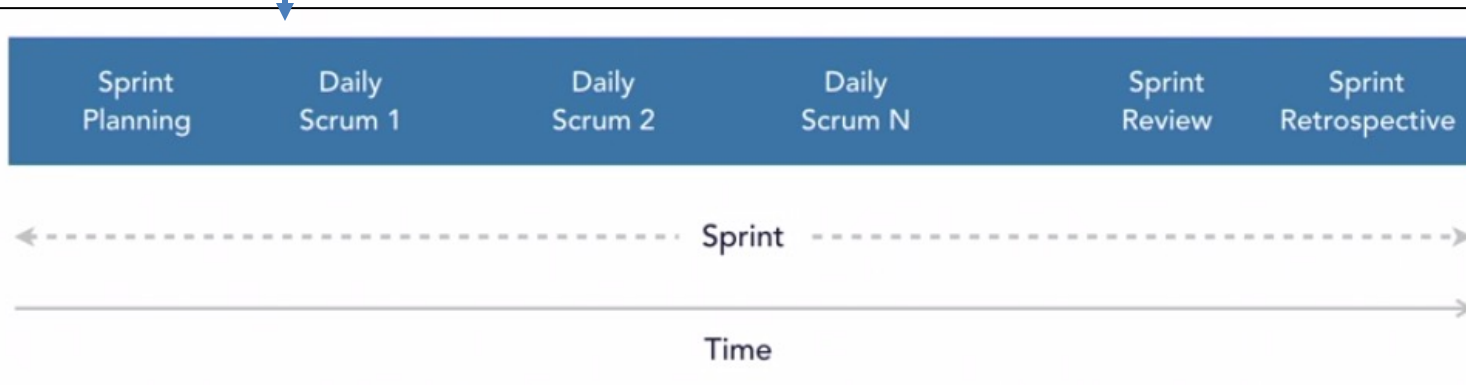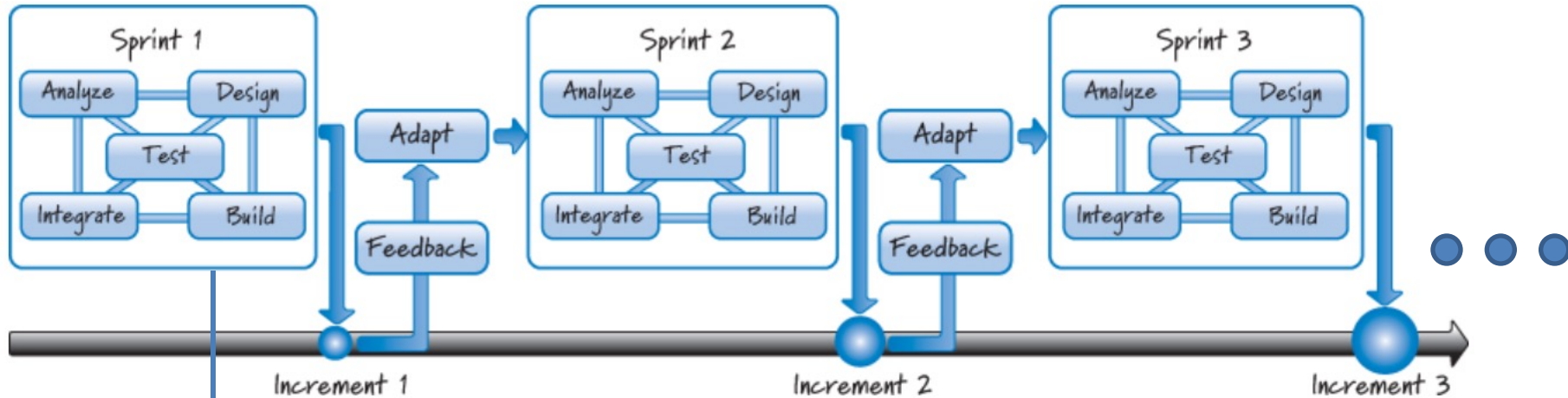# BITS Pilani presentation

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SE CZ 544 , Agile Software Process Module – 7
Sprint Planning

Sprint Overview

Every Sprint is a learning Opportunity
Constructivism - Approach

Scrum Events:
•Time Boxed
Typical sprint length
= 2weeks
 Planning = 2 hrs.
Review = 2 hrs.
Retro = 1.5 hrs.

Ref: Essential Scrum: A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin Published by Addison-Wesley Professional, 2012

Inputs for Iteration Planning

- Product backlog—with enough ready stories for about two iterations

- Quarterly (release) roadmap

- Definition of ready (DoR), where used; definition of done (DoD)

- Past performance (velocity), if available

- Availability of team members during the upcoming iteration (**Capacity Planning**)

- Process improvement tasks—added to the iteration backlog during the last iteration retrospective

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Outputs of Iteration Planning

- Planning Part1

  - Sprint goal

  - Discuss Stories

  - Negotiate, Forecast/Identify stories

- Planning Part2

  - Identify developer tasks

  - Sign up for tasks

  - Estimate tasks

  - Negotiation

  - Commitment   Capacity = Velocity ± Changed Circumstances
                      Capacity = Total Potential Person-Days × Availability − Slack

- Task Board

Definition of 'Done"

- Completion Criteria – Defined by Development Team
  - Code Complete and Checked in
  - Unit test done
  - Peer reviewed
  - QA Compete
  - Documentation done

- Acceptance criteria – Defined by Product owner
  - PO determines when the acceptance criteria s done
  - At this point, the story is considered accepted or "DONE"

Quiz

» https://forms.gle/UChV4y1fLnjfvBJ57

» https://forms.gle/aG5AcsK5CcPrARAXA

» https://forms.gle/aG5AcsK5CcPrARAXA

» https://forms.gle/ZuQG7Fw6Sp8y6YsFA

Sprint Planning – Additional Notes

Sprint planning

- Sprint planning happens **once in each Sprint**
- Entire Scrum Team: Product Owner, Scrum Master & Development Team must be a part of the event
- Time box for the event is 8 hours (upper limit)
- Two agendas
    - **What is to be done** in this Sprint-Part1
    - Establish **how it will be done-Part2**

Product Backlog

Sprint Backlog

Product Owner discusses the product backlog with the development team

Product Owner

What is to be done?
- Sprint Goal/Objectives
- Responsibility: PO and Team

How it will be done?
- The team pulls subset of stories from Product backlog
- Spilt into Engineering tasks and estimates.
- Check against team velocity/capacity, Refine goal.
- The team Plan is not fixed, it evolves as more clarity increases
- Development team will come up with the plan

Source: GenMan Solutions

Sprint Planning Artifacts

- There are two defined artifacts that result from a sprint planning meeting:
    - A sprint goal
    - A sprint backlog

- A sprint goal is a short, one- or two-sentence, description of what the team plans to achieve during the sprint. It is written collaboratively by the team and the product owner.

- The following are example sprint goals on an eCommerce application:
    - Implement basic shopping cart functionality including add, remove, and update quantities.
    - Develop the checkout process: pay for an order, pick shipping, order gift wrapping, etc.

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Examples of Sprint goals

- "Demonstrate the ability to send a text message through an integrated software, firmware, and hardware stack."

- "Update mobile apps for faster convenient check-in for our valued customers"

- "Learn about the right user interaction" for the registration feature" (Learning goal, Risk Reduction)

- A non-optimal example of sprint goal is:
  - Implement all user stories to meet the definition of done, and fix all defects selected for this sprint. This sprint goal is too generic to be of any value in limiting the scope of work, and cannot inspire the team.

Sprint Planning : Part-1 – Defining the Sprint Goal - The Process

3.Dev. team pulls** **subset** of these stories from top of the product backlog and asks clarifications.
- ** Velocity, Team Capacity,Prority
- Spike, Bugs ,Infra included
- Refine Sprint goal and agree

1. Product owner starts first with this kind of information

Business stakeholders want to increase membership. Our mobile apps are very basic and need to provide more functionality.

Bob
(product owner)

2. Product owner shows the Prioritized product backlog with this goal in mind – High value story at the top.

User story 12
User story 13
Bug 8
User story 17
User story 18
User story 21
Bug 9
User story 22
Bug 12

....
....

User story 36
Enhancement 29
Epic 1
Epic 2

Product backlog

User story 12: As a potential club member, I should be able to sign up as a trial member and print temporary badge so I can try fitness center facilities.

User story 13: As an internet user, I should be able to view the calendar of activities at the fitness club so I can sign up for the activities.

Bug 8: Menu at the top of the website's home page seems to overlap with other visual controls on <X> tablet <Y> browser.

User story 17: As a fitness club member, I should be able to generate membership badge on my mobile phone so I can check in without my physical membership card.

User story 18: As a fitness club member, I should be able to book a tennis court or racquetball court from the mobile app.

User story 21: As an internet user, I should be able to view a list of sports facilities at the fitness club so I can make a decision on joining the club.

User story 21: As an internet user, I should be able to view a list of sports facilities at the fitness club so I can make a decision on joining the club.

Bug 3: Font size on the "Contact us" page looks different from the rest of the website.

User story 25: As an internet user, I should be able to view a list of fitness equipment types at the fitness club so I can make a decision on joining the club.

Development team
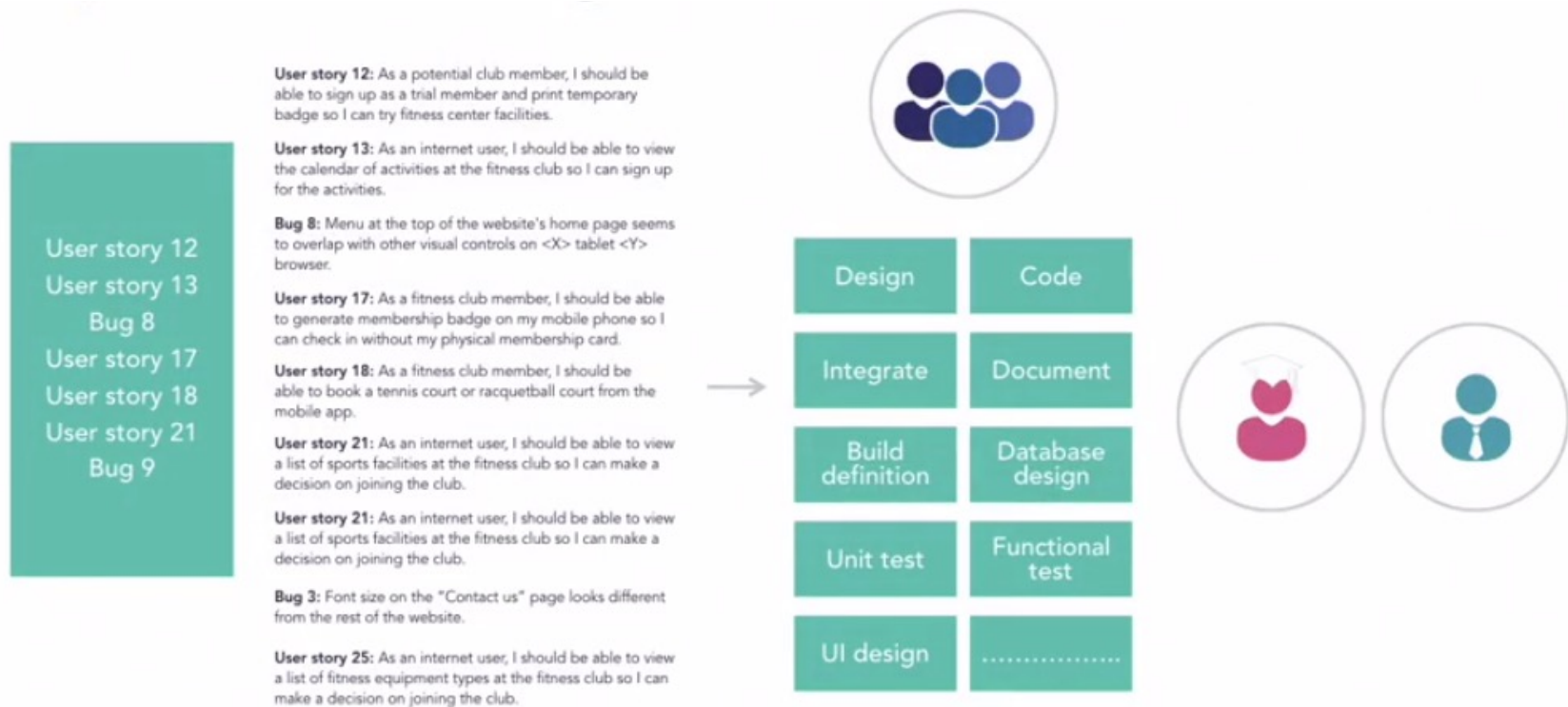
Ashley
(scrum master)

Ref: LinkedIn Learning - Agile Software Development: Scrum for Developers with Shashi Shekhar.

Sprint Planning – Part-2 – The How

- Part-2 of the sprint planning is owned by the Development team.

- The Dev. Team focuses on detailed planning – splitting user stories into engineering/programming tasks.

- **Tasks are estimated in Ideal hours.**

- Product owner and Scrum master are available to facilitate and answer any questions.

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Sprint Planning – Part-2 – Splitting into fine grain tasks

User story 12
User story 13
Bug 8
User story 17
User story 18
User story 21
Bug 9

User story 12: As a potential club member, I should be able to sign up as a trial member and print temporary badge so I can try fitness center facilities.

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User story 25: As an internet user, I should be able to view a list of fitness equipment types at the fitness club so I can make a decision on joining the club.

Design	Code
Integrate	Document
Build definition	Database design
Unit test	Functional test
UI design	....

Note: This is not an elaborate plan for the entire sprint. This is just a collection of tasks for the next few days. More planning will be done by the development team as they finish tasks and learn more about the tasks at hand.- **em-pir-i-cism, Last responsible moment.**
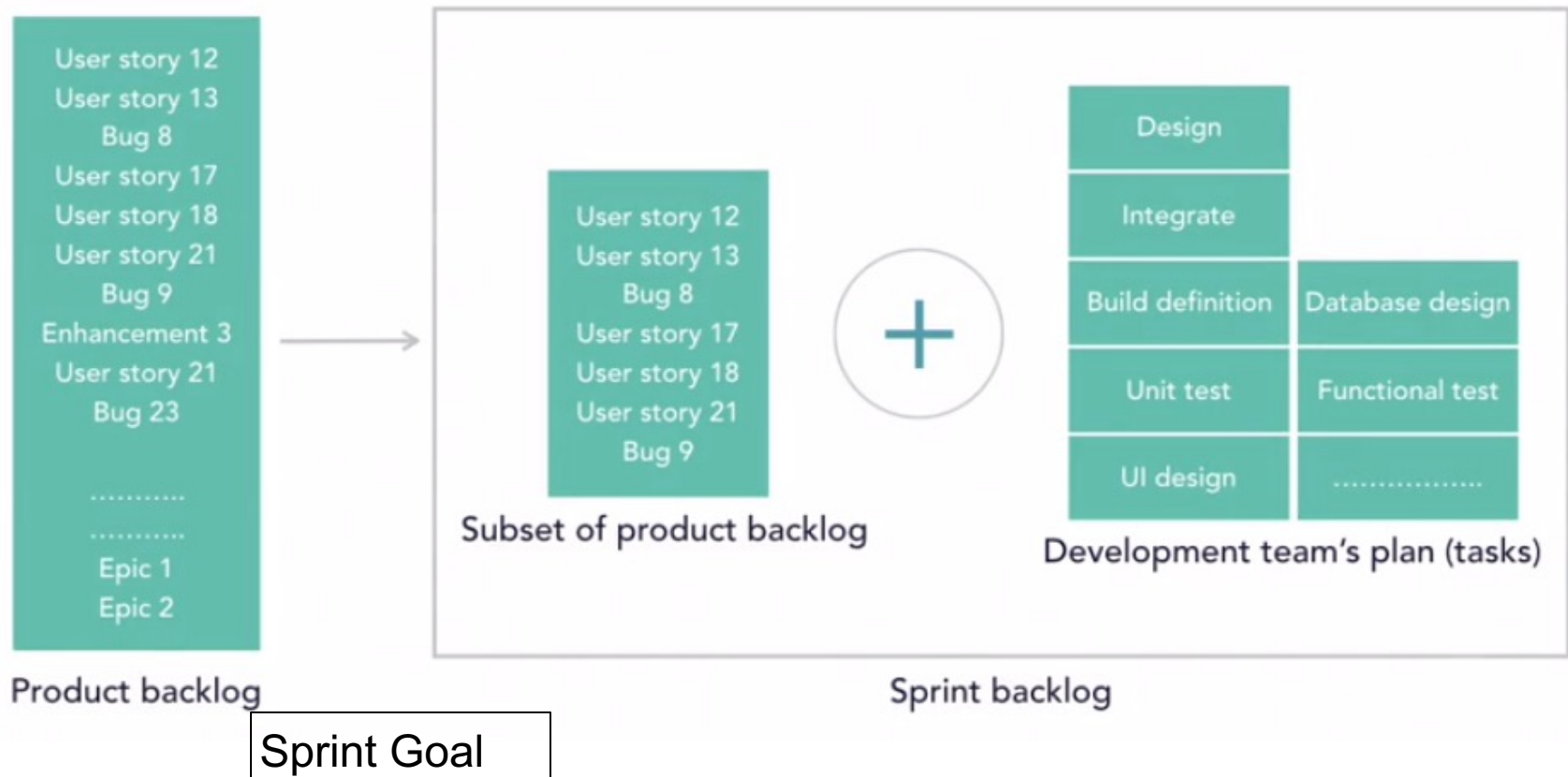•Tasks are not assigned to the team by PO or SM. Pulled by dev. Team.

Ref: LinkedIn Learning - Agile Software Development: Scrum for Developers with Shashi Shekhar.

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The Sprint Planning Ends with Sprint Backlog + Team Commitment + Refined Sprint Goal
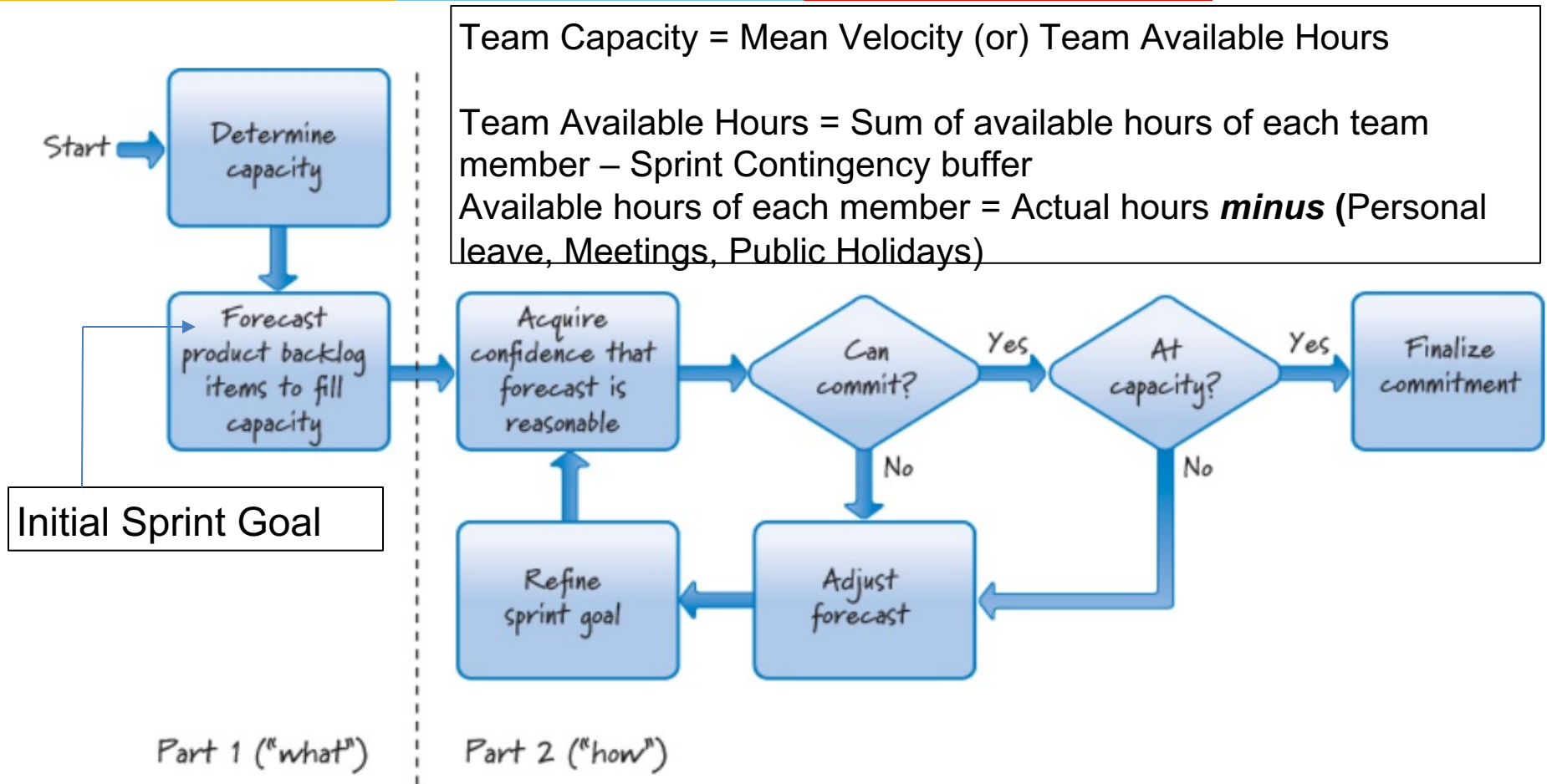
- Most Team break all user stories pulled for the sprint into tasks and estimate in ideal hours. Then compare with team capacity to establish confidence

Product backlog

Subset of product backlog

Development team's plan (tasks)

Sprint backlog

Sprint Goal

The Process flow

Team Capacity = Mean Velocity (or) Team Available Hours

Team Available Hours = Sum of available hours of each team member – Sprint Contingency buffer
Available hours of each member = Actual hours *minus* **(**Personal leave, Meetings, Public Holidays)

Initial Sprint Goal

Ref: Essential Scrum: A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin Published by Addison-Wesley Professional, 2012

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Potentially Shippable Product Increment (PSI)

- Each sprint must end with a potentially shippable increment.

- Product owner decides when to release the increment to user community (immediately or later).

- The **product increment** needs to be:

- "Vertically sliced" portion of product that provides end-to-end functionality

- Usable in production; provides business value

- Good example: allows a user to search for a product by product name
  (User interface to search -> Application layer components -> Database schema)

- Bad examples: database schema, mocked user interface

Sprint Practices

- Sprint 0:
  - Some team just focuses on planning/design and does not produce a working product increment. Sprint zero. - **Not a Good Practice**
  - Instead combine planning with some functionality delivery. – **Good practice.**

- Hardening Sprint:
  - Hardening sprints are designated for stabilizing products by fixing quality and performance issues.
  - The problem with this approach is that it encourages teams to produce unstable products at the end of sprints that do not provide expected business value and reduce transparency about a team's progress status, - **Not a Good practice**

Spike - Story

- Spikes are research activities that are sometimes performed by Scrum teams.

- For example, evaluating a set of products/Technical solution to find the best solution for a specific business need.

- Spikes are allowed in Scrum but the golden rule is to combine spike activities with other development activities,

- Avoid sprints compromised entirely of spikes- **Good Practice**

- This is the era of **continuous delivery** where organizations release features multiple times during the day – This practice is acceptable within Sprint
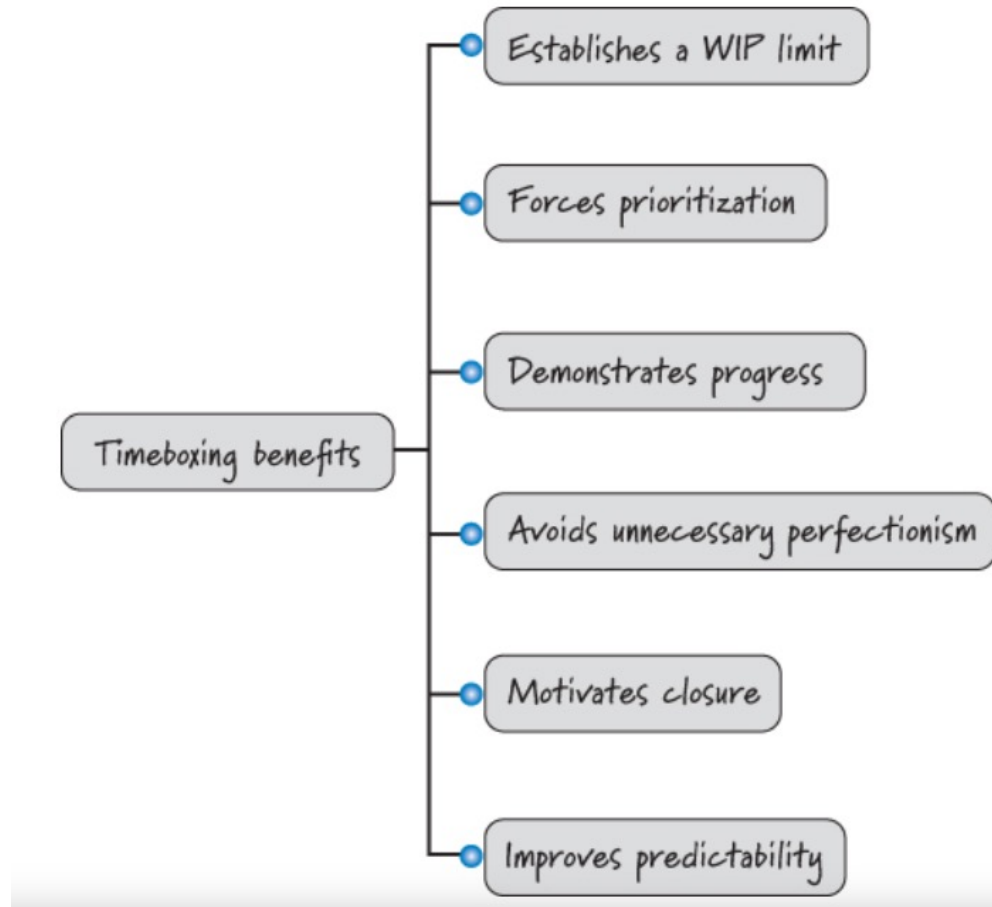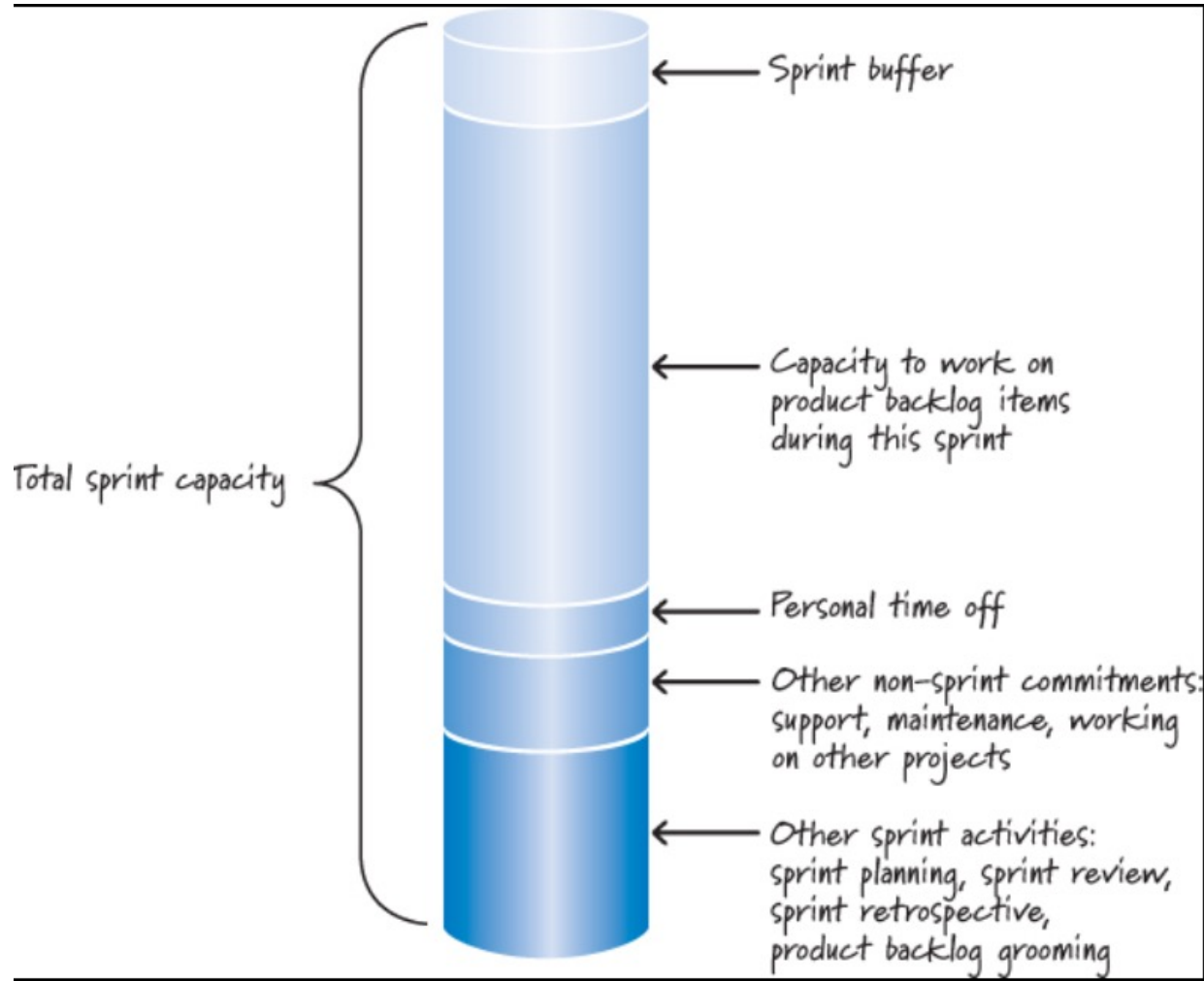
Scrum Practices
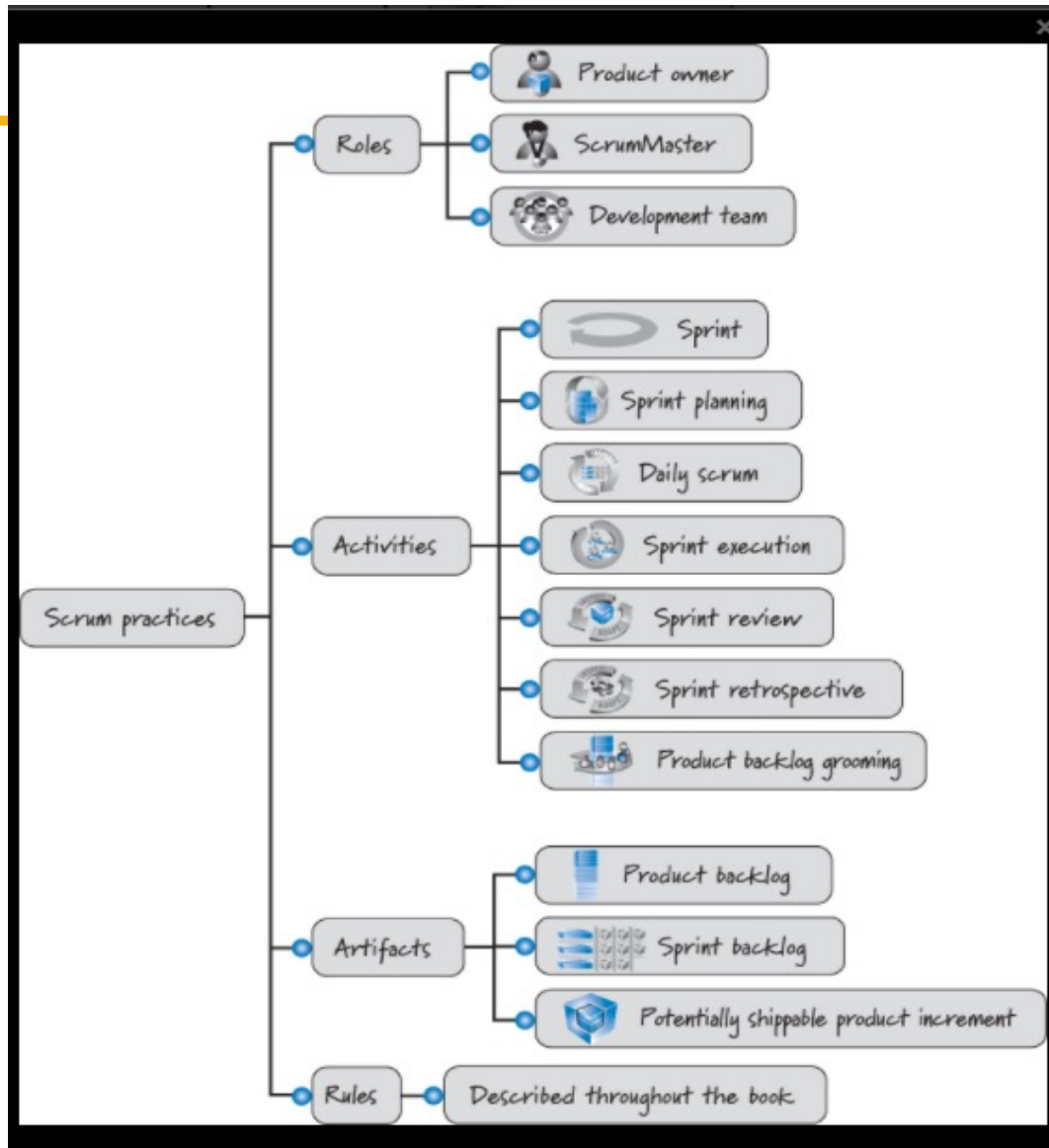
Ref: Essential Scrum: A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin Published by Addison-Wesley Professional, 2012

Short Sprints

Short-duration benefits:
- Ease of planning
- Fast feedback
- Bounded error
- Improved return on investment
- Rejuvenated excitement
- Frequent checkpoints
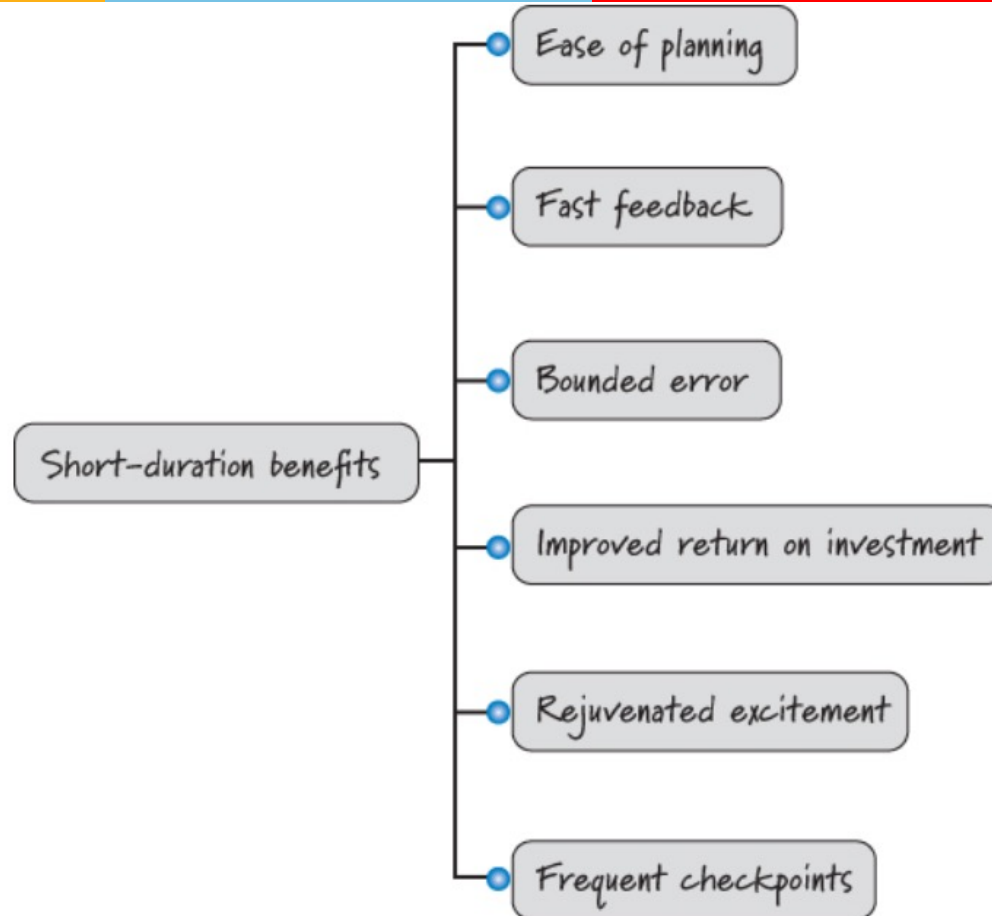
Ref: Essential Scrum: A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin Published by Addison-Wesley Professional, 2012

Time Boxing

Timeboxing benefits
- Establishes a WIP limit
- Forces prioritization
- Demonstrates progress
- Avoids unnecessary perfectionism
- Motivates closure
- Improves predictability

Development team capacity in a sprint

Ref: Essential Scrum: A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin Published by Addison-Wesley Professional, 2012

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Capacity in Story Points

- Initial estimate of its capacity/velocity for the upcoming sprint:
  - Start with the team's long-term average velocity.
  - Sometimes referred to as the "yesterday's weather" approach.

- Example:
  - Suppose Average Velocity = 40 Story points for 2 weeks sprint
  - Consider whether the upcoming sprint might differ from typical or previous sprints (it might not).
  - The result is a reasonable adjusted capacity (predicted velocity) for the upcoming sprint.
  - Adjust the velocity if the sprint is planned during long holidays (Year end holidays).

Capacity in Effort- Hours (Two Weeks Sprint) - Example

Team Members	Days Available (Less Personal Time)	Days for Other Scrum Activities	Hours per Day	Available Effort-Hours
1	10	2	4–7	32–56
2	8	2	5–6	30–36
3	8	2	4–6	24–36
4	9	2	2–3	14–21
5	10	2	5–6	40–48
				140–197

Caution: Taking 197 hours of work because it would leave no sprint buffer.
Better strategy: > 140 hrs. and < 197 hrs.
•If all team members are available full time and no personal holidays – Capacity = (Available Capacity) – (Total Days for Scrum activities) – Sprint buffer (Assume 5%) = 400 – 80 – 20 = 300 hours – plan for 320-300 hours of capacity

Ref: Essential Scrum: A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin Published by Addison-Wesley Professional, 2012

Selecting Product Backlog Items

- If we have a sprint goal, we would select product backlog items that align with that goal.

- If there is no formal sprint goal, our default is to select items from the top of the product backlog. We would start with the topmost item and then move to the next item and so forth.

- If the team were not able to commit to the next-highest-priority item (perhaps there is a skills capacity issue), it would select the next appropriate higher-priority backlog item that looks as if it can be completed within the constraints.

- Also, having a **good definition of ready** will prevent product backlog items from being selected that are poorly defined or have unfulfilled resource or dependency constraints that would prevent our finishing them in a sprint.

- The start-only-what-you-can-finish rule is based on the principles that we should limit WIP and that starting something and not finishing it generates a variety of forms of waste.

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Examples of Product Backlog Items (PBI)

PBI Type	Example
Feature	As a customer service representative I want to create a ticket for a customer support issue so that I can record and manage a customer's request for support.
Change	As a customer service representative I want the default ordering of search results to be by last name instead of ticket number so that it's easier to find a support ticket.
Defect	Fix defect #256 in the defect-tracking system so that special characters in search terms won't make customer searches crash.
Technical improvement	Move to the latest version of the Oracle DBMS.
Knowledge acquisition	Create a prototype or proof of concept of two architectures and run three tests to determine which would be a better approach for our product.

Ref: Essential Scrum: A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin Published by Addison-Wesley Professional, 2012

Acquiring Confidence

- Use predicted velocity to see if the commitment is realistic.
    - If predicted sprint velocity is 25 story points and our team has selected 45 story points' worth of work, the team should be concerned.

- The risk of using velocity as the sole means of establishing confidence is that even though the numbers look right, the commitment might still be unachievable.
    - However, until we dig a little deeper to the task level, we don't really know if the set of product backlog items that total 21 story points can actually be completed— there could be dependency issues, skills capacity issues, as well as a host of other issues that make it impractical for the team to get them all done.

Acquiring Confidence …

- Most Scrum teams gain the necessary level of confidence by breaking the product backlog items down into the tasks that are required to complete them to the Scrum team's agreed-upon definition of done.
- These tasks can then be estimated (usually in effort-Ideal hours) and subtracted from the team's capacity.
- Breaking product backlog items into tasks is a form of design and just-in-time planning for how to get the items done.
- The result is a sprint backlog

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Definition of Ready

- You can think of the definition of ready and the definition of done as two states of product backlog items during a sprint cycle.
  - State-1 : Before the start Sprint planning
  - State-2: After the item considered as done

Example:
Definition of
ready

Definition of Ready	
❑	Business value is clearly articulated.
❑	Details are sufficiently understood by the development team so it can make an informed decision as to whether it can complete the PBI.
❑	Dependencies are identified and no external dependencies would block the PBI from being completed.
❑	Team is staffed appropriately to complete the PBI.
❑	The PBI is estimated and small enough to comfortably be completed in one sprint.
❑	Acceptance criteria are clear and testable.
❑	Performance criteria, if any, are defined and testable.
❑	Scrum team understands how to demonstrate the PBI at the sprint review.

Ref: Essential Scrum: A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin Published by Addison-Wesley Professional, 2012

Definition of Done

- An Example

Definition of Done	
❏	Design reviewed
❏	Code completed
❏	Code refactored
❏	Code in standard format
❏	Code is commented
❏	Code checked in
❏	Code inspected
❏	End-user documentation updated
❏	Tested
❏	Unit tested
❏	Integration tested
❏	Regression tested
❏	Platform tested
❏	Language tested
❏	Zero known defects
❏	Acceptance tested
❏	Live on production servers

- Conceptually the definition of done is a checklist of the types of work that the team is expected to successfully complete before it can declare its work to be potentially shippable.

- Can be applied to product backlog item, Increment or a release.

- Obviously the specific items on the checklist will depend on a number of variables:
  - The nature of the product being built
  - The technologies being used to build it
  - The organization that is building it
  - The current impediments that affect what is possible
- Definition of Done Can Evolve Over Time

Ref: Essential Scrum: A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin Published by Addison-Wesley Professional, 2012

Definition of Done …

- Most of the time, a bare-minimum definition of done should yield a complete slice of product functionality, one that has been designed, built, integrated, tested, and documented and would deliver validated customer value.

- To have a useful checklist, however, these larger-level work items need to be further refined.
  - For example, what does tested mean? Unit tested? Integration tested? System tested? Platform tested? Internationalization tested? You can probably think of many other forms of testing that are specific to your product. Are all of those types of testing included in the definition of done?

- Scrum teams need to have a robust definition of done, one that provides a high level of confidence that what they build is of high quality and can be shipped. Anything less robs the organization of the business opportunity of shipping at its discretion and can lead to the accrual of technical debt

Thank you

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