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# **Chapter 3**

## **Agile Software Development cont...**

### **DAY 3**



# SCRUM

# SCRUM

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- ✧ What is SCRUM and Why it is important?
- ✧ How SCRUM works?
- ✧ SCRUM Roles
- ✧ SCRUM Ceremonies
- ✧ SCRUM Artifacts

# SCRUM after Rugby



- ✧ A **scrum** (short for **scrummage**) is a method of restarting play in rugby that involves players packing closely together with their heads down and attempting to gain possession of the ball.



- ✧ Like in a rugby match, one cross-functional team passes the "ball" back and forth on the way to the "goal line."

# What is SCRUM?

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- ✧ a framework for completing complex projects
- ✧ helps teams work together
- ✧ encourages teams to
  - learn through experiences,
  - self-organize while working on a problem,
  - reflect on their wins and losses to continuously improve.
- ✧ achieve highest business value within the shortest time

# What is scrum?



✧ Scrum is:

- Lightweight
- Simple to understand
- Difficult to master

“you don’t  
know what  
you don’t  
know, until  
you know you  
don’t know it”



# How Scrum Works



## The Agile: Scrum Framework at a glance

Inputs from Executives,  
Team, Stakeholders,  
Customers, Users



**Product Owner**



**The Team**



**Product Backlog**

Team selects starting at top as much as it can commit to deliver by end of Sprint

**Sprint Planning Meeting**



**Sprint Backlog**



# Scrum three phases

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## ✧ The initial phase

- an outline planning phase
- establish the general objectives for the project and design the software architecture.

## ✧ A series of sprint cycles

- each cycle develops an increment of the system.

## ✧ The project closure phase

- wraps up the project,
- completes required documentation such as system help frames and user manuals and
- assesses the lessons learned from the project.





Product Owner,  
Development Team, and  
Scrum Master.

# SCRUM ROLES

# SCRUM Roles: Product Owner



- ✧ Setting clear direction / vision
- ✧ Ensure that they are delivering the most value
  - tells the development what is important to deliver
  - Trust between two teams
- ✧ balances the needs of other stakeholders in the organization



# SCRUM Roles: Product Owner



- ✧ The sole person responsible for managing the Product Backlog (Ref: <https://www.scrumguides.org/scrum-guide.html>)
- Clearly expressing Product Backlog items;
  - Ordering the items in the Product Backlog to best achieve goals and missions;
  - Optimizing the value of the work the Development Team performs;
  - Ensuring that the Product Backlog is visible, transparent, and clear to all, and shows what the Scrum Team will work on next;
  - Ensuring the Development Team understands items in the Product Backlog to the level needed.

# SCRUM Roles: Product Owner

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Scrum myth: The product owner creates all the requirements, writes all the acceptance criteria and builds all the stories.

# SCRUM Roles: Development Team



- ✧ comprised of all kinds of people including designers, writers, programmers, etc.
- ✧ team member who has the right skills, as part of the team to do the work



# SCRUM Roles: Development Team



## ✧ Responsibilities

- Delivering the work through the sprint.
- ensure transparency during the sprint
- meet daily at the daily scrum (standup).
- talk about success and highlight issues and blockers.
- run the meeting



Scrum myth: Scrum developer means that only coders can be part of a scrum team

# SCRUM Roles: SCRUM Master



- ✧ responsible for holding everything together and ensuring that scrum is being done well.
- ✧ Problem solver



# SCRUM Roles: SCRUM Master



- ✧ Transparency - ensure that the scrum team works in a transparent way.
- ✧ Empiricism - the best way of planning is to do work and learn from it, coach the scrum team on breaking down work, describing clear outcomes and reviewing those outcomes.
- ✧ Self Organization - comes over time and requires help and support, encourage team members to step outside their comfort zone and try different things
- ✧ Values - courage, focus, commitment, respect, and openness



# SCRUM Roles: SCRUM Master

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Scrum myth: The scrum master has to run the daily scrum. In fact, the scrum master does not run any of the events just ensures they happen and that they are successful.



Sprint

Sprint Planning

Daily Stand-up

Iteration review

Retrospective

# **SCRUM EVENTS/ CEREMONIES / MEETINGS**

# The Scrum sprint cycle



- ✧ short, time-boxed period when a scrum team works to complete a set amount of work
- ✧ make projects more manageable, allow teams to ship high-quality work faster and more frequently, and gives them more flexibility to adapt to change



# The Scrum sprint cycle

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- ✧ Sprints are fixed length, normally 2–4 weeks.
- ✧ The starting point for planning is the product backlog, which is the list of work to be done on the project.
- ✧ The selection phase involves all of the project team who work with the customer to select the features and functionality from the product backlog to be developed during the sprint.

# Sprint: Do's and Don'ts



- ✧ Understand the **sprint goal** and how success will be measured.
- ✧ Ensure a **well-groomed backlog** with priorities and dependencies in order.
- ✧ Ensure good understanding of **velocity**.
- ✧ Encourage team members to **sketch out tasks** for all stories, bugs, and tasks that come into the sprint.
- ✧ Leave out work where you won't be able to get the dependencies done, like work from another team, designs etc.
- ✧ Make sure to capture the information in the project

# Sprint: Do's and Don'ts



- ✧ Don't pull in too many stories, overestimate velocity, or pull in tasks that can't be completed in the sprint
- ✧ Don't forget about quality, budget time for QA
- ✧ Don't focus so much on moving *fast*, make sure every one's moving in *the same direction*.
- ✧ Break down stories that are large or have high uncertainty, and leave some of work for the next sprint.
- ✧ If there are concerns from the team, address the issue, and recalibrate when necessary.

# SCRUM Ceremonies / Meetings

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- ✧ important part of agile development.
- ✧ Do it in a meaningful way
  - add some ceremonies to a waterfall project and call it "agile", but this will get you no-where
- ✧ A number of ceremonies come from the practice.
- ✧ The concepts behind these ceremonies can be applied to other forms of agile like Kanban or lean.
- ✧ "Sprint" is a scrum-specific term.
  - Other forms of agile use the more generic term "iteration" to indicate a time-boxed period of development.

# SCRUM Ceremonies: Sprint Planning



- ✧ **Attendees:** development team, scrum master, product owner
- ✧ **When:** At the beginning of a sprint.
- ✧ **Duration:** Usually an hour per week of iteration (a two-week sprint: two-hour planning meeting)
- ✧ **Purpose:** flesh out intimate details of the work that needs to get done.
  - the product owner will have a prioritized product backlog.
  - discuss each item
  - the group collectively estimates the effort involved.
  - make a sprint forecast outlining how much work the team can complete from the product backlog (sprint backlog)



# SCRUM Ceremonies: Daily Stand-up

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- ✧ **Attendees:** development team, scrum master, product owner
- ✧ **When:** Once per day, typically in the morning.
- ✧ **Duration:** No more than 15 minutes. Don't book a conference room and conduct the stand up sitting down. Standing up helps keep the meeting short!

# SCRUM Ceremonies: Daily Stand-up



- ✧ **Purpose:** Quickly inform everyone of what's going on across the team. Not a detailed status meeting. The tone should be light and fun, but informative. Each team member should answer,
  - What did I complete yesterday?
  - What will I work on today?
  - Am I blocked by anything?
- ✧ No one wants to be a team member who is constantly doing the same thing and not making progress.

# SCRUM Ceremonies: Iteration/Sprint review



## ✧ Attendees:

- **Required:** development team, scrum master, product owner
- **Optional:** project stakeholders

✧ **When:** At the end of a sprint or milestone.

✧ **Duration:** 30-60 minutes.

✧ **Purpose:** showcase the work of the team.

- celebrate the accomplishments,
- demonstrate work finished within the iteration, and
- get immediate feedback from project stakeholders.
- work should be fully demonstrable and meet the team's quality bar to be considered complete and ready to showcase in the review.

# SCRUM Ceremonies: Sprint Retrospective



- ✧ **Attendees:** development team, scrum master, product owner
- ✧ **When:** At the end of an iteration.
- ✧ **Duration:** 60 minutes.

## A Typical Sprint Retrospective Model



# SCRUM Ceremonies: Sprint Retrospective



✧ **Purpose:** help the team understand what worked well—and what didn't.

- aren't just a time for complaints without action.
- find out what's working so the team can continue to focus on those areas.
- find out what's not working and use the time to find creative solutions and develop an action plan.
- Continuous improvement



Product Backlog

Sprint Backlog

Increment

# SCRUM ARTIFACTS

# SCRUM Artifacts: Product Backlog

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- ✧ Ordered list of everything that is known to be needed in the product
- ✧ never complete
- ✧ lists all features, functions, requirements, enhancements, and fixes that constitute the changes to be made to the product in future releases.

# SCRUM Artifacts: Sprint Backlog

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- ✧ set of Product Backlog items selected for the Sprint.
- ✧ a forecast by the Development Team about what functionality will be in the next Increment.
- ✧ modifies the Sprint Backlog throughout the Sprint.



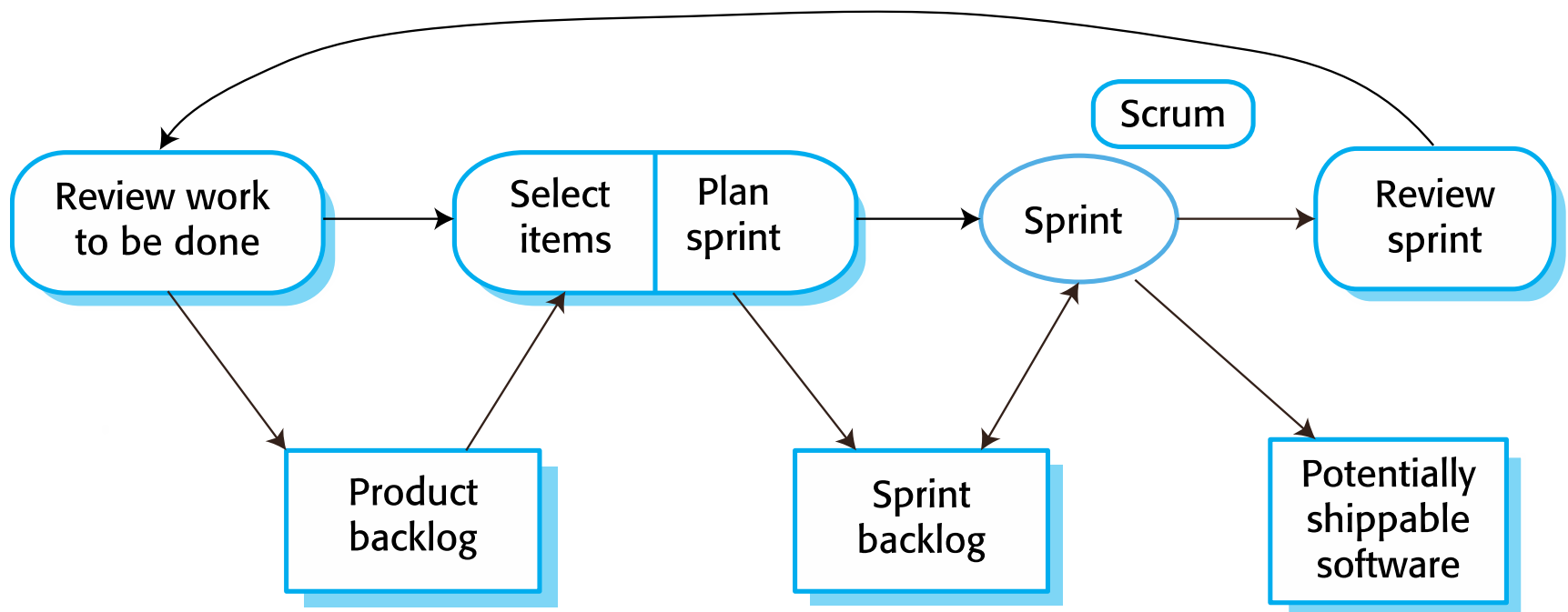
# SCRUM Artifacts: Increment

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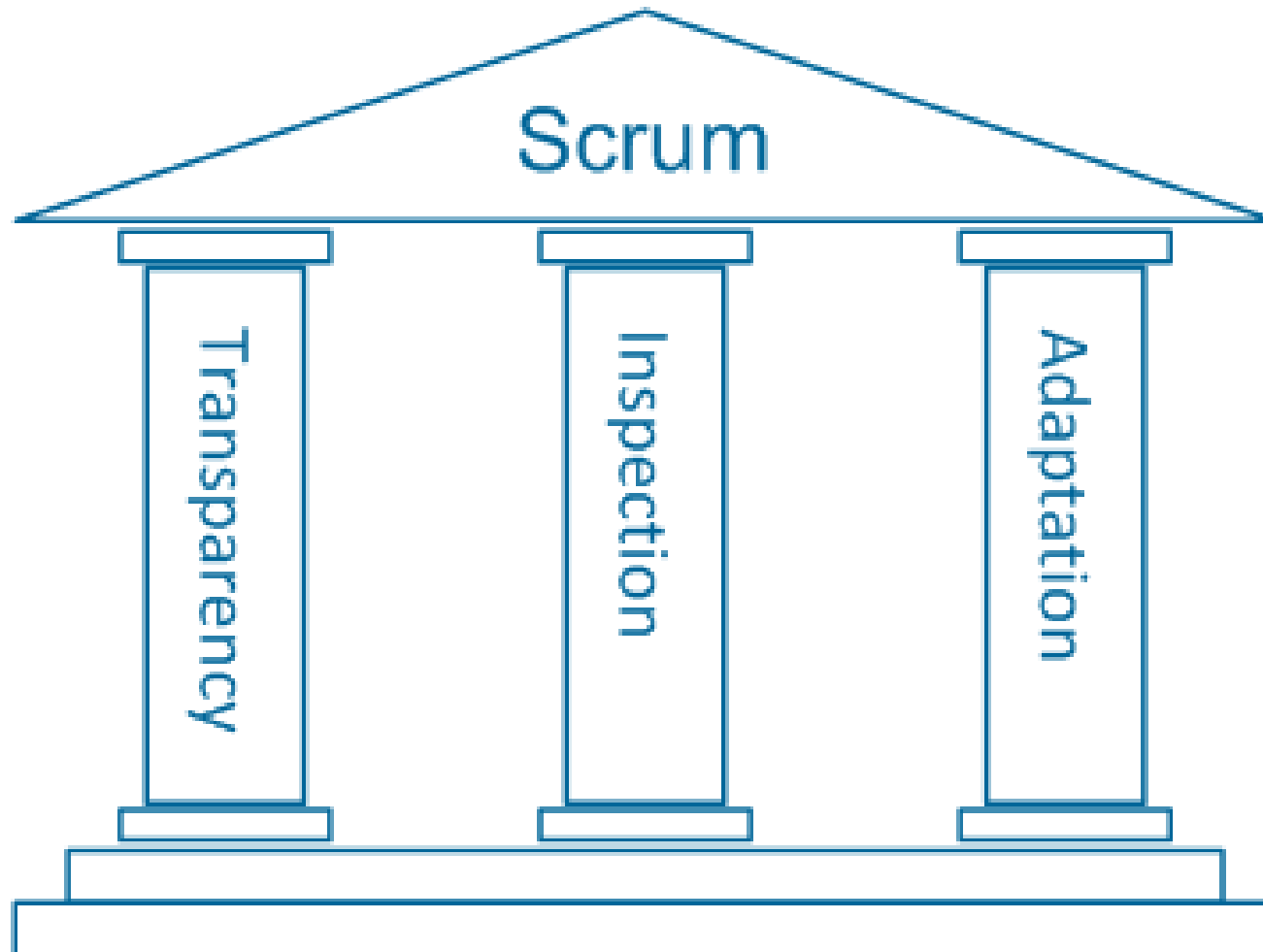


- ✧ the sum of all the Product Backlog items completed during a Sprint
- ✧ At the end of a Sprint, the new Increment must be "Done,"
- ✧ The increment must be in useable condition regardless of whether the Product Owner decides to release it.

# Scrum sprint cycle



# Scrum Three pillars



# Scrum Benefits

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- ✧ The product is broken down into a set of manageable and understandable chunks.
- ✧ Unstable requirements do not hold up progress.
- ✧ The whole team have visibility of everything and consequently team communication is improved.
- ✧ Customers see on-time delivery of increments and gain feedback on how the product works.
- ✧ Trust between customers and developers is established
- ✧ A positive culture is created in which everyone expects the project to succeed.

# Scrum terminology



Scrum term	Definition
Development team	A self-organizing group of software developers, which should be no more than seven people. They are responsible for developing the software and other essential project documents.
Potentially shippable product increment	The software increment that is delivered from a sprint. The idea is that this should be “potentially shippable,” which means that it is in a finished state and no further work, such as testing, is needed to incorporate it into the final product. In practice, this is not always achievable.
Product backlog	This is a list of “to do” items that the Scrum team must tackle. They may be feature definitions for the software, software requirements, user stories, or descriptions of supplementary tasks that are needed, such as architecture definition or user documentation.
Product owner	An individual (or possibly a small group) whose job is to identify product features or requirements, prioritize these for development, and continuously review the product backlog to ensure that the project continues to meet critical business needs. The Product Owner can be a customer but might also be a product manager in a software company or other stakeholder representative.
Scrum	A daily meeting of the Scrum team that reviews progress and prioritizes work to be done that day. Ideally, this should be a short face-to-face meeting that includes the whole team.

# Scrum terminology cont...



## ScrumMaster

The ScrumMaster is responsible for ensuring that the Scrum process is followed and guides the team in the effective use of Scrum. He or she is responsible for interfacing with the rest of the company and for ensuring that the Scrum team is not diverted by outside interference. The Scrum developers are adamant that the ScrumMaster should not be thought of as a project manager. Others, however, may not always find it easy to see the difference.

## Sprint

A development iteration. Sprints are usually 2 to 4 weeks long.

## Velocity

An estimate of how much product backlog effort a team can cover in a single sprint. Understanding a team's velocity helps them estimate what can be covered in a sprint and provides a basis for measuring improving performance.



# KANBAN

# KANBAN- An Overview

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- ✧ Framework used to implement agile software development.
- ✧ Requires real-time communication of capacity and full transparency of work.
- ✧ Work items are represented visually on a Kanban board
- ✧ Visualize the work limit, work-in-progress(WIP) and quickly move work from "Doing" to "Done."
- ✧ Allow team members to see the state of every piece of work at any time.



# KANBAN- An Overview

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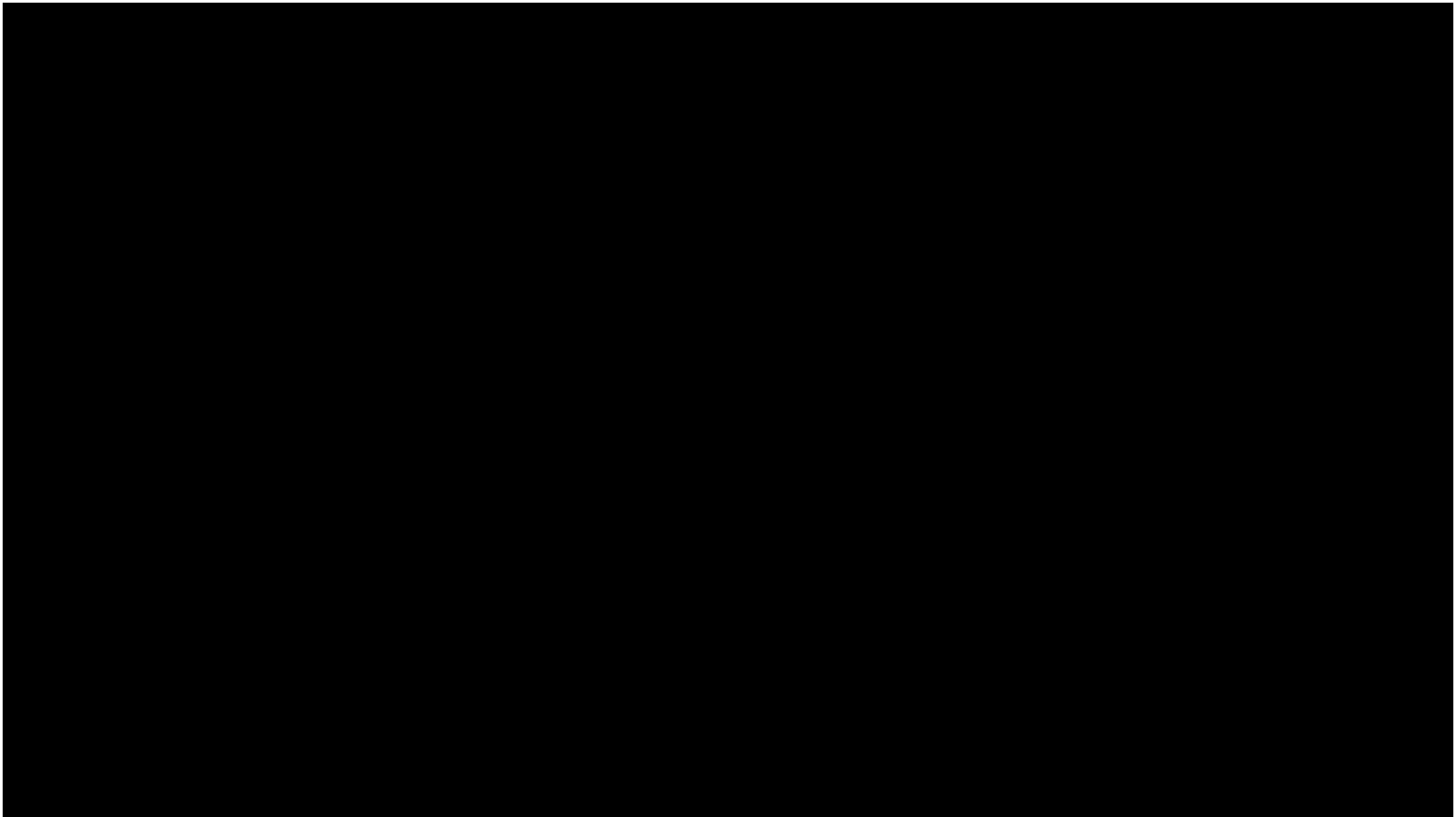


"Kanban" is the Japanese word for "visual signal." If you work in services or technology, your work is often times invisible and intangible. A kanban board helps make your work visible so you can show it to others and keep everyone on the same page.

# Kanban in 5 min

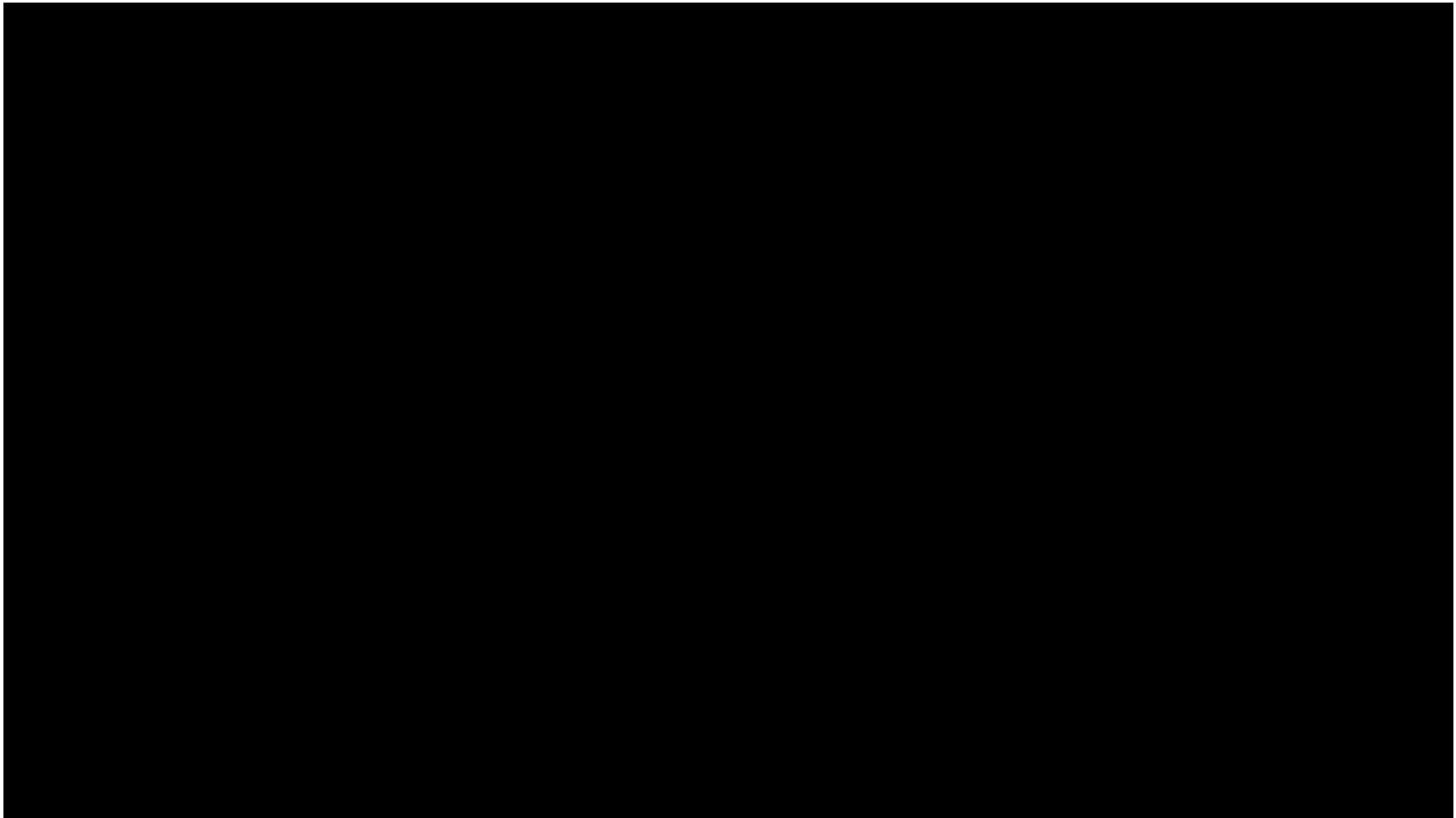
<https://www.youtube.com/watch?v=R8dYLbJiTUE>

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# Scrum vs Kanban

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Compare and contrast Scrum and Kanban

# ACTIVITY

# Scrum vs Kanban

<https://www.youtube.com/watch?v=9Jgu1BITISc>

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# References / Reading Material

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- ✧ <https://www.scrumguides.org/scrum-guide.html>
- ✧ <https://www.atlassian.com/agile/scrum>
- ✧ <https://www.versionone.com/what-is-kanban/>
- ✧ <https://www.smartsheet.com/agile-vs-scrum-vs-waterfall-vs-kanban>
- ✧ <https://www.crisp.se/file-uploads/Kanban-vs-Scrum.pdf>



Agile Software Development

# END OF SECTION 2