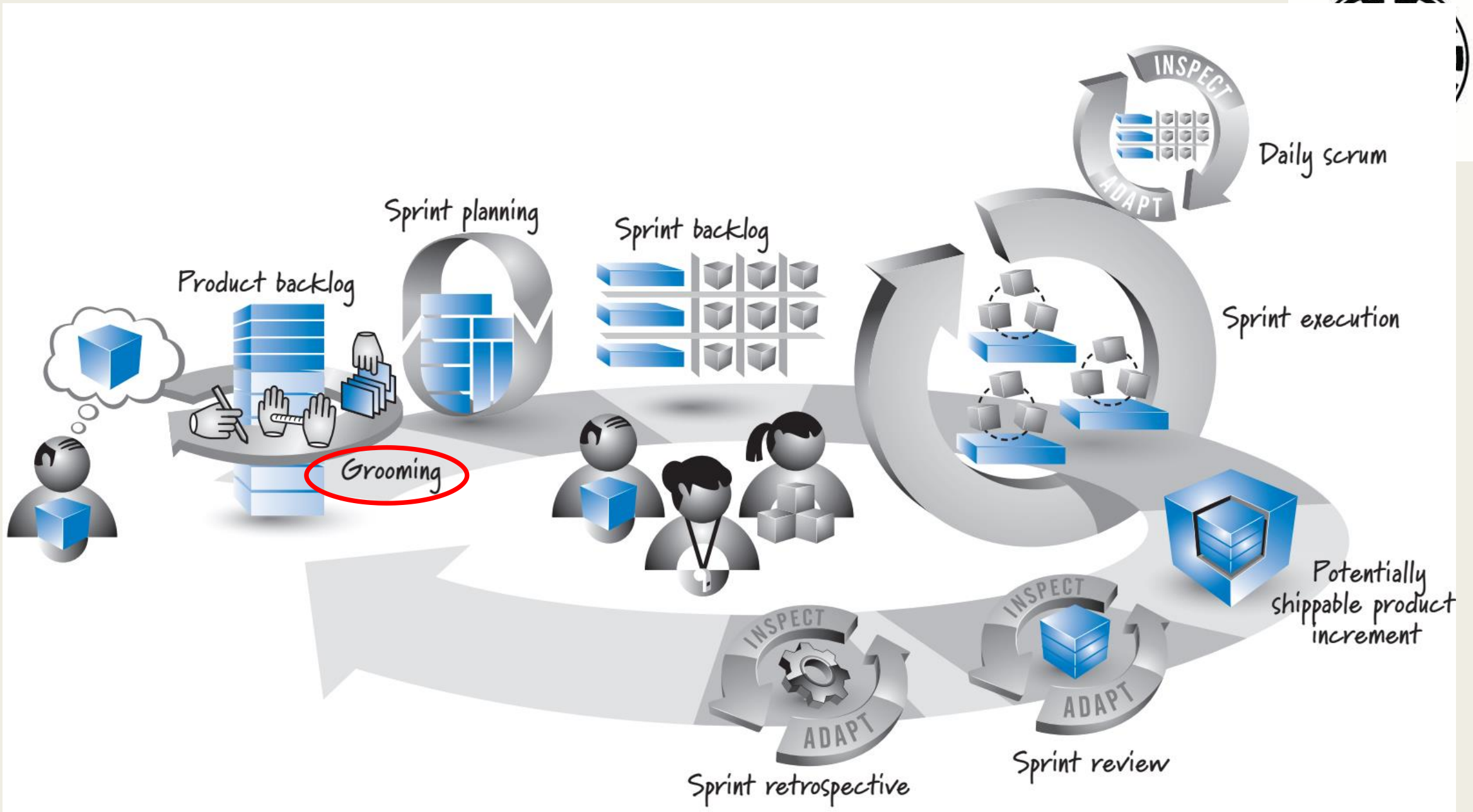
# Development Team(II)

- It is typically five to nine people in size;
- Its members must collectively have all of the skills needed to produce good quality, working software.


INSPECT
ADAPT
Daily scrum
Sprint planning
Sprint backlog
Product backlog
Sprint execution
Grooming
Potentially shippable product increment
INSPECT
ADAPT
Sprint retrospective
INSPECT
ADAPT
Sprint review

# Let’s go through diagram,

- The product owner has a vision of what he wants to create (the big cube).
- Because the cube can be large, through an activity called **grooming** it is broken down into a set of features that are collected into a prioritized list called the **product backlog**.


INSPECT
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Daily scrum
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INSPECT
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INSPECT
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Sprint review

# Then,

- A sprint starts with **sprint planning**, encompasses the development work during the sprint (called **sprint execution**), and ends with the **review** and **retrospective**.
- The sprint is represented by the large, looping arrow that dominates the center of the figure.

# And

- The number of items in the product backlog is likely to be more than a development team can complete in a short-duration sprint. For that reason, at the beginning of each sprint, the development team must determine a subset of the product backlog items it believes it can complete.
- The team members create a second backlog during sprint planning, called the **sprint backlog**.
- The sprint backlog describes, through a set of detailed tasks, how the team plans to design, build, integrate, and test the selected subset of features from the product backlog during that particular sprint.

# Next,

- Next is **sprint execution**, where the development team performs the tasks necessary to realize the selected features.
- Each day during sprint execution, the team members help manage the flow of work by conducting a synchronization, inspection, and adaptive planning activity known as the **daily scrum**.
- At the end of sprint execution the team has produced a **potentially shippable product increment** that represents some, but not all, of the product owner's vision.

# Then,

- The Scrum team completes the sprint by performing two inspect-and-adapt activities.
- In the first, called the **sprint review**, the stakeholders and Scrum team inspect the product being built.
- In the second, called the **sprint retrospective**, the Scrum team inspects the Scrum process being used to create the product.
- The outcome of these activities might be adaptations that will make their way into the product backlog or be included as part of the team's development process.

# And

- At this point sprint cycle repeats, beginning a new with the development team determining the next most important set of product backlog items it can complete.
- After an appropriate number of sprints have been completed, the product owner's vision will be realized and the solution can be released.

# Product Backlog(I)

- A Scrum project is driven by a product vision compiled by the Product Owner, and expressed in the Product Backlog.
- Is a prioritized list of what's required, ranked in order of value to the customer or business, with the highest value items at the top of the list.
- The Product Backlog evolves over the lifetime of the project, and items are continuously added, removed or reprioritized.

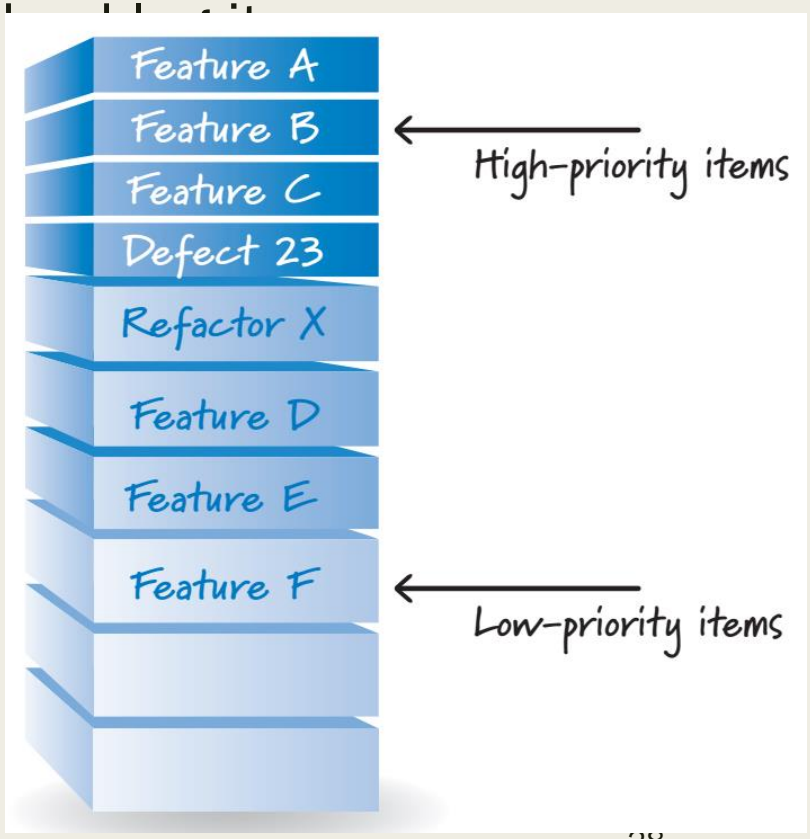
# Product Backlog(II)

- Always do the most valuable work first.
- The product owner, with input from the rest of the Scrum team and stakeholders, is ultimately responsible for determining and managing the sequence of this work and communicating it in the form of a **prioritized** (or ordered) list known as the product backlog.
- On new-product development the product backlog items initially are features required to meet the product owner's vision.
- For ongoing product development, the product backlog might also contain new features, changes to existing features, defects needing repair, technical improvements, and so on.

# Product Backlog(III)

- The product owner collaborates with internal and external stakeholders to gather and define the product
- He then ensures that product backlog items

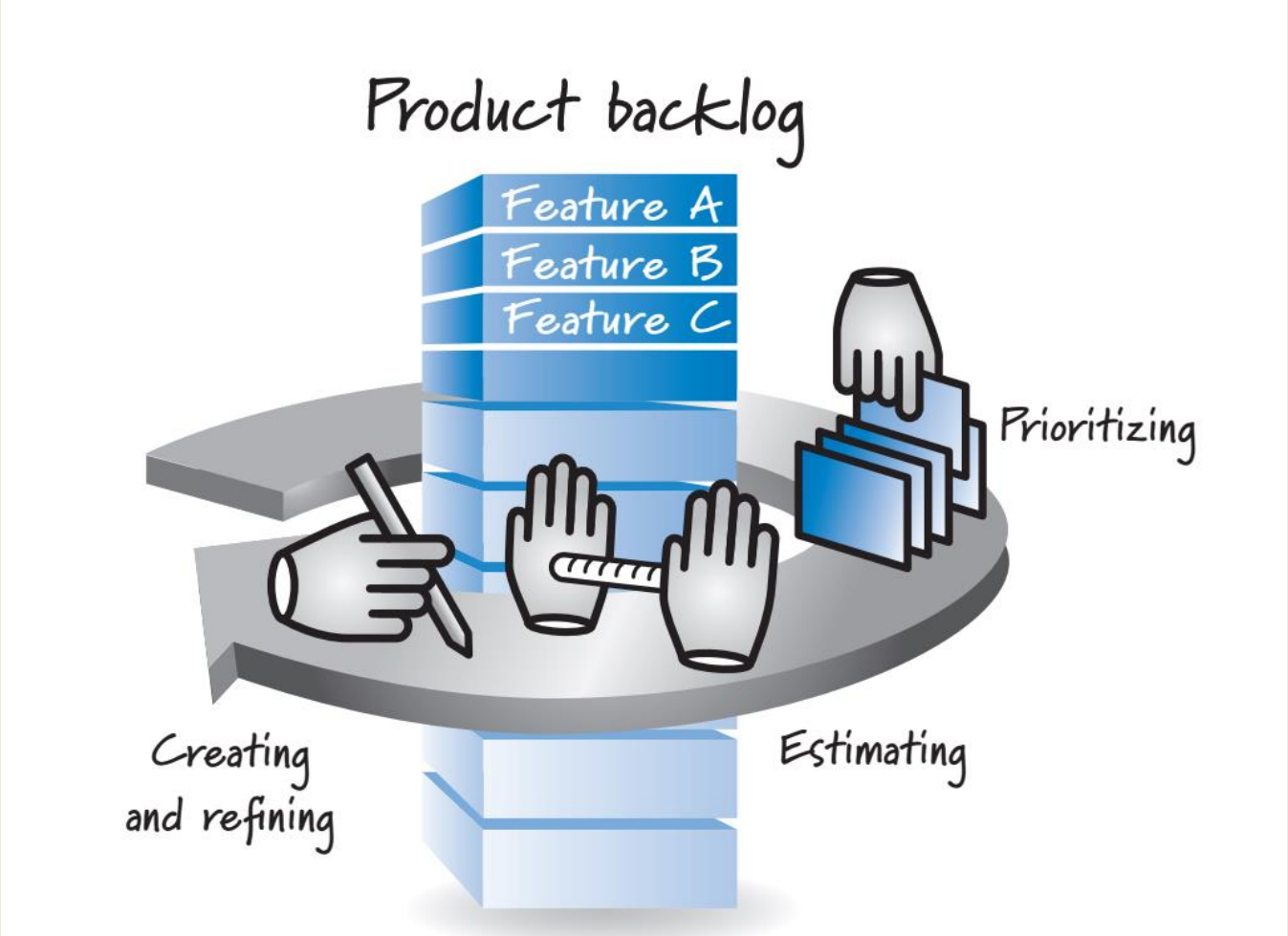
are placed in the correct sequence (using factors such as value, cost, knowledge, and risk) so that the high-value items appear at the top of the product backlog and the lower-value items appear toward the bottom.



# Product Backlog(IV)

- The product backlog is a constantly **evolving** artifact.
- Items can be added, deleted, and revised by the product owner as business conditions change, or as the Scrum team's understanding of the product grows (through feedback on the software produced during each sprint).
- Activity of creating and refining product backlog items, estimating them, and prioritizing them is known as **grooming**.

# Grooming


Product backlog
Feature A
Feature B
Feature C
Prioritizing
Creating
and refining
Estimating

# Sprint(I)

- In Scrum, work is performed in iterations or cycles of up to a calendar m
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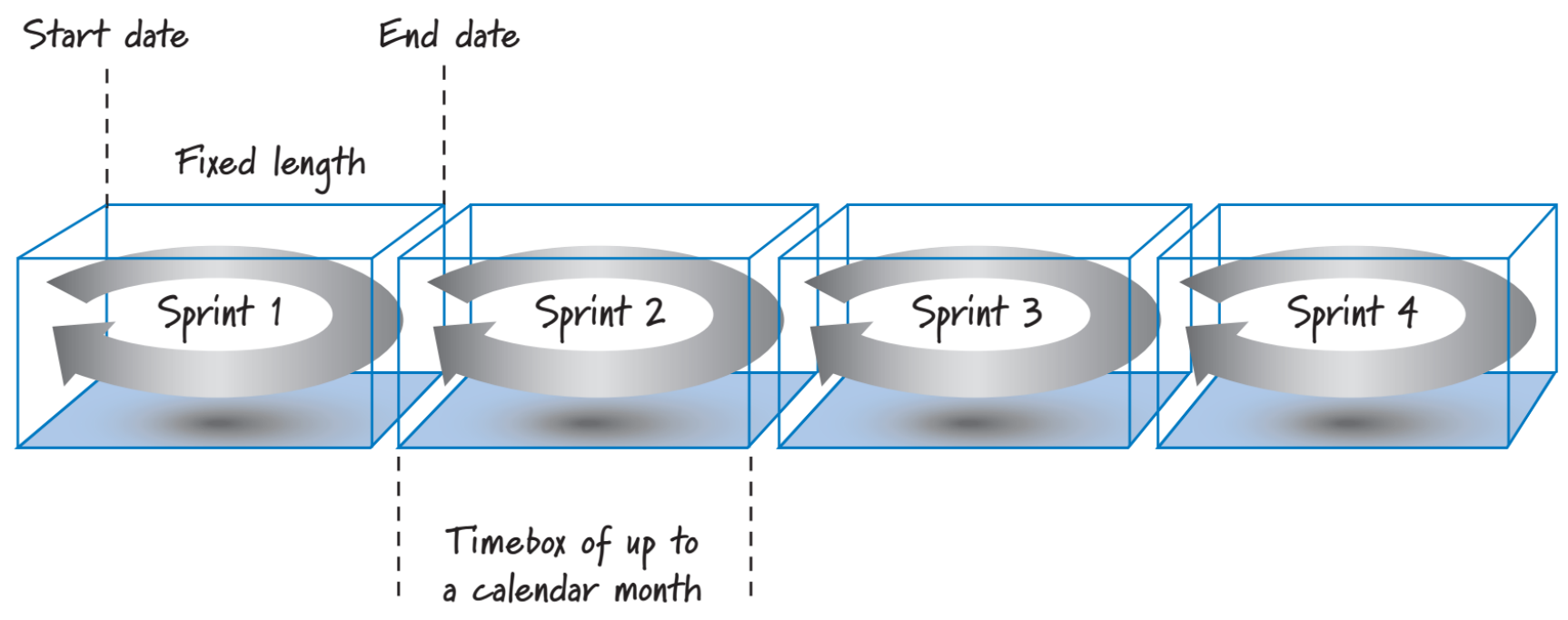


# Sprint(II)

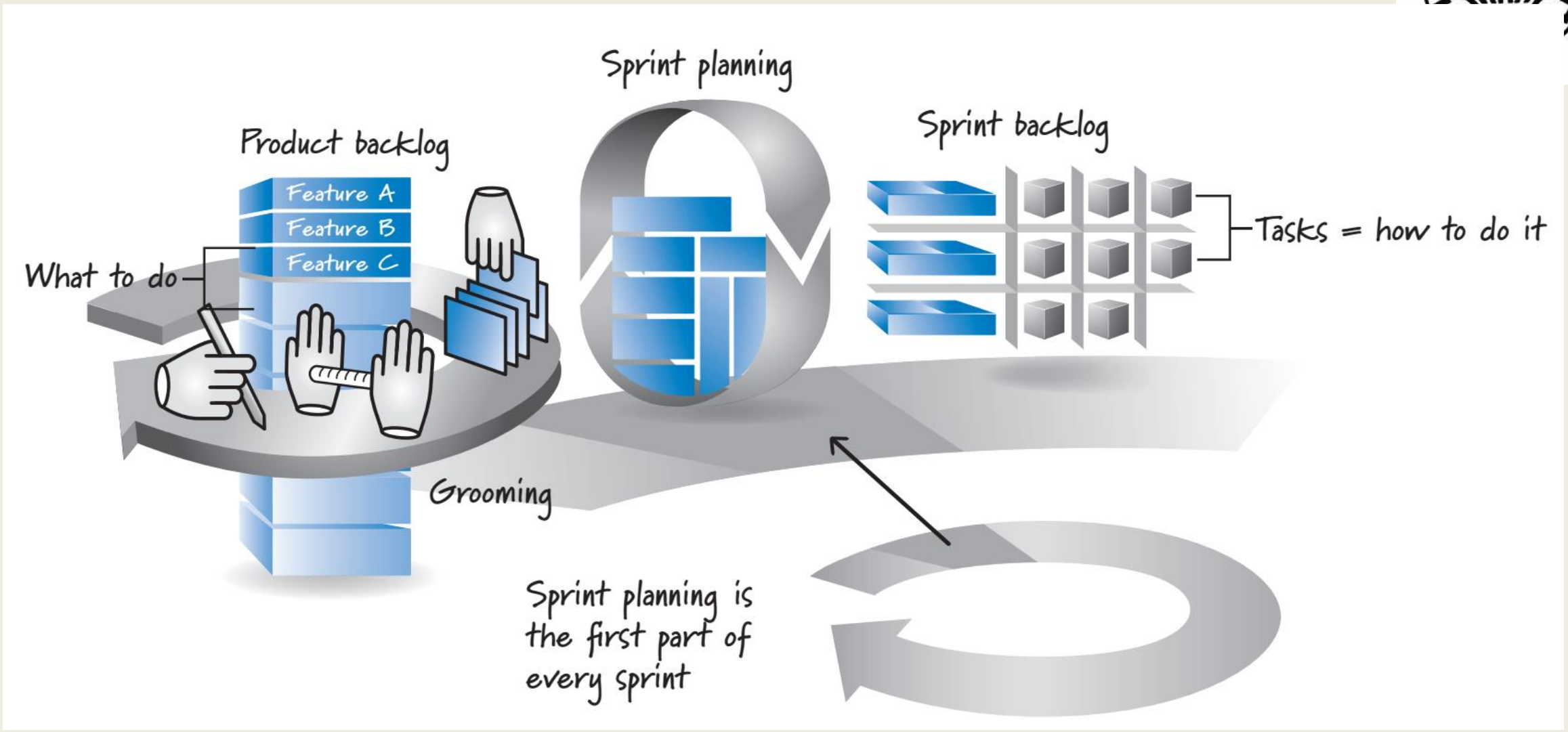
- The work completed in each sprint should create something of tangible value to the customer or user.
- Sprints are time-boxed so they always have a fixed start and end date, and generally they should all be of the same duration.
- A new sprint immediately follows the completion of the previous sprint.
- As a rule we do not permit any goal-altering changes in scope or personnel during a sprint;

# Sprint planning(I)

- A product backlog may represent many weeks or months of work, which is much more than can be completed in a single, short sprint.
- The most important subset of product backlog items to build in the next sprint is determined by product owner, development team, and Scrum Master.
- During, the product owner and development team agree on a **sprint goal** that defines what the upcoming sprint is supposed to achieve.

# Sprint planning(II)

- At the beginning of each Sprint, the Sprint Planning Meeting takes place.
- The Product Owner and Scrum Team review the Product Backlog, discuss the goals and context for the items, and the Scrum Team selects the items from the Product Backlog to commit to complete by the end of the Sprint, starting at the top of the Product Backlog.
- Each item selected from the Product Backlog is designed and then broken down to a set of individual tasks.
- The list of tasks is recorded in a document called the Sprint Backlog.

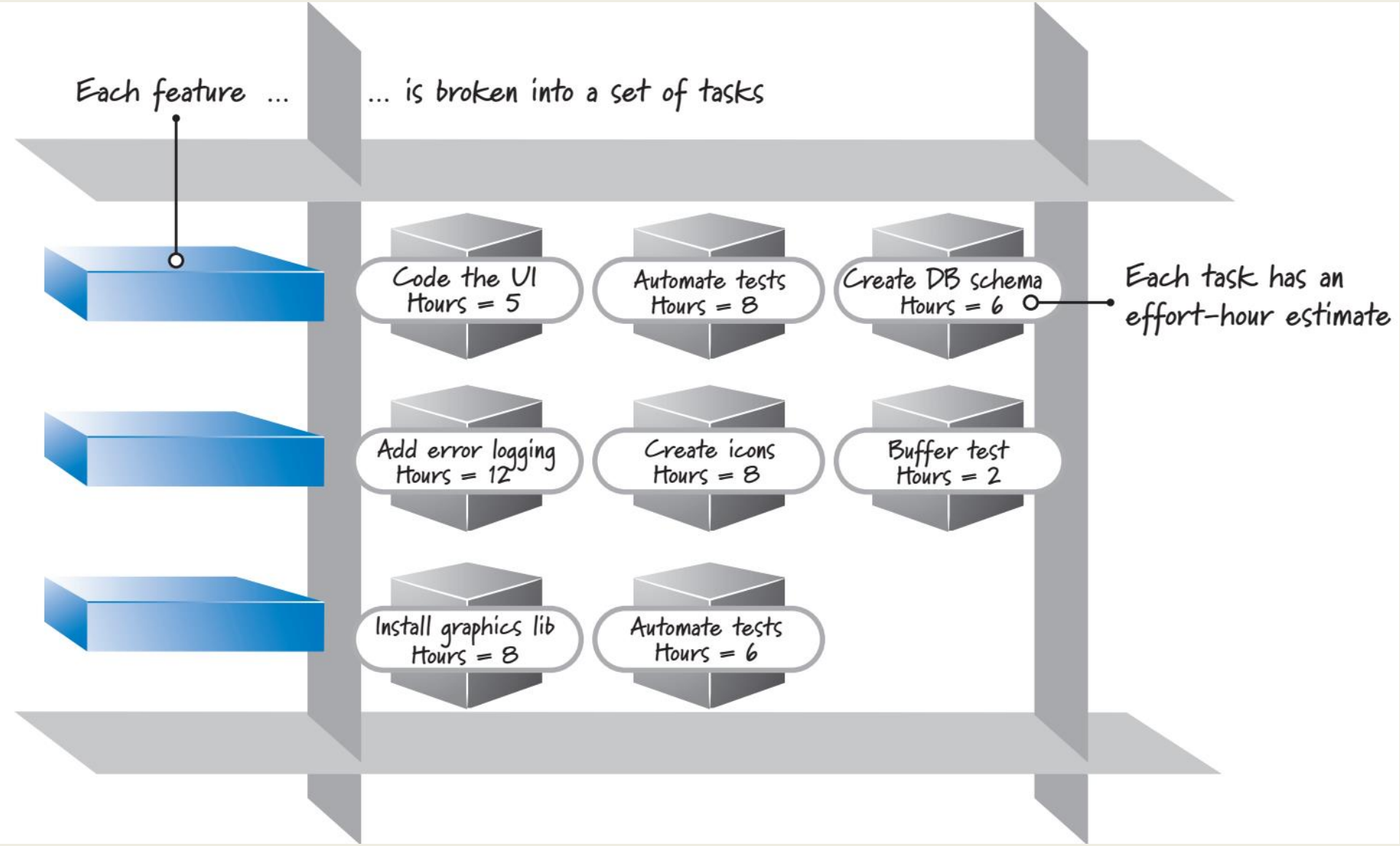

Sprint planning
Product backlog
Sprint backlog
Feature A
Feature B
Feature C
What to do
Tasks = how to do it
Grooming
Sprint planning is the first part of every sprint

# Sprint planning(IV)

- Using the goal, the development team reviews the product backlog and determines the high priority items that the team can realistically accomplish in the upcoming sprint while working at a **sustainable pace**—a pace at which the development team can comfortably work for an extended period of time.

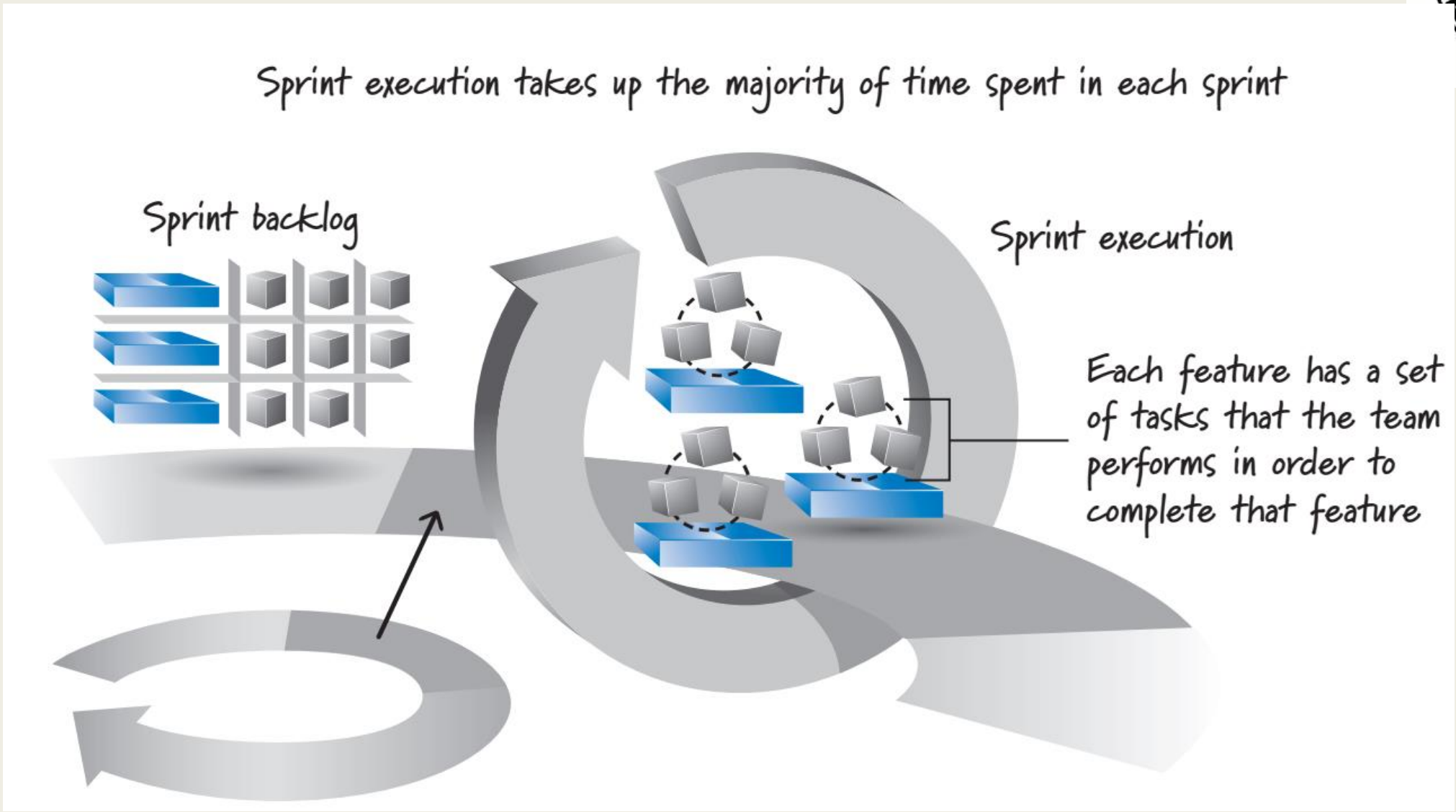
# Sprint planning(V)

- To acquire confidence in what it can get done, many development teams break down each targeted feature into a set of tasks. The collection of these tasks, along with their associated product backlog items, forms a second backlog called the **sprint backlog**.
- The development team then provides an estimate (typically in hours) of the effort required to complete each task. Breaking product backlog items into tasks is a form of design and just-in-time planning for how to get the features done.


Each feature ...
... is broken into a set of tasks
Code the UI
Hours = 5
Automate tests
Hours = 8
Create DB schema
Hours = 6
Each task has an
effort-hour estimate
Add error logging
Hours = 12
Create icons
Hours = 8
Buffer test
Hours = 2
Install graphics lib
Hours = 8
Automate tests
Hours = 6

# Sprint execution(I)

- Once the Scrum team finishes sprint planning and agrees on the content of the next sprint, the development team, guided by the Scrum Master's coaching, performs all of the task-level work necessary to get the features done, where "done" means there is a high degree of confidence that all of the work necessary for producing good-quality features has been completed.


Sprint execution takes up the majority of time spent in each sprint
Sprint backlog
Sprint execution
Each feature has a set of tasks that the team performs in order to complete that feature

# Sprint execution(III)

- Nobody tells the development team in what order or how to do the task-level work in the sprint backlog.

- Instead, team members define their own task-level work and then self-organize in any manner they feel is best for achieving the sprint goal.

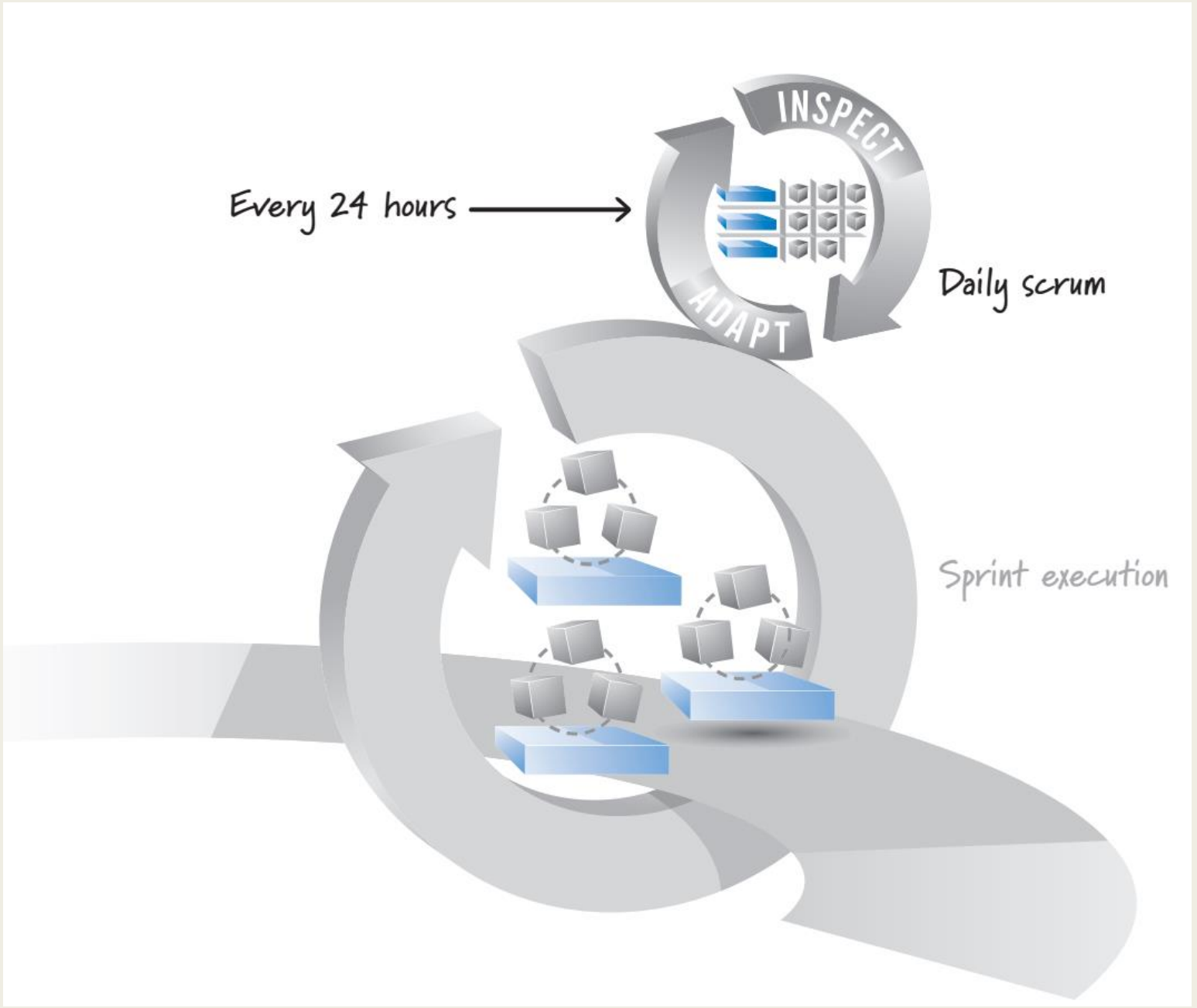
# Daily Scrum(I)

- Each day of the sprint, ideally at the same time, the development team members hold a time boxed (15 minutes or less) daily scrum.

- This inspect-and adapt activity is sometimes referred to as the daily stand-up because of the common practice of everyone standing up during the meeting to help promote brevity.

# Daily Scrum(II)

- This is a short meeting that happens every workday at an appointed time.
- Everyone on the team attends.
- At this meeting, the information needed to inspect progress is presented.
- This information may result in re-planning and further discussions immediately after the Daily Scrum.


Every 24 hours
INSPECT
ADAPT
Daily scrum
Sprint execution

# Daily Scrum(IV)

- A common approach to performing the daily scrum has the Scrum Master facilitating and each team member taking turns answering three questions.
  1. *What did I accomplish since the last daily scrum?*
  2. *What do I plan to work on by the next daily scrum?*
  3. *What are the obstacles or impediments that are preventing me from making progress?*
- By answering these questions, everyone understands the big picture of what is occurring, how they are progressing toward the sprint goal, any modifications they want to make to their plans for the upcoming day's work, and what issues need to be addressed.

# Daily Scrum(V)

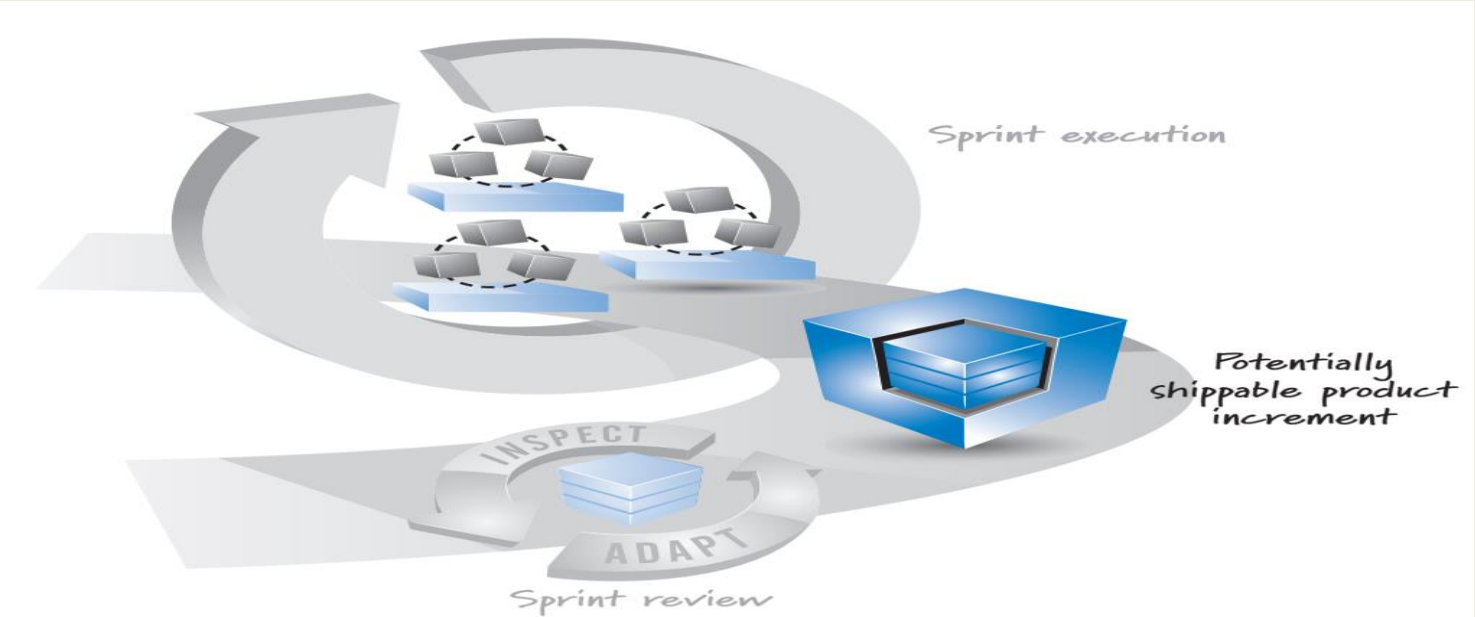
- Is essential for helping the development team manage the fast, flexible flow of work within a sprint.
- Is not a problem-solving activity.
- Is not a traditional status meeting, especially the kind historically called by project managers so that they can get an update on the project's status.

# Daily Scrum(VI)

- Can be useful to communicate the status of sprint backlog items among the development team members.
- Mainly, the daily scrum is an inspection, synchronization, and adaptive daily planning activity that helps a self-organizing team do its job better.

# Sprint result: potentially shippable product increment(I)

- Whatever the Scrum team agreed to do is really done according to its agreed-upon definition of done.
- Specifies the degree of confidence that the work completed is of good quality and is potentially shippable.



# Potentially shippable product increment(II)

- Bare-minimum definition of done should yield a complete slice of product functionality that is designed, built, integrated, tested, and documented.
- An aggressive definition of done enables the business to decide each sprint if it wants to ship (or deploy or release) what got built to internal or external customers.

# Potentially shippable product increment(III)

- “potentially shippable” does not mean that what got built must actually be shipped.
- Shipping is a business decision, which is frequently influenced by things.
  - *“Do we have enough features or enough of a customer workflow to justify a customer deployment?”*
  - *“Can our customers absorb another change given that we just gave them a release two weeks ago?”*

# Potentially shippable product increment(IV)

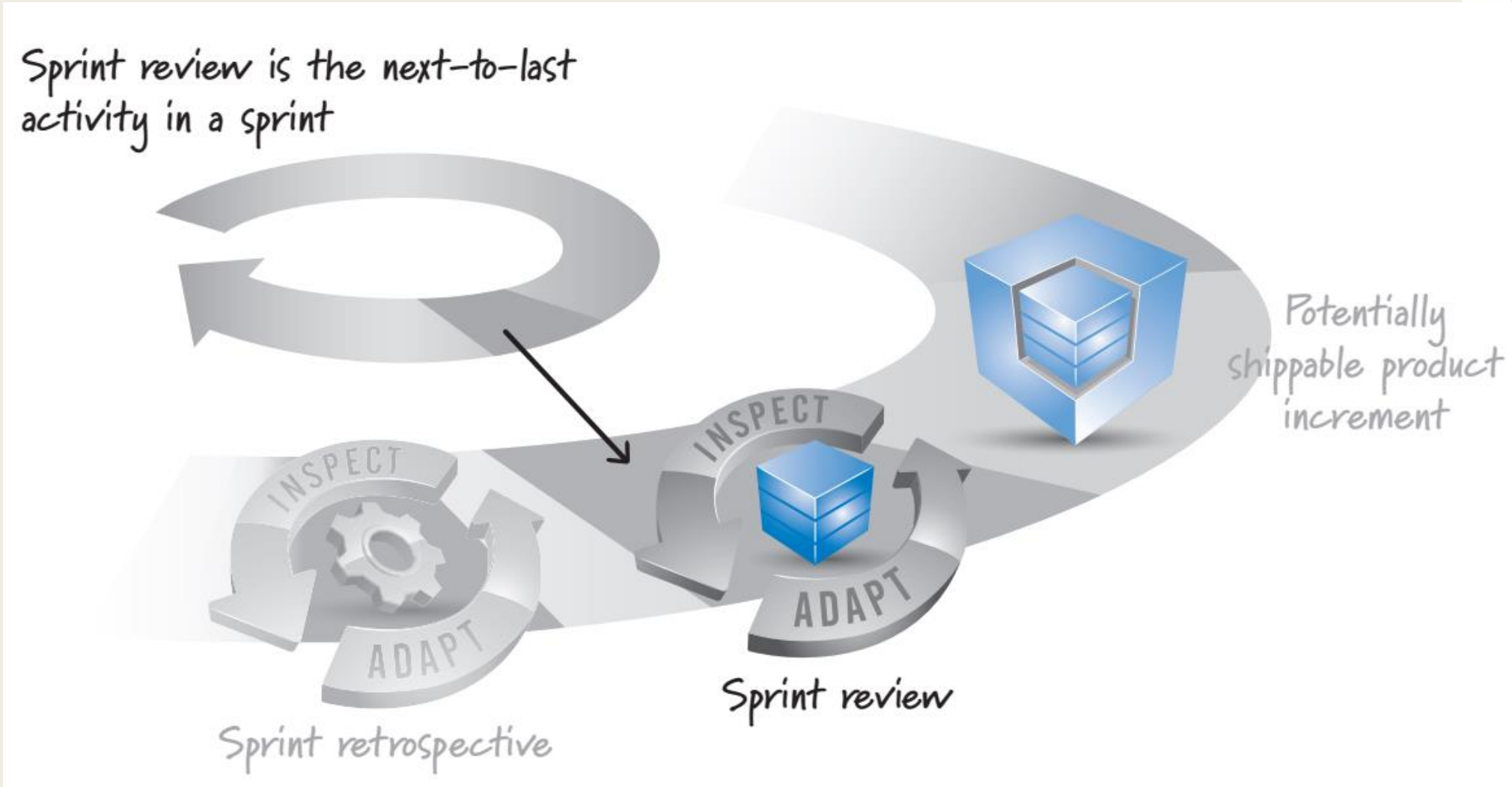
- Potentially shippable is better thought of as a state of confidence that what got built in the sprint is actually done, meaning that there isn't materially important undone work (such as important testing or integration and so on) that needs to be completed before we can ship the results from the sprint, if shipping is our business desire.

# Sprint Review(I)

- After the Sprint ends, there is the Sprint Review, where the Scrum Team and stakeholder inspect what was done during the Sprint, discuss it, and figure out what to do next.
- Product Owner, Team Members, and ScrumMaster, plus customers, stakeholders, experts, executives, and anyone else interested are presented.

# Sprint Review(II)

- The goal is to inspect and adapt the **product** that is being built.
- Critical to this activity is the conversation that takes place among its participants.
- The conversation is focused on reviewing the just-completed features in the context of the overall development effort.

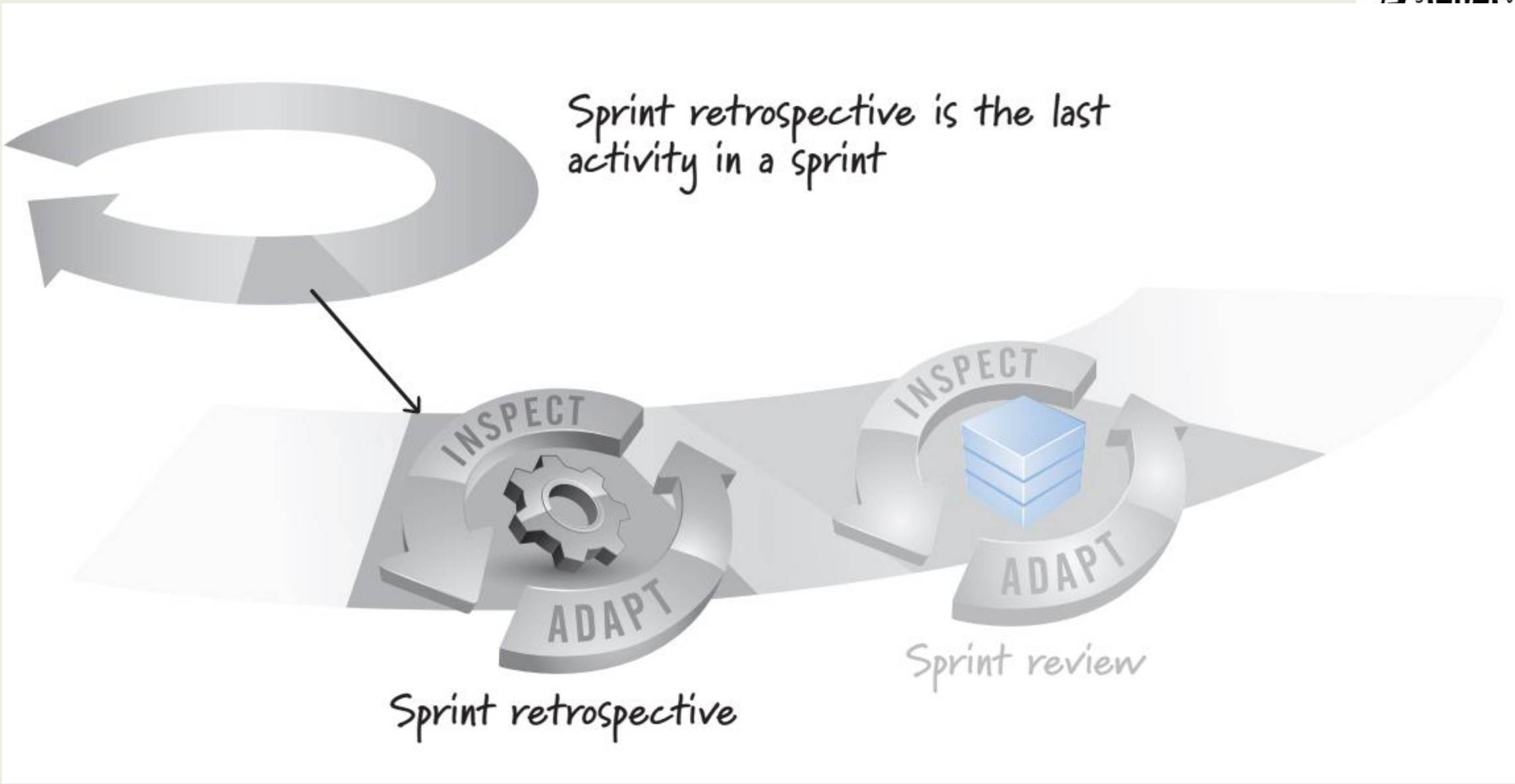

Sprint review is the next-to-last activity in a sprint
Potentially shippable product increment
INSPECT
ADAPT
Sprint retrospective
INSPECT
ADAPT
Sprint review

# Sprint Retrospective(I)

- The second activity at the end of the sprint.
- This activity frequently occurs after the sprint review and before the next sprint planning.
- Is an opportunity to inspect and adapt the process.

# Sprint Retrospective(II)

- Following the Sprint Review, the team gets together for the Sprint Retrospective which is an opportunity for the team to discuss what's working and what's not working, and agree on changes to try.


Sprint retrospective is the last activity in a sprint
INSPECT
ADAPT
INSPECT
ADAPT
Sprint review
Sprint retrospective

# Sprint Retrospective(IV)

- During,  development team, Scrum Master, and product owner come together to discuss what is and is not working with Scrum and associated technical practices.
- The focus is on the continuous process improvement necessary to help a good Scrum team become great.
- At the end of a sprint retrospective the Scrum team should have identified and committed to a practical number of process improvement actions that will be undertaken by the Scrum team in the next sprint.

After the sprint retrospective is completed,

the whole cycle is repeated again—
starting with the next sprint-planning session,

to determine the current highest value set of work

for the team to focus on.

# Reference

1- K. S. Rubin, “Essential Scrum, A Practical guide to the most popular agile process,” 2013.

2- J. Sutherland, “Scrum handbook,” 2010.