

Scrum

ESSENTIAL VOCABULARY AND BEHAVIORS



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Overview



Origins of Scrum

Principles

The Scrum Model

Roles

Artifacts

Ceremonies

Activities



Origins of Scrum

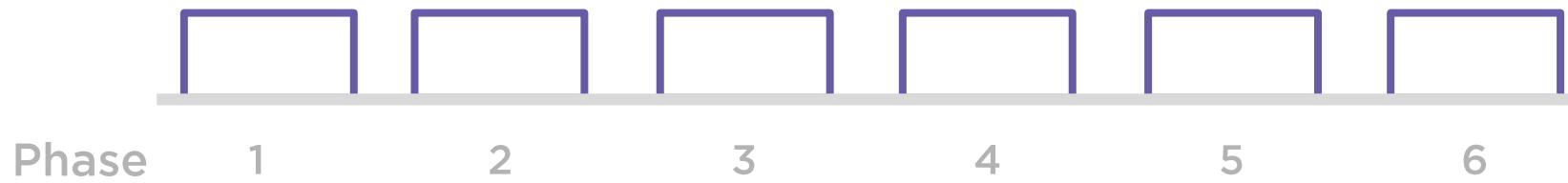
How this got started



The New New Product Game

Sequential (A) vs. overlapping (B & C) phases of development

Type A



Phase

1

2

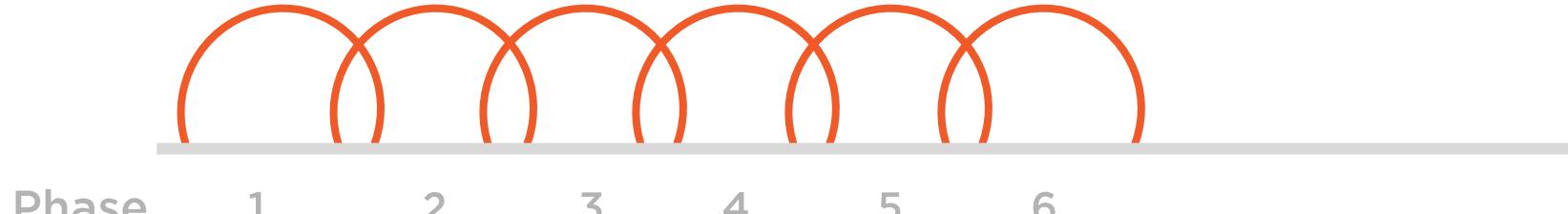
3

4

5

6

Type B



Phase

1

2

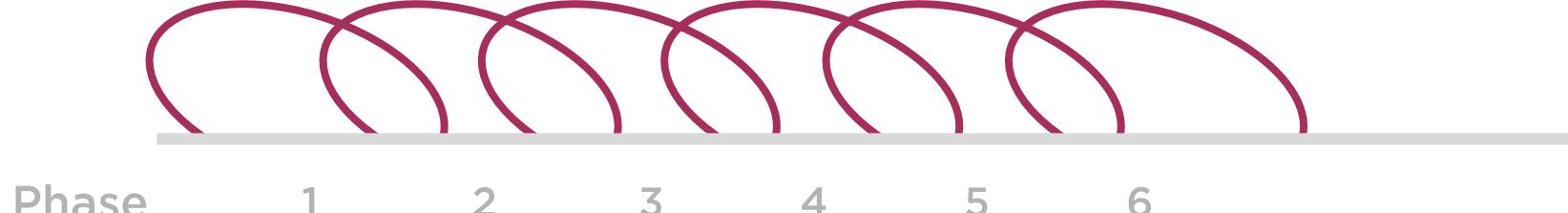
3

4

5

6

Type C



Phase

1

2

3

4

5

6



Lean Manufacturing: The Toyota Production System

Goals

- Design out overburden (Muri)
- Design out inconsistency (Mura)
- Eliminate waste (Muda)

Techniques

- Continuous improvement (Kaizen)
- Relentless reflection (Hansei)
- Production smoothing (Heijunka)
- Go see for yourself (Genchi Genbutsu)



Taiichi Ohno
Father of the Toyota
Production System

Image source:
https://en.wikipedia.org/wiki/Taiichi_Ohno



Learning Organizations

Peter Senge, author of *The Fifth Discipline* advocates that learning organizations:

Are adaptive to their external environment

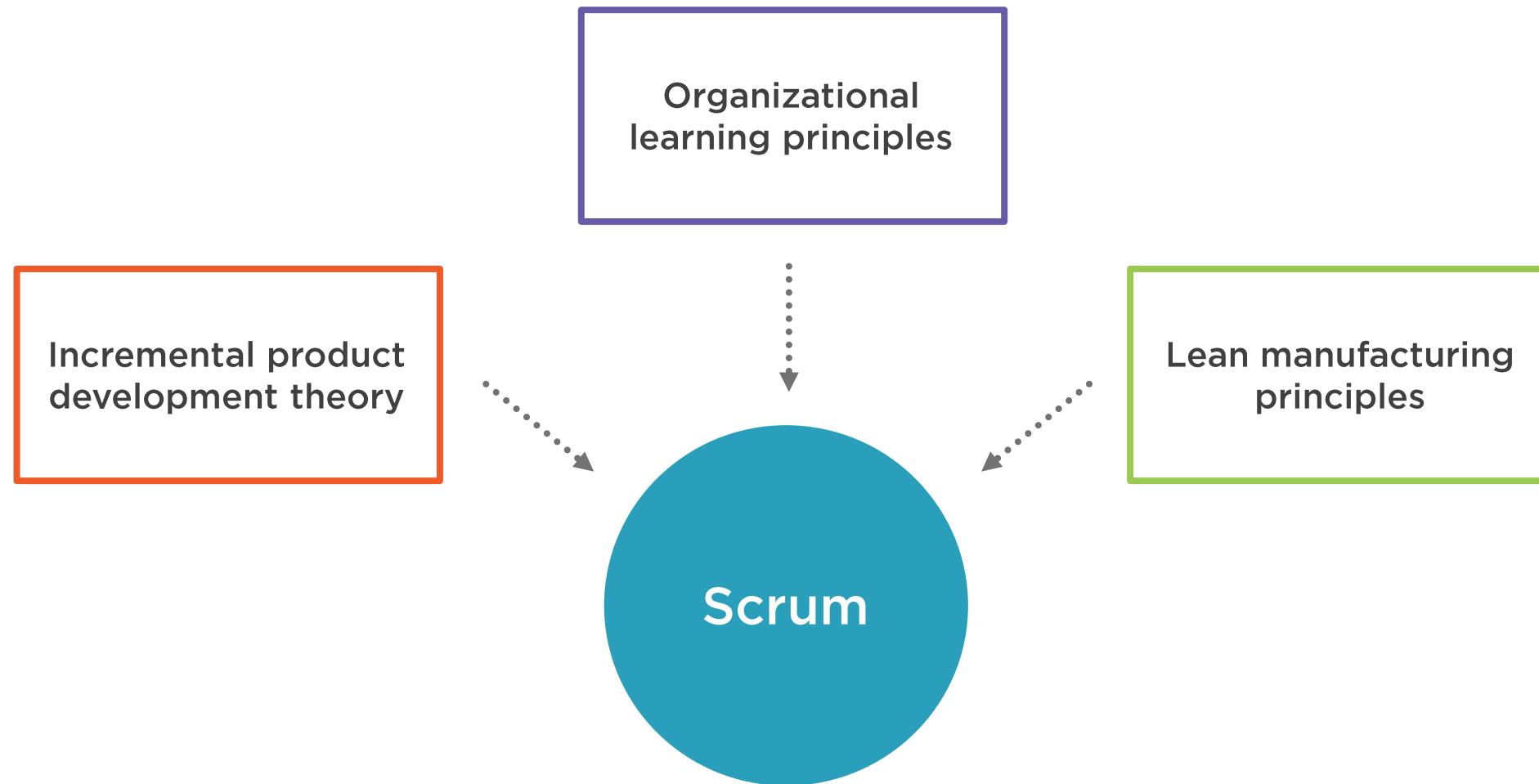
Continually enhance their capability to change/adapt

Develop collectively as well as individual learning

Use the results of learning to achieve better results



Deriving Scrum



Enter the Scrum Masters



Jeff Sutherland



Ken Schwaber

Co-presented Scrum as a formal practice at OOPSLA in 1995.

**Today, there are more than 5000 certified Scrum Masters
in the US, Europe and India.**

Image sources: https://en.wikipedia.org/wiki/Jeff_Sutherland, <https://www.scrum.org/team/ken-schwaber>



Recommended Books By Ken Schwaber



The Enterprise and Scrum
Agile Project Management with Scrum



Scrum Used Beyond Software Development as a Project Management Methodology

Jeff Sutherland's wife is a Unitarian minister who uses Scrum to manage her church.

His brother-in-law and son use it in NPR daily production.



Principles

Characteristics of Scrum



Scrum Promotes These Principles

Small working teams

Embracing changing requirements

Deliver finished work frequently

Small batches

Enable releasing product whenever required



Characteristics of Scrum



Activities are
time boxed



All project
metrics, reports
and deadlines
are prominently
displayed



Multi-disciplinary
and
self-organizing
teams



No specific
engineering
practices
prescribed



Characteristics of Scrum



Product progresses in a series of Sprints



Requirements are captured as items in a Product Backlog



Continuously test product as it is created



The Scrum Framework

The high level view



What Is It?

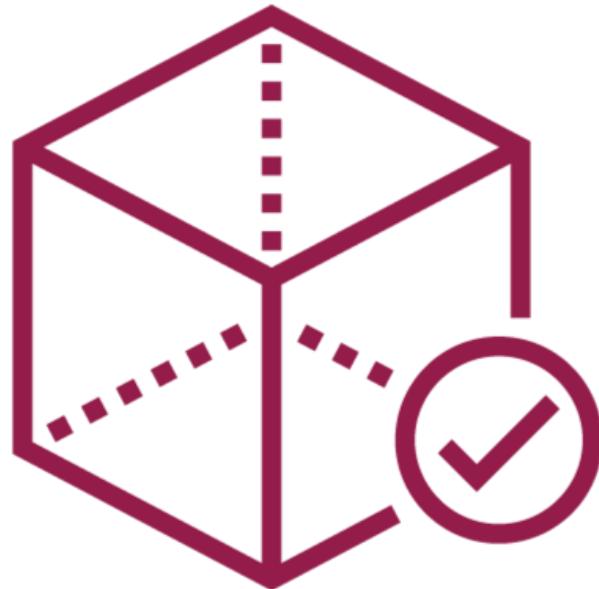
A project
management
technique

One of the
Agile practices

An effective way to
deliver products



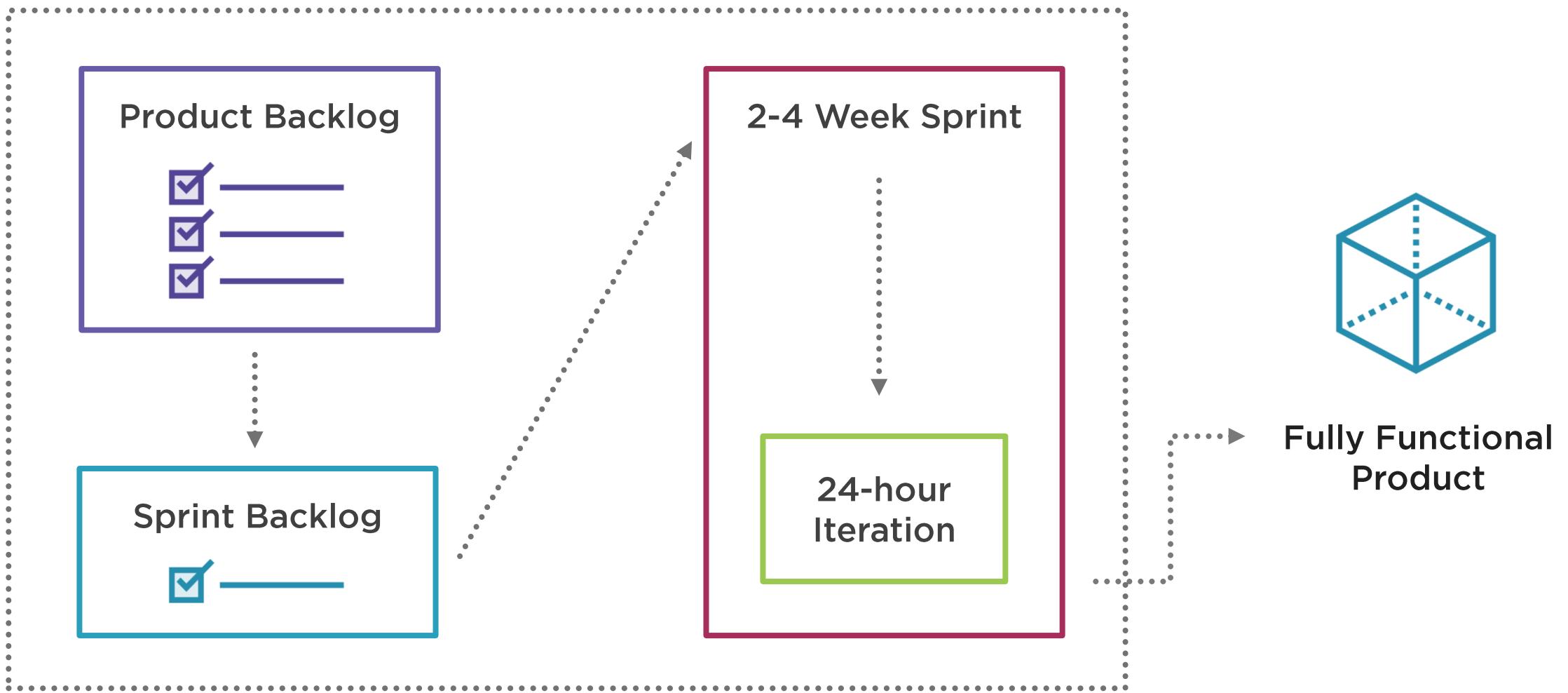
Scrum in a Nutshell



- 1. Schedule a demo with the customer**
- 2. Make product to show at demo**
- 3. Get feedback form the demo and use it to guide the next development work**



Scrum



Scrum is Used By

Microsoft	Intuit
Yahoo	Nielsen Media
Google	First American Real Estate
Electronic Arts	BMC Software
High Moon Studios	Ipswitch
Lockheed Martin	John Deere
Philips	Lexis Nexis
Borland	Sabre
Capital One	BBC



Scrum Is Used For

- | | |
|--|---|
| <p>Software development</p> <p>Fixed-price projects</p> <p>Financial applications</p> <p>ISO 9001-certified applications</p> <p>Embedded systems</p> <p>24x7 systems with 99.99% uptime requirements</p> <p>Large scale content development</p> <p>Some of the largest applications in use</p> | <p>The Joint Strike Fighter</p> <p>Video game development</p> <p>FDA-approved, life-critical systems</p> <p>Satellite-control software</p> <p>Websites</p> <p>Handheld software</p> <p>Mobile phones</p> <p>Network switching applications</p> <p>ISV applications</p> |
|--|---|



Roles

Who does what and why



Scrum Has These Roles



Scrum Lore: Chickens and Pigs

Chickens

Managers

Executives

Anyone on another team

Pigs

Team Members

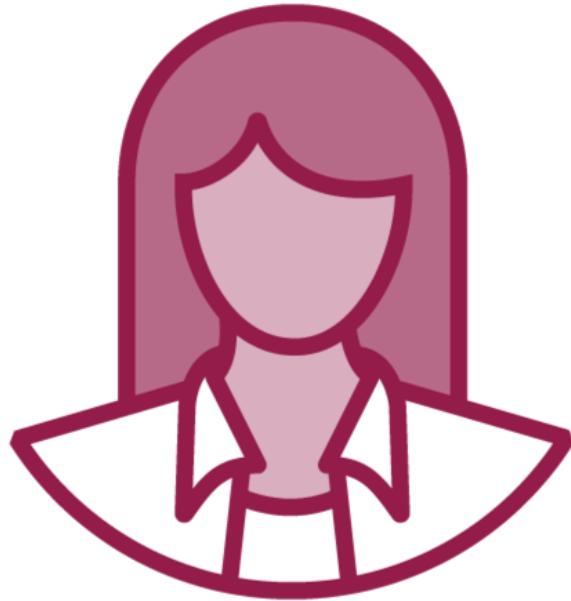
Scrum Masters

Product Owner

Pigs have skin in the game. Chickens don't.



Product Owner



- Is responsible for the profitability of the product (ROI)**
- Defines the features of the product**
- Prioritizes features**
- Decides on a release date and content**
- Can change features and priority of each iteration**
- Accepts or rejects iteration results**



The Scrum Team



Typically 5-9 People

- Can be fed with 2 large pizzas

Cross-functional

- Programmers, testers, user experience designers, etc.

Members should be full-time

- May be exceptions (e.g. database administrator, graphic designer)

Teams are self-organized

- Teams pull work

Membership changes only between sprints



Scrum Master



Represents management to the product

Responsible for enacting Scrum values and practices

Ensure that the team is fully functional and productive

Removes impediments

Facilitates team meetings

Enable close cooperation across all roles and functions

Shield the team from external interferences



Scrum Masters Contend With:

Waterfall expectations
of inattention

The illusion of command
and control



The pain of transparency

Belief in magic



Artifacts

Things produced by and used in Scrum



Scrum Artifacts

Product Backlog

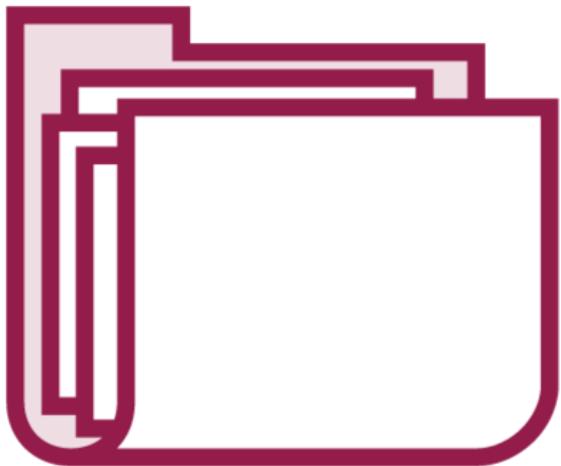
Sprint Backlog

Sprint Burndown Chart

Scrum Team Velocity



Product Backlog



- A prioritized complete list of desirments**
- All potential features of the product**
- The single source of truth for requirements**
- Managed by the product owner**
 - Created by
 - Prioritized by
- Reprioritized for each sprint**



A Product Backlog

	Item #	Description	Est.	By
Very High	1			
	2			
	3			
High	4			
Medium	5			



Items in the Product Backlog

Features definitions	Bugs / Defects
Constraints	Use cases
User actions or stories	Desirements
Behaviors	Training events
Other activities	



Product Backlog Item



Unit of deliverable work

Has measurable business value

Estimated by the team

May reference other artifacts

- Large specification
- Mockups
- Architecture Models
- Etc.

Contains criteria for successful completion



Defining “Done”



Pair with someone you don't know well. Share short answers to the following for 4 minutes:

What does “done” mean in your current project?

What issues do you see with this definition of done?

- How would you address them?

What technical problems do you see with this approach?

- How would you rectify them?



Sprint Backlog

Created by the Scrum Team

List of activities the team commits to for a single Sprint

Drawn from the Product Backlog Items

Often thought of as a to-do list for the team



Sprint Backlog Item



Represents a single deliverable or activity

Estimated in ideal hours

Managed by a single Scrum Team member

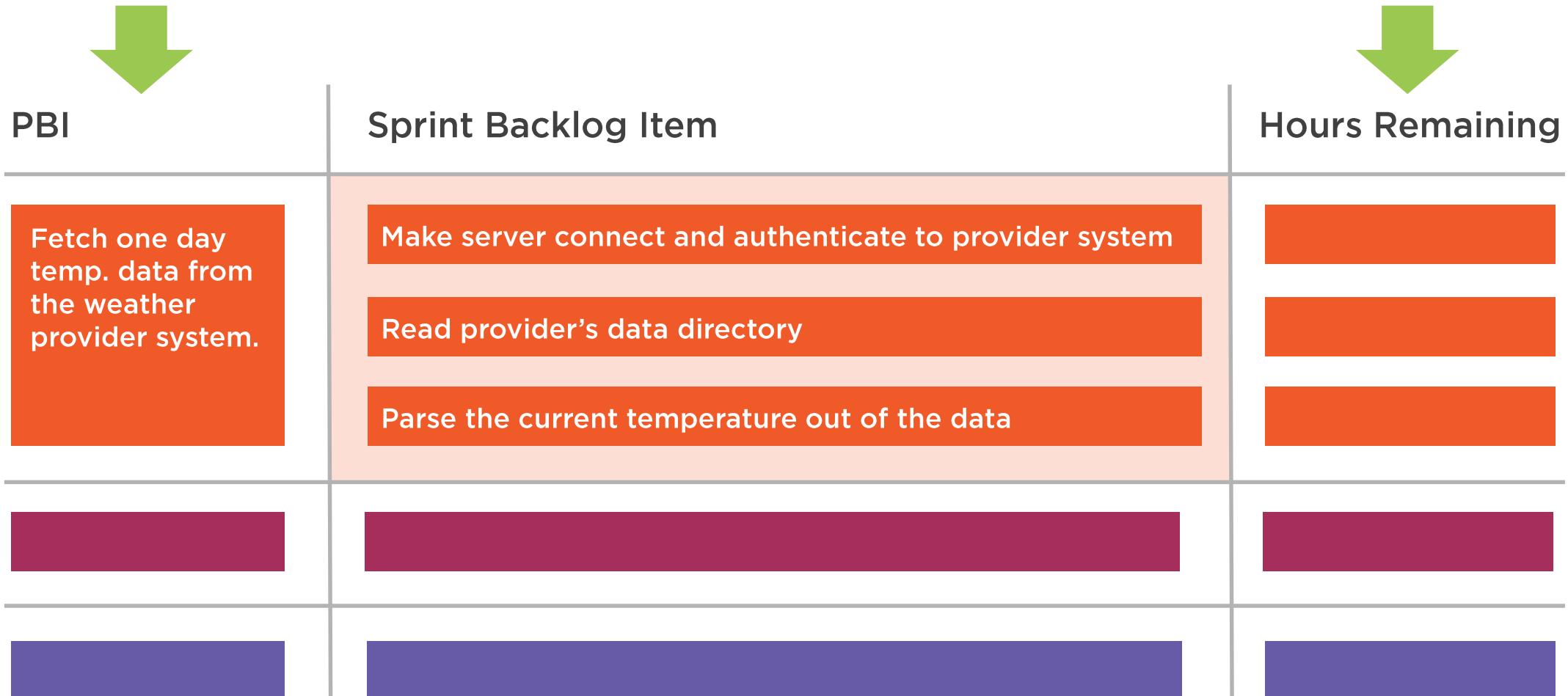
- The work may be done by others on the Scrum Team
- Reportable each day of the Sprint

Ideally no more than 2 days of work

No minimum size



A Simple Sprint Backlog



PBI	Sprint Backlog Item	Hours Remaining
Fetch one day temp. data from the weather provider system.	Make server connect and authenticate to provider system Read provider's data directory Parse the current temperature out of the data	



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 more time and break it down later

Update work remaining as more becomes known



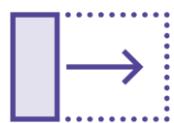
Sprint Burndown Chart



Shows work remaining for the Sprint



Updated daily



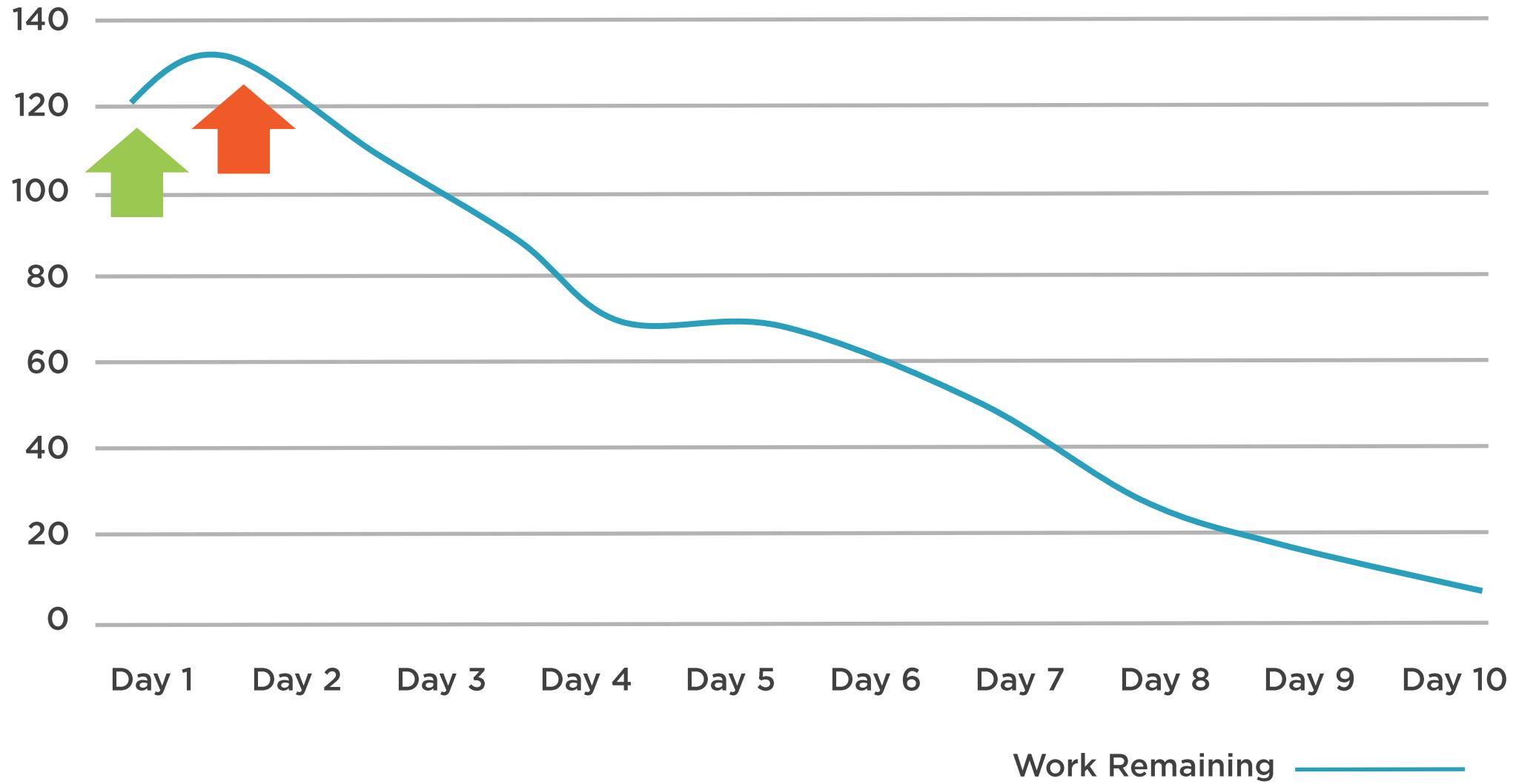
Used by Team Members to adjust activities



Used by Scrum Masters as the tactical project management tool



Sprint Burndown Chart



Scrum Team Velocity



A measure of how much value a team delivers

- Per Sprint
- Over time

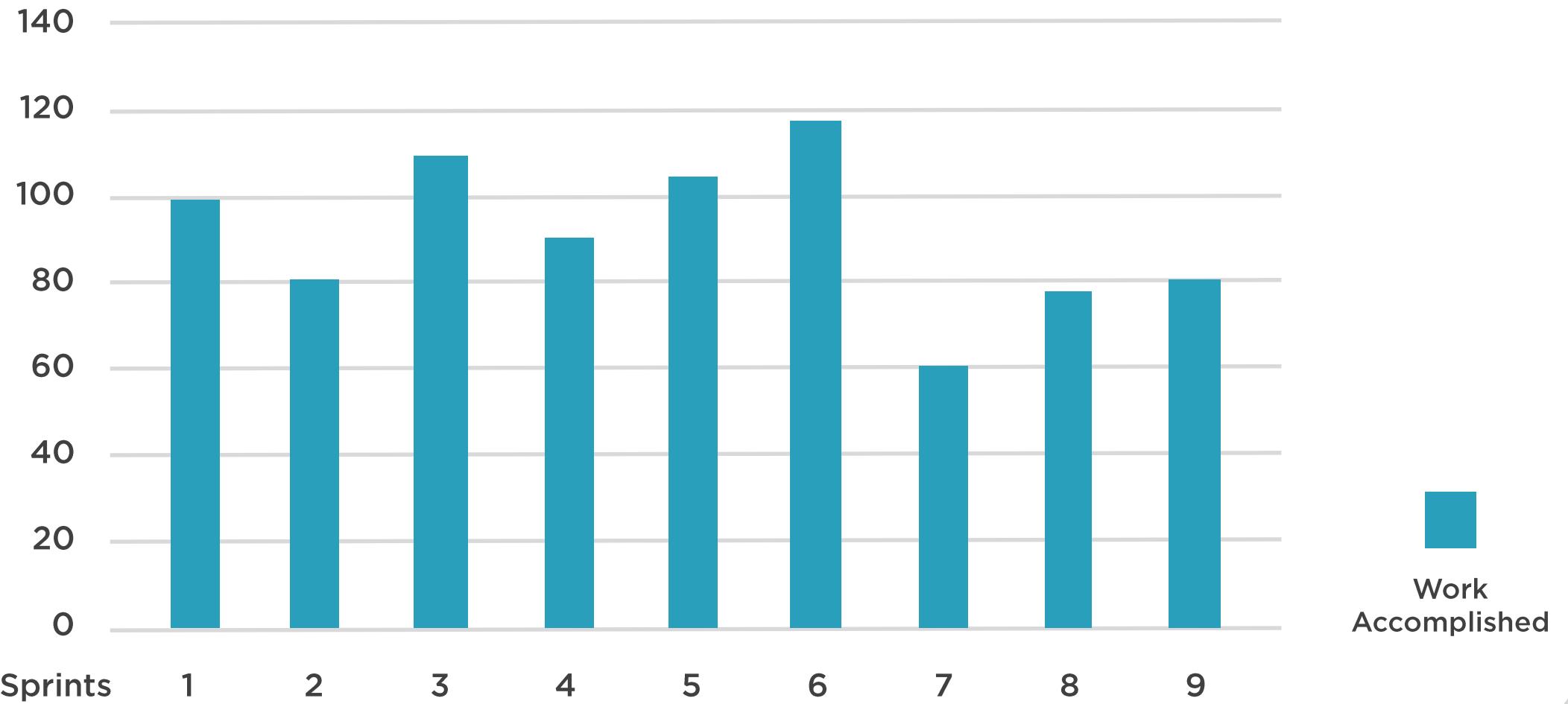
Used to inform the Team when pulling work

Used by Product Owner to plan releases and future work

Will vary significantly from one Sprint to another



Scrum Team Velocity



Ceremonies

Because it's a better word than meetings



Scrum Ceremonies

The Sprint Planning Meeting

The Daily Scrum

The Sprint Review

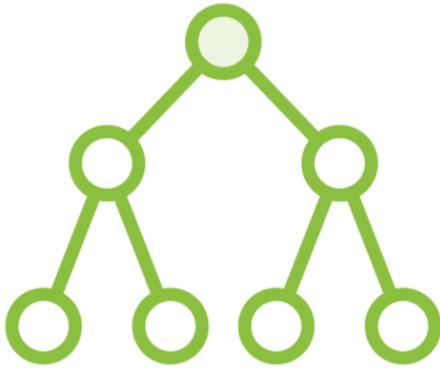
The Sprint Retrospective



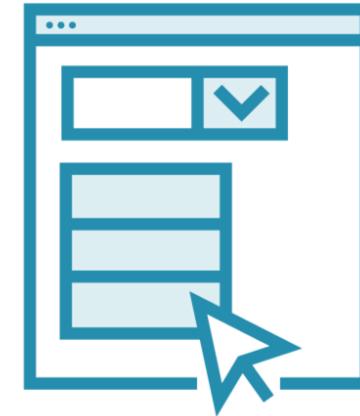
Sprint Planning Meeting: What Gets Done



**Sprint goals
are created**



**The Sprint Backlog
is created**



**A Burndown chart
is initialized**



Sprint Goals

1. High level descriptions of the work to be accomplished in the Sprint
2. Agreed to by the Team and Product Owner



Examples of Sprint Goals

**Make the application run
on SQL server in addition
to Oracle.**

**Integrate population data
for growth studies.**

**Decrease upstream
payloads by 30%**

**Support more technical
indicators than company ABC
with real-time, streaming data.**



Sprint Planning Meeting



Who is there?

Product Owner

- Brings the estimated, prioritized Product Backlog
- Defines Done for any ambiguity
- Answers any other questions about the work

Scrum Master facilitates the discussion

Team created the Sprint Backlog



Sprint Planning Meeting

**Often first thing on
Monday after the
last Sprint**

**Time boxed to less
than 2 hours**

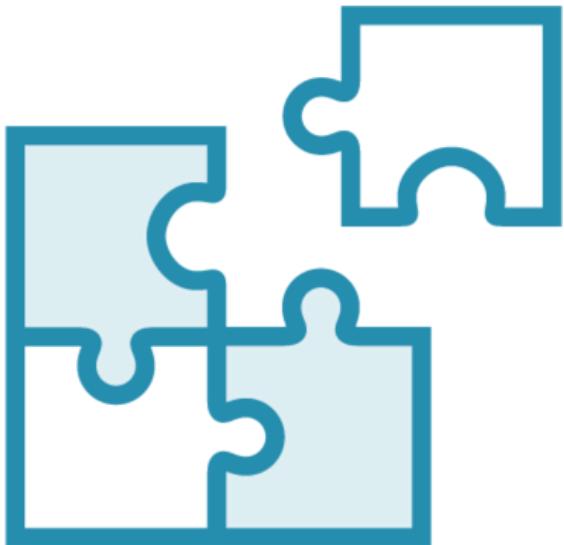
**Team selects items
from the product
backlog they can
commit to completing**

**Team discusses
details of
implementation**

**Scrum Master
brings food**



Creating the Sprint Backlog



Team selects first PBI on top of list they can commit to completing

Team identifies all tasks to be completed to deliver PBI

Team estimates all tasks identified in ideal hours

Does the set of SBIs fit into the Sprint?

1. If Yes, add the SBIs to the Sprint Backlog
2. If No, discard the PBI or negotiate what can be delivered from the PBI

Repeat from 1 until Sprint backlog is full



The Daily Scrum

Team focuses together once per day

Time boxed, typically 15 minutes

Ideally in morning, to set direction for day

Standing up rule helps time box rule

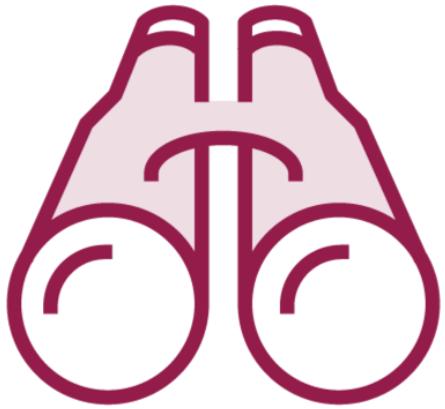
Same time each day

Ideally, same place each day

Scrum Master facilitates



Daily Scrum: Each Team Member Answers



What did you
do yesterday?



What will you
do today?



What impediments
are in your way?

It is common to update the Sprint Backlog and Sprint Burndown chart at the Daily Standup.



Impediments Belong to the Scrum Master



The _____ team hasn't returned my call



The _____ server is down and I can't _____



I need to control library to _____



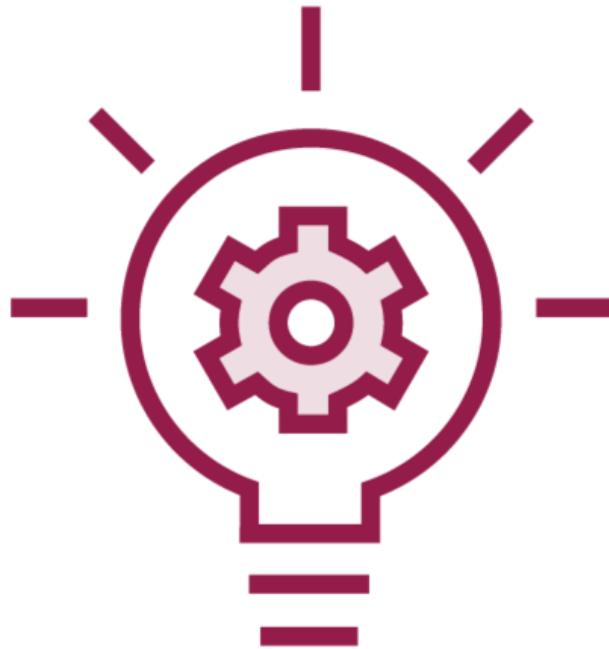
No one can sign the contract to get the _____



The _____ we ordered isn't here yet



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

Whole team participates

Invite the world

Feedback informs future work



Sprint Review Rule #1

Show your work!



The Sprint Retrospective



**This is the Kaizan part
(Continuous Improvement)**

Discuss what is and is not working

Typically 15–30 minutes

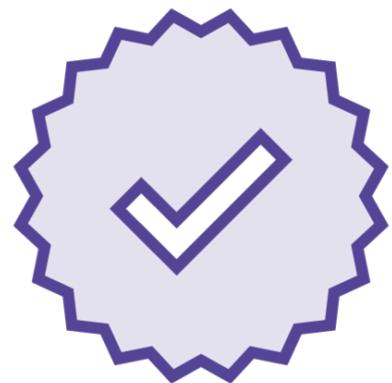
Done after every Sprint Review

Whole team participates

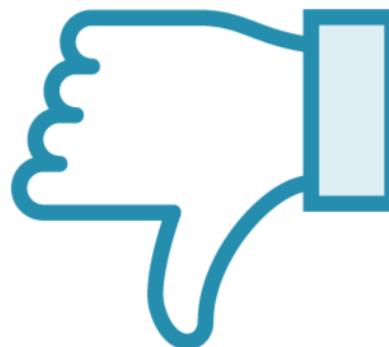
- Scrum Master
- Product Owner
- Team
- Possibly customers and others



Sprint Retrospective



What will we
start doing...



What will we
stop doing...



What will we
continue doing...

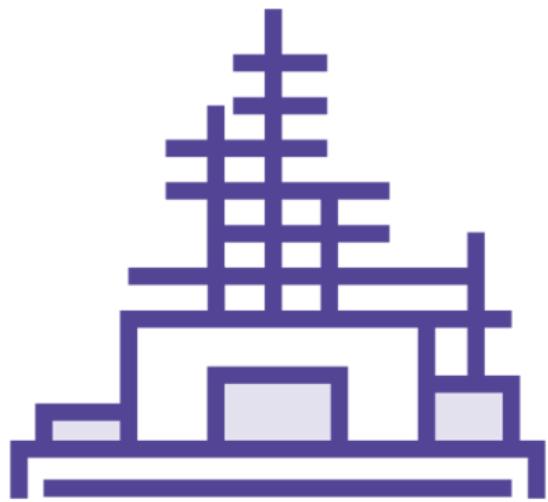


Activities

How we go about it



Scrum Process



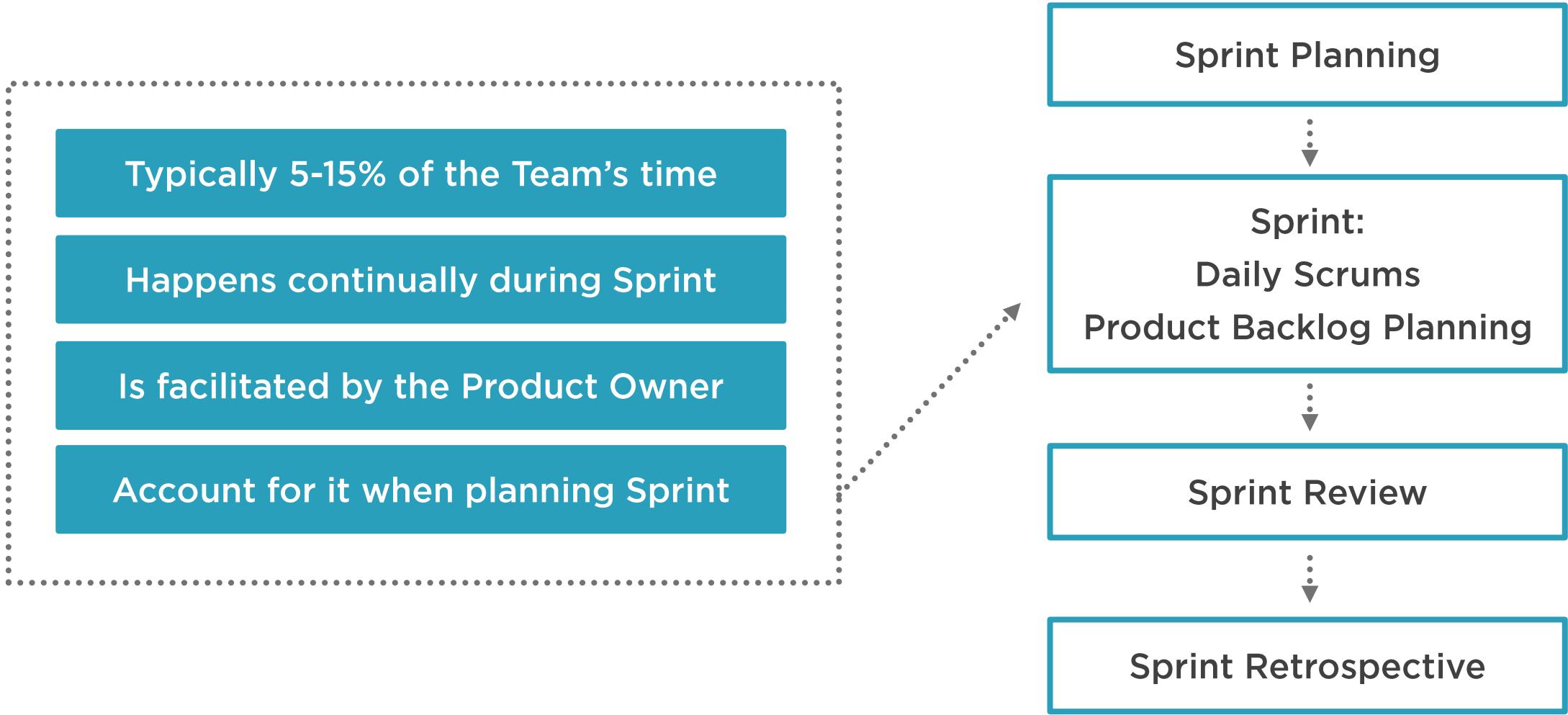
Product Backlog Planning



The Sprint



Product Backlog Planning



Product Backlog Planning

Used to build the Product Backlog

Centers around estimating Product Backlog Items

Often elicits overall system approach or architecture

Must be facilitated well to avoid digression



The Sprint



Scrum projects make progress in a series of “sprints”

- Analogous to Extreme Programming iterations

Typical duration is 2-4 weeks or a calendar month at most

A constant duration leads to a better rhythm

Product is designed, coded, and tested during the sprint



The Sprint

Non-sequential
execution
is key

Do a little of
everything
rather than all
of one thing



Goals Don't Change In the Sprint



Sprints are sacrosanct



Commit to keeping change out of the sprint



Even a high change environment can commit to a single plan for only 2 weeks



Plan sprint durations around a willingness to commit



On Scaling Scrum

Moving Up to the Big Time



Scaling Up with Scrum of Scrums



A meeting with Scrum Masters and organizational leaders

Used to coordinate the work of multiple Scrum Teams

Needs executive sponsorship, ideally attendance

Executives may own team impediments

MUST have people in attendance who can make resource decisions

May not be needed daily



Scaling Up: Answer 4 Questions

1. What has your team done since we last met?

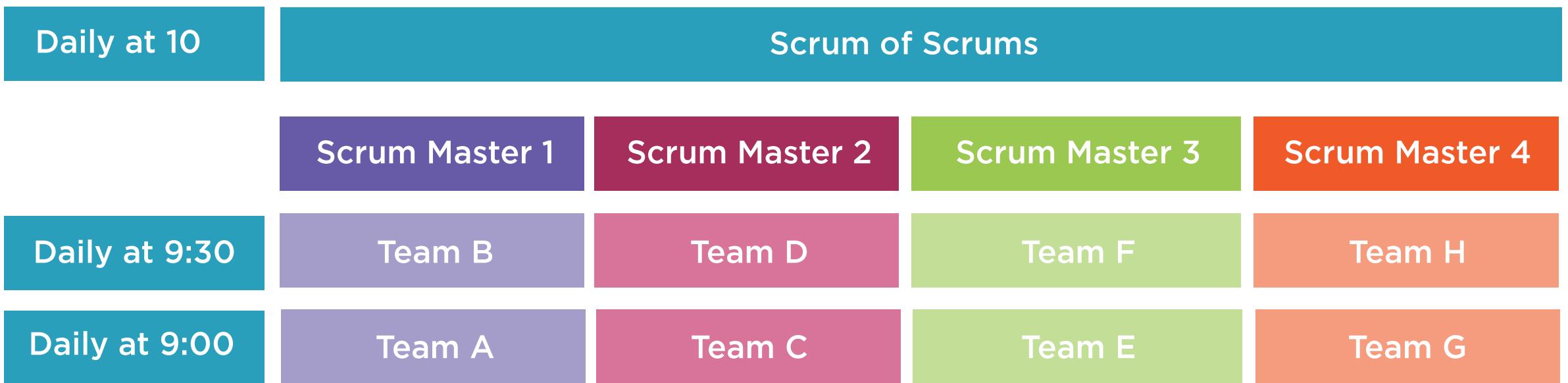
2. What will your team do before we meet again?

3. Is anything slowing your team down or getting in their way?

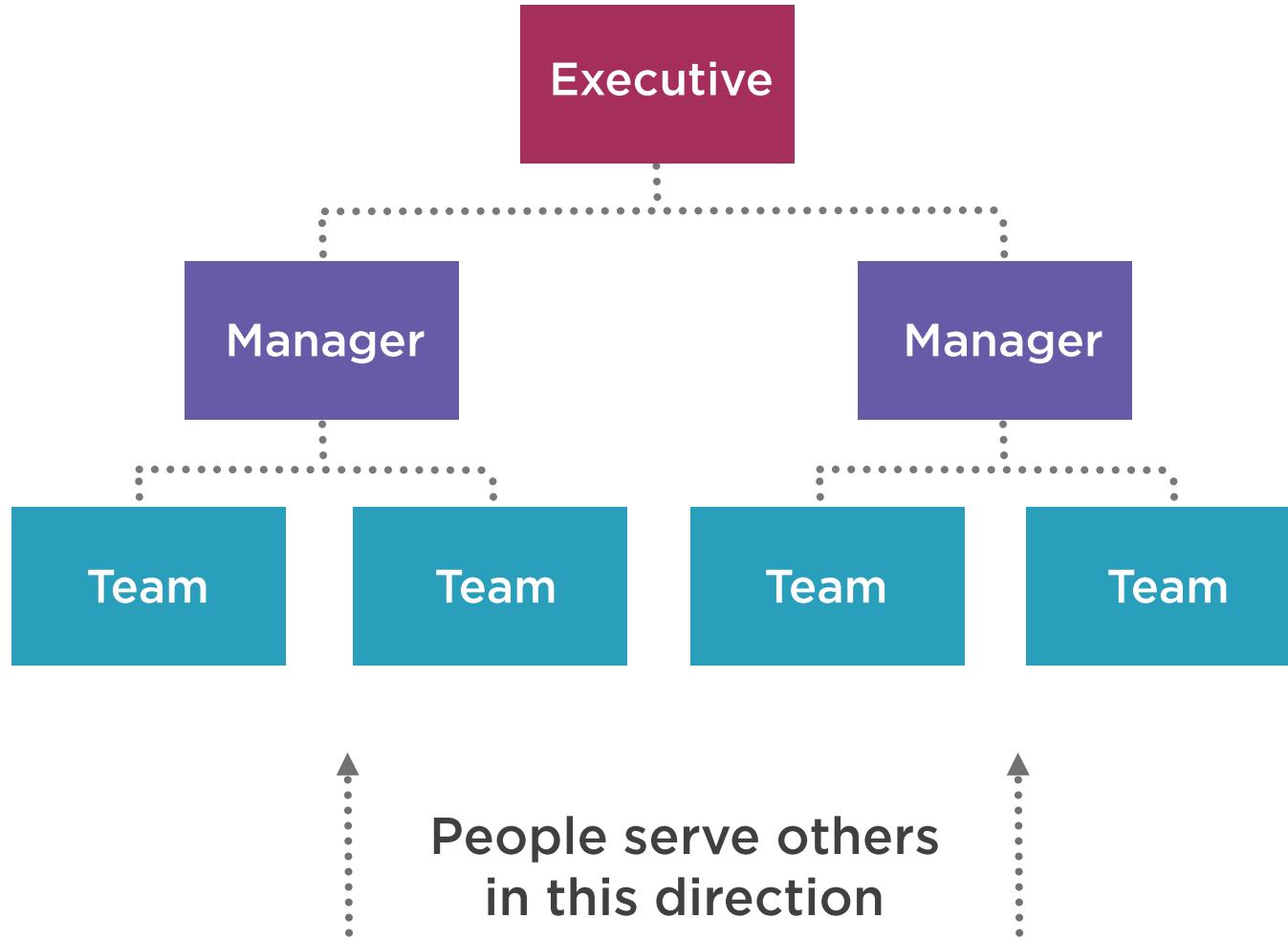
4. Are you about to put something in another team's way?



A Scrum of Scrums Model



This Changes the Executive Service Model



Required to Start



1. A Product Backlog exists



2. Full-Time Scrum Master is identified



3. Scrum Team agrees to demonstrate working software in no more than 30 days



4. Set the Appointment



5. Stakeholders invited to demonstration



Summary



Backlog

Backlog Item

Burn Down

Daily Scrum

Scrum Team

Sprint

Sprint Backlog

Sprint Review

Task

Velocity



Summary of My Experiences

Fewer defects

Higher product
development
throughput

Quicker market
response

Sustainable pace
and enjoyable
workplace

Make the right
thing sooner



References

Agile Project Management with Scrum by Ken Schwaber

Agile Software Development with Scrum by Schwaber and Mike Beedle

The Enterprise and Scrum by Ken Schwaber

The Fifth Discipline: The art and practice of the learning organization
by Peter Senge

<http://martinfowler.com/articles/itsNotJustStandingUp.html>

Agile Estimating and Planning by Mike Cohn

Scrum and XP from the Trenches by Henrik Kniberg

