EXIN Agile Scrum Master

Lesson 5—Agile Estimating, Planning, Monitoring, and Control
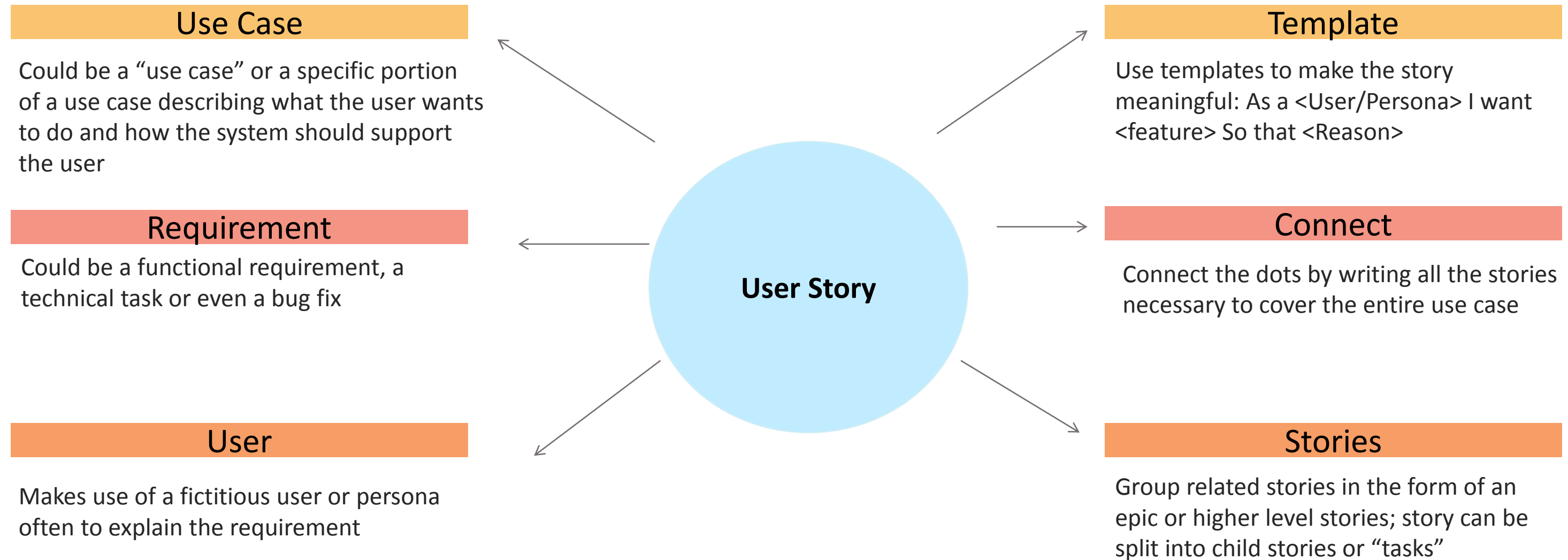
After completing this lesson, you will be able to:

- Explain how to write a user story and epics.

- Carry out planning at the roadmap, release, and Sprint level.

- Express estimates in story points or ideal time and explain the pros and cons.

- Perform Agile estimation using Planning Poker and Affinity Estimation techniques.

- Make progress visible using Burn Down Charts and other forms.

- Make use of the information to keep the project on track.

User Stories, Epics

User Stories and Epics describe anything of value that the team can produce for the customer.

Use Case

Could be a "use case" or a specific portion of a use case describing what the user wants to do and how the system should support the user

Requirement

Could be a functional requirement, a technical task or even a bug fix

User

Makes use of a fictitious user or persona often to explain the requirement

User Story

Template

Use templates to make the story meaningful: As a <User/Persona> I want <feature> So that <Reason>

Connect

Connect the dots by writing all the stories necessary to cover the entire use case

Stories

Group related stories in the form of an epic or higher level stories; story can be split into child stories or "tasks"
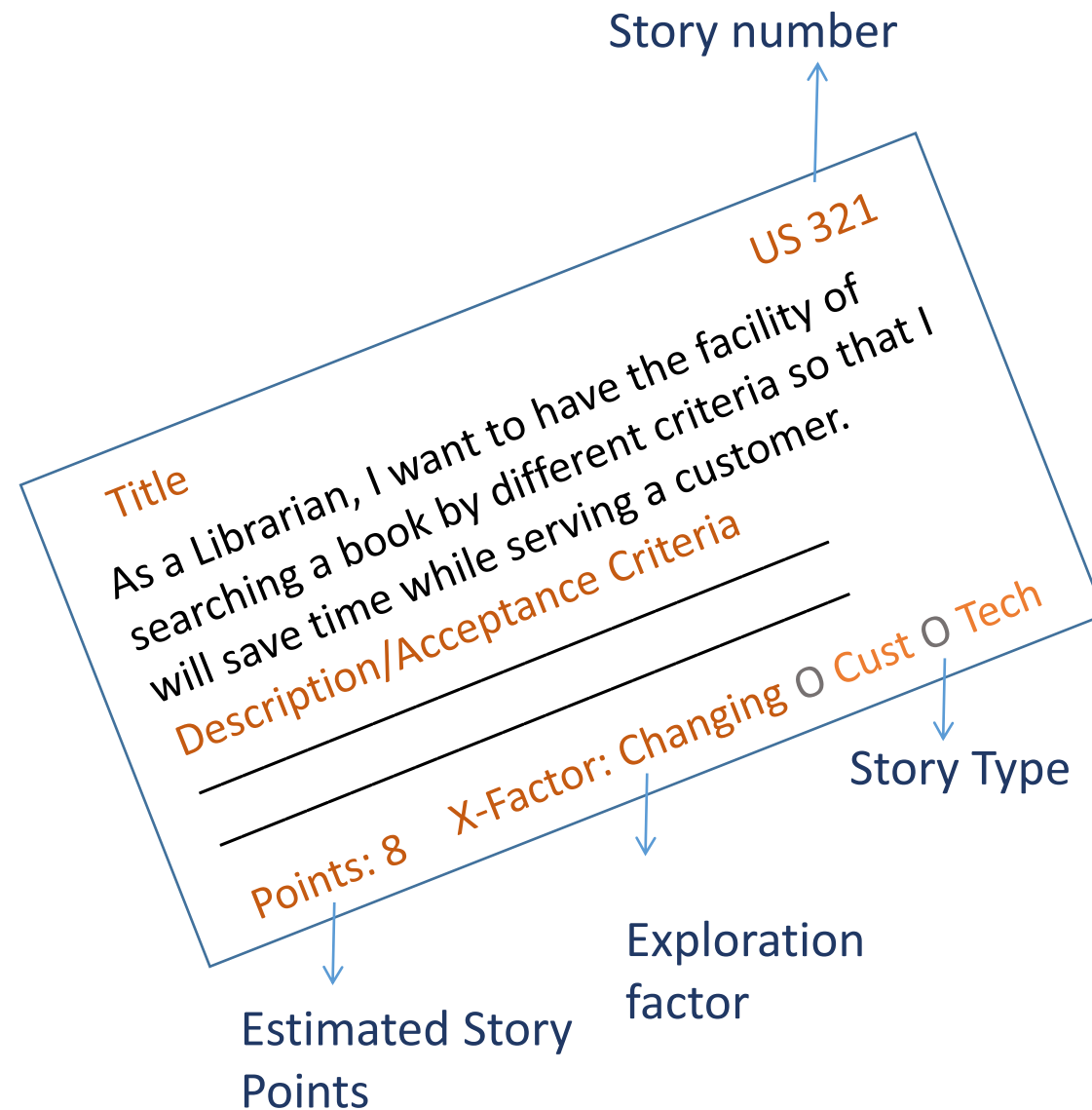
Characteristics of good user stories:

INVEST

- Independent
- Negotiable
- Valuable
- Estimable
- Small
- Testable

3 C's

- Card
- Conversation
- Confirmation

Here is an example of a Story Card:

Story number

US 321

Title
As a Librarian, I want to have the facility of searching a book by different criteria so that I will save time while serving a customer.

Description/Acceptance Criteria

Points: 8   X-Factor: Changing ○ Cust ○ Tech   Story Type

Estimated Story Points

Exploration factor

Electronic User Story may contain more information such as:
- Responsible person
- Sprint US is part of
- Attached file or picture

Also, acceptance criteria might be written at the back of the US. Exploration Factor describes how uncertain a requirement is, its values can be completed, incomplete, dynamic, stable, and so on.

Splitting Stories

Stories need to be split if they are too large, won't fit into the Sprint, or for more reliable estimation.

Splitting on operational boundaries

- As an operator, one needs to manage reservations which could be split.
- As an operator, one needs to make a reservation, cancel it, or modify it.

Separate exceptions or cross-cutting concerns

- In the beginning, develop only the main path, like Accept repayment of a loan.
- Then, address the exceptions, say, If one pays excess, then process a refund.
- Also, add on other concerns like check access restrictions or record name of the operator.

Splitting across data boundaries

- As an accountant, one needs to enter balance sheet information which could be split.
- As an accountant, one needs to enter summary information with select heads only.
- As an accountant, one needs to enter receivable details with more granular data.

Determining Value or Return on Investment (ROI)

There are four ways in which work will provide value:

New Revenue
Winning new customers who will bring in additional revenue

Retained Revenue
Stop losing customers who would otherwise leave the product or service

Incremental Revenue
Getting existing customers to buy new or more of existing services or products

Operational Efficiency
Reduce the cost of development or operation

Before we begin planning, the backlog must be prioritized.

Prioritization Models

Value-Based Prioritization

- High Value
- High Risk followed by High Value
- Low Risk followed by Low Value
- Low Risk

Kano Model

- Mandatory/Threshold
- Linear
- Exciters/Delighters

Karl Wiegers Relative Weights Method

- Calculate Value = Benefit + Penalty
- Priority = Value / (Cost + Cost Benefit + Risk + Risk Benefit)

Velocity

Velocity of the Team helps understand the productivity of the Team.

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Definition

Velocity is the amount of work that can be completed in a Sprint. It is the sum total of the size of completed stories in a given Sprint.

2

Uses

Velocity is useful to answer questions such as:
- How many stories should we accept in a given Sprint?
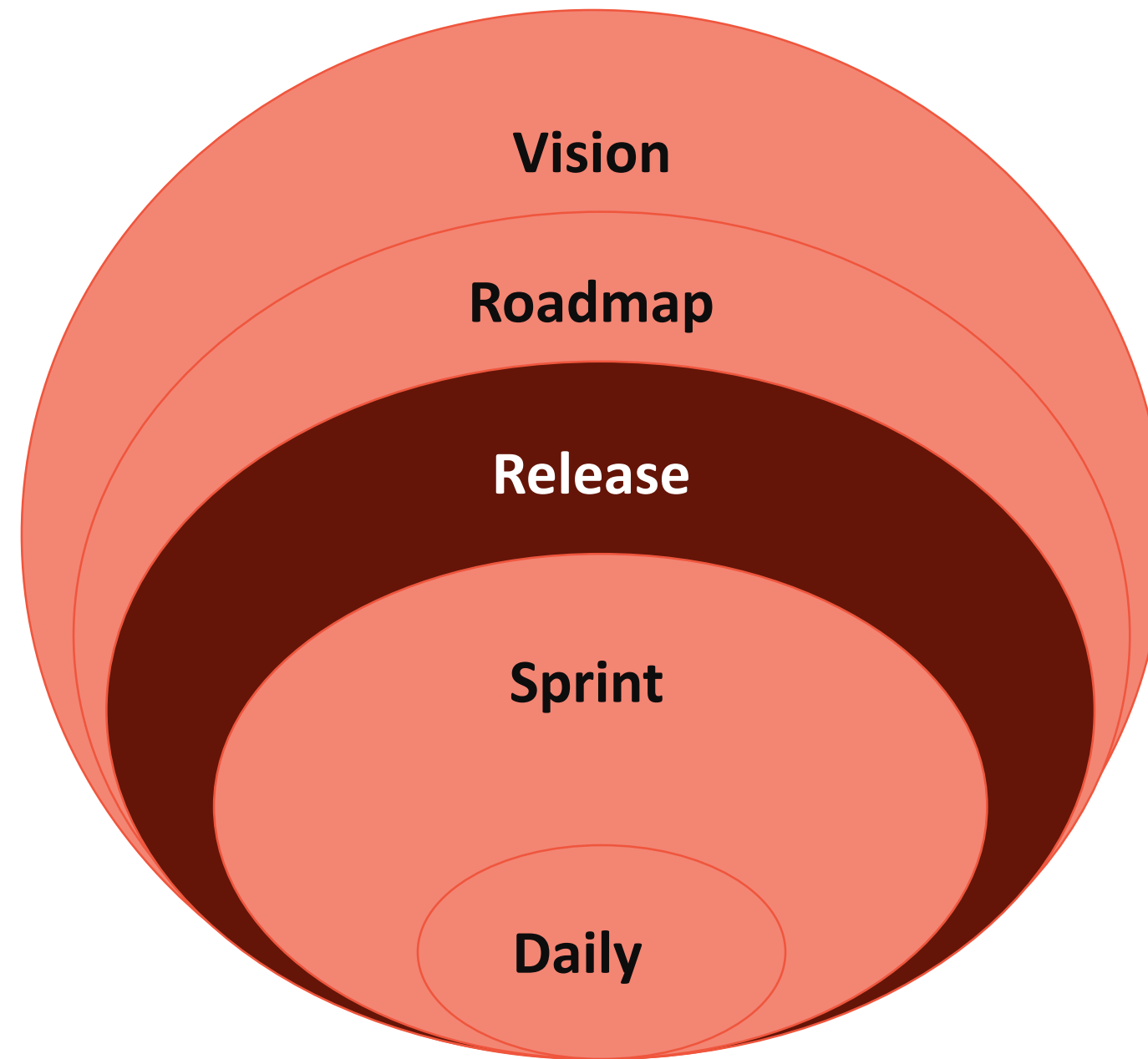- How many Sprints do we need to complete a set of stories?

3

Example

A team completed 5 stories of sizes 5, 3, 8, 13, and 2. Two stories of size 5 are half complete. What is the velocity of the team?
Ans. Velocity = 5 + 3 + 8 + 13 + 2 = 31

Planning happens at multiple levels:

Prioritize high-level epics and determine goals of releases.

- Establish goals of releases based on market demand, regulatory needs, or customer expectations.

- For each release:
    - Estimate the target stories.
    - Repeat until target stories are assigned:
        - Select an iteration length
        - Estimate velocity
        - Assign stories to iteration
    - Iterate until the stories and release date meet conditions of satisfaction.
    - Try not to pack too much into a release backlog.

At the end of release planning, this is what you will see:
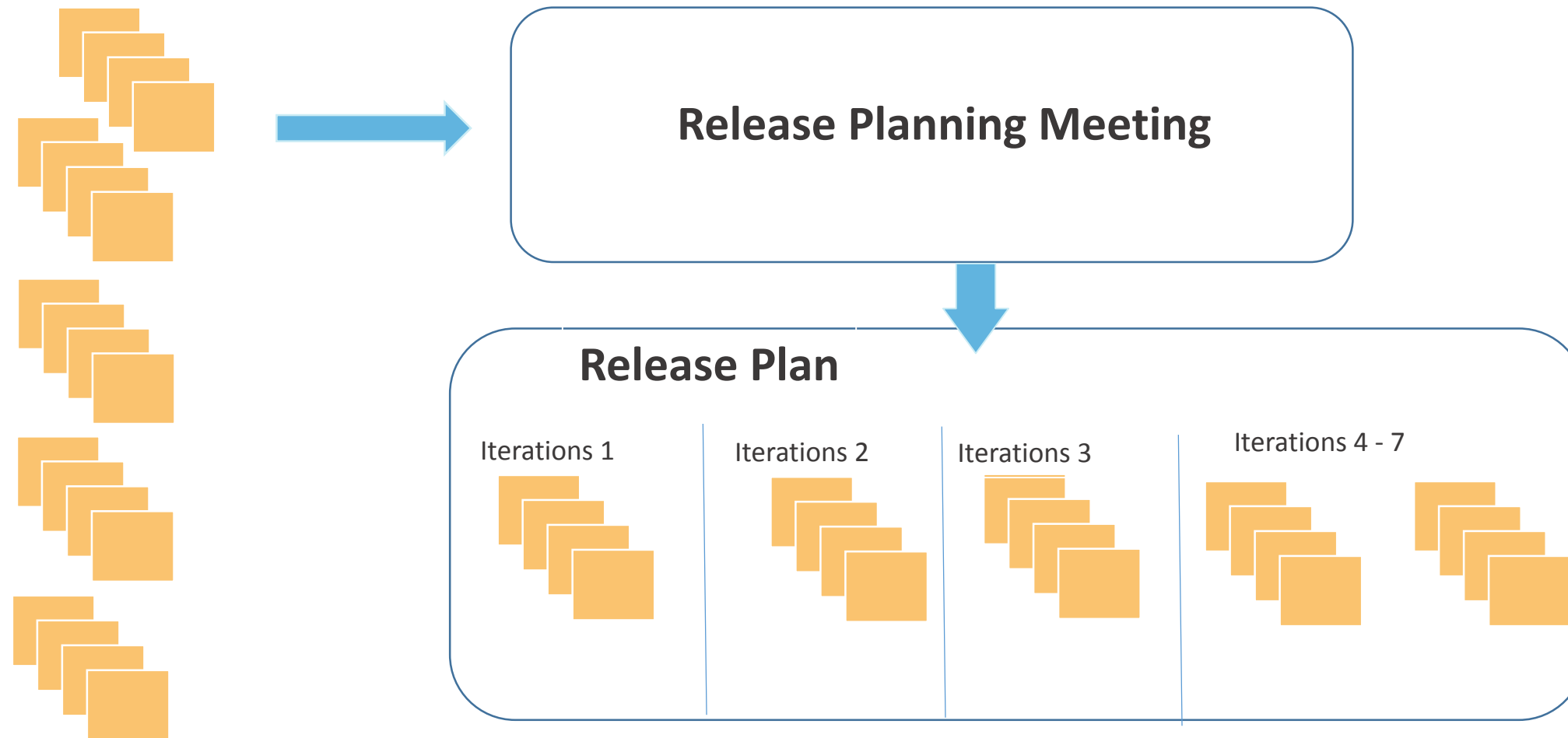
Estimation

Principles behind Estimation:

Understand the cone of uncertainty, which is an estimate or best guess. Being accurate is neither possible nor advisable; being predictable is good enough.

Overestimation and underestimation is present in a process; however, underestimation is more prevalent and more dangerous.

Estimation

The only estimate that matters is the one given by the Team. "Nothing is impossible for the man who does not have to do it himself." — A.H.Weiler.

Scrum estimation is not necessarily more difficult; however, Scrum exposes bad estimates sooner, which is a good thing.

Variability in estimates will narrow down as the project progresses.
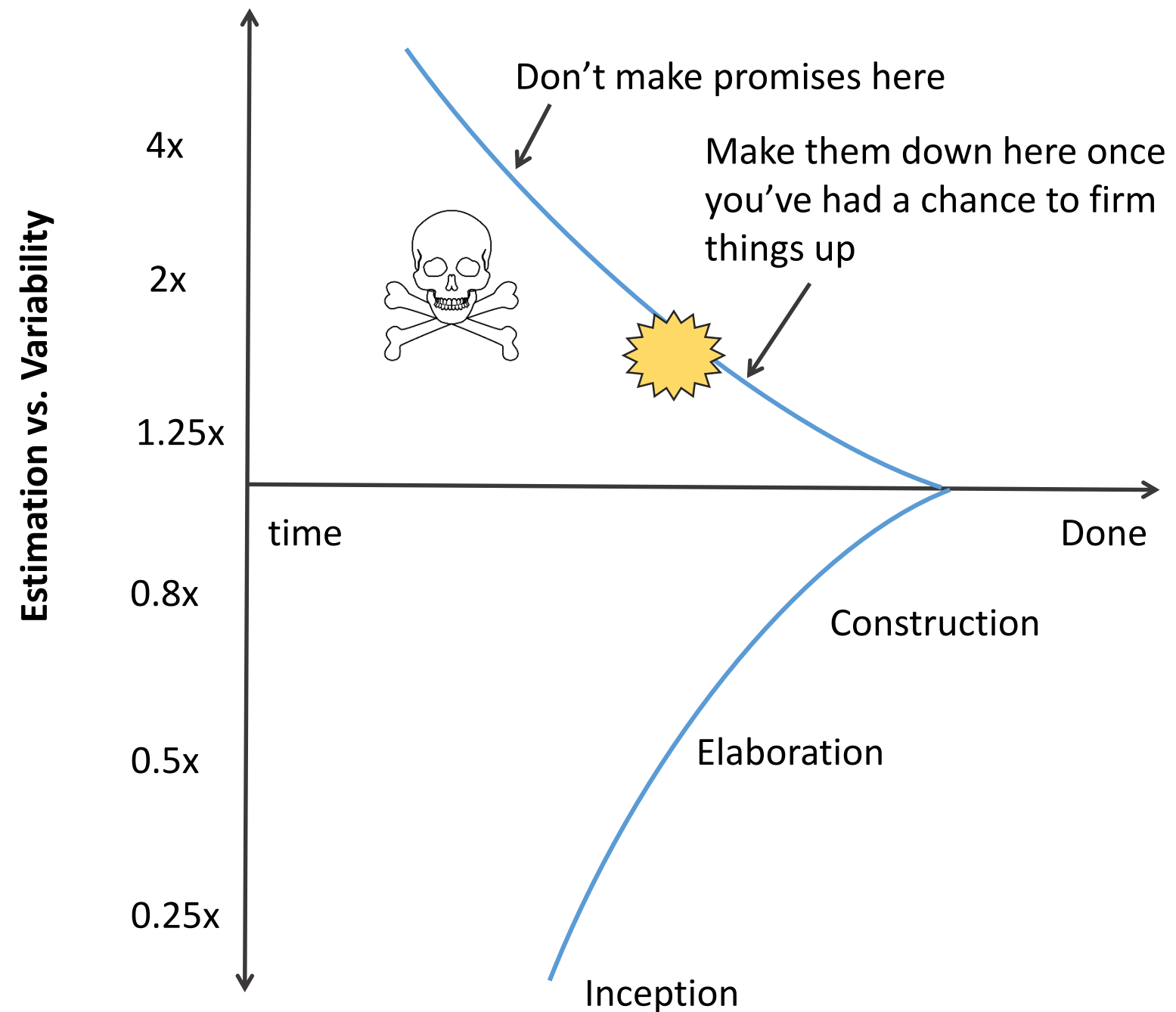
Ideal Time is the amount of actual work time.

The amount of time it takes to complete a piece of work

Converting ideal to elapsed time depends on who is doing the work, the extent of distraction present, possibility of multiple assignment, and task switching

Estimation is challenging because it is tough to estimate distractions

Only considers actual work time, not the distractions

Absolute measure of size; relative to each other. Story Point is an analogous estimation technique.

- Establish a benchmark and compare others to it:
  - Ideally, you should have more than one benchmark or triangulation like Small may be 1, Medium may be 5, and Large may be 13.
  - Benchmark works because human beings are better at comparisons than absolutes.

- Points are for the entire work.

- Use non-linear scale to pick values:
  - Modified Fibonacci: 1, 2, 3, 5, 8, 13, 20, …
  - Doubling scale: 1, 2, 4, 8, 16, …

Comparing Ideal Time to Story Points
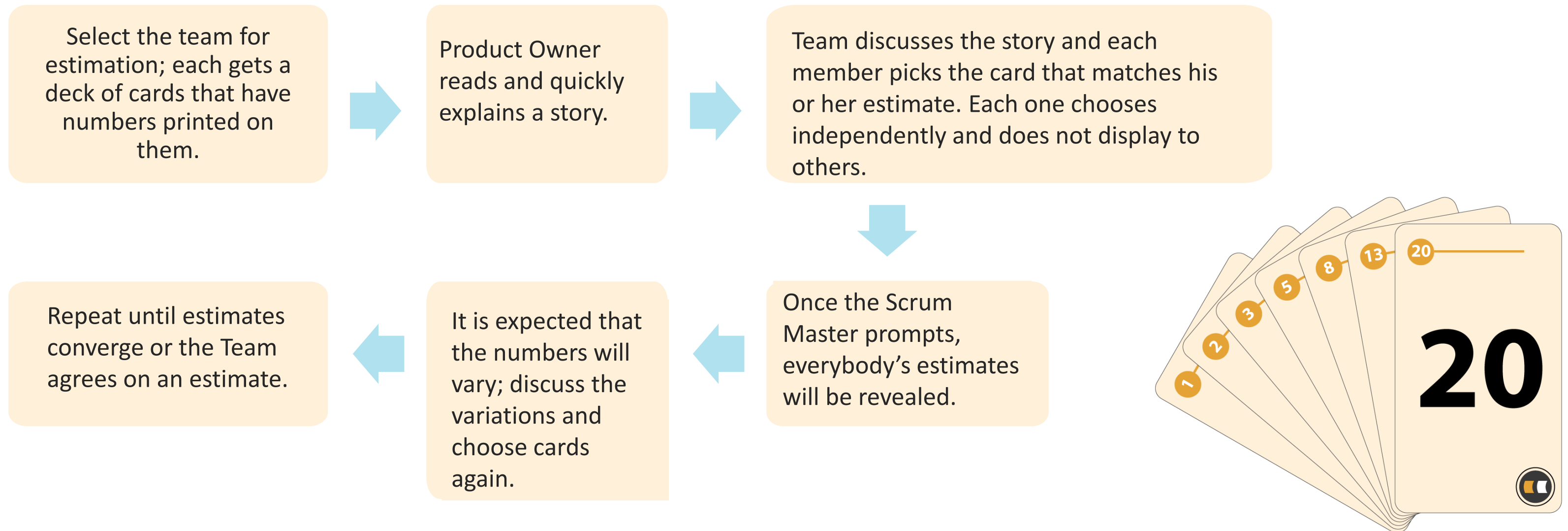
Comparison between two units of size:

Ideal Time	Story Points
• Uses time units like hours or days and is easier to explain outside the team	• Unitless and harder to explain outside the team
• Everybody's estimate may be different	• Higher chances of converging estimates
• Easier to do in the beginning	• Faster to do once understood
• Refines understanding of wasted time	• Not comparable across teams

Planning Poker

A fast, fun team approach to estimation.

Select the team for estimation; each gets a deck of cards that have numbers printed on them.

Product Owner reads and quickly explains a story.

Team discusses the story and each member picks the card that matches his or her estimate. Each one chooses independently and does not display to others.

Repeat until estimates converge or the Team agrees on an estimate.

It is expected that the numbers will vary; discuss the variations and choose cards again.

Once the Scrum Master prompts, everybody's estimates will be revealed.

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! For more information, check the link: https://www.planningpoker.com

Advantages of Planning Poker

Planning Poker works because of the following reasons:

It is fun and quick.

It gets the whole team involved in the estimation process

The whole team understands a little bit about all the stories.

Everybody contributes his or her expertise.

The discussion during the estimation provides clarity in direction, approach, and even a bit of design.
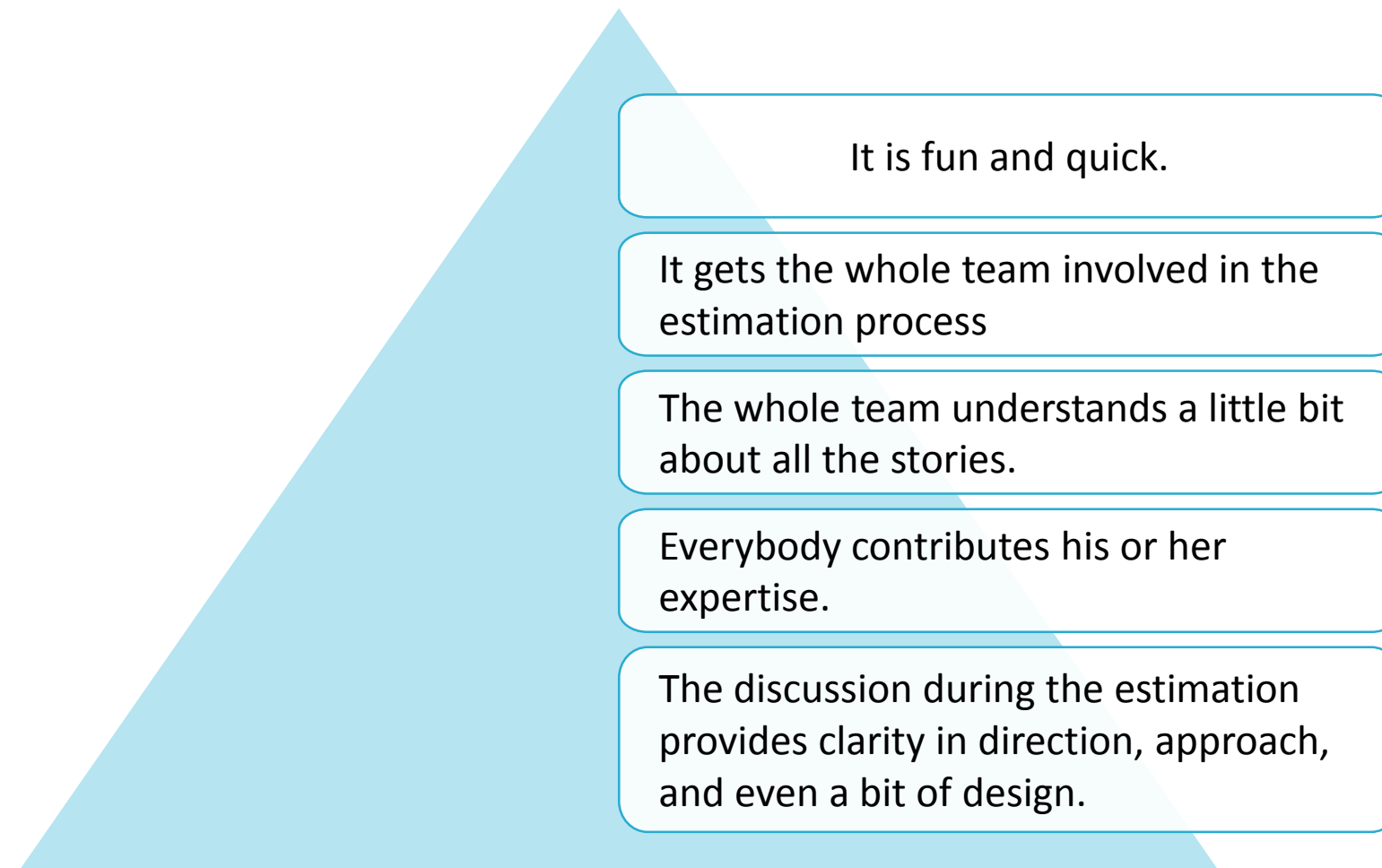
Useful when you want quick, reliable estimates for a large number of stories at a time
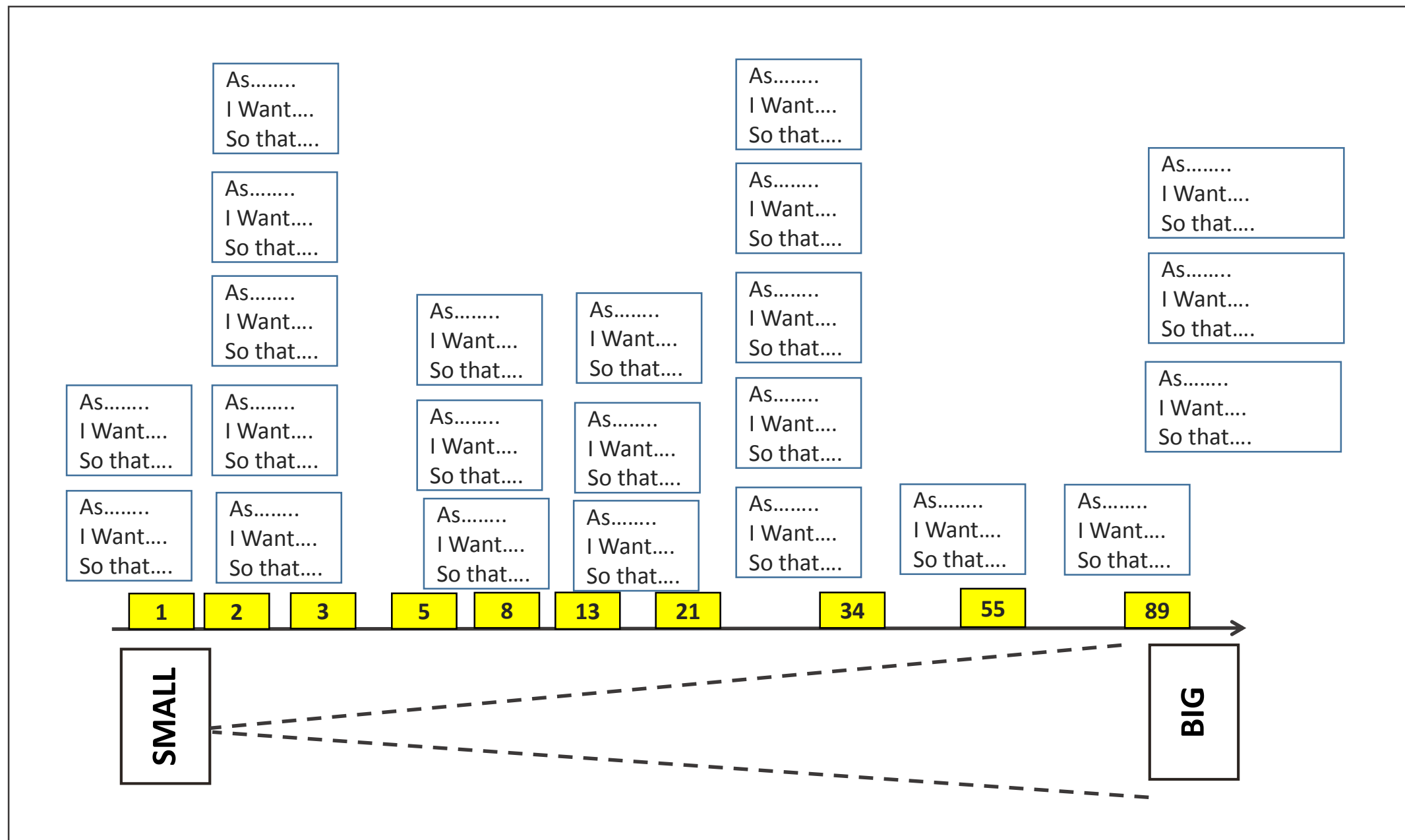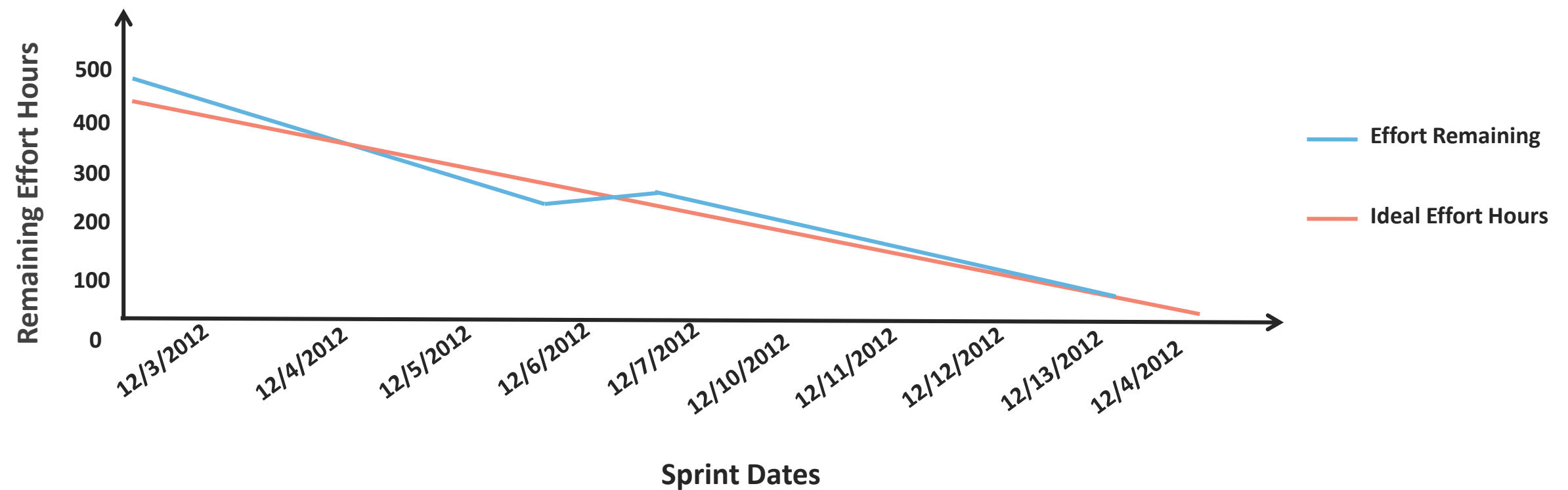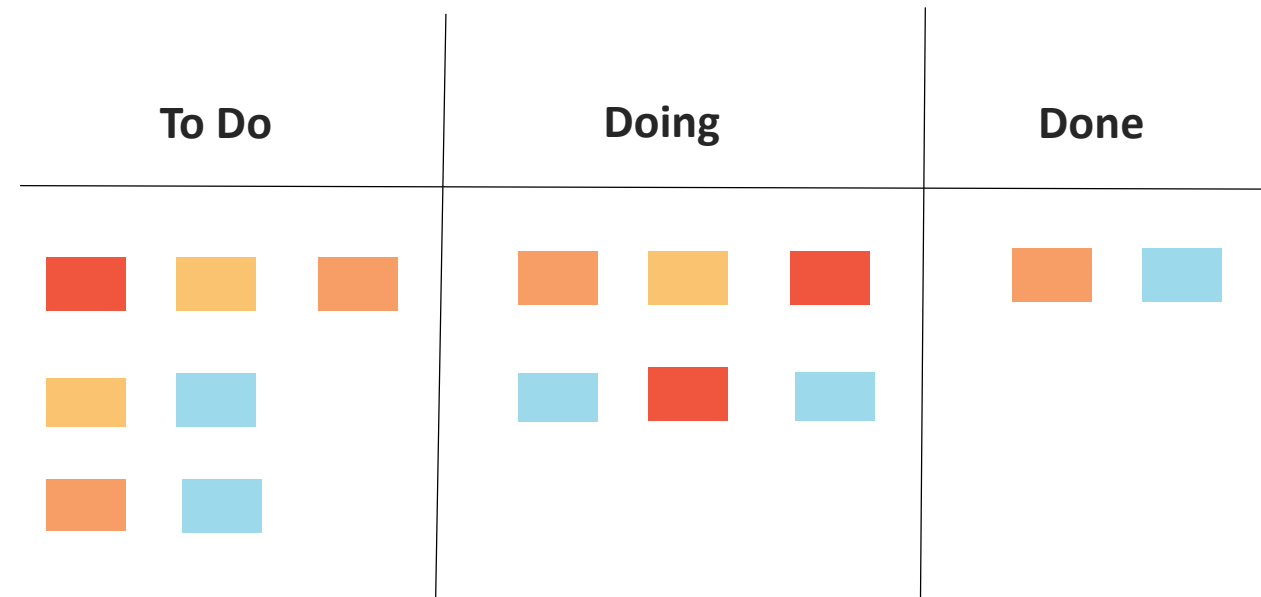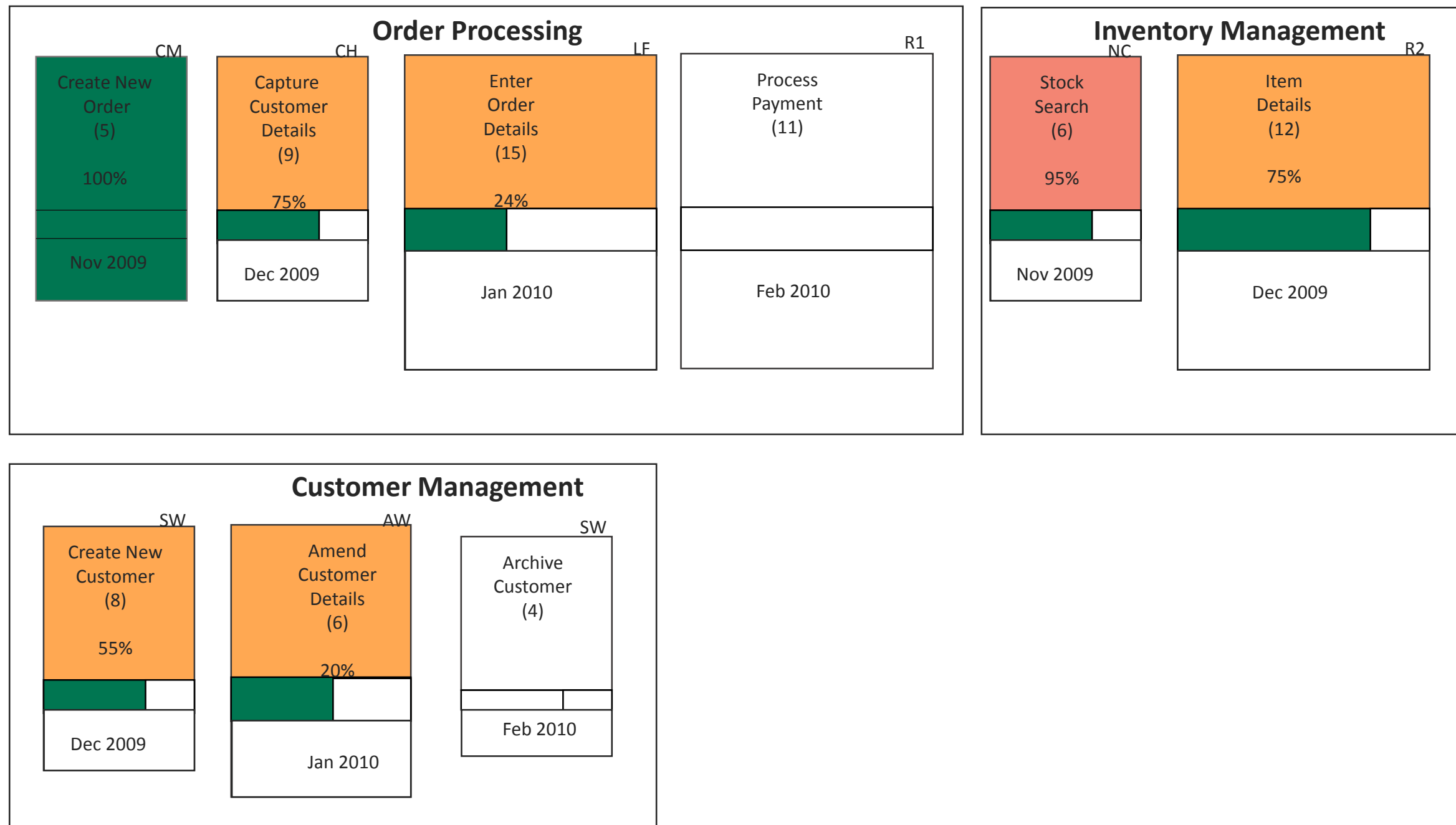
Burn Down Bar Chart:
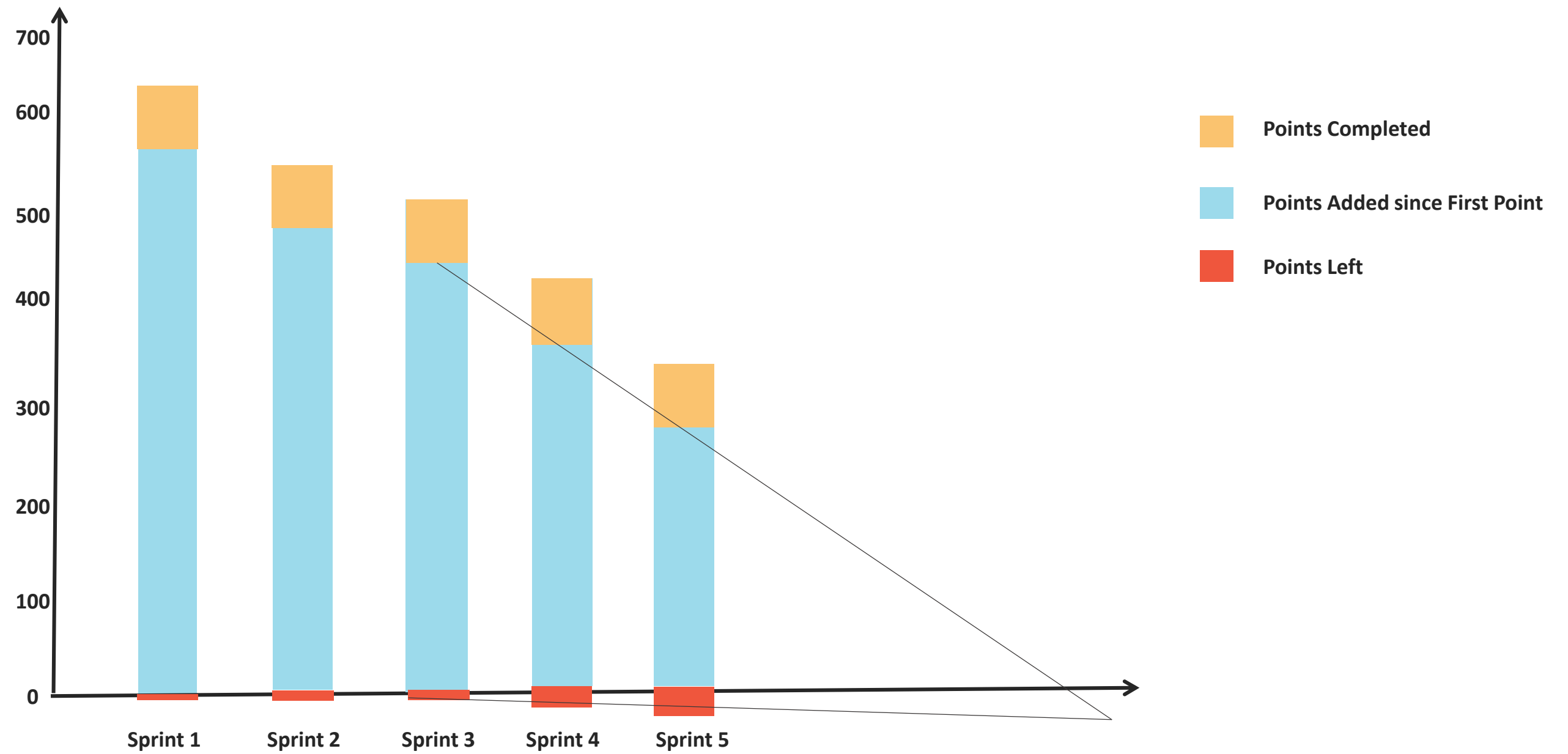
Burn Down Line Style:

Burn Down Chart

The simplest form of the Kanban Board:

Communicating Progress

Parking Lot Chart:

Order Processing

Create New Order (5) 100% Nov 2009	Capture Customer Details (9) 75% Dec 2009	Enter Order Details (15) 24% Jan 2010	Process Payment (11) Feb 2010

CM   CH   LF   R1

Inventory Management

Stock Search (6) 95% Nov 2009	Item Details (12) 75% Dec 2009

NC   R2

Customer Management

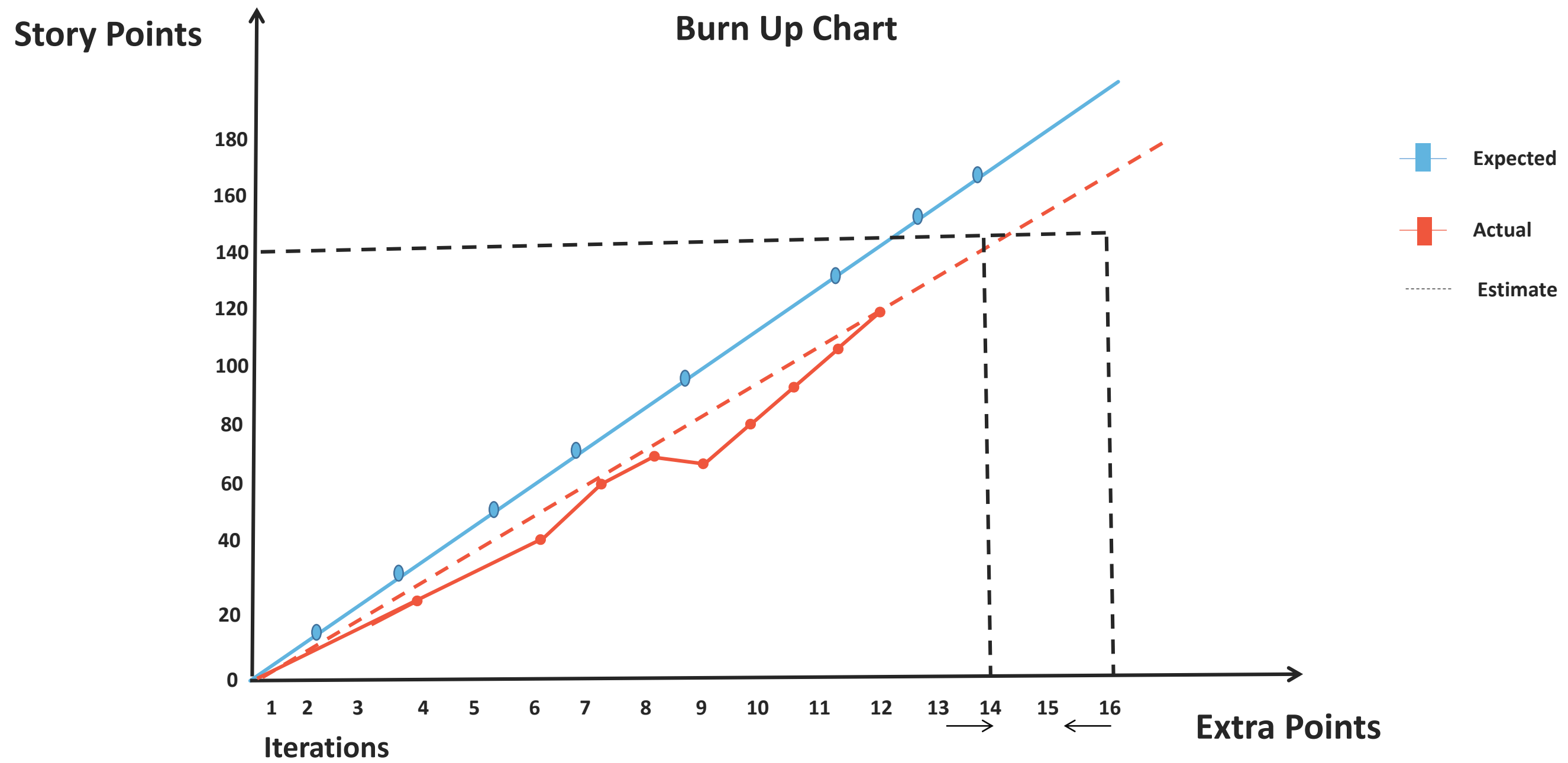| Create New Customer (8) 55% Dec 2009	Amend Customer Details (6) 20% Jan 2010	Archive Customer (4) Feb 2010

SW   AW   SW

Use Burn Up and Burn Down Charts for forecasting.

Let us summarize the topics covered in this lesson:

- The starting point of planning is the definition of user stories. Good user stories follow the INVEST model and 3 C's.

- Prioritize stories based on Return On Investment (ROI) and Risk.

- Get an understanding of the Team's Velocity.

- Use this information to plan at various levels for Roadmap, Release, and Sprint.

- Express estimates as Ideal Time or Story Points.

- Planning Poker and Affinity are simple, fun approaches to estimation.

- Use Burn Down Charts and other indicators to track projects and stay in control.

? Quiz

QUIZ 1

Identify what is wrong with this scenario: "As a teller, I would like the account screen to be simple so that I do not have to scroll up and down."

a. It does not specify the reason.

b. It does not consider the requirements of other stakeholders.

c. It does not clearly describe what the need is; it sounds more like an acceptance criteria.

d. It does not say who exactly needs it.

QUIZ 2

A team's average velocity is 10, with a maximum of 12 and minimum of 8. The Release Backlog is sized at 72. How many Sprints should the Team commit?

a. 7

b. 8

c. 6

d. 9

What should the Scrum Master do when the Team's estimates in a Planning Poker do not converge?

a. Take the average of the estimates

b. Take the highest of the estimates

c. Ask the PO to give an estimate

d. Ask the Team to come to an agreement

QUIZ 4

Between Sprints 4 and 5, the bottom of the Burn Down Bar Chart for release moved up above the horizontal axis. What might have caused this?

a. The Team finished more work than expected.

b. Sprint 4 might have got cancelled.

c. Work might have been removed from scope.

d. Work might have been added to the scope.

This concludes "Agile Estimating, Planning, Monitoring, and Control."

The next lesson is "Agile on Complex Projects."