The Professional Scrum Master (PSM I) Guide

Successfully practice Scrum with real-world projects and achieve your PSM I certification with confidence

Fred Heath

Who this audiobook is for

This audiobook is for professionals who want to build a strong foundation in Scrum practices and development. Project managers, product owners, product managers across various industries, sectors, and departments, software architects, developers, coders, and testers looking to achieve PSM certification will also find this book helpful.

It may also serve as a useful source of updated knowledge for existing Scrum Masters or developers who are not fully cognizant of the 2020 Scrum Guide revisions. Having existing Scrum, or other Agile methodology, knowledge is not a prerequisite for reading this book.

What this audiobook covers

Chapter 1, *Introduction to Scrum*, presents you with the history and motivation behind Scrum, its value as a development framework, and introduces you to the PSM I assessment.

Chapter 2, *Scrum Theory and Principles*, shares knowledge of the fundamental concepts behind Scrum, its values, and its pillars. It also highlights the value and effect of these concepts in applying Scrum successfully.

Chapter 3, *The Scrum Team*, analyzes the role and responsibilities of the Scrum Master, Product Owner, and Developers and their interactions within the Scrum development lifecycle.

Chapter 4, *Scrum Events*, explains the significance of the Sprint, Sprint Planning, Daily Scrum, Sprint Review, and Sprint Retrospective events and their application and utility within the Scrum development lifecycle.

Chapter 5, *Scrum Artifacts*, details the Product Backlog, the Sprint Backlog, and the Product Increment, as well as the commitments undertaken for each of these Artifacts. The inter-dependencies of these Artifacts are also covered.

Chapter 6, *Planning and Estimating with Scrum*, delves into the world of measuring, estimating, planning, and forecasting. You will learn how to calculate your team's velocity, create a product roadmap, and measure your progress with burn-up and burn-down charts.

Chapter 7, *The Sprint Journey*, imparts practical advice and techniques for day-to-day working during the Sprint. Product Backlog refinement is explained, as well as how to use a Scrum Board in different scenarios, manage defects, and what to do if the Sprint is canceled.

Chapter 8, *Facets of Scrum*, covers best practices to use when working with Scrum. The importance of a CI/CD pipeline as testing levels is examined in detail. Techniques for managing technical debt, working remotely, and scaling Scrum are also explained.

Chapter 9, *Preparing for the PSM I Assessment*, is a short chapter mainly hosting 25 quiz questions summarizing the knowledge contained in this book, helping you to prepare for taking the PSM I assessment exam. Practical advice on how to prepare for the exam, and what to do during and after, is also given.

Chapter 1 – Introduction to Scrum

Figures

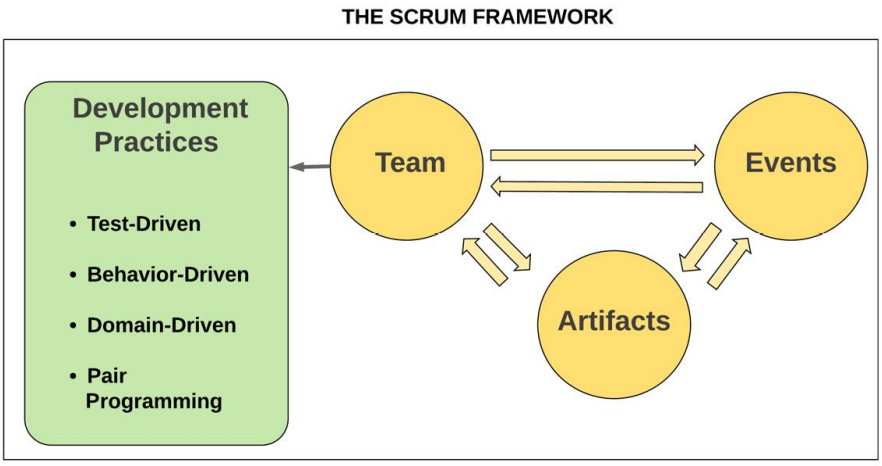

Figure 1.1 – The Scrum framework components

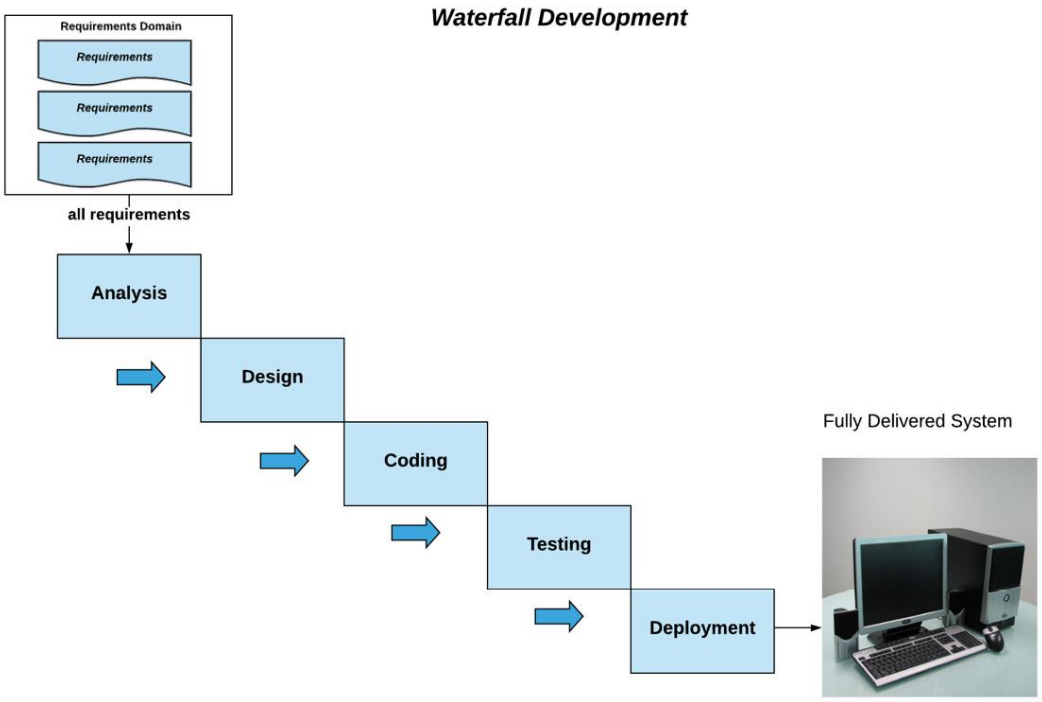

Figure 1.2 – Waterfall development

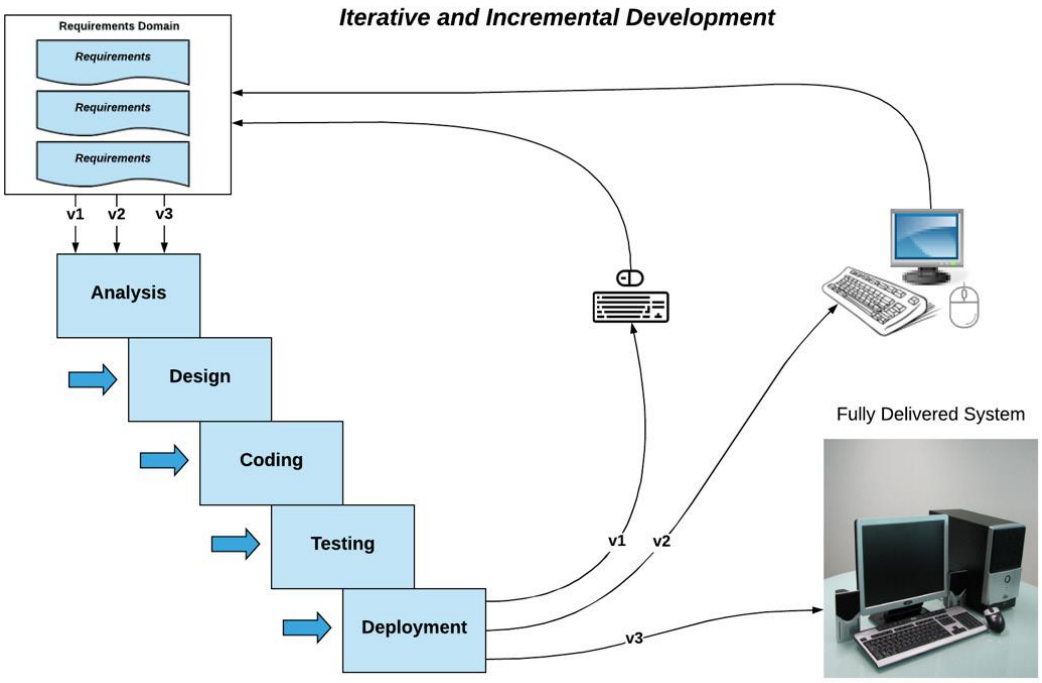

Figure 1.3 – Iterative and incremental development

Further reading

- *Principles behind the Agile Manifesto*, https://agilemanifesto.org/principles.html
- *Scrum Values meet Agile Principles*, https://www.scrum.org/resources/blog/scrum-values-meet-agile-principles
- *The State of Agile*, https://betanews.com/2019/05/07/state-of-agile-report
- *The Scrum Guide*, https://www.scrumguides.org/docs/scrumguide/v2017/2017-Scrum-Guide-US.pdf

- Ken Schwaber and Jeff Sutherland, *Software in 30 Days: How Agile Managers Beat the Odds, Delight Their Customers, and Leave Competitors in the Dust*, Wiley publications, 1st ed., Mar 2012
- *State of scrum*: https://www.scrumalliance.org/learn-about-scrum/state-of-scrum
- *Scrum open*: https://www.scrum.org/open-assessments/scrum-open

Chapter 2 – Scrum Theory and Principles

Figures

Chapter 2

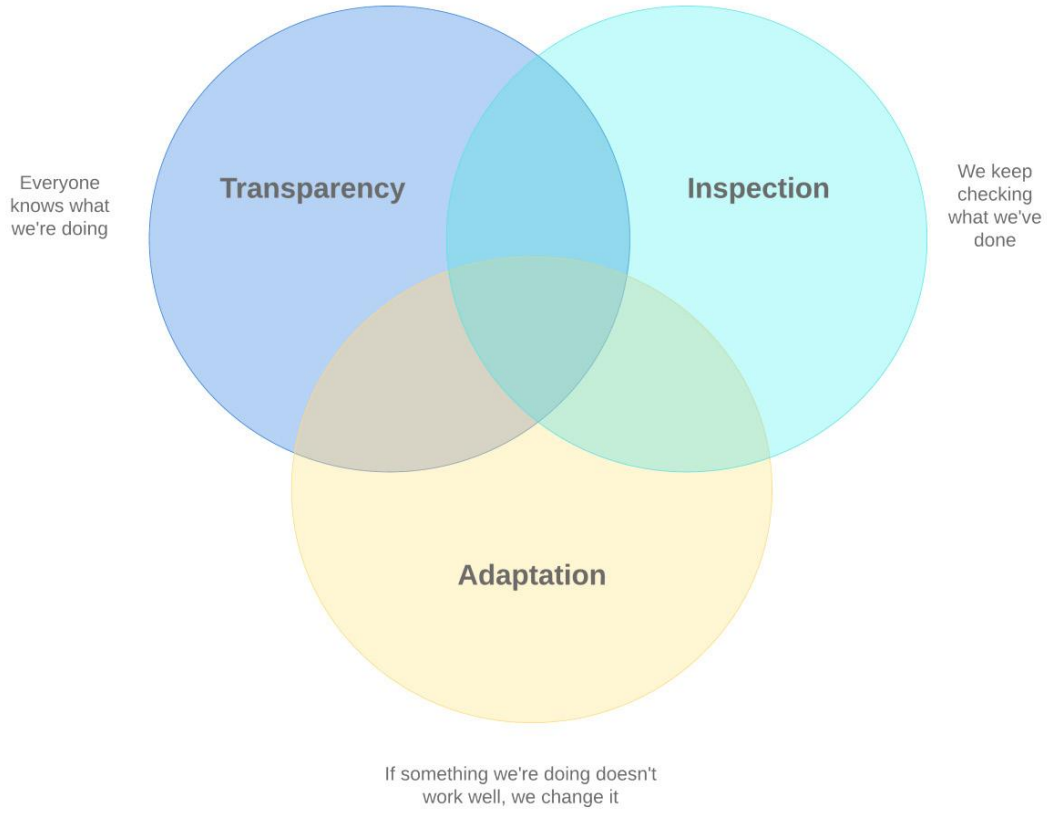

Figure 2.1 – The pillars of empiricism

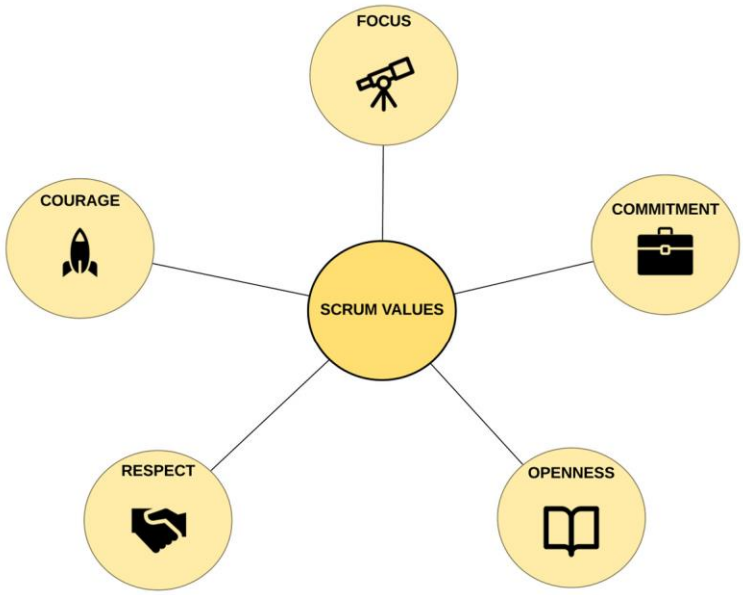

Figure 2.2 – The Scrum values

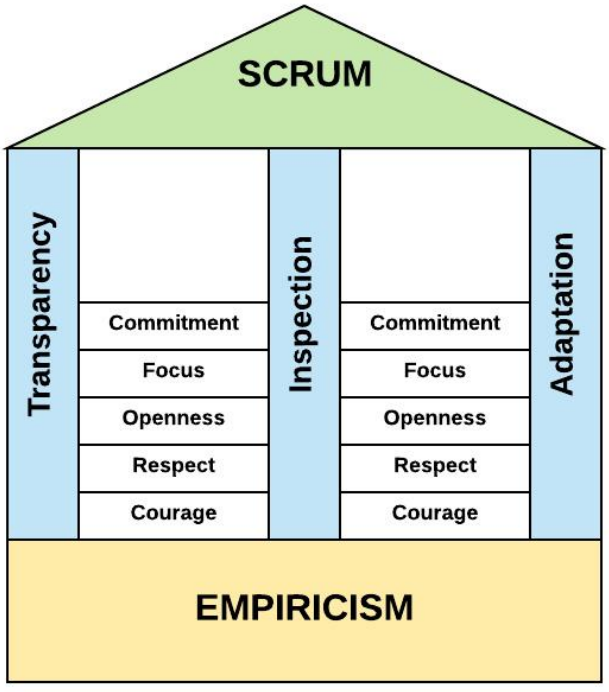

Figure 2.3 – The House of Scrum

Answers

This section contains answers to the questions posed in all chapters.

1. The correct answer is c.

   Scrum is a process framework, not a methodology or process.

2. The correct answer is c.

   Empiricism, the principle that underpins Scrum, is based on constant inspection and adaptation.

3. The correct answer is d.

   Openness means that we share both good and bad things with our team. By failing to mention the weaknesses of his design, Bob hasn't been open with the team.

4. The correct answer is b.

   Alice has been open to discussing alternative algorithms to the one she chose. She also showed courage in accepting a new algorithm, as suggested by the team, and implementing it.

5. The correct answer is d.

   By accepting to work on a non-Sprint item, Carol lost focus of the task she was working on and of the Sprint goal.

Chapter 3 – The Scrum Team

Figures

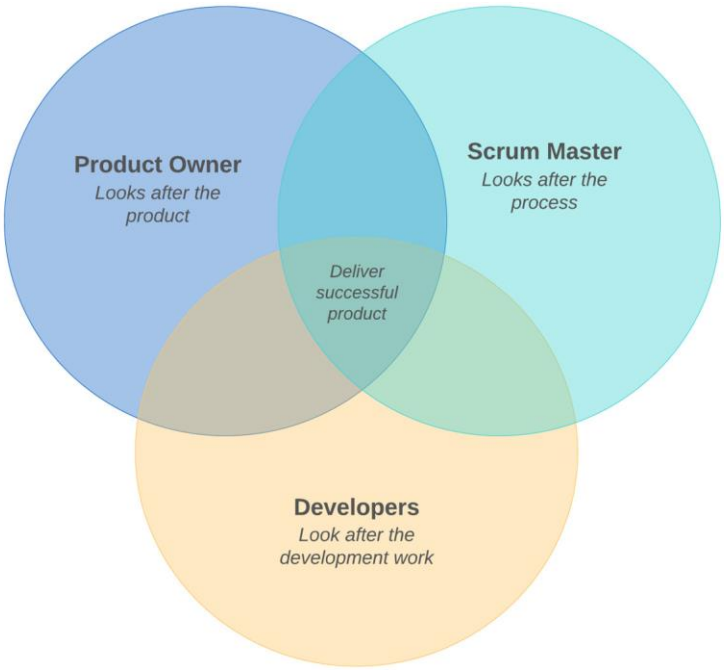

Figure 3.1 – The Scrum Team roles

Answers

This section contains answers to the questions posed in all chapters.

1. The correct answer is d.

   The Developers are self-managing and they are solely responsible for deciding how to deliver a Product Increment and which working practices to employ. Neither the Scrum Master, nor the Product Owner may interfere with the Developers' work.

2. The correct answer is b.

   Answer (d) is wrong, as the Developers estimate and select work items at the start of the Sprint and then commit to completing them.

   (a) and (c) are also wrong as the Scrum Master cannot interfere with the Developers' working practices.

   The Scrum Master may, however, guide them towards customizing or improving the Scrum process and suggesting a Sprint length increase (b) provides such guidance.

3. The correct answer is b.

   Answer (a) is clearly wrong, and (d) is the responsibility of the Scrum Master. The Product Owner does not manage the project, or the work being done, they are responsible for the product (c).

4. The correct answer is a.

   Although the Developers and Scrum Master may make suggestions about the ordering of the Product Backlog items, the final say always rests with the Product Owner. The stakeholders do not directly participate in the ordering of the backlog.

5. The correct answer is d.

   Being unsure about how a feature works is not an impediment, unless clarification cannot be gained (a). Clarity about the work being done is always needed and the person responsible to provide this is the Product Owner (d), not other team members (c).

6. The correct answer is c.

   Changes in the Developer group structure are disruptive and should be avoided. If a change must be made, a short-term disruption is to be expected.

7. The correct answer is d.

The Developers are self-managing, solely responsible for their work during the Sprint.

Chapter 4 – Scrum Events

Figures

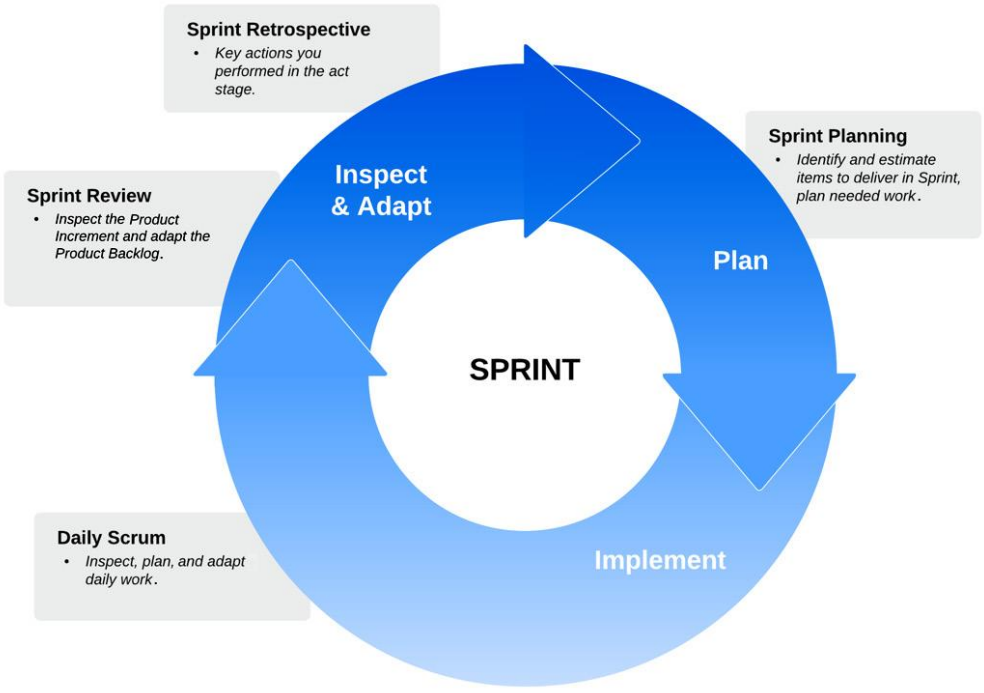

Figure 4.1 – The Sprint as an event container

Further reading

- *The Scrum Guide, Ken Schwaber and Jeff Sutherland*, https://www.scrumguides.org/docs/scrumguide/v2017/2017-Scrum-Guide-US.pdf
- *Essential Scrum. A Practical Guide to the Most Popular Agile Process, Kenneth S. Rubin, Addison-Wesley, July 2012*

- *Scrum Field Guide, The. Agile Advice for Your First Year and Beyond, Mike Cohn, Addison-Wesley, December 2015*
- *BDD Confusion. Using Behaviour Driven Development for Acceptance Criteria, Chris Lewis, Carnsa Development Series, October 2019*

Answers

This section contains answers to the questions posed in all chapters.

1. The correct answer is c.

   The Sprint Backlog should contain enough items to get the Sprint started but items may be added or removed during the Sprint by the Development Team.

2. The correct answer is a.

   Time-boxed events are events that have a maximum duration.

3. The correct answer is c.

   Sprint Planning is time-boxed to a maximum of 8 hours for a 1-month Sprint. For shorter Sprints, the event is usually shorter.

4. The correct answer is c.

   The Daily Scrum serves to inspect work done since the last Daily Scrum and plan work to be done in the next 24 hours.

5. The correct answer is e.

   The Sprint Planning duration is 4 hours for a monthly Sprint. For shorter Sprints, it is usually shorter.

6. The correct answer is b.

   To ensure continuous improvement, the Sprint Backlog should include at least one high-priority process improvement identified in the previous Sprint. The Product Backlog should only contain product-specific items.

7. The correct answer is b.

   The Definition of Done should change when it does not reflect the quality standards expected by the team, organization, or stakeholders. The decision to change it usually takes place during the Sprint Retrospective.

Chapter 5 – Scrum Artifacts

Figures

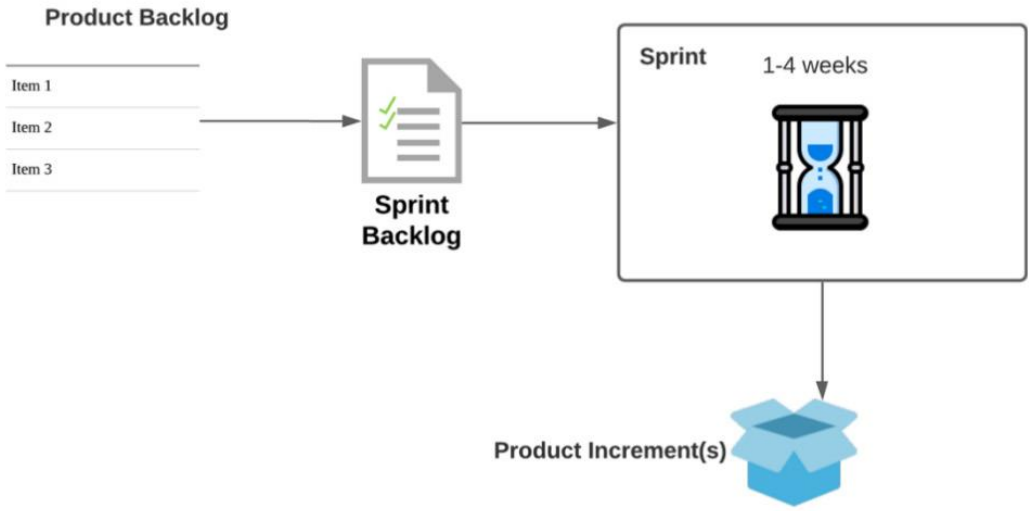

Figure 5.1 – Scrum Artifacts

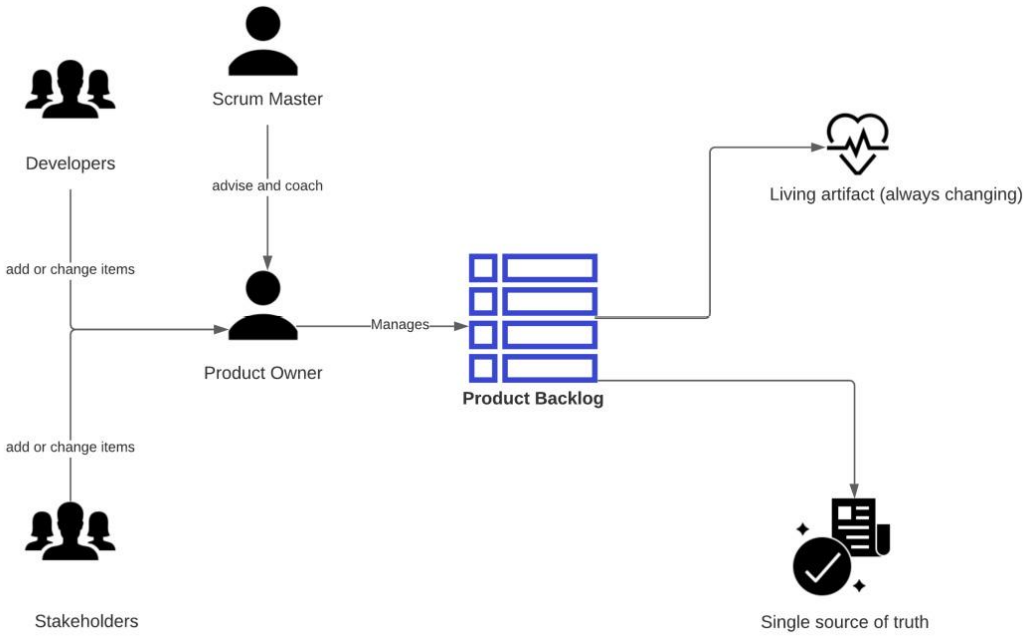

Figure 5.2 – Product Backlog items as user stories

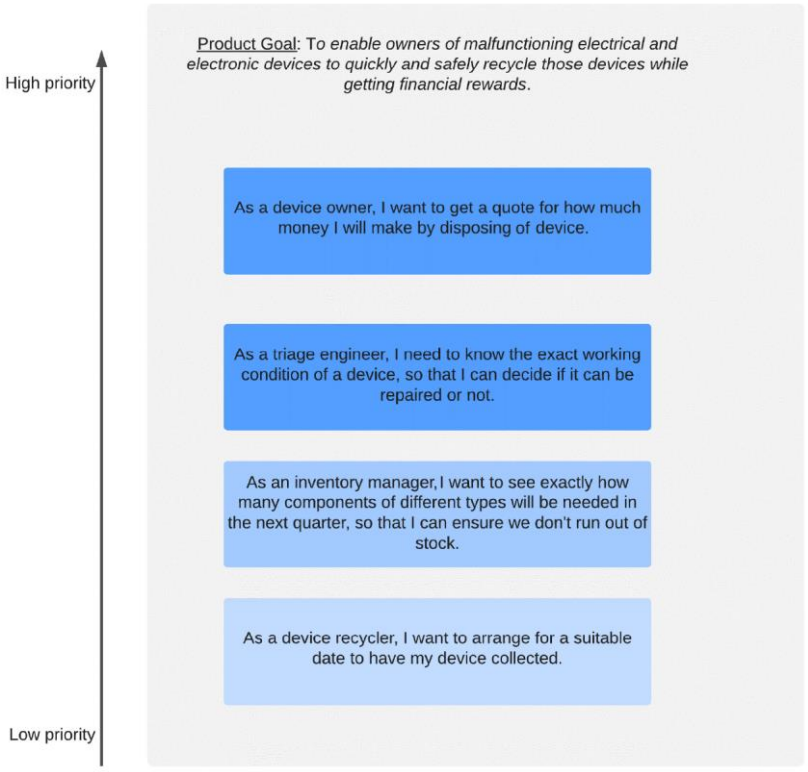

Figure 5.3 – Product Backlog items as user stories

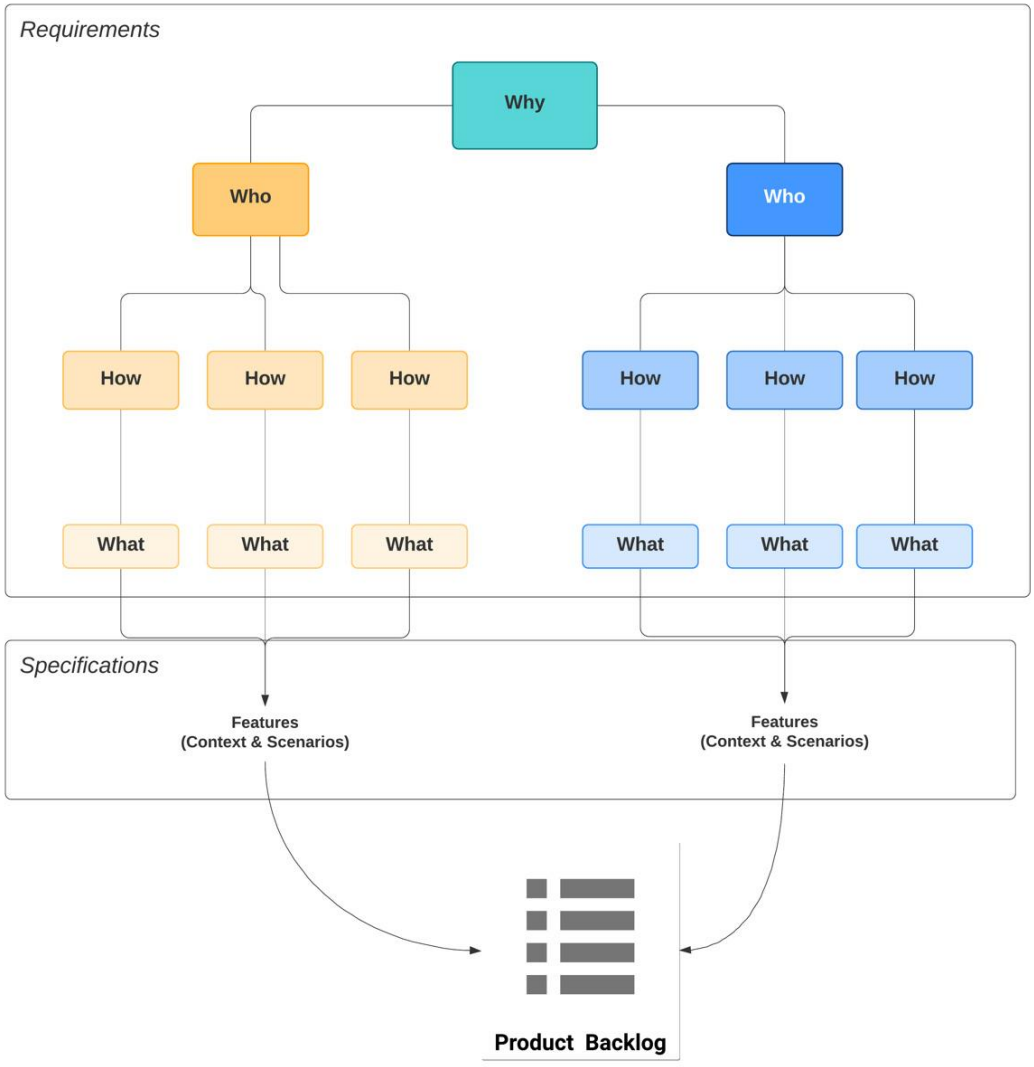

Figure 5.4 – Requirements as an impact map

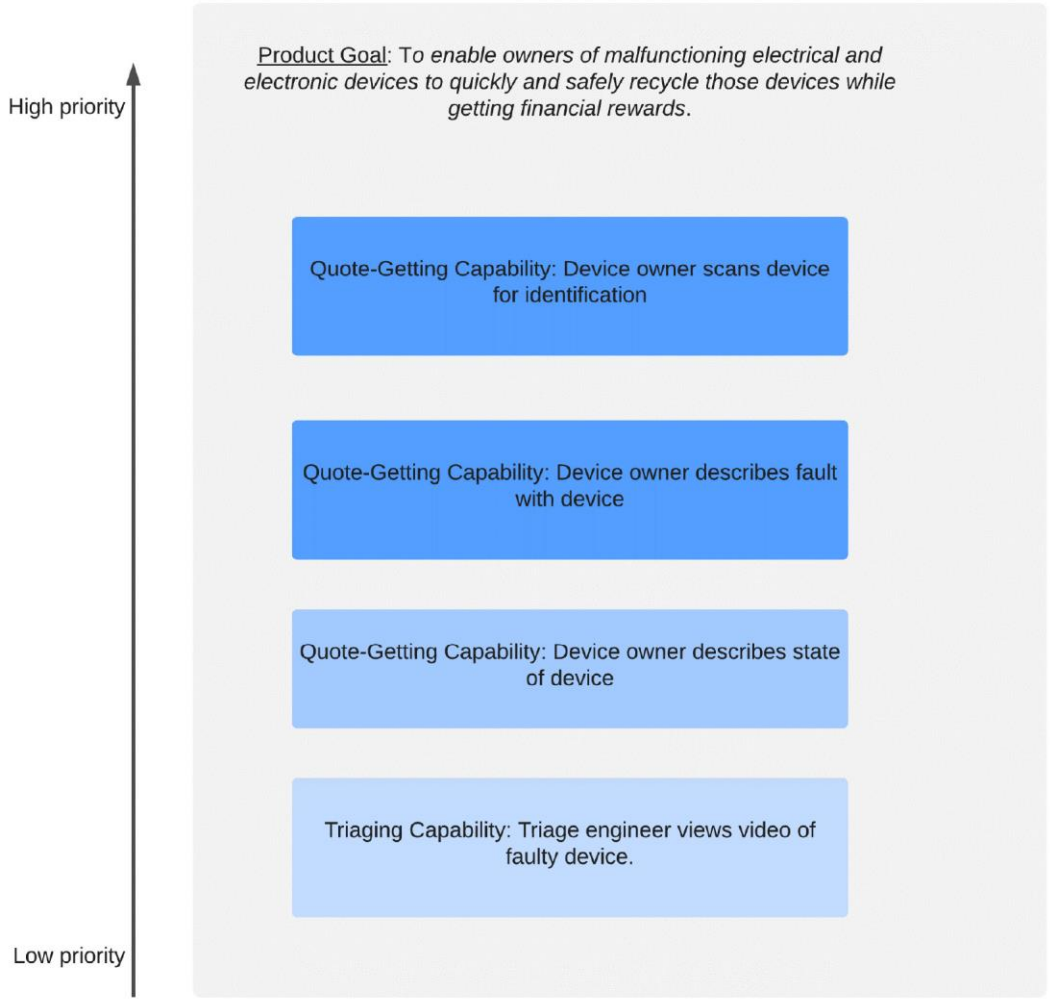

Figure 5.5 – Product Backlog items as features

Further reading

- *The Scrum Guide, Ken Schwaber and Jeff Sutherland* (https://www.scrumguides.org/docs/scrumguide/v2017/2017-Scrum-Guide-US.pdf)

- *User Stories Applied. For Agile Software Development, Mike Cohn, Addison-Wesley, 2004*
- *Managing Software Requirements the Agile Way, Fred Heath, Packt Publishing, 2020*

Answers

This section contains answers to the questions posed in all chapters.

1. The correct answer is d.

   The items that have been selected for a Sprint have been selected as the most valuable to the Product Owner. The items serve the Sprint's goal. No changes should be made that endanger the Sprint Goal. No one external to the Scrum Team can force changes on the developers (Sprint Backlog) and the Product Owner (Product Backlog).

2. The correct answer is b.

   Products have one Product Backlog, regardless of how many teams are used. Any other setup makes it difficult for the developers to determine what to work on.

3. The correct answer is b.

   The Sprint Goal sets the direction and objectives for the Sprint.

4. The correct answer is a.

   Multiple Increments may be created within a Sprint. The sum of the Increments is presented at the Sprint Review, thus supporting empiricism. However, an Increment may be delivered to stakeholders prior to the end of the Sprint. The Sprint Review should never be considered a gate to releasing value.

5. The correct answer is d.

   The developers collectively own all the items in the Sprint Backlog.

6. The correct answer is a.
7. The correct answer is b.

   As per the Scrum Guide 2020, the Scrum Team creates the Definition of Done, unless an organization-wide definition already exists.

8. The correct answer is c.

   As per the Scrum Guide 2020, a Sprint is not confined to the release of a single increment at the end of the Sprint or Sprint Review. Many increments may be created during a Sprint and released as needed.

9. The correct answer is a.

   Refinement is an ongoing activity that should take place at regular intervals during the Sprint.

Chapter 6 – Planning and Estimating with Scrum

Figures

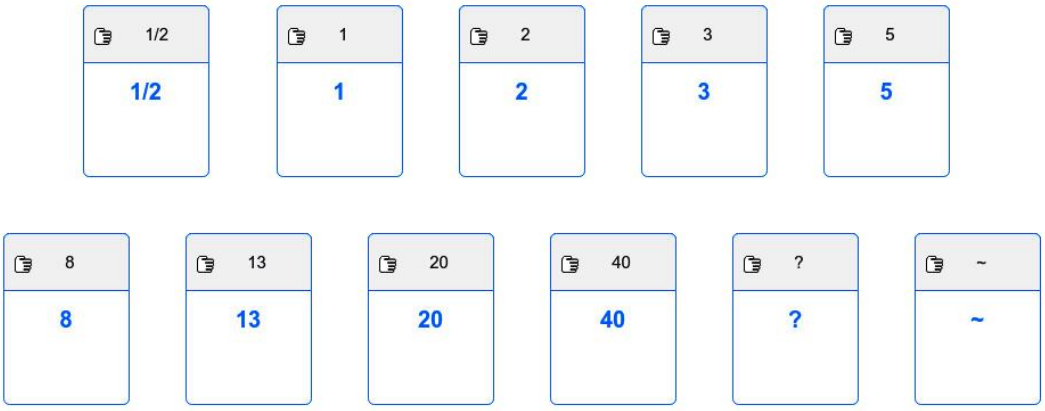

Figure 6.1 – A deck of cards representing estimates

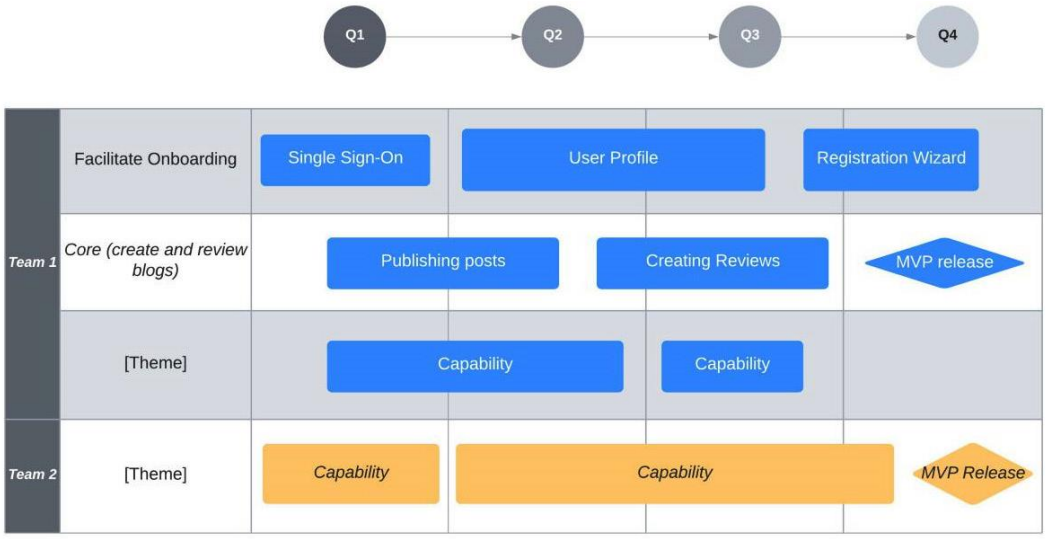

Figure 6.2 – A product roadmap

Sprint	Done Story Points	Velocity
1	14	14
2	18	16
3	12	14
4	18	16
5	20	18

Figure 6.3 – Calculating velocity

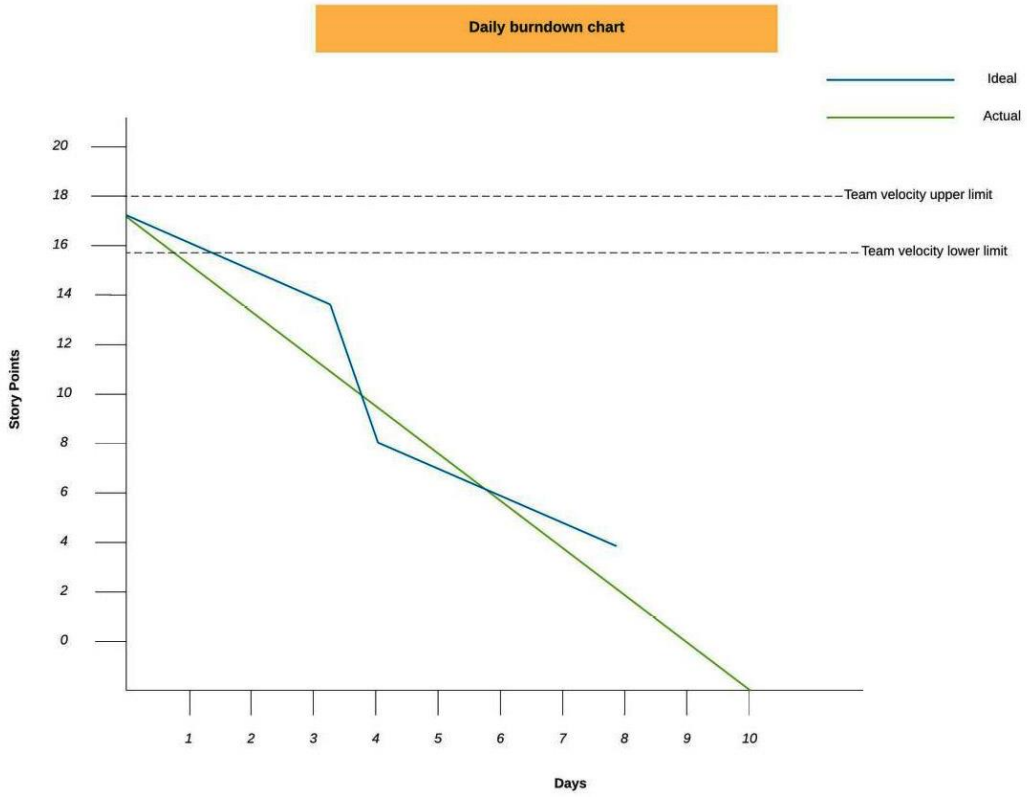

Figure 6.4 – Daily burndown chart

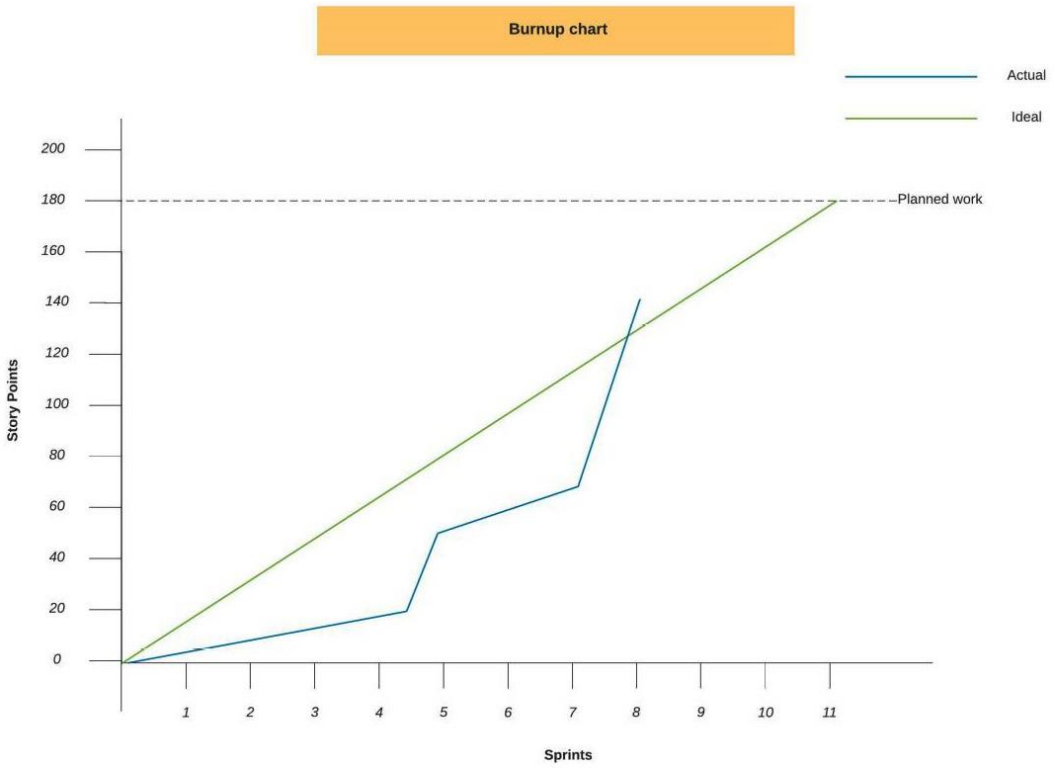

Figure 6.5 – Burnup chart for an upcoming Release

Further reading

- *Succeeding with Agile software development using Scrum, Mike Cohn, Addison-Wesley, 2009*
- *Introduction to the New Statistics. Estimation, Open Science, and Beyond, Geoff Cumming and Robert Calin-Jageman, 21 Oct. 2016*

Answers

This section contains answers to the questions posed in all chapters.

1. The correct answer is c.

   Story points are used to indicate relative size and complexity. They do not denote time units. It is impossible to know whether an item is feasible to be completed within a Sprint, based on its story points, unless we know the estimation scale and baseline.

2. The correct answers are a, c, and d.

   Having fixed dates in the product roadmap goes against Agile and Scrum principles of constant inspection and adaptation versus following a set plan.

3. The correct answer is c.

   Estimating methods such as planning poker rely on developers reaching consensus by providing individual estimates and then discussing the motivations behind the estimates until agreement is reached on a single estimate value.

4. The correct answer is c.

   Velocity is subjective to a specific team and product. It is not a comparative measurement.

5. The correct answer is b.

   Burn-up charts let us visualize progress over time. Roadmaps help to identify long-term goals and milestones. Velocity is used for charting and forecasting in the context of burn-up/down charts. Burn-down charts help to visualize work done as well as work remaining within a Sprint.

Chapter 7 – The Sprint Journey

Figures

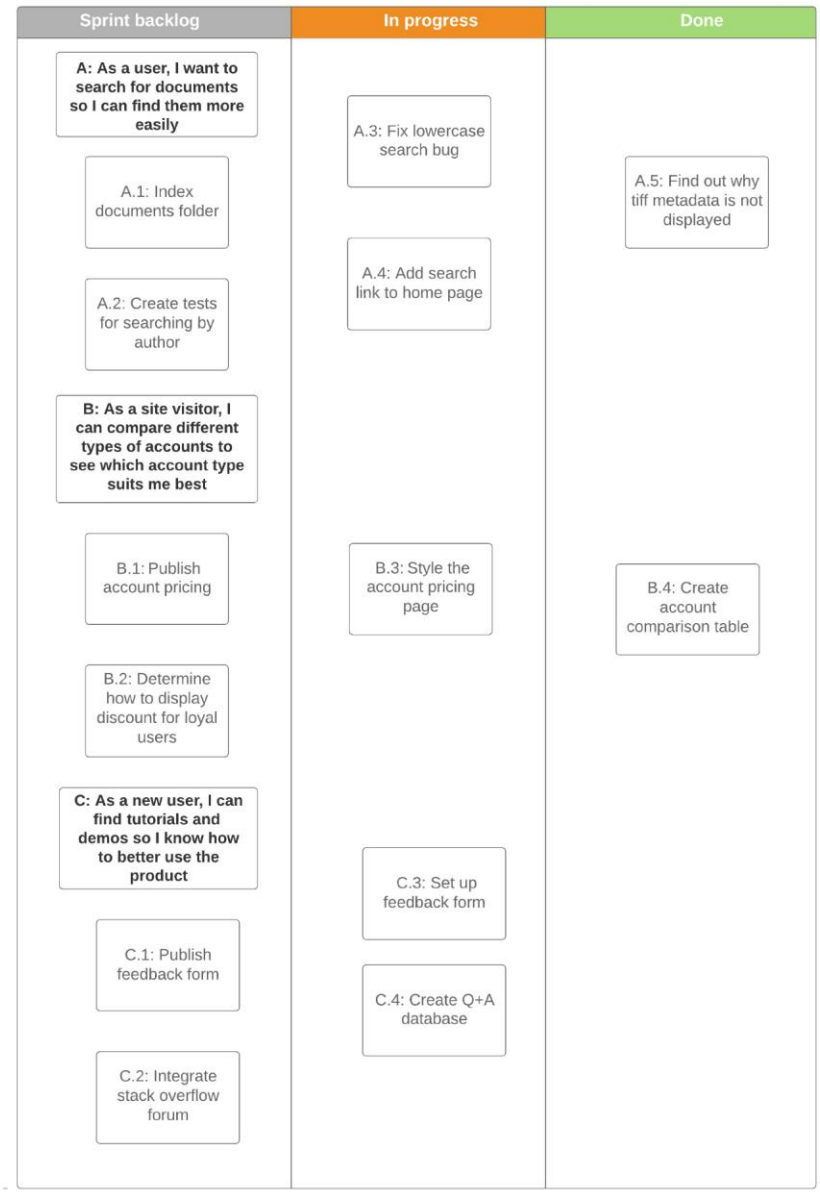

Figure 7.1 – A Scrum Board

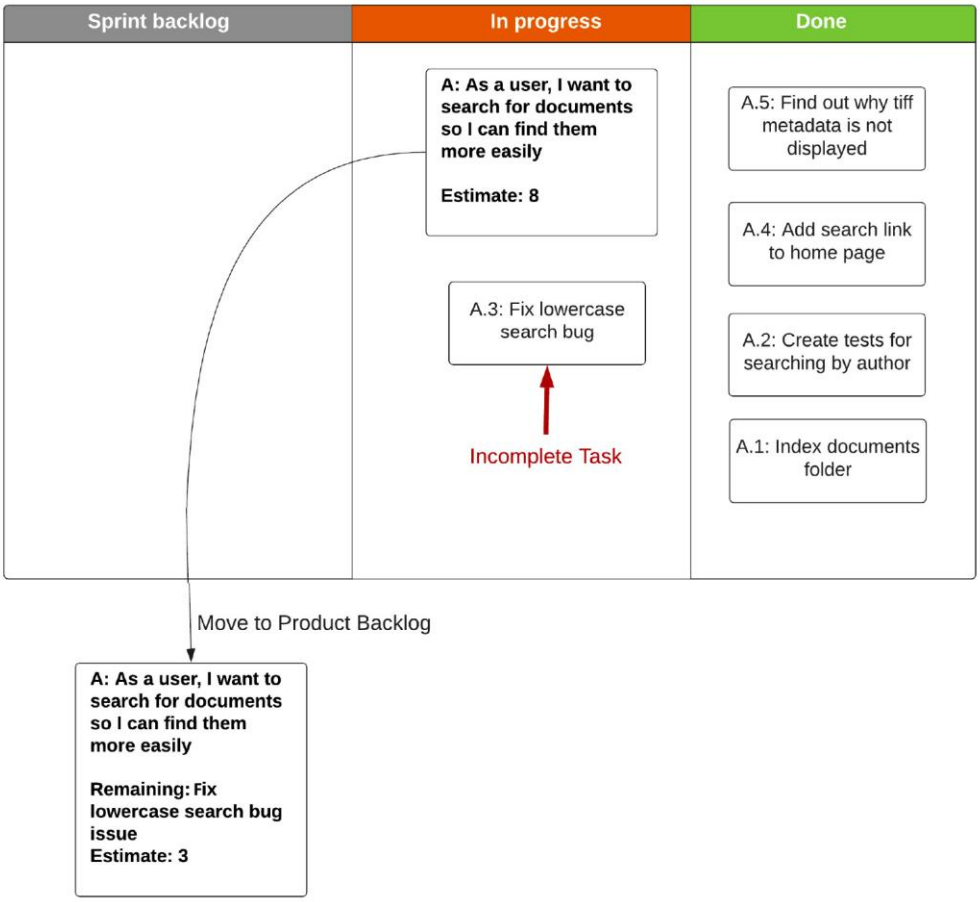

Figure 7.2 – Scrum Board for an incomplete Sprint

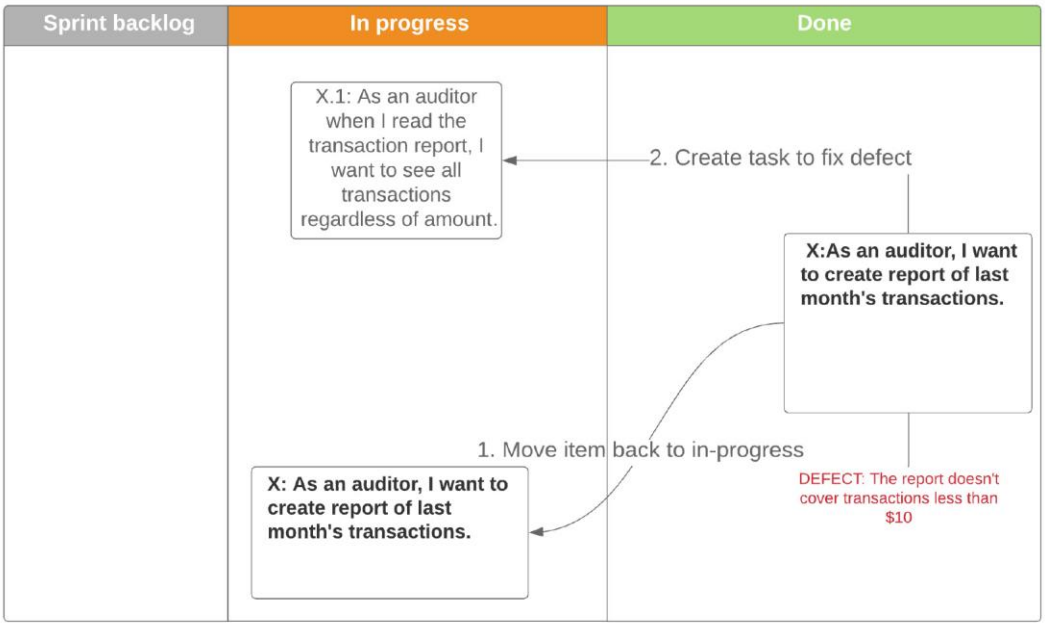

Figure 7.3 – Managing in-Sprint defects with Done items

Further reading

- *Zombie Scrum Survival Guide (The Professional Scrum Series), Christiaan Verwijs, Johannes Schartau, Barry Overeem, Aug 2020*
- *Essential Scrum. A Practical Guide to the Most Popular Agile Process, Kenneth S. Rubin, Addison-Wesley, Jul 2012*

Answers

This section contains answers to the questions posed in all chapters.

1. The correct answers are a, b, and c.

   Creating tasks for delivering backlog items occurs after the items have been selected for the Sprint Backlog.

2. The correct answer is d.

   The product owner decides how the Product Backlog items are ordered. This can be by value, cost, risk, or other ways.

3. The correct answer is b.

   A Sprint should aim to create a valuable, working Product Increment. No Sprint is special.

4. The correct answer is c.

   The only reason to cancel the Sprint is when the Sprint goal becomes redundant. This should be a very rare occasion.

5. The correct answer is a.

   If a defect is discovered on an item currently worked on, this usually indicates some unanticipated condition and unforeseen extra work. In the interests of transparency, this should be captured on a board card and placed in the Sprint Backlog. It will be picked up and worked on as the Sprint progresses. There is no need to interfere with the Product Backlog or disrupt the Sprint.

Chapter 8 – Facets of Scrum

Figures

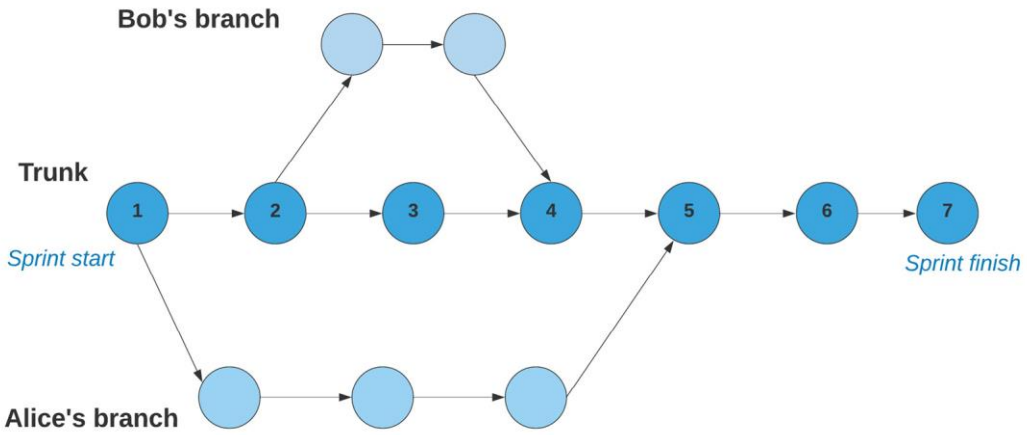

Figure 8.1 – Git trunk-based development

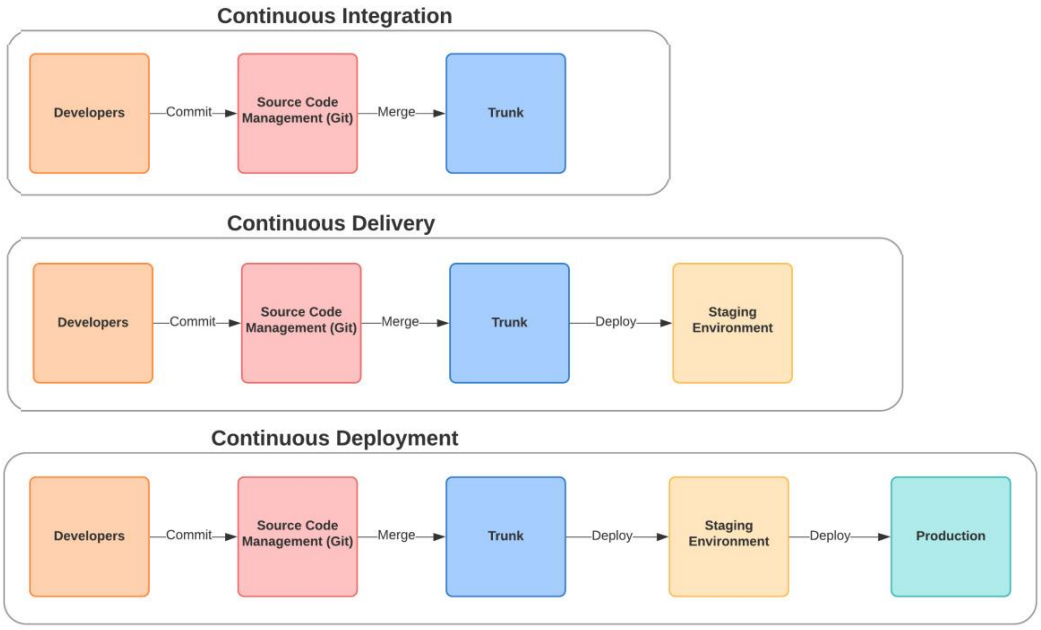

Figure 8.2 – Continuous integration, delivery, and deployment

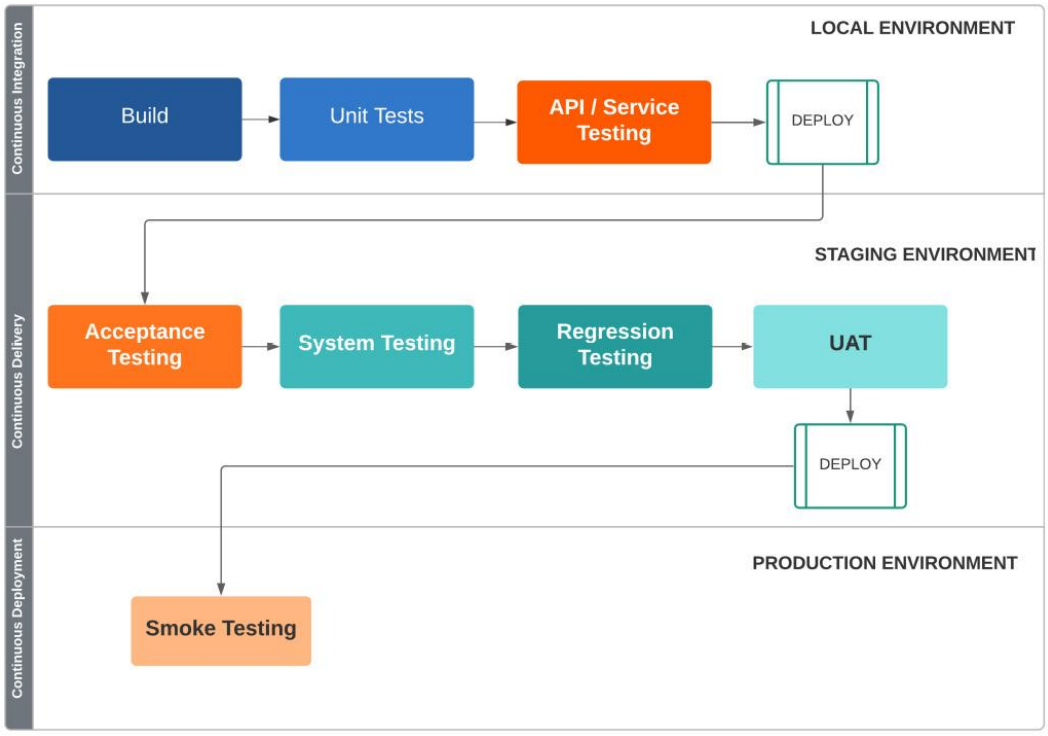

Figure 8.3 – Automated release pipeline with appropriate testing levels

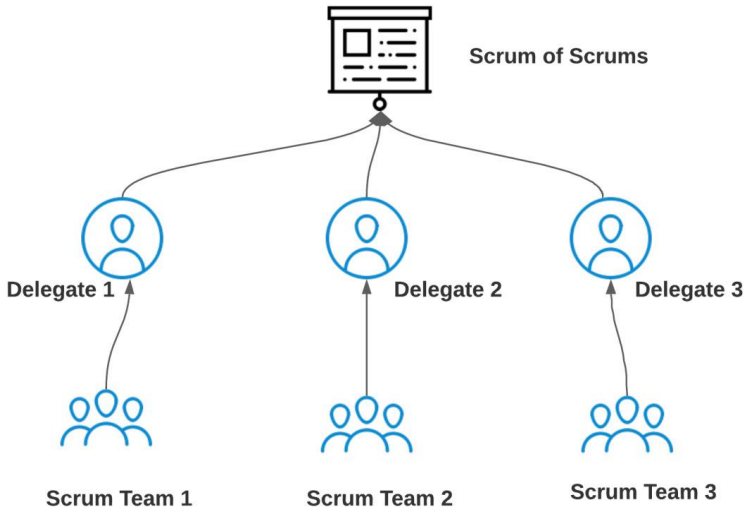

Figure 8.4 – Scrum of Scrums

Further Reading

- *Most Scrum Developers employ the test-driven development* (or *TDD*) *paradigm*: https://developer.ibm.com/devpractices/software-development/articles/5-steps-of-test-driven-development/
- *Large-scale Scrum* (*LeSS*): https://less.works
- *Nexus*: https://www.scrum.org/resources/online-nexus-guide
- *Scrum@Scale*: https://www.scrumatscale.com

Answers

This section contains answers to the questions posed in all chapters.

1. The correct answer is a.

   The practice of **Continuous Integration** (**CI**) involves continuously merging code back into the main branch.

2. The correct answers are a, b, and d.

   CI/CD pipelines do not eliminate defects; however, they do provide more frequent and earlier opportunities for defects to be exposed. They also enable constant feedback, which comes from constantly releasing increments to stakeholders.

3. The correct answers are a and b.

   The Definition of Done determines when a backlog item has been completed, not when software can be released. This is up to the product owner and the testing setup on the CI/CD pipeline.

4. The correct answer is d.

   Technical debt is the implied cost of additional rework caused by choosing a quick and restrictive solution instead of a more comprehensive but slower one.

5. The correct answers are b, c, and d.

   The Scrum of Scrums is a method for scaling Scrum, usually applied when the product is too large and complex for a single Scrum Team. The term is derived from the name of the regular meeting between the delegates of the various Scrum Teams.